APOLLO 9
ONBOARD VOICE
TRANSCRIPTION
(u)
RECORDED ON THE
COMMAND MODULE
ONBOARD RECORDER
DATA STORAGE EQUIPMENT
(DSE)
April 1969

GROUP 4
DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS
INTRODUCTION

This is the transcription of the Apollo 9 flightcrew communications as recorded on the command module (CM) data storage equipment (DSE), and subsequently transmitted (dumped) to Manned Space Flight Network stations. Magnetic tapes containing dumped voice and onboard-recorded ground elapsed time (GET) were forwarded to the NASA Manned Spacecraft Center, Houston, Texas. Transcription of these tapes was managed by David M. Goldenbaum, Test Division, Apollo Spacecraft Program Office, to whom questions regarding this document should be referred.

The Apollo 9 mission was flown March 3 to March 13, 1969.

Communicators in the text are identified as follows:

Command module:

CDR Commander James A. McDivitt
CMP Command module pilot David R. Scott
LMP Lunar module pilot Russell L. Schweickart
SC Unidentifiable crewmember

Mission Control Centers:

CC Capsule communicator (CAP COMM)
F Flight
LCC Launch Control Center
S Surgeon

Remote sites:

AA Unidentified ground station
AE Airboss (Recovery aircraft)
CT Communications technician (COMM TECH)
R3 Recovery 3 (Recovery helicopter)

In the text, a series of three dots (...) is used to designate those portions of the communications which could not be transcribed because of garbling. One dash (-) is used to indicate a speaker's pause or a self-interruption. Two dashes (- -) are used to indicate an interruption by another speaker or a point at which a recording was abruptly terminated.
DAY 1

-00 00 00 14 LCC 14, 13, 12, 11, 10, 9, 8, 7, 6 -
-00 00 00 05 LCC IGNITION! 4, 3, 2, 1, 0 -
00 00 00 03 LCC LIFT-OFF!
00 00 00 04 CDR Feeling good.
00 00 00 12 LCC Clear the tower!
00 00 00 14 CC Roger. Tower clear.
00 00 00 15 CDR Roger. I have a roll program, and I do read you loud and clear.
00 00 00 19 CC Roger. Roll program.
00 00 00 24 CDR A nice afterburner.
00 00 00 30 LMP Our SPS helium pressure's dropped to zero.
00 00 00 34 CMP Still okay.
00 00 00 35 CDR Yes.
00 00 00 36 CMP Pretty close to the curve, Jim.
00 00 00 38 CDR Okay.
00 00 00 41 CC Apollo 9.
00 00 00 43 CC MARK.
00 00 00 44 CC Mode 1 Bravo.
00 00 00 45 CDR Okay, 1 Bravo.
00 00 00 46 CMP RCS COMMAND.
00 00 00 50 CDR Now we're getting a little noise.
00 00 00 52 CMP Yes. About 48 or so.
00 00 00 57 CMP Okay, there goes the cabin relief.

CONFIDENTIAL
Okay. Primary EVAP's nice and low.

Looks good, Jim, on the curve.

Roger, Dave. A couple g's.

We're at 01:14; MAX q is about 01:21.

It's a tad high; but it's okay.

Okay.

It looks good, Jim, on the curve.

Thank you, Dave. We're through MAX q; now it's no sweat.

Mode 1-C here --

Apollo 9, you are GO for staging. And you are Mode 1 Charlie.

Roger; 1 Charlie.

EDS AUTO's OFF.

Okay, stand by for inboard; they should come - at about now; there's inboard. Huh!

It's a little low, Jim.

A little low? Okay.

Okay, we should have outboard in about 5 seconds.

Okay.

..., Rusty?

It's ON.

Okay, ON.

Apollo 9, Houston. Your thrust looks good. You are GO for tower JET.

Thank you.
Okay, you've got [wiring]; look's good.

We've got a lot of S-band noise.

...

Here we go, gang.

Okay.

Tower JET --

Look at it; look at it!

It's GO! Black out there, isn't it?

Everything's looking neat here, and we've got the tower off.

Great show, man.

243 psf is a little low, Jim.

Okay.

Apollo 9, we're still in guidance initiate; everything looks good.

Should we tell him about that helium?

Yes, ...

Yes; right at lift-off, we had an indicated SPS helium pressure go to zero.

Apollo 9, you are GO all the way; everything looks good.

Roger.

I don't know if he read that.

Houston, did you read our comment that our SPS helium pressure went to zero? Indicated zero at lift-off?
Apollo 9, this is Houston. I did not copy.

Roger; be advised our SPS helium pressure went to zero at lift-off.

Roger; copy.

I see you're riding low and parallel, Jim.

Okay.

If you've got any good words on that, why don't you give them to me when you --

Roger; and it is GO here, Apollo 9.

Very good!

That might be a circuit breaker, Jim.

Yes, okay.

I'll check it later. The systems look good.

Yes, everything looks hunky-dory! If we just got --

The boiler's working.

RCS is good, Jim.

Fine.

Holding low and parallel.

Okay.

Boy, that cut-off - That's a hell of a cut-off, isn't it?

Yes, not bad. There's that horizon. Boy, is that pretty! Wow!

You're not supposed to say that, you've been here before.

Beautiful!
Apollo 9, it's 5 minutes. Everybody's happy as a clam here. Looking good!

Whooee!

Coming up on the big word, Jim.

Okay.

Boy, that S-band is really noisy.

Is it?

Yes.

I'll give you a standby, buddy.

Okay. Align all - all the pieces all the way.

We're coming right back in, Jim.

Very good! Looks good!

Very good.

Shoot!

God, that's pretty!

That's terrible!

That's so pretty, I can't believe it!

If it keeps making that noise, I'm going to turn it off.

Looks bad, Rusty?

Well, it - it's stopped now.

Okay, we're coming up on 6 minutes, so you can get ready for your antenna shift.

Yes, I'm all set for it.

Okay, 16 OMNI ...

Okay. Give a yes ...
Fine. You have S-IVB-to-orbit capability.

Roger there; Roger there.

Your level-sense-arm time is 08 plus 21; predicted S-II cut-off, 08 plus 56.

05:21 and 08:56.

Roger; and we got S-BAND OMNI to Delta.

Copy, OMNI Delta. Thank you.

Systems look good. Just boiling away. Look at that ...

It might help, Dave, I don't know. Dave, do you want the floodlights on?

Sir?

Do you want my floodlights on?

Yes, why don't you turn them on?

Hey, the sun's still shining on my side, Rusty.

Oh, it is really?

Yes.

Hey, they're not bad through the telescope, Jim.

They're not, huh?

Not bad at all.

Good. Got something you recognize?

Oh, yes. ...

Let's get the first one in - Sirius.

Hey, I can see it. I can see the stars now.

Shoot, I got Orion.

Still daylight, Jim?
Heck, yes. I can see a star. How do you like that?

Your baby.

Were they really?

Yes.

Can you really? Well, we're pitching around pretty fast.

Yes. I never got either one.

That is affirmative, and this changes slightly as the S-IVB vents, but that was a pretty good hack at it on Canary.

That's not a bad boost, then.

No, we had 88 by 138.

Gee, that's not too hot.

And we'll have you here at Tananarive for about another 5 minutes.

Roger. You got the - you say that our SPS helium tank pressure looks good, huh?

Hey, Jimmy. There's the first one.

How about that!

Hey, look at that.

First star, huh? Stand by. David says his first star angle is five balls.

Great going, Dave.

Hey, Jim. ... do a fine align.

Houston, Apollo 9. Did you copy the torquing angle?
CONFIDENTIAL

8 Day 1

00 00 39 10 CC We have no data here at Tananarive, Dave. You'll have to read them to me.

00 00 39 14 CMP Oh, very well. GET was 39:00; plus 00116, minus 00032, minus 00108.

00 00 39 30 CC Roger, Apollo 9; this is Houston. I copy the time and the angles. Thank you.

00 00 39 36 CMP Works like a charm.

00 00 39 38 CC Roger; looks like the platform was right there. And that was a nice speedy job on that 52.

00 00 39 52 CMP Good old AUTO optics.

00 00 40 03 CMP Hey, I've got the moon out here.

00 00 40 04 IMP Yes, man.

00 00 40 05 CMP Oh, hey, isn't that pretty? Gee, hot diggity.

00 00 40 09 CDR (Laughter)

00 00 40 11 CMP That's really slick.

00 00 40 13 CDR Jettison the dust covers; I think if we were flying over some storm now, I see some lightning out there. Jettison the dust covers; backup COMM check. Have you done that, Rusty?

00 00 40 21 IMP No, I haven't done that backup COMM check --

00 00 40 23 CDR Alright, that's Carnarvon.

00 00 40 24 IMP That's Carnarvon.

00 00 40 26 CDR Yes. And ... purge checks, caution and warning system, SCS attitude reference comparison. Okay, wait just a minute.

00 00 40 39 CMP That moon really wipes out the star field. Ooh! ...

00 00 40 48 CDR These pencils are going to really be a bear.

00 00 40 50 IMP The what is?

CONFIDENTIAL
These pencils. The one I have doesn't have any Velcro on it. The Velcro's all worn off. Can you imagine that?

That's because you've been using it so much.

No, there's no knob - nub on it. Okay, we've got the - I'm going to go to the flight plan, here in a minute. I see I made a terrible mistake. I should have brought the whole mini-flight plan with me.

I - I got mine, Jim, if you need one.

I have the first day, but I should have brought the rest of it, too.

MAIN BUS TIES are OFF. Okay.

Okay, we got to prepare the cameras - the Hasselblad and the sequence camera.

I'll unstow the checklist and the cameras. We don't need the checklist; we've got them - GDC align --

Apollo 9, this is Houston. We're going to lose you here at Tananarive in about 45 seconds, and we'll see you over Carnarvon at 52.

Roger; 52 at Carnarvon.

Carnarvon at 52.

Okay, first star check on Regor. Right there.

Is it really? Great.

Regor has a little ... on it.

You wouldn't recognize Regor if you saw it. (Laughter)

Hey, listen, Regor has a little tiny star right next to it.

I'll tell you, I wouldn't recognize Regor if ...
10 Day 1

CONFIDENTIAL

00 00 42 42 CMP That's ... the checklist ...
00 00 42 45 CDR Oh, is that right?
00 00 42 48 CMP Yes, should be 34 to 38.
00 00 43 04 LMF A and B are 32. C is 37. Battery -
00 00 43 12 LMF Hey, Dave, are you in 4 Bravo down there?
00 00 43 18 CMP No, 4 Bravo - What do you mean?
00 00 43 21 LMF ...
00 00 43 23 CMP Oh, yes, sir.
00 00 43 25 LMF Okay, what does it read?
00 00 43 27 CMP 3.5 volts.
00 00 43 30 LMF Oow! That's low!
00 00 43 31 CDR What's that?
00 00 43 33 LMF Battery relay bus. 3.5, huh?
00 00 43 45 CMP 3.7 ...
00 00 43 49 LMF Oh, okay, that's because the main buses - the battery buses are low. Reading 32 like the battery buses.
00 00 44 03 CDR Think you're sorry we wasted all that time ...?
00 00 44 07 LMF No.
00 00 44 08 CDR (Laughter)
00 00 44 09 LMF I'm just so happy to be disappointed. Okay, I got the ECS monitoring check done, and everything looks good there. Dave, can I make ... yet?
00 00 44 21 CMP Yes, go ahead.
00 00 44 23 CDR Rusty, do you want to turn the cabin fan off ...?
00 00 44 25 LMF Okay, I'll try them both off.
(Laughter) Just because you're cold, huh? I'll probably find out that my green handles don't...

Did you get the GDC alignments all done, Jim?

Yes, I did. I got the GDC alignments done. Read the other one.

Uhh -

I got the service module RCS check done, the command module RCS done, the EMS check done.

Service module RCS monitoring - You got that?

Yes, I did. I got the service module RCS check done.

I did that.

Command module RCS monitoring?

I did that.

Jet - jettison the dust covers - You got that done?

I'm waiting for the backup COMM check and 52 - P52. ... FIPA bias ...

... the flight plan ... out, Dave, and see ...

What the hell am I going to do with an update box? The problem is the whole - the whole ... and we don't even ...

Yes.

Oh, here. Let me - I'll just stick it temporarily ...

There it is. Now, I guess you could do your SPS attitude reference ... DSKY.

Okay, the fuel cell purge check; I'm just going to check O2, right?

I don't know, Dave.

Fuel cell purge.

Check, yes.
... why don't we ...

Oh!

Well, all we're supposed to do is check it and see if it doesn't leak anymore.

I'll check it.

Okay, fuel cell 1 purge is okay; fuel cell 2 is very good.

Okay. ..., Davey.

Alright.

Let me give you your ...

This looks good.

Caution and warning checks. Stand by for MASTER ALARM - no-sweat MASTER ALARM.

Okay, caution and warning lamp test, ON. How many are we supposed to have out?

One, two, three, four - all on the bottom row. One, two, three, four are out.

That's good.

Did you get your - your MASTER ALARM, Jim, up there?

Yes.

Good.

Okay. That looks good - I got that.

I forgot to watch the altimeter during the launch to see if it works.

Okay, POWER to OFF. Okay, caution and warning - checked that. Hey, you installing the optics there, Davey?

Yes, sir.
... You got the SCS AUTO reference comparison, Jim? Or are we going to do that?

On the - on the DSKY?

Yes.

I'll do that in just a second.

Okay, and I'm going to go on with the SPS monitor checks.

Anyone remember where we put the checklist?

Right here, I got it.

Okay, why don't you give me the bag, so you won't have to sit there and hold it? That's a good idea.

Oh, this is a heck of a lot harder to operate than the other one.

Well, you just can't put all these ...

Yes, you just - can't sit on anything ...

Here, let me see if that ... gage - No, N2A and N2B look okay, and it's just the SPS pressure that's down.

Okay, that sounds like we've got a good ... bad news if ...

Yes, that would have been bad news, we'd really ...

Yes, wouldn't it?

Whether we ... it or not. Well, I guess there's no sense in monitoring that thing.

No (laughter). ... I don't know whether it was the ... coming off or what it was. I think it came out of that hole up there.

Rusty, do you have any ...?
14 Day 1

00 01 02 32 IMP Yes, I got a bag.
00 01 02 33 CMP Let me ...
00 01 02 34 IMP Hey, I love that! Here goes one — ... and I already have it.
00 01 02 42 CMP Hey, you know you can see the earth real good now. My God!
00 01 02 44 CDR See the what?
00 01 02 45 CMP Earth. See it?
00 01 02 46 CDR Let me turn my floods down ... Hey, we're coming back into some daylight.
00 01 02 54 IMP Dave, that backup - that data is on the back of that sheet. Yes, you see how to write it into the block update stuff here?
00 01 03 03 CMP I'll just ... right here.
00 01 03 06 IMP Okay, ...
00 01 03 07 CMP Okay, here is some ...
00 01 03 17 CDR Okay, let's do the PIPA bias ...
00 01 04 18 IMP Yes, you want to store the COAS ... Yes, you've got to get the ORDEAL and ...
00 01 05 14 CDR Roger.
00 01 05 25 CDR Did you get the fuel cell purge checked, Rusty?
00 01 05 28 IMP Yes.
00 01 05 30 CDR ...?
00 01 05 31 IMP Yes, ... S-band ...
00 01 05 40 CDR You did the SPS monitor check which ...?
00 01 05 42 IMP Right. I got to find some stupid place to put my helmet now.
Okay, let me recap. That's the end of the checklist as far as I can see. We haven't done the PIPA bias check. You've done the P52, and that's good. You've done your backup - no, you haven't done that yet.

That's not a very good place to - yes, it is.

Rusty, did you get the ECS monitor check?

Yes, I did.

How about the water gun - is that working?

...

Let's see, Dave, I've got to help you ...

Is it turned off? Okay.

Roger, Houston. Read you loud and clear. How about us?

...

You are?

Houston, this is Apollo 9. Do you read us?

You sure get a lot of - a lot of gas in that. ... This tastes better.

Hey, look at that sunrise. Pretty! God, that's beautiful! Oh!

Roger, Houston. This is Apollo 9. Do you read me?

Houston, Apollo 9. You're coming through weak, but clear.

Roger. Get the data book!

I haven't got it. Dave, let me see. What am I doing? I'm trying to find a checklist, huh? Yes, well, here's ... it's got the flight plan, procedures book, and crew log ...
Day 1

00 01 10 45 CMP  Alright.
00 01 11 25 CMP  Roger. ...
00 01 11 30 IMP  Boy, the sun's come up like thunder over Galway Bay, or something.
00 01 11 38 CMP  Yes, ...
00 01 11 43 CMP  Okay.
00 01 11 46 LMP  Man, oh man, it's daytime again.
00 01 12 03 LMP  ... checklist ...
00 01 12 11 LMP  ... break lock, isn't it? Pretty definite.
00 01 12 17 CDR  Let's see how the windows are doing.
00 01 12 20 LMP  Mine looks pretty good. I've got - ...
00 01 13 48 CDR  You looking for another bag? Oh, a temporary stowage bag. ...
00 01 13 51 LMP  Well, Dave, it's supposed to be in the data card cloth bag.
00 01 14 15 CMP  I'll be damned if I can't get my temporary stowage bag open for anything!
00 01 16 36 CMP  Oh, hey, let's get these Mae Wests off before we ... down.
00 01 16 40 CDR  Oh, that's a good idea.
00 01 16 42 CMP  Hey, hey, hey.
00 01 16 43 CDR  As a matter of fact, I'll even stow ...
00 01 16 47 CMP  Okay, you - you're pretty safe until about -
00 01 16 50 LMP  Okay. I'll get my - Cabin pressure's now 5.4 by the way.
00 01 17 10 LMP  Not me, not me!
That sounds like a McDivitt talking.

No, I haven't done it yet. I'm going to save mine up. When I go, buddy, you're going to know it.

Yes, and I'm going to get some ...

We should get one out of ... set.

Well, at least that's why ... for me.

It's hard as heck to get this thing out of these ..., isn't it, Jim?

Yes, I'm going to lose all this stuff ... I've got some time.

Dave, if you got those cameras all ...

Would you believe it's getting very difficult to see the numbers over there on the EMS DELTA-V counter? It really is. ... 

Let's see.

Yes.

Dave, you got to move it down ...

Whoop! Yes, ... move around a little ...

Yes, you're able to move around a little bit. I don't have to worry about sticking my feet through the instrument panel.

Boy, that - that damn hardware ...

Dave, you want to take your Mae West off?

Yes.

Okay, I'm going to put the lights ...

Dave, you got another - another clip?

Well, maybe we ought to just get them all out, Dave.
Yes, let's just get them all out.

Photo ... plan - photo ... plan, it says on day 1.

Hey, if somebody spits, it ... right on ... stuff.

(Laughter)

... a roll of tape out ... and stick it up here where ...

Hey, I wonder if we ought to tape up our pens.

Tape up our pens?

Yes, tape up our spare pens, so it doesn't evaporate, dry out.

Yes, I know.

Boy, we've been up here an hour already. ... Postinsertion unstoreage, mount and initialize ORDEAL, SPS monitor check - Shoot, we're way the hell ahead of schedule. Extend the docking probe ... The next thing that I can see ... that's at 41 - 48 or so.

Maybe you ought to get the big flight plan.

Okay, is the tape recorder on, Mr. Schweickart?

Yes, I guess so ...

Where's that other one? The other one's ...

You want the little one?

Well, I wanted to do that - debriefing on tape.

I'll get the little one for you.

What else do we need - A camera.

... The most important thing we need right now is a camera ... so that we have them -

... Hasselblad, and that's got MAG A on it -
Let's see. Turn the tape recorder on ... During the boost, lift-off was noticeable ... vibrations ... vibrations 1 or 2 seconds. At T minus - T plus 12 minutes, ... roll was noticeable and giving oscillations on the rate meter of about 1 degree per second ... vibrations and oscillations ... and no problems during the ... --

Apollo 9, this is Houston through the Redstone. Standing by.

Roger. Thank you.

It was very quiet up until about 50 seconds and ... high peak ... vibrated ... not bad at all ... quiet out again about ... --

Apollo 9, this is Houston through the Redstone.

That's the first of many times.

Yes, but - all welcome.

S-IV LM - S-IV B/IM SEP, two, are both CLOSED.

Verified.

Okay, CB DOCKING PROBE, two, CLOSED.

Okay. CB DOCKING PROBE, two, CLOSED.

DOCKING PROBE EXTEND/RELEASE, EXTEND/RELEASE until barber pole.

Okay. I'm going to call Houston and tell them we're doing that. Houston, Apollo 9.

Go, Apollo 9.

We're ready to extend the docking probe. You ready?

Boy, we're - we're all ears down here. Please let us hear how that goes.

Okay, fine. It's in work.

Okay, --
Roger.

EXTFEND/RELEASE switch to EXTEND/RELEASE until barber pole. Whooee. Would you believe it went --

We got a good one.

Yes. DOCKING PROBE EXTEND/RELEASE --

Roger. Copy. That makes us all happy.

Gray, at full extend. I'd say that was 0.3 of a second again, Dave.

Yes.

Roger. It was just like the chamber. We heard it go out; it took a couple, or 0.3 of a second.

Then RELEASE until talkback?

Roger. Copy.

Okay.

Then note DOCKING PROBE talkback gray at full extension.

Okay, talk --

Then RELEASE?

Hey, who's reading this thing?

Me.

You want to take my job?

I will in a minute, yes.

DOCKING PROBE EXTEND/RELEASE to RETRACT; talkback, gray.

RETRACT; talkback is gray.

COAS mounted.

Okay.
00 01 54 24 LMP COAS POWER, ON.
00 01 54 26 CMP COAS POWER's coming ON.
00 01 54 27 LMP Verify RCS DAP loaded.
00 01 54 29 CDR I'll tell you what. Why don't you start putting our helmets and - Oh, they're down here a step.
00 01 54 34 LMP Yes.
00 01 54 35 CMP Okay, Rusty.
00 01 54 36 CDR I think I ought to go put mine on.
00 01 54 37 CC And, Apollo 9, this is Houston. We'll fall off at Canaries here in about another minute, and we'll see you over Tananarive around 09.
00 01 54 45 LMP Roger; Tananarive at 09.
00 01 54 49 LMP Okay, you want to load the RCS DAP, Dave?
00 01 54 51 CMP Alright.
00 01 54 52 LMP 11102.
00 01 55 01 CMP Okay.
00 01 55 02 LMP Okay, and R-2, all ones.
00 01 55 08 CMP Okay. 11102 and 11111?
00 01 55 11 LMP Okay, and I guess you PROCEED out of there.
00 01 55 13 CMP Yes.
00 01 55 15 LMP Okay, load NOUN 17.
00 01 55 18 CMP Okay.
00 01 55 21 CDR Roy, I wish I had a towel ... - -
00 01 55 23 LMP That's wrong. Okay, try VERB 25.
00 01 55 26 CMP Okay.
00 01 55 27 LMP 18143.
You didn't run across a towel or anything down there, did you?
A what, Jim?
A towel?
They're up underneath me.
... clean off my visor.
They're up underneath me. Lay up at A-1, Jimmy
A long ways up there.
09436.
Okay. 01478.
Looks good. 183.43, 94.36, 14.78.
180 - 181.43, right?
Yes, yes.
Okay.
Okay, NOUN 22.
Okay.
121.43.
Okay.
274.36.
Okay.
Oh, Davey, you didn't get me the helmet visor cover.
Yes. It's un - it's in the L-1, Jim.
L-1, what's that?
No - it's in the L-shaped bag, I'm sorry.
00 01 56 25  CDR  L-shaped bag, okay.
00 01 56 27  LMP  345.22.
00 01 56 32  CMP  Okay.
00 01 56 33  CDR  I'll go get that.
00 01 56 34  CMP  Let me check that: 121.43, 274.36, 345.22. That looks good.
00 01 56 42  LMP  Set the docking attitude on attitude set dials.
00 01 56 46  CMP  Alright.
00 01 56 47  LMP  121.4.
00 01 56 49  CDR  Where did you say those towels were, Dave?
00 01 56 51  CMP  The towels? I think they're underneath me in A-1, way up here.
00 01 56 56  LMP  Oh, isn't it pretty out? Whoo hoo! Look at those thunderstorms.
00 01 56 59  CDR  What am I hooked on up there? ... hanging over.
00 01 57 05  LMP  121.4; Dave, you got that?
00 01 57 08  CMP  Coming up. Okay. 121.4, okay?
00 01 57 10  LMP  274.4.
00 01 57 12  CMP  Alright. A little longer.
00 01 57 20  LMP  See if I can see a star in the daytime now.
00 01 57 24  CMP  274.4, wasn't it?
00 01 57 26  LMP  Right, and 345.2.
00 01 57 32  CMP  345.2, okay.
00 01 57 35  LMP  Okay, that's it. SEP preparation now. S-IVB attitude, deadband, and \( \text{H}_2 \) vent rate, confirmed by MSFN.
CONFIDENTIAL

00 01 57 50 CMP Got to align the GDC - Did we get that again? Yes, we did.

00 01 57 55 IMP Jim, while you're down there, how about WASTE STOWAGE VENT, CLOSED.

00 01 57 59 CDR I got that.

00 01 58 00 IMP SUIT CIRCUIT RETURN valve, CLOSE.

00 01 58 02 CMP Okay, just a minute.

00 01 58 04 IMP Wait a minute now. I guess we've got to don our helmets and gloves first before we do that one.

00 01 58 10 CDR Yes.

00 01 58 18 CDR There he is, right there.

00 01 58 20 IMP It's - getting dark again.

00 01 58 23 CDR Does that every few minutes. Okay, I think I'll put my helmet and gloves on and then put that on. Ouch!

00 01 58 36 IMP I got a few spots on my window, but I don't see much gunk.

00 01 59 00 CDR (Singing)

00 01 59 04 IMP Try my SPS helium again. Maybe it came back in order. Boy, it really hit the peg, I'll tell you. It looked like it was going to go right off the bottom of the ... Boing! Looked like a reset.

00 01 59 24 CMP (Laughter)

00 01 59 43 IMP Man, I'll tell you, when that water boiler boils, it really puts the temperature down there.

00 02 00 04 IMP There it is. It's getting dark.

00 02 00 11 CMP It sure is, isn't it?

00 02 00 13 IMP Yes. Oh, there's lightning. Look at all that lightning on the horizon.

00 02 00 23 CMP Now you can see stars, Rusty. See the stars?
00 02 00 25  LMP  Let me look. I got my lights up awful bright.

00 02 00 29  CDR  Tell you one thing I'm going to have is some navigation here with this medal. Let me get this thing out of there.

00 02 00 39  LMP  No, I don't yet. Oh, let me get my checklist out of the way.

00 02 00 43  CMP  Got one right at 12 o'clock.

00 02 00 45  LMP  Do we really?

00 02 00 47  CMP  Yes.

00 02 00 48  LMP  Oh, yes. Yes, I see it. Yes, about 3 degrees above the horizon? Yes. Sure do.

00 02 00 55  CDR  Why don't you start getting your helmets on so we can get -

00 02 00 57  CMP  Here, give me mine, Jim.

00 02 00 58  LMP  Ahh, what a drag!

00 02 01 01  CDR  ...

00 02 01 04  CMP  Jim, I need you to hand me mine.

00 02 01 06  CDR  Okay. Just a second; I'm trapped. Oh boy!

00 02 01 13  LMP  Okay, it's turnover time. Slowly I turn. (Singing

00 02 01 53  LMP  Clever, Rusty - put your old fingerprint right on the helmet.

00 02 01 56  CDR  Here, I have a rag here if you can use it.

00 02 01 59  LMP  Oh, that's okay. I'm - I'm sure I didn't get it enough to even notice.

00 02 02 12  CMP  Jim, the bags go in A-5, which is the CO₂ canister right down -

00 02 02 16  CDR  Okay.

00 02 02 17  CMP  -- to the right of the --
CONFIDENTIAL

00 02 02 18 CDR  Okay, let me just - Just a minute until I get my visor.

00 02 02 23 CMP    Okay.

00 02 02 24 CDR    I'll be right with you.

00 02 02 31 LMP    Okay, one each, helmet, on ... tied down. Oh, tha was a brilliant one!

00 02 02 42 CDR    By the time I get it out, I won't need it; my helm will already be bashed up. Oh, shoot. Crash, bang. Where did we get this thing?

00 02 03 00 LMP    Am I in your way, Jim?

00 02 03 02 CDR    No, no.

00 02 03 04 LMP    Okay.

00 02 03 10 LMP    Okay, I got the helmet on.

00 02 03 23 LMP    Oh, I got a foggy helmet.

00 02 03 30 CMP    Do you?

00 02 03 31 LMP    Whooee! Sure is.

00 02 03 34 CMP    How come, is it foggy already?

00 02 03 36 LMP    I don't know, but it's really fogging.

00 02 03 39 CMP    You got your flow on?

00 02 03 40 LMP    Yes. Helmet, too.

00 02 03 42 CDR    Hey, what's the suit-inlet temperature? I feel kind of warm.

00 02 03 45 CMP    Suit inlet is 47 degrees.

00 02 03 48 CDR    Hum!

00 02 03 56 CDR    Here, they go down here in A-5, huh?

00 02 03 59 CMP    Yes.

00 02 04 16 LMP    Mmm.
Ah, there goes a hair. By the time this flight's over, I'm not going to have any hairs left on my forearm; I'll say that.

Wow, how do you ever get these things in here? All three of them went in there, Dave.

Yes, there - should be EVA gloves on the left. You ought to be able to get them all in there, Jim.

Tell you what; rather than fool around with that, I think I'll just stick them down here in the - Well, maybe I better not.

Put them in a temporary - F-1 or F-2 up near the temporary ...

I think I'll do that. I want to get back up there and get going on this thing, so we don't - have to leave.

Yes.

Get them out again soon anyway.

Here's mine.

Okay, I'll be with you in just a minute.

Oh, I'm sorry. I thought you were done.

No, not quite. Not quite.

Okay, I'll take it.

Now, let me get that. Okay, I got that one. Ouch! Boy, I got a real hair in there.

Where's your bag, Rusty, or don't you need me to stow it?

It's - it's up at the head there. I think it's okay.

Okay, good.
I guess I ought to get that dark slide off there; it's liable to smack me in the chops. Oh, we're not going to thrust, are we, yet? Hey, Jim, before you get up, could you pull my leg strap tighter?

Sure. Is that noticeably tighter?

Yes, that's as tight as they go. Okay, that's better. That's good.

Okay, now I've got to get yours.

Okay, so I can ...

Oh, no!

What?

Guess what's missing?

What?

A Hasselblad camera.

Oh, no.

What do you mean, it's missing? (Laughter)

It's not where I put it, on the Velcro.

Okay.

So, it's got to be floating around somewhere in the cabin.

Damn!

There it is, down there.

You got it?

Yes. I see it; I haven't got it.

Okay.

Dave, let me see if I can read you something here.
Okay.

EMERGENCY CABIN PRESSURE to OFF; no, Dave - Jim's got to do that.

Let me - let me go ahead and get those. Here's your camera.

Where? Okay.

EMERGENCY CABIN PRESSURIZATION's OFF.

No, stand by here; I - I'm screwed up. SUIT CIRCUIT RETURN valve, CLOSED.

Okay. Yo - Everybody in their suit okay?

Everybody's in their suit. EMERGENCY CABIN PRESSURE to TEST, and PRESS until cabin reaches 5.7, and I'll let you know.

I can't get that son of a bitch closed.

You want me to?

There, it's closed. Boy, that's a bitch, isn't it, Jim?

Yes, really it's - it's tough to move; you - you're such a -

You say you're ready, Jim?

Well, not really. Let me try to get done here.

Oh.

Boy, am I messing up my helmet!

What are you doing?

Putting my face helmet -

Pressurizing the cabin.

Okay, EMERGENCY CABIN PRESSURE - PRESS to TEST going now.
Okay. And we'll probably get an O₂ FLOW HIGH warning.

How we doing?

We are 5.0 something.

Okay, the warning's going to come on in a second here.

We're not even to 5.1 yet, Jim.

Oh.

We got a long way to go.

How did the surge tank go?

Surge tank is 8 - 820 or so. Okay, we're 5.25; surge tank is now 800. 5.4; surge tank is 780. Now we're about 5.5; surge tank, 760. And 5.6 almost, and the surge tank is 720. And we're about 5.7.

Okay?

Okay. EMERGENCY CABIN PRESS to OFF.

EMERGENCY CABIN PRESS to OFF.

EMS MODE to STANDBY.

EMS, STANDBY.

EMS FUNCTION to DELTA-V.

DELTA-V.

Counter zero.

Okay, it's set at minus 100.

Oh, okay, that's a wrong - that's a baddy in here.

Yes, I know. We - that's -

Align the GDC.
Okay.

FDAI 1, INERTIAL.

Okay. Let me finish aligning the GDC first.

Yes, sir.

Okay. I was behind; fixed in a minute.

I'm sorry.

Boy, you center these three hoses and ---

Apollo 9, Houston through Tananarive.

Roger, Houston. You're 5 square.

What's that?

Oh, gunk.

Okay, you ready, Dave?

No.

Okay.

Oh, you know what I needed on this damned camera was a handle.

It's too late now.

Shoot, yes.

I can't keep my bloody nose off of that thing.

Okay, GDC is aligned.

FDAI 1, INERTIAL.

Okay, read me those attitude-set numbers again.

Okay. 121.4.

Okay.
Okay?

Yes.

And, Apollo 9, this is Houston. We'll have you over Tananarive here for about the next 5 minutes. We're standing by; I have not heard any transmissions from you here.

Okay, we're proceeding through the separation-through-withdraw checklist.

345.2.

Houston, you read Apollo 9?

345.2 and 274 what?

274.4 on the middle --

Okay, Apollo 9; Houston. I heard just the first part of that; I'll just stand by here.

Oh, shoot. You know what I forgot?

What?

So clever! Just a smartass!

No sunglasses, huh?

Yes.

Oh, me too, damn it!

Son of a gun! You want mine, Dave?

I got mine handy.

Hey, you want to take your helmet off, and put it on?

Yes. I guess I will.

Okay, I'll stop reading the checklist here.
Just a second now, I'll loosen up - I'll shut your suit flow off so you can get your helmet back on.

Now wait a minute. I don't need to do that, Jim. I can pop a glove and do it. Yes, it's easier to pop a glove.

Alright.

I tell you, this damned camera won't stay anywhere. Let me try it Velcro on the back, there. Okay, camera, stay there now. Yes, I'm going to pop a glove and put mine on, too.

Jim, could you hang on to these things for me for a minute? I have a -

Whee! I got myself in the nose anyway.

What's the flow at?

O₂ FLOW HIGH.

Wonder wha - Oh - wonder why that is.

Oh, Dave took his helmet off.

Yes, me too. Does that make a difference?

Yes.

Back a little farther. Okay, that's it. Here you go. How you doing?

Okay, I'm - I'm about to take my helmet off here, so -

Okay, why don't I press on with the checklist with Dave? EMERGENCY CABIN PRESS TEST - we've done that; EMERGENCY CABIN PRESS, OFF; EMS MODE, STAND-BY -

We're all the way down to the bottom, Jim.

EMS FUNCTION, DELTA-V; counter, zero -

We're three lines from the bottom.
Align of GPS - CDC; you've done that? FDAI 1, INERTIAL.

INERTIAL.

FDAl 2, VERB 83, adjust ORDEAL.

Okay.

Hey, I'm really unstable here.

You got your seatbelt on, Jim?

Yes, it's about over my knees.

Okay, I'll take over again. Okay, are you in POO, Dave?

Just - I'm doing ORDEAL.

He's ad - he's adjusting ORDEAL.

Okay.

Okay, back to POO.

Okay, in POO, and then MANUAL ATTITUDE, three, RATE COMMAND.

I guess they're in RATE COMMAND.

Yes, that's really bad, isn't it?

(Laughter) LIMIT CYCLE, OFF.

That CYCLE's OFF.

ATT DEADBAND, MIN.

MIN.

RATE, LOW.

LOW.

TRANSLATION CONTROL POWER, ON, up.
00 02 15 06 CMP ON, up.
00 02 15 07 LMP ROTATIONAL CONTROL POWER NORMAL, two, AC/DC.
00 02 15 10 CMP Two, AC/DC.
00 02 15 11 LMP DIRECT, two, MAIN A/MAIN B.
00 02 15 12 CMP DIRECT, two, MAIN A/MAIN B.
00 02 15 14 LMP SPACECRAFT CONTROL to CMC.
00 02 15 18 CMP Yes, that's in FREE; flip it to CMC.
00 02 15 20 LMP CMC MODE, FREE.
00 02 15 22 CMP FREE.
00 02 15 23 LMP BMAG MODE, three, to RATE 2.
00 02 15 25 CC ..., Houston. We'll lose you at Tamanarive here in about 1 minute. If you've tried to call me, I haven't received anything, so we'll see you over Carnarvon at 26.
00 02 15 39 CDR Roger, Houston; Carnarvon at 26.
00 02 15 42 CC And, Apollo 9, that will be Carnarvon at 26.
00 02 15 46 CDR Roger, Houston; Apollo 9. Carnarvon at 26.
00 02 15 49 CMP Okay -
00 02 15 50 CMP Okay, I got the --
00 02 15 53 LMP Did you get the BMAG MODE, three, to RATE 2.
00 02 15 55 CMP That's affirm.
00 02 15 56 LMP Okay, LAUNCH VEHICLE SPS INDICATOR to S-II/S-IVB.
00 02 16 01 CMP S-II/S-IVB.
00 02 16 02 LMP LV GUIDANCE to IU.
00 02 16 08 CMP IU.
00 02 16 09 LMP LUNAR INJECT, SAFE.
00 02 16 12 CMP  SAFE.
00 02 16 13 LMP  UP TELEMETRY, IU, to BLOCK.
00 02 16 16 CMP  BLOCK.
00 02 16 18 LMP  AUTO RCS SELECTOR, 16, to MAIN B.
00 02 16 20 CMP  Okay. Coming up.
00 02 16 23 LMP  Okay.
00 02 16 34 CMP  16 to MAIN B.
00 02 16 36 LMP  Okay, RCS - CIRCUIT BREAKER RCS LOGIC, two, CLOSE.
00 02 16 44 CMP  Two, CLOSE.
00 02 16 45 LMP  TVC SERVO POWER 1, AC-1/MAIN A.
00 02 16 49 CMP  Okay, let's see how much time we got here? We got 20 minutes. I sort of hate to be putting all that power ---
00 02 16 56 CDR  Yes, let's - let's wait a little while.
00 02 16 57 LMP  Okay, you want to wait there?
00 02 16 58 CDR  Yes.
00 02 16 59 LMP  Okay.
00 02 17 09 LMP  We've got 9 minutes.
00 02 17 11 CMP  02:34 is the maneuver.
00 02 17 14 LMP  Okay, well - well, Carnarvon's at 26; that's what I was looking at.
00 02 17 16 CMP  Yes.
00 02 17 24 LMP  Get in that pocket, you stupid thing.
00 02 17 40 LMP  I was thinking it was time to dark adapt, but that's probably the worst thing we could do.
00 02 17 48 CDR  Dark adapt with your sunglasses on, huh?
Yes. I will turn it down a little bit and see what it looks like out there, though. Oh, isn't that a pretty earth?

See if you can see those - S-IVB thrusters firing.

I've seen some light out the side window. I never was really sure whether it was the S-IVB thrusters or --

Yes, I have, too. I - I just saw a flash; that's what reminded me of it.

That COAS sure looks like we rolled. I guess it's just me.

Hey, how does our horizon look out there, Dave? Can you see it alright?

Yes. The COAS looks like we're in a roll. Did you notice that, Jim?

No, I didn't. I just turned on to see what it looked like.

Which way am I? I'm - I'm - looking north out my window, aren't I? Yes. Because I can see the Big Dipper on the horizon.

I wonder if just the way I am in the seat -

No, you look straight.

Did it - did it look straight when you checked it out?

No, I said you look straight. No, I did - all I did was turn it on to see if the light lit, Dave.

Looks level to me, Dave.

No, I didn't mean the reticle.

I know. Oh, I see.

If - if - if I look - it just doesn't.

Yes, I know what you're saying.
I'll check on the horizon when we come up there.

Okay, Rusty, you read the checklist down through DET STARTUP, and then I'll read it from there on over to a --

Right. I'm just trying to picture what I'm going to do with my checklist at that point.

I'm still trying to figure out what I'm going to do with mine, too. I pulled up my suit --

Maybe I ought to tighten down my seatbelt here and stick it under me or something.

Hey, how about that? You want to try sticking it up there?

Where's that? Under there?

But the hand - Hey, the hand controller is going to be in your way.

Yes, I have a hard time getting my arm over there without banging something --

Well, you've got - you've got one of those here; maybe you can stick it in there?

Maybe I can; I'll try it.

All the RCS look good, Jimmy?

Looks good. Quad C is really down there.

Looks like a good spot, Jim.

Okay.

Let me just check my Hasselblad, and make sure it's ready to go --

Hey, you know, it looks okay, Dave.

Okay.
Okay. The dark slide is out. We don't have a filter on it. I thought we were supposed to have a haze filter on it.

Yes, we were.

We got the film - ASA -

It's supposed to be mounted on there.

Yes, that's what I thought.

Are you checking these things off, I mean sort of making a line by them or something, Rusty, when you go through them to make sure we get them all?

I can, Dave; I haven't been.

What's that? The checklist, Dave?

Yes. Since it's sort of a one-time checklist - I think we sort of stop in the middle. Oh, I don't care; just so we get them all.

Yes.

When we get over Carnarvon, you're going to have to go ahead and get a GO for arming the pyros.

Um hum. Okay, the camera looks like it's ready to go.

Okay, when we --

You're going to push the plus-X thing and hit the strip button, and I'm going to start the clock. Let's see how our arms fit in here, Dave, with the clock's starting...

Okay.

Which one is the clock?

The next one.

This one?

No.
Okay, 3-1/2 minutes to Carnarvon.
The one that says RE - that says START.
I can't see it.
Okay, it's the third one from the right. You got it?
Yes.
Okay.
Hey, you want to read down those again?
Guess I'm not sure what we are going to do. I'm going to go: 3, 2, 1; I'll start thrusting at 1; hit the button at MARK; and then you start the clock.
I'm going to start the clock.
I'll go - 1001, 1002, 1003; come off of it; come back up here 15 seconds. Prior to 15 seconds, I'll go: SCS ACCELERATION COMMAND on PITCH.
Alright.
Start the PITCH around -
I'll - I'll punch in VERB 62 for you at that time.
Right. And - coming around, I'll stop it.
FDAI SCALE ... 5/5 INERTIAL ...
Dave, surge tank is coming back up. It's up at 800 now.
Good.
Cabin pressure is 5.8 or so.
Let's see here. You know your rates?
Alright, ... I pitch down, and when I get the DAP rate back, RATE COMMAND, CMC, then stop it, MINIMUM IMPULSE, roll it, and ... to get us lined up
Okay.

And ... translation from CMC. And when we get in - 50 feet or so, we lock it up with the SCS and drive it in.

Okay, real good.

And when we get there, CMC, and lock it up ... If it gets out of hand, you're going to ... rates in it? If that's okay, you're going to ...

Okay.

..., Apollo 9. We have a rather anomalous behavior on this number 1 H2 tank. It's - it appears to light the cryo warning light every time it gets down there before the heater comes on. You might start thinking about how we're going to handle that for the sleep period, because it keeps setting off the MASTER ALARM.

Roger, Apollo 9. Copy. And that is in work.

Okay, thank you.

And, Apollo 9, this is Houston. We'll go right on through an ARIA as soon as we come off of Carnarvon on this one in about 20 seconds.

What's that? [Machinegun-like noises]

Sounds like a World War II movie (laughter).

What's the pitch attitude, Dave?

...

Apollo 9, this is Houston through an honest-to-goodness ARIA. How do you read?

Houston, this is Apollo 9. We're reading you wah-wah-wah-wah-wah-wah. How about us?

Roger on the wa-wa, Apollo 9.

Okay, we're reading you then.
Day 1

00 02 33 42 LMP Good old ARIA.
00 02 33 50 CDR Houston, according to all calculations, our S-IVB ought to start maneuvering in about 6 or 8 seconds.
00 02 34 01 CDR/CMP There it goes.
00 02 34 07 LMP ... look at this.
00 02 34 10 CMP Oh, boy, look at that spacecraft go.
00 02 34 32 LMP I can see the - the stars in the Big Dipper here.
00 02 34 45 CDR ... now and the ...
00 02 34 50 LMP That S-band's ...
00 02 36 09 CMP We've made it.
00 02 36 10 LMP Oh, we did?
00 02 36 11 CMP Yes.
00 02 36 17 CDR Let's wait until we get good daylight before we do ...
00 02 36 19 LMP Yes, I think so, too, Dave. I don't think they're in any big hurry. Did you say ...? You see, that thing's going to take a long time, and I think it's about - -
00 02 36 40 CDR That looks pretty ...
00 02 36 43 CMP Got it?
00 02 36 45 LMP Yes.
00 02 38 50 LMP Isn't that something?
00 02 39 56 LMP S-band looks great ... Let's see how wild it is. ...
00 02 40 09 LMP 2 hours and 40 right now - The Huntsville at 02:40 for about 7 minutes.
00 02 40 14 CDR Okay.
... get Hawaii next ... that thing seems to be spurious. Well, what do you say?

Alright. It's about that time.

Okay. VERB 37, ENTER; 47, ENTER.

37, ENTER; 47, ENTER.

PYRO - switch PYRO ARM, two, ON, up.

PYRO ARM, two, ON, up.

CMC MODE to HOLD.

CMC to HOLD.

Okay. Okay, now we want to go - the THC to plus X and hold; CSM/LV pushbutton, hold, and release; and the LV tanks go to LOW, and start the DET up from zero. Okay, is everybody ready --

Oh, okay, go ahead.

Okay. 3, 2, 1 - Bang! It's gone.

4 seconds and release it.

Okay.

That's 100.8. Dave, you have anything ... --

Yes, I have to check for ACCELERATION COMMAND; SPACECRAFT CONTROL to SCS.

Okay, we got that?

Okay, sir.

You got the 5 and 5?

... 

Hey, David, there goes the ... on the panel. See it?

Yes.
Man, look at that son of a gun go!
Okay, Dave, ... is just beautiful. Just halfway around. Okay, just right there, Davey. Just leave it like it is ... nice and bright there.
Okay.
Right there ... Not too bright at all.
That help?
Yes.
Is the camera running?
Turn it on!
Okay.
Okay, ... right in the right place there.
Isn't it!
Right there.
When you get that, you want to get MANUAL ATTITUDE, PITCH, to RATE COMMAND.
That's good. Okay, now.
SPACECRAFT CONTROL, CMC.
Okay. You look good, Jim.
Good. Null your translation and your rates.
Think they've nulled.
Okay, fine.
I'm going SCS, MINIMUM IMPULSE.
SCS, MINIMUM IMPULSE. That a boy. ...
... let's see - I'm going to damp out - Oh, shoot, ...
00 02 43 21 CDR  What's the matter?
00 02 43 23 CDF  Well, our pitch angle isn't exactly right - it doesn't look right.
00 02 43 27 CDR  Okay.
00 02 43 31 LMP  That's alright; we're going to fly around a little bit, Dave.
00 02 43 34 CMC  Alright.
00 02 43 35 LMP  Okay. I want you to roll left 60 ... SPACECRAFT CONTROL to CMC and ... RATE COMMAND.
00 02 43 44 CDR  I'll talk to Houston here. Houston, Apollo 9.
00 02 43 51 CC  Go, Apollo 9. This is Houston.
00 02 43 53 CDR  Roger; it's out there, and we're turned around and proceeding with the stationkeeping and docking.
00 02 44 00 CC  Tremendous, Apollo 9. Thank you.
00 02 44 08 LMP  I'm going to have to ..., Jim. Do you know that? (Laughter)
00 02 44 11 CDR  That's interesting. That's a big fellow.
00 02 44 17 LMP  Sure is!
00 02 44 19 CMC  It's a great big fellow.
00 02 44 22 CDR  Okay, I'm going to stow the gear --
00 02 44 24 CC  Roger; copy that.
00 02 44 27 LMP  ... go to RATE COMMAND ... CMC MODE ...
00 02 45 18 LMP  Okay, you got the DOCKING PROBE extended there and that's in the RETRACT position?
00 02 45 25 CDR  Okay.
00 02 45 27 LMP  You ... stabilize there at 50 feet or so and go to EMAG.
00 02 45 30 CMP  Okay. Going back to CMC.
Going back to CMC.

You can see the thrusters hitting the ... on the t 

...  

What did he say?

I didn't hear it.

Apollo 9, this is Houston. We're going to lose yc here in about 45 seconds, and we'll see you over Hawaii in about 5 minutes at 51.

Roger.

And we may have ARIA in here, but if it's like the last one, we won't hear much out of you.

Yes, we think, as a matter of fact, we'd be better without it.

How ... to get there?

I hate to use all this fuel.

That's okay. Better to get it than - a little ext fuel, than not get it.

Can you see him, Davey?

Yes, I'm alright. I can see him, I just can't -

Yes, it looks like you're coming over now pretty good. I can see the vent on this side going off.

Yes, you're coming in good now.

Yes. Yes, it looks good.

I don't know where to point this stupid camera.

Apollo 9, this is Houston. We should have you through Hawaii; standing by.

Roger.

Damn it, Jim, I just can't translate sideways.
00 02 51 13 CDR Is that right?
00 02 51 15 CMP Just can't do it.
00 02 51 17 CDR Give it a big push.
00 02 51 18 CMP I did! I'm on it.
00 02 51 26 CDR You on it right now?
00 02 51 27 CMP Yes. Look at that DELTA-V counter, or the EMS, or the DSKY rather.
00 02 51 32 CDR Yes, something's wrong.
00 02 51 39 CMP Yes, these things are going crazy ... Try it now.
00 02 56 55 CMP It's coming.
00 02 56 56 CDR Okay. Get her all lined up?
00 02 57 00 CMP Okay, SCS, and ATT 1/RATE 2. Well, it looks like it ripped a little bit off the - off the top of the SLA on one side. Just a little piece hanging out there. That is looking beautiful now.
00 02 58 02 LMP Well, that's looking beautiful, David. I'm going to start the camera again. Well, I'll wait for a minute here.
00 02 58 08 CMP Yes.
00 02 58 20 CC And, Apollo 9, Houston. We've got you through the Redstone; standing by.
00 02 58 35 CDR Roger.
00 02 58 36 LMP Roger, Houston. We're about 25 feet now and closing slowly.
00 02 58 42 CC Copy.
00 02 58 51 LMP That looks beautiful, Dave.
00 03 01 11 LMP ... only way they'd do it, Dave.
00 03 01 13 CDR Is it - is it damping it down - is the probe damping it down?
It's damped good, Jim. I want to get it lined up, Rusty. I want you to get 12 latches. Now we're coming. Patience.

Yes. We'll do it when you're ready, David.

It's very stable.

Isn't it, though?

Yes. I just want to make sure that we're really lined up. Okay, Jim, that looks like a good one. Have at it.

Okay, RETRACT coming now.

Here it comes. Coming in.

Come on, baby.

We're coming.

How about that! We got two of them. And we got a MASTER ALARM --

For no apparent reason.

Roger, Houston; we're hard docked.

Roger, Apollo 9. Understand hard dock. Good show!

You know what I think it was?

What?

Probably a static discharge, because there was nothing on the caution and warning panel.

Yes.

Yes, that - Remember the old Agena?

Yes.

Houston, Apollo 9 here. We got a MASTER ALARM when we did the docking - when we made the contact.

Yes. That's a pretty good setting.

CONFIDENTIAL
Houston, Apollo 9. You with us now?
Okay? Alright. Next?
Just a minute. Go ahead.
Okay, tunnel hatch removal was the next.
Go.
Okay. HATCH PRESSURE EQUALIZATION valve, open counterclockwise.
Pressure staying up?
Yes.
Okay, I op --
We're up at 4.5 --
-- it's all the way open.
You got it open?
Open.
Po - Pump handle, unstow, pull to STOP. A.
What?
Pump handle, unstow; pull to STOP; and it says "parentheses A." Push - I mean set to U, and push to STOP.
Okay.
Dave, you know, you might check some circuit break over there and see if anything else might have popped.
Yes.
Okay, we're ready to go; we're in U.
Okay, push to STOP.
Ah humm. Let's see what happens here.
That's loose.

Yes, here's that — here's that washer, Dave.

Verify gearbox disconnect socket, V - U.

U.

Pump handle, stow.

Stow.

Remove hatch; pass to LMP. Hey, let's move this down, huh?

Yes, that should go all the way down.

(Laughter)

Okay, Jimmy. Gingerly.

Yes.

Like porcupines?

Yes, it's just not easy to handle up here, Dave, compared to the other way.

Yes, I can imagine.

I think what we have to be careful of is that we don't get it moving so fast that it cuts the hose or something.

No, you're blocked by the hose ...

Let me, I'll just undo that ...

I'll get it; just a minute.

You want me to hold this?

I think you're alright now, Jim, with the hatch, if you just keep coming.

Wait just a second ...

CONFIDENTIAL
COyUBfiMHdfc^ Day 1 51

00 03 24 14 CMP Yes. We need to slide it up - face up toward Rusty to get it in.
00 03 24 24 CDR Okay.
00 03 24 25 CMP Okay. Whoop! Easy. The LMP now has the hatch.
00 03 24 29 CDR Okay, Rusty, would you hold this?
00 03 24 30 LMP Alright. Do you have your hand under it, Dave?
00 03 24 31 CMP I got it on top.
00 03 24 34 LMP Hard to hold.
00 03 24 35 CDR Okay.
00 03 24 36 LMP Yes.
00 03 24 37 CDR Okay, go.
00 03 24 38 CMP Okay, docking latch verification.
00 03 24 41 CDR Okay.
00 03 24 42 CMP Latch handle; pull to verify hook engaged, 12 latches. And, you know, as you go around, Jim, check the red pit and check the bungee.
00 03 24 51 CDR Yes.
00 03 24 53 CMP You ought to - On up - You can check each latch, you know, all three of those things, and we'll have it.
00 03 24 56 LMP Can you see up there?
00 03 24 58 CDR A little.
00 03 25 00 CMP Watch your feet.
00 03 25 01 CDR I am; I just want to get it someplace. Okay, latch 1. The pit is in. The bungee is straight up and down. The handle's engaged. Latch 2, the handle's engaged, and red button is there. And it looks like the bungee - Gee, it's a weird view up here. Okay. 3. Looks okay.
Hey, you're checking that the bungees are parallel, right?

Right.

Okay.

Okay, 4 looks good; 5 looks good; 6 looks good. All the triggers are triggered. 6 looks good; 7 looks good - ... 9 looks good.

Let me un - let me unscrew myself here. Oh, shoot! Getting up in the tunnel.

It's a big mother.

Yes.

Okay, 10 looks good; 11, 12, they all look good.

Okay, GN2 BLEED button, red, press for 10 seconds.

GN2 BLEED button.

It's at the base of the probe, Jim.

Right, the little one here; it says - -

You see it?

That spring-loaded button?

Yes. Okay, it's bleeding down. Oh, shoot, it moved!

What moved, the probe?

Yes.

Yes, it should move. You've taken the pressure off your - -

Yes, I know it.

Scared you, though, didn't it?
00 03 27 23  CDR  Yes, I thought - Man! What's going on?
00 03 27 24  IMP  (Laughter)
00 03 27 26  CDR  That's supposed to be 15 seconds underway. Yes, I just - I could hear it going, and it bled down.
00 03 27 31  CMP  Okay. You still got it in?
00 03 27 33  CDR  No, I've released it now.
00 03 27 35  CMP  Okay. It wasn't quite 15 seconds, but -
00 03 27 38  CDR  Oh, okay, I'll put it up some more then. Okay, next.
00 03 27 42  CMP  Okay, LM connector fairings, two, orange, open.
00 03 27 47  CDR  Okay, one of them is open; it got knocked open, I guess, during the dock - LM connector fairings, open.
00 03 27 55  CMP  Okay, unstow one connector.
00 03 27 57  CDR  Ooh, gracious!
00 03 27 59  IMP  They're hard to reach; don't lose them.
00 03 28 03  CDR  Yes.
00 03 28 04  IMP  Oh, boy, this is bad, because the next thing it says is the systems test meter at 4 Delta.
00 03 28 08  CMP  I'll get that. Can you hold a minute, Rusty?
00 03 28 11  IMP  Yes, stand by, let me - I - I'll - Hold on there a minute, Dave.
00 03 28 13  CMP  I got it.
00 03 28 15  IMP  Arm up here. Okay.
00 03 28 18  CDR  Boy, those are tough to get.
00 03 28 19  IMP  I think I got it, Dave.
00 03 28 20  CMP  Yes. Okay. Don't lose them, because if you lose them, you can't get them back.
00 03 28 24 CDR I know it. Okay, I've got one.
00 03 28 27 LMP Okay, you've got one?
00 03 28 28 CDR I've got one.
00 03 28 29 LMP Dave, you want to look at 4-D and --
00 03 28 32 CMP Yes, if I can get down here. Gee!
00 03 28 38 LMP Okay. Connect and lock. Jim?
00 03 28 43 CDR Okay, in work.
00 03 28 44 CMP 4-D to zero.
00 03 28 45 LMP Okay, connect and lock, and then look at it.
00 03 28 49 CDR Oh, shoot! This thing is spring-loaded. I'll
never be able to hold my hand in there - until I
get the --
00 03 28 57 CC Apollo 9, this is Houston through Ascension. Stand-
ing by.
00 03 29 02 LMP I'll get them.
00 03 29 03 CDR Okay, ...
00 03 29 04 LMP Roger; we're mating the umbilicals right now.
00 03 29 08 CC Understand you're connecting the umbilicals.
00 03 29 12 LMP You got it in, Jim?
00 03 29 13 CDR No.
00 03 29 17 CDR I think so; let me check. Boy, that's really tight
in here. Okay, there it goes ...
00 03 29 45 LMP You got it?
00 03 29 47 CDR Okay, got it.
00 03 29 48 LMP Okay, position the umbilic - Jim, Dave, what's the
systems test meter read?
00 03 29 52 CMP Zero. That's just the first one.
Okay, yes, I know - I'll - I'll just -
Okay, go ahead. Next.
Position umbilical in slot and close fairing.
You know where that slot is, Jim?
Yes, okay.
It's up behind there; you have to wind it around.
Yes. It doesn't fit in there too neatly.
No, it doesn't.
Okay.
Okay. Repeat for the second one - umbilical.
Boy, the lighting is atrocious on this one.
You want a flashlight? I got one right here.
No. It's just not very good. Lock?
Boy, that docking worked beautiful! Man, that was soft as could be!
Yes. Old Eagle Eye Fleegle sneaked it right in --
Roger. Copy the small oscillations, 0.2 to 0.3. Thank you.
Okay. Hatch installation: align hatch in tunnel.
See you over Tananarive, 44.
Roger.
You want to get up there and take a look at it before I ..., Dave?
And what was the sunrise time, Houston?
Say again. You want to look at it before --
Sunrise time is 04 plus 08.
<table>
<thead>
<tr>
<th>Time</th>
<th>Call</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 03 34 39</td>
<td>LMP</td>
<td>Roger. 04 plus 08.</td>
</tr>
<tr>
<td>00 03 34 41</td>
<td>CMP</td>
<td>If you got them in, they're in.</td>
</tr>
<tr>
<td>00 03 34 42</td>
<td>CDR</td>
<td>Just thought you might want to look and see what</td>
</tr>
<tr>
<td>00 03 34 44</td>
<td>LMP</td>
<td>You got that hatch, Dave?</td>
</tr>
<tr>
<td>00 03 34 45</td>
<td>CDR</td>
<td>-- ... like before you had - had to do it next!</td>
</tr>
<tr>
<td>00 03 34 48</td>
<td>LMP</td>
<td>Dave, you got the hatch?</td>
</tr>
<tr>
<td>00 03 34 50</td>
<td>CMP</td>
<td>Yes, I got it.</td>
</tr>
<tr>
<td>00 03 34 52</td>
<td>CDR</td>
<td>Hey, let me - let me put these other umbilical covers back kind of out of the way.</td>
</tr>
<tr>
<td>00 03 35 00</td>
<td>LMP</td>
<td>Hey, what the - Oh, my God! Did that one scare the hell out of me!</td>
</tr>
<tr>
<td>00 03 35 02</td>
<td>CMP</td>
<td>What?</td>
</tr>
<tr>
<td>00 03 35 03</td>
<td>CDR</td>
<td>What's that?</td>
</tr>
<tr>
<td>00 03 35 04</td>
<td>LMP</td>
<td>I just looked out the window and the LM wasn't there.</td>
</tr>
<tr>
<td>00 03 35 06</td>
<td>CMP</td>
<td>Yes, it's dark right now.</td>
</tr>
<tr>
<td>00 03 35 07</td>
<td>LMP</td>
<td>... Whoa!</td>
</tr>
<tr>
<td>00 03 35 11</td>
<td>CDR</td>
<td>Let me get down here and look around one more time where I can see those bungees better.</td>
</tr>
<tr>
<td>00 03 35 16</td>
<td>CMP</td>
<td>It's pretty hard to have a LM out there, isn't it? Or not to have one with Jim in the tunnel.</td>
</tr>
<tr>
<td>00 03 35 18</td>
<td>CDR</td>
<td>(Laughter)</td>
</tr>
<tr>
<td>00 03 35 29</td>
<td>CMP</td>
<td>Okay, bring the hatch back.</td>
</tr>
<tr>
<td>00 03 35 32</td>
<td>LMP</td>
<td>Okay, hatch installation: align hatch in tunnel step 1.</td>
</tr>
<tr>
<td>00 03 35 37</td>
<td>CMP</td>
<td>Watch that cover. That crap comes off easy.</td>
</tr>
<tr>
<td>00 03 35 42</td>
<td>CDR</td>
<td>First thing, I've got to rotate it here.</td>
</tr>
</tbody>
</table>
00 03 35 44  CMP  Yes, it's on the checklist there. Oh, shoot! There goes the checklist!
00 03 35 50  CDR  That's okay. That's - I'll get it.
00 03 35 52  CMP  Okay.
00 03 35 54  LMP  It's caught on this side, Jim. Over here.
00 03 35 58  CDR  I was just getting the checklist.
00 03 35 59  LMP  Okay.
00 03 36 00  CDR  ... down below.
00 03 36 04  LMP  If you can't - Okay.
00 03 36 11  CDR  Oh, boy! I have the -
00 03 36 15  LMP  Have you got it?
00 03 36 17  CMP  Don't drop it.
00 03 36 19  CDR  (Laughter)
00 03 36 20  LMP  It's heavy.
00 03 36 39  LMP  Say, Da - Dave, sunrise at 04 plus 08, I think they said.
00 03 36 42  CMP  Yes. We're in good shape.
00 03 36 48  LMP  Look what I found, Dave.
00 03 36 51  CMP  How did that get out?
00 03 36 52  LMP  I don't know; I found it floating over here in the middle of all that.
00 03 36 56  CDR  Okay, I have it up.
00 03 36 57  CMP  Good.
00 03 36 58  LMP  Okay, pump handle, unstow; set to L and push to STOP.
00 03 37 07  CDR  Oh no, come on. There we go. Hell!
Hey, these sunglasses weren't a very good idea, Dave.

Huh?

They scratched up the inside of my visors something fierce.

Did they really?

Yes, boy!

Okay, we're ready to go to LATCH.

Okay, push to STOP.

Looks like the outside to me.

No, it's inside.

Huh!

Okay?

I really can't tell.

Is the disconnect socket in L?

Yes, it sure is.

That's all it needs then.

You can - you should be able to see the latches over center, Jim.

Yes. I just was looking at the holes to see if it went in the right holes.

How is it?

Okay, that one there is okay; I can verify it. Let me get my flashlight out. Should have had it before. Okay, that's in. That one is pretty. Okay. Alright, they're all in!

You got them?

Yes.
Okay, pump handle select is STOW; and push to STOW.

Pump handle select goes to STOW. To STOW.

Okay, HATCH PRESSURE EQUALIZATION valve, closed, clockwise.

LM TUNNEL LIGHTS, OFF. Okay.

Wait until he gets through.

Okay, and the GET is now - huh - 03:39:15.

Okay. Got it.

Okay, install HHC number 1 on LEB mount.

Well, I'm going to put that back where we got it.

Pre-LM ejection.

Okay, the cabin pressure is slowly building. It's at 5 - I mean 4.6, now 7.

Ohhh! This is a real place to stow something.

What do you want me to do with my --

Wait just a moment, there's a little --

Yes.

There we are.

I'm not sure if you're just bumping into me or whether you're trying to get me to - or whether you're trying to tell me something.

It's a - it's a little of both.

Boy, I'll tell you, I've - I've knocked this doggone camera off more times.

Okay, Rusty, I'm going to stow the hand controller back here.

Okay.
Okay, just a second now —

Okay, now one —

— ... the cables.

Let me copy down a few other things here. OOO, and now systems test meter is going from about 0.4 to 2, huh?

I don't know what it's going now; I can't see it.

I'm - I'm watching it.

Yes, and I'm not sure whether you damage this wire more by putting it back in the holder or - or not.

Damage what?

Whether you damage this - this hand controller cable more by putting it in the - in the cable holder, or by leaving it alone.

Oh, man, I'm not going to do that anymore. Just leave it there, Dave. Okay, now, let's see. We need to put Rusty's suit hoses back up. You can turn the tunnel lights out now.

I think they're out. Aren't they, Dave?

No, they're still ON.

Okay, TUNNEL LIGHTS coming OFF. Okay.

Now's that tunnel look there, Colonel?

Not bad! Not bad at all, as a matter of fact! It's very easy to work in, Dave, except that it just takes a long time.

Yes.

Man, I'm getting hungry!

Boy, I'm starving!

Yes, I could use some. Okay, the next thing I see is pre-LM ejection at 04:11 GMT.
That's 30 minutes, isn't it?

Yes, almost exactly. Hey, now, Dave, could you look at the quantity on there? I think the damn film is empty.

I just changed it.

You just changed it?

Yes.

Okay, do we really want to get this?

Ruh?

Do we really want to --

What's the photo plan say?

Well, it doesn't have another magazine for today.

Well, then let's not use it.

Hey, I'll tell you, let's take a little. You can take it when we get going.

Okay, but let's not --

Okay, but don't you think we ought to take it coming out of SLA? I think we ought to be able to --

Okay.

-- have some film of coming out of the SLA.

Okay, we'll do that, and -- How about everybody yelling "Film" at me, huh?

I'll tell you what, when we come out, though, Rusty -- You want to come out and pitch, though, right away.

I'll just -- I'll hold my finger right on the button.

Yes, I -- I don't think we're going to see much around the -- We're not going to see the SLA out there really.
Well, I think we will.
Yes, Jim, you get to see —
Yes.
From what I can see, Jim, I think we will.
... okay.
I think you will, and I think you need to do that.
Where'd my checklist go?
It's over there.
Shoot, let's use it. That's what we got it for.
You've already got the film in, huh, Dave?
Yes, sir, and you can run a check, if you like. Six frames per second.
But we allocated it for other things, too.
It's running.
It's running?
It's off.
Okay.
Hey, that RL on that COAS is neat. I mean on that target.
Is it?
Yes. Yes. I can see an RL distance —
Houston through Tananarive. Standing by.
Okay, Houston —
Roger, Houston.
(Laughter) Sorry, go ahead, Dave.
Okay. Houston, we've got the tunnel closed out and the hatch back in, and I guess we're getting set now for the ejection.

Hey, I'll tell you one thing I want to do is take off these sunglasses.

Okay, Apollo 9. I heard you answer me, but you're unreadable at this time.

Roger. The tunnel is closed out; the hatch is in; we're preparing for ejection.

Roger. Copy. The hatch is closed out, and you are pressurizing.

Okay, Dave.

Okay, why don't we collect ourselves here?

Yes. I want to get strapped back in here.

Jim, can I lower that one notch?

Oh, yes. If you need it.

Okay.

Oh, oh, the MASTER ALARM.

O₂ FLOW, CRYO PRESSURE -

Oh, God bless that thing! Oh, that's going to - I'm telling you that's going to really screw this flight up.

Yes.

Dave, have we -

You want me to give you a hand, Dave?

No, I'll get it. We ought to make sure we get the AUTO RCS SELECT where it ought to be.

Yes.

Yes. We'll go through a whole ...
Okay.

Docking latch verification.

Hey, I'd like to take my glove off, too, and get my helmet off, and get this damn - helmet - or - sunglasses off. What do you think, Jim?

Yes, go ahead. Let's --

Looks safe enough?

04:11; yes, we've got - 15, 20 minutes. Boy, have I got some gouges on this visor!

Yes, me too.

Not mine - I mean, this is just on the other visor.

Really ... yes, from screwing around up there?

That probe really is in the way (laughter). You know it hangs down right in amongst everything.

Yes, ...

Yes, I like it.

Boy, did they ever scratch up that visor! Whoo!

Did they really? Oh, you've got a - Oh, looks like you've got a bunch of scratches on the outside, Rusty.

How could I get them on the outside? I don't think I touched anything on the outside.

That's what they look like to me.

Boy, they sure do! That's the outside! And you've got right; you really have massacred it! Huh!

Hey, I'll tell you something. You've got to have a brighter COAS.

Is that right?
I couldn't even see it when we got down on the target. I was going for that needle for the cross.

Oh, boy!

Couldn't even see it! I could see it barely, barely. It sure isn't very bright. On that white cross, I know?

Yes.

The background, the cross is all white. It washes it out.

Hmm!

Well, where are we?

We're ready to start the pre-ejection procedures. Come on, get in there!

Okay, LM TUNNEL LIGHTS, ON, right? Load the DAP. NOUN 46 is 21102.

Okay, back to the reading here. I'm in configuration.

Okay, let me get back to the - the channel.

I'm going to turn some lights down.

You want me to load your DAP for you?

Here, go ahead.

Oops!

VERB 46, ENTER; okay, excuse me.

Rusty, did you check all the settings on the camera again, too?

Let's check them.

Okay, 11, 250, 25 feet.

And what MAG have you got there?
Number I.

Okay. Oh, hey, wait a minute, that's just right. We're supposed to have I for LM ejection.

I'll be damned.

...?

Oh, alright.

Yes.

Look in there and see if I does anything else later on.

See what?

See what else we do with I. Nothing?

Not a thing. Okay, Jimmy.

Alright, Dave.

Let's go through that.

Right, let's do that.

Okay, I'll give you a 3, 2, 1, mark, and S-IVB/LM - Here you go, Jim. And you do that little switch there that doesn't have any stripes on it --

Right.

-- and I'll start the clock.

Okay.

And I'll go CMC, AUTO, and at 5 seconds I'll burn aft, pretty ... 

Right.

At 25, we'll proceed ... 

Okay. That's what it says.

Okay, we got the needle set. Okay.
00 03 57 08 CMP  Well, if one quad had to get screwed up, C was the best one.

00 03 57 12 CDR  Actually, I think we used more out of A than -

00 03 57 14 CMP  That's what I mean. C is the one that was hurting -

00 03 57 18 CDR  Oh, yes. I wonder if that's a real - what the real quantity is there?

00 03 57 21 CMP  I don't know. Let me see.

00 03 57 24 CDR  Hey look. It was this talkback - this talkback and this talkback were all barber pole.

00 03 57 30 LMP  Boy, that's a bad - bad scene.

00 03 57 35 CDR  I wonder if that means we're going to have to look out for those things every time we give it a jolt.

00 03 57 38 LMP  Hey, as a matter of fact, Jim, we ought to check them right after we jumped off of this thing. It might be something like that.

00 03 57 42 CDR  Yes.

00 03 57 43 CMP  Yes, you're right. Okay, if it looks like we're hung up for some reason, I'll go to the tightest deadband we've got and give her some aft thrust. Trying to control pitch and yaw doesn't seem to be the thing to do.

00 03 58 06 CDR  Yes.

00 03 58 07 CMP  According to the Langley study, you're better off not screwing around.

00 03 58 14 LMP  You know, your - your hand-controller action there didn't seem to have much effect when we were - before hard dock either.

00 03 58 19 CMP  Well, until that one final time, it seemed to - The - the translational controller did nothing.

00 03 58 27 CDR  Is that right?
Just did nothing, and I finally got the MINIMUM IMPULSE going in pitch, and that seemed to do as much as anything.

Hmm.

But it doesn't do much there either.

No, it sure doesn't.

But Kotanchik was really gungy about that --

Apollo 9, this is Houston. You're coming off of Carnarvon here, but we will be monitoring your ejection through an ARIA.

Roger. Those ARIA's make an awful lot of noise, Houston. We're having trouble reading each other.

Roger; copy.

Rusty, don't forget the camera.

Okay, I'll not.

You have the S-IVB/LM ...

Why don't we ask them to - I'm going to turn my VHF ...

Houston, this is Apollo 9. You're very loud and making all kinds of noise and unreadable. We have to talk to each other here, so it would be best if you didn't transmit.

Apollo 9, Houston. Say again.

Houston, Apollo 9. You're making very much noise on VHF; it would be better if you did not transmit to us.

Roger. Understand that you want the ARIA down. Is that affirmative?

Roger. I think that would be better if the ARIA were down for this pass.

Okay, copy.
00 04 07 00 LMP Okay. You ready to start PYRO ARM, two, going up.
00 04 07 07 CMP PYRO ARM, two, ON, up.
00 04 07 09 LMP TVC SERVO POWER, two, AC 1/M A.
00 04 07 11 CMP AC 1/M A.
00 04 07 13 LMP Okay, circuit breaker S-IV B/LM SEP, two, are CLOSED ...
00 04 07 21 CMP They're CLOSED ...
00 04 07 25 LMP Okay. LM is ...
00 04 07 34 LMP Okay, now we're standing by for the check ... Okay, why don't we wait until ...? It's still pretty ...
00 04 07 53 CMP Okay, I ..., don't you, Rusty?
00 04 07 56 LMP ...
00 04 07 58 CMP Okay, that's good. 3, 2, 1 --
00 04 08 04 CT ARIA 1, ARIA 1 --
00 04 08 05 CMP MARK.
00 04 08 06 CT -- Cape COMM TECH. Go LOCAL, go LOCAL.
00 04 08 07 LMP That wasn't too bad. Okay, thrust aft for 3 second
00 04 08 13 CMP Okay, complete.
00 04 08 14 LMP Okay, you got the evasive maneuver --
00 04 08 16 CDR All the thrusters look good, here.
00 04 08 17 LMP Proceed to pitch down at 25 seconds.
00 04 08 21 CMP Okay. ...
00 04 08 23 LMP I got the cameras still going.
00 04 08 24 CMP We're clear of Houston. Hope they can hear us. CMC is in AUTO.
At 25 seconds --
Proceed.
-- start the pitch down. We're pitching?
Okay.
We're pitching.
Okay.
Camera, Rusty?
THC/RHC, unlock. The camera is still running, yes
You can turn it off. I guess we got nothing to see right now.
Okay, there's the --
O₂ FLOW HIGH.
Well, we - we're pitching down, aren't we?
Yes, sir. We ought to see the S-IVB coming into view.
Why don't you turn the camera off until we see it!
Okay, camera off. Okay, at completion of the -
You got the RHC and THC unlock?
There it is.
There it is. I'm going to take the pictures.
Okay. No, you can't see it through here, Rusty, yet. Just wait.
Oh, beautiful, beautiful. Look at all those white stars!
Okay, now you can get one, Rusty.
Got it; it's going.
At the completion of the maneuver, hit an ENTER.

Roger. You're going to get the ENTER; I'm going to call 47 out.

How are your callsigns, Jim?

I checked them. They're all okay.

Okay. Okay, when we get to - Okay, coming up alright.

Looks like a clean SEP by the looks of the S-IVB.

Yes.

Why don't you shut that off and take some --

Okay, it's shut off.

-- take some stills.

Hasselblads, yes. Okay, you guys got the rest of this now?

Yes. We're alright. Looks okay. Maneuver's coming up. ... The DAP works very well.

Yes, I noticed that.

Hey, Jim, keep watching the S-IVB.

Are you?

Because I can't see it very well anymore.

Okay.

Okay, ENTER. We're there. Okay, call P47.

Hey, why don't you call it, Dave? I can't look out there and see in here, too.

Okay.

VERB 37, ENTER; 47, ENTER.
Okay.
Okay, and at 3 minutes, you want to thrust aft for --
6 seconds.
-- 6 seconds.
Okay, we're 234. How we doing, Jimmy?
She's right out there.
She sure is.
Heck, we're going away from it, Dave. Good.
(Laughter) That's the best direction ...
Okay. 250 and P#7 just came up.
Okay. Thrust aft for --
Okay. 5, 4, 3, 2, 1 --
MARK.
Thrusting aft, 3, 4, 5, 6, and --
OFF.
Man, you can't even feel that, can you?
Yes, I could just barely --
Okay, we got 0.7 or 0.8 of a foot per second --
Okay, SECS PYRO ARM, two, OFF.
Two, PYRO ARM, OFF.
SECS LOGIC, two, OFF. O2 FLOW HIGH.
Oh, boy!
What's the matter, Jim?
00 04 11 26  CDR  Oh, nothing, we're alright. It's just a warning light, Dave.
00 04 11 29  LMP  LOGIC, two, OFF.
00 04 11 30  CMP  LOGIC, two, OFF.
00 04 11 31  LMP  (CB) SECS ARMS, two, OPEN.
00 04 11 33  CMP  Two, OPEN.
00 04 11 34  LMP  I want to get my --  that camera now?
00 04 11 35  CDR  ... that camera now?
00 04 11 42  CDR  Okay, I don't -- How many pictures are they looking for? We're doing great.
00 04 11 45  CMP  Go get them. We're in good shape on the controls; we're in MINIMUM IMPULSE, and we're stable.
00 04 11 49  CDR  Okay.
00 04 11 50  LMP  We're okay?
00 04 11 51  CDR  Give me the Hasselblad, Rusty.
00 04 11 52  LMP  You want the Hasselblad, first?
00 04 11 53  CDR  Yes.
00 04 11 54  IMP  Okay, here you go. Should be all set up, Jim.
00 04 11 57  CDR  Is the ... set out? --
00 04 11 58  LMP  Check -- check it to make sure, though, because I might have just turned it then.
00 04 12 00  CDR  Oh, shoot! ... waste the pictures.
00 04 12 02  LMP  Oh! Check out -- check the thing. You got time. It's going to be there a long while.
00 04 12 07  CDR  I can't see in here. Hey, I'll check it for you. I can't see it; I can't tell if --
00 04 12 11  LMP  Stand by.
00 04 12 12 CDR Is the red light on?
00 04 12 14 LMP Okay. It's all set.
00 04 12 17 CDR Okay. We're going okay?
00 04 12 19 LMP 0_2 FLOW HIGH, again. No sweat. Okay, CMC to FREE.
00 04 12 23 CMP CMC to FREE.
00 04 12 24 LMP PRO and 00, ENTER.
00 04 12 27 CMP PRO, 00, ENTER.
00 04 12 30 LMP MANUAL ATTITUDE, three, to MINIMUM IMPULSE.
00 04 12 32 CMP MINIMUM IMPULSE.
00 04 12 34 LMP SPACECRAFT CONTROL to SCS.
00 04 12 36 CMP SCS.
00 04 12 37 LMP Reload the DAP.
00 04 12 38 CDR You know, we're not getting away from him very fast.
00 04 12 41 LMP Don't expect to, did you? Okay, a 2 and all 1's.
00 04 12 49 CMP Alright. 21111. Alright?
00 04 12 53 LMP Right. Okay. EMS MODE - EMS FUNCTION to OFF.
00 04 12 58 CMP EMS FUNCTION, OFF.
00 04 13 00 LMP EMS MODE to STANDBY.
00 04 13 01 CMP STANDBY.
00 04 13 02 LMP Do you want those angles?
00 04 13 03 CMP No, we're okay.
00 04 13 04 LMP TRANSLATION CONTROL POWER, OFF.
00 04 13 08 CMP THC POWER, OFF.
Your LV/SPS INDICATOR to GPI.

GPI.

RHC and THC, locked.

Okay, locked and locked.

TVC SERVO POWER, two, to OFF.

TVC SERVO POWER, two, OFF.

Okay. Maintain S-IVB view through window hatch with RHC number 1. Okay. I think that's about the end of the reading, here.

God, that's beautiful! Could you see him real well, Jim? Because I - He's right out in front of me.

Yes, he's right in the middle. He's right in the middle.

He is? Okay. Good, because he's right in the middle of my window, too.

Hey, Rusty?

Yes.

I'm going to take the camera; I'm going to lead it here a little bit and point it, and why don't you take a few? I've got it frozen now. Go ahead.

Well, it looks like he's gaining on us again.

Yes. Okay, it's going?

Yes.

You want me to go to 24 and take a few, Dave?

No, that's okay. Just take a couple.

Yes, I - I don't think 24 is going to show us any more than -

Oh, that's beautiful!
See if you can't get that moon over there in the background?

Yes. I got it once. Well, that's alright.

Are you taking at 1, Rusty?

No, 6.

Okay, that ought to be enough anyway.

Yes, that ought to be enough.

Okay, camera's off.

Houston, this is Apollo 9. Do you read? I think we lost them.

We're just starting to lock on now, Jim.

Okay.

Okay, it goes to orbit rate at 0h:25, so it's quite a ways out. Oh, is that pretty!

Except - Well, I tell you how we can tell. If we had the old diastimeter out, we could figure it out; but I guess we don't. Let me see if I can tell on the COAS.

We've got to get down underneath it, you know that?

He comes back up again, though, Jim, according to those charts. If the simulator is any good at all, Jim -

... the COAS. Let me get a - a reading on him. He's right now 3 - 1, 2, 3 degrees.

Houston, Apollo 9.

Go, Apollo 9. This is Houston.

Okay, Houston. You're coming in very weak; but be advised we've had a successful ejection, and - we are presently separating very slowly from the S-IVB. We've got him in sight out of all the windows.
00 04 15 40 CDR  We're not getting in gimbal lock, are we?
00 04 15 41 CMP  No.
00 04 15 42 LMP  Well, it was right at 11, wasn't it? I mean, right at 08?
00 04 15 45 CDR  No, we were about 5 seconds --
00 04 15 46 LMP  About 5 or 10 seconds later.
00 04 15 48 CMP  Okay – Houston, if you can read – the ejection time was 4 hours 8 minutes and 5 seconds.
00 04 15 55 LMP  O₂ FLOW HIGH, again.
00 04 15 57 CMP  What the hell's that for?
00 04 16 01 CDR  I wonder if the LM tunnel's leaking.
00 04 16 10 CMP  Okay, he's a little more than 3 degrees. I think we're opening.
00 04 16 17 LMP  Yes. Well, hell, we can't be closing.
00 04 16 21 CMP  Well, with that vent --
00 04 16 22 LMP  Augh!
00 04 16 23 CMP  -- that vent was a lot more than I expected on the turnaround, Rusty.
00 04 16 24 CDR  Yes, me too – me too.
00 04 16 26 CMP  A lot more. We – I never did stop – I never took out what I put in on getting off of him.
00 04 16 33 LMP  Yes, but even if he is venting, he – he still should be separating from us with that attitude. He's the same diameter as the thruster's throat right now. I'll monitor him that way.
00 04 16 52 CDR  ...  
00 04 16 59 CDR  Isn't that smooth?
00 04 17 02 LMP  Nice and smooth, isn't it?
00 04 17 03  CDR  What are we in? MINIMUM IMPULSE?
00 04 17 05  CMP  Yes.
00 04 17 08  CC  Go, Apollo 9. This is Houston. If you read - we did copy your transmission of a successful ejection. You are moving away. We did copy the time, but ---
00 04 17 10  CMP  He's not going down any farther.
00 04 17 13  CC  -- we would like for you to verify the minutes - if you can try it again.
00 04 17 18  LMP  The what?
00 04 17 20  CDR  Houston, this is Apollo 9. Say again, please.
00 04 17 23  CC  Roger. Would you give me your ejection time again, please?
00 04 17 28  CDR  Roger. It was 08:05.
00 04 17 35  CC  Roger; we copy. Thank you, and we'll see you over Hawaii at about 24.
00 04 17 40  CDR  Roger. Why don't you check, Rusty, and see what time this guy gets ready to do the maneuver?
00 04 17 45  LMP/CMP  04:25.
00 04 17 47  CMP  Yes, let's --
00 04 17 48  CC  Apollo 9, this is Houston. If you can read me, the S-IVB maneuver time is 25 plus 04.
00 04 17 58  CDR  Roger; 25:04.
00 04 18 01  LMP  Okay, I got that.
00 04 18 06  CMP  1, 2. Hey, he's getting smaller, Jim.
00 04 18 12  CDR  Yes, I noticed that, too.
00 04 18 14  LMP  I'm measuring him against the thrusters.
00 04 18 16  CDR  You know, he's still venting up this way at it, too.
Yes. It's the only way he can vent.

(Laughter)

By-by, S-IVB baby.

Man, he's really venting a lot.

Hey, it sure is.

Boy, there are a bunch of pieces of plastic and stuff floating around out there, aren't there?

Yes.

I just saw a piece of Scotch tape float by. That was probably a piece of the LM. The only thing I know with Scotch tape holding it together.

He's sure not where he really ought to be.

Is that right?

Yes.

We haven't done a thing yet, have we? Since we came up?

I don't know - Well, I'm keeping the attitude sort of squared away by pulsing, but he ought to be higher in the window - based on the - -

Yes.

Oh, shoot! They never had the vent model in the simulator, though.

Yes, that's probably the difference right there.

That's right. Never had the vent model in the simulator.

He's definitely going away, though.

I'm going to put him over where you can see him, Jim.

I can see him fine, Dave.
He's slowly closing the gap, though.

You think he's getting closer, Dave?

No, I mean - my visual gap, I'm sorry.

Oh, I see.

He's - I don't think he's getting closer.

No, I don't either.

... sure isn't where he's supposed to be right now. About 2.5 degrees now ...

Once he does his pitch to ORB rate, he ought to go - which way - Let me see - He'll go down and start venting away from us. That's good.

Hey, guys, you know what I think that $O_2$ HIGH FLOW is?

What?

I'm not sure, but I have an idea that it's the fact that we got a little higher leak rate, right now -

Yes, with the LM?

- - and when the - and when the accumulators go, I think it might go overtime. Because right now, we're reading - we're reading 0.6 on the leakage. The cabin is up at - about - just about 50. We probably ought to fill up the first bottle.

Yes.

Wait until we get through with lift-off.

Yes. Let me look at the flight plan and see where we stand here.

Why don't you do something with the camera here? He's not in a very good position for picture taking.

Okay. Stand by.
Here you go. Give me it. Okay.
What was his maneuver time again?
25:04.

Thank you. You guys sing a nice song.
(Laughter)

Vent, vent, vent! Boy!

I'd say he vents about once a second.

Really?

Yes. I was - I was watching that before when Dave was trying to dock with him - It - He kind of blows and then it stops, and then it blows and then it stops.

We've got a roll-rate error in case you wonder what we're doing.

Okay.

It's the only way I can really ...

Yes, he's getting much smaller.

Yes. What's the time of the - 04:25 is his time of maneuver?

04:25:04 is the maneuver time - -

When's his burn time?

Burn time is 04:45:51. It's 20 minutes after that.

Yes, and what's our burn time?

About 3 hours.

No, it can't be that long after it, can it?

Alright, 5.1 seconds. I've got the clock.
82 Day 1

CONFIDENTIAL

00 05 58 06 CDR  Stand by for 30 seconds. Is that right?
00 05 58 09 LMP  Right.
00 05 58 17 CDR  Did you null ullage?
00 05 58 20 CMP  Yes, null ullage. Just like the simulator.
DELTA-V to AUTO; EMS to AUTO. Average g.
00 05 58 37 LMP  Man, look at it count.
00 05 58 42 CMP  0.4? That's alright.
00 05 58 48 CMP  Alright for a PROCEED, Jimmy?
00 05 58 49 CDR  Okay for a PROCEED.
00 05 58 50 CMP  Okay.
00 05 58 58 LMP  99. PROCEED. 2, 1 -
00 05 59 02 LMP  IGNITION. 3, 2, 1 -
00 05 59 06 CMP  SHUTDOWN. Okay. Engine's shut off. The LM is still there, by God!
00 05 59 13 LMP  Okay -
00 05 59 15 CDR  Burn complete.
00 05 59 16 LMP  Okay, I want - -
00 05 59 17 CC  Roger. Copy. Burn complete.
00 05 59 18 LMP  -- to get the DELTA-V THRUST, OFF.
00 05 59 19 CDR  DELTA THRUST, OFF.
00 05 59 20 LMP  Okay. Verify all thrust-off cubes. GIMBAL MOTORS, four, to OFF, one at a time.
00 05 59 24 CDR  Okay. PITCH 1, OFF.
00 05 59 26 LMP  Verify.
00 05 59 27 CDR  PITCH 2, OFF.
00 05 59 28 LMP  Verify.
00 05 59 29 CDR  YAW 1, OFF.
00 05 59 30 LMP  Verify.
00 06 25 14 CDR  I'll check on that, Dave.
00 06 25 15 CMP  Okay.
00 06 25 17 CDR  It says here, "Open full control simulation panel, close the EVAP water control secondary valve."
00 06 25 27 CMP  Alright. It's CLOSED.
00 06 25 31 CDR  Okay.
00 06 25 38 CDR  Did we lose him yet?
00 06 25 42 LMP  Yes.
00 06 25 43 CDR  Remind me to tell him.
00 06 25 51 CDR  You might try a urine dump. We're coming up on that time; it's near the terminator.
00 06 26 03 CMP  You know, that's really sort of fun.
00 06 26 04 CDR  What (laughter)?
00 06 26 05 CMP  Banging into my leg. How's that for a position at the AUTO optics?
00 06 26 11 CDR  (Laughter)
00 06 26 17 LMP  Wonder if I rolled stomach-down if I can take a leak.
00 06 26 21 CDR  You might; it might be psychological.
00 06 26 23 LMP  Oh, I'm sure it is.
00 06 26 25 CMP  Mine's psychological, too, and I've tried every position.
00 06 26 28 LMP  (Laughter) I can't - I can't find the psychological -
00 06 26 31 CDR  I bet we have to go down and grab a hold of something first.
Yes, something with a little handle on the left.

Yes.

It's funny, I didn't have much trouble taking the first one.

Oh, well, I guess if it hurts bad enough, I'll pee.

If you don't get kidney stones, first. Oh, did you get the tunnel?

Yes.

It's open?

It's LM PRESS.

I'll be damned. The flow is off-scale low.

Yes.

Good.

It's magic.

Hey, Jim, you really drank a lot of potable water.

Oh, gees, listen, I ate - Well, it was almost undrinkable.

It is. I think we need to get some bags out.

Yes, let's --

It's full of gas.

-- ... getting something to eat. Somebody has got to stay here and drive the boat, though, don't they?

I'll, I'll --

Well, here, can I do it?

No. I'll get it. Pass me the food.
Yes, why don't you just stuff the food up here and —

Yes, that's a good idea.

— and Rusty and I —

I've got to get through all this folderol to do this. I'll tell you, that's a good place to hold your checklist because something keeps getting in the way.

The rings.

Oh, no, it's this screw up there that I keep banging into.

Here, let me attack this problem. How am I going to get this thing off? What am I going to do with it when I get it off?

Where do we start with food? Anybody know?

Hey, you guys turn your heads. Maybe I can take a leak.

Right here.

I feel like my balls are asleep.

Hey, —

You got me interested in going, and now I just went, and I think I wet on myself.

(Laughter)

That's what I've been afraid of.

My poor talliewhacker's shriveled all up, I've been so frightened here on this.

(Laughter)

Toothbrushes, gang; toothbrushes! I found the toothbrushes.

The food is right behind them, Dave.
The pink one. The white one.

Hey, did we have any place in here to eat today?

I don't know if we did or not. Let me look. Would you believe, eat period ... 5 hours long.

Yes, isn't that ridiculous? I'm telling you. That's pretty much hustle.

Yes, it was. But we were lucky that we got it done.

(Laughter) Yes, we -

Why? I don't feel lucky.

Well, we - we could have got it done, there's just no doubt about that --

Yes, we had a - we had a really -

-- ... louse up a lot of fuel.

Yes, we had a couple of real fine problems that got right in the middle of there, that took a lot of time.

What?

The damned RCS, for one. That docking would have gone bang, just like --

Oh, I - Oh, I meant - this other thing here.

Yes - -

Yes, yes, that's right.

I - I'll tell you, I think --

... even worry about these things.

-- I think you did a brilliant job on that. I really do. I'll tell you the truth.

Man, I was really -
I bet that was a terrible feeling...
... figure out what...
-- really frustrating.
Gee, I was really, really feeling awful...
Oh, look at that beautiful horizon!
-- I was figuring I hadn't got you guys in the and I was about ready to just lose you.
Oh, come on. Even if you hadn't - shit, oh dear That's the breaks of the ball game, David, and you either do it or you don't --
That's what I get paid for --
Hey, the earth is concave up.
Rusty, here's your day 1, meal B.
Day 1, meal B.
I'm going to give everybody a toothbrush, now. Okay?
Oh, gee, what are we going to do with that?
What are we going to do with that?
I wonder what --
I don't even want one. I'm going to leave my teeth dirty.
Oh, I want one.
Rusty, I'm going to give you the red toothbrush.
No, I get the red one.
Oh, you do?
Yes, that's right.
Okay, there's yours.
I don't want it, though.

I'm going to give Rusty the blue one.

Shit, I can't figure out what - what to do with my checklist, and other valuable items like that. I can only ... Should we unsuit tonight and go to bed in the other suit?

You bet your ass.

Russell, your blue toothbrush.

That's going to take 2 days to get unsuited.

Okay, Jim doesn't want his toothbrush, which means I've got to carry it for him, so I will.

No, you don't have to carry it.

I don't know what else to do with it.

Will that thing go through my neck?

It will go around it. I'm going to find some obscure piece of Velcro to put that toothbrush on. Okay.

All we're going to have with that toothbrush is a loose toothbrush in here.

Another pack. I'm going to get - I get three food packs out, okay?

Oh, shoot, I want one, too. Well, they both should be around there.

Rusty, here's another one.

Oh, for me?

No, I'm getting three out. Okay?

Oh, one for each of us.

Yes, and then I'll put this thing back.

Okay, yes.
Okay, here's mine.

Alright.

Shit, I'm going to take these pockets off, too. I don't know what I'm going to do with those things either.

Just stow them.

Where do you stow your pocket?

Oh, you can find a place.

Jim, your toothbrush will be the marker.

Okay, fine.

Where am I trying to go, anyway? 68, 291, and 330. I tell you, I'm just going to - I'm just going to drift right on over there, and I'm not going to use a - a thing but PULSE, and I'm going to just end up there.

Really?

You have that written down or something, Jim, somewhere?

... it's in here.

Oh, okay. You got the pad, huh?

Does anybody remember what we've done so far today?

Yes. I tried to log some things, but -

I want to get on that - that Sony and get that T&D started.

Hell, that's not a very good spot; it hides the clock.

Maybe we ought to put that Y-Y strut out again, Dave. Can we do that?

It's out.
90 Day 1

00 06 33 09 CDR No, it's - it's still loose.
00 06 33 11 CMP You can do it. Can you reach it?
00 06 33 12 CDR Yes, I can - I can reach it.
00 06 33 13 CMP It's alright to do it.
00 06 33 15 CDR ... the other way.
00 06 33 17 CMP Yes.
00 06 33 18 LMP Why do we want to put the Y-Y strut out again?
00 06 33 20 CDR Oh, so it doesn't jiggle back and forth.
00 06 33 24 LMP Oh.
00 06 33 25 CDR I get nervous listening to it jiggle.
00 06 33 36 CDR Uh oh. You know what?
00 06 33 37 CMP/LMP What?
00 06 33 38 CDR We can't do the daylight star check if we're looking at the earth, can we?
00 06 33 41 CMP Not very well.
00 06 33 43 LMP No, but you're getting there. Yes. That attitude takes care of that.
00 06 33 47 CMP Yes.
00 06 33 49 CDR Yes, I wonder if it takes care of us for the whole time? Oh, look, we're - Heck, we're posigrade again.
00 06 34 06 LMP Yes, that's right. So one-half of a REV from right now, puts us - facing the sky.
00 06 34 11 CDR Yes, except we have to do a 90-degree pitch ...
00 06 34 14 LMP No.
00 06 34 15 CMP What are we doing with trash?
00 06 34 19 LMP Put it in the TSB.
00 06 34 22  CMP  Yes. I'm sure going to be passing a lot of trash here, while I make supper - or breakfast, or whatever we're eating.

00 06 34 33  LMP  Damn, I have just got to take a leak.

00 06 34 36  CDR  Rusty, maybe if you - you stood up.

00 06 34 38  LMP  Alright.

00 06 34 39  CMP  Jim, I've tried - I'm in the same boat. I've tried every which-a-way.

00 06 34 42  CDR  Why don't you get the urine dump system out and try that?

00 06 34 44  LMP  (Laughter) You know - That might be a good idea. Suck your tinker out the hole.

00 06 34 54  CDR  I'm going to dump mine, so I can get more room in it.

00 06 34 59  LMP  I'm afraid to take one, because when I do, I'll overflow.

00 06 35 14  LMP  Noo! Hope I can reach those scissors. Yes.

00 06 35 35  CMP  What's the time - what's the sunrise time? Do we have that?

00 06 35 39  LMP  Oh, I can - I can give you an estimate ...  

00 06 35 42  CDR  It was 06:49, I think.

00 06 35 43  LMP  Oh, no, it's 7 something.

00 06 35 45  CMP  Was it? Sunrise time?

00 06 35 47  LMP  Well, it is - it is on the flight plan.

00 06 35 50  CDR  What was the time for that?

00 06 35 52  LMP  07:05, which is on the flight plan.

00 06 35 54  CDR  It says, "GET start, sunrise - Oh, sunrise minus 15."

00 06 35 57  CMP  Okay, what time was that?
Oh, my goodness. That's 06:49; that's in 14 minutes.

Yes, I go to ...

Do we have to be there then?

Yes.

Oh, shit. Then, I'm going to have to hurry faster. I'm going to have to - shoot - waste some fuel there. Am I even armed? Yes. Are those things firing out there? I heard them. Ooh! Bull's-eye. Boy, they really light up the sky, don't they? And I've got to go 110 degrees, yet.

(Cough) Damn, they're on. More pieces of junk.

Hey, I'm going to get something to eat before I die.

Here, what do you want?

I want something with some liquid in it.

Excuse me.

We'll, we've got a lot of basic housekeeping yet to do. Holy Christmas! We're supposed to go to sleep in an hour.

An hour?

Aren't we? 8 o'clock, I think ... 8 hours. You got to be kidding.

God, you know it's almost a quarter to 6?

Yes. Hey, Lu, get that up for 06:30, babe.

Steak, salmon salad, cocoa, chicken and gravy. Oooow boy! I got to make that stuff. Whooee!

Oh, hey, you know what we're supposed to have?

Those other meals.

Those other meals, yes.
Oh, yes. They're up there by Rusty's head.

Hey, I think I'll have one of those.

Hey, I think I will, too. Oh, that's great. Let's start, well, you know, gradually.

Start what gradually?

The other crap.

This stuff here? Here, give me one of those other meals.

Here, let me see if I can stow some things here down there.

Hey, there's no ... one. Hey, I've got the white one. I've got Dave's.

What - what - what color is mine?

Blue. I gave you the three first bags I found. I hope those are the right ones.

Oh, but I could sure use some ...

Oh, mine's - I - I - I opened the red one. Whose is that?

 Doesn't make any difference; ... we're all starting the same.

Well, yes.

Cloudy down there.

Really is. Hey, there's the Big Dipper over there.

Well, I'll be looking in here, when we get there.

Boy, that airglow --

You know, we can't --

-- really shows up.

-- see Polaris. Dave?
Sir.

Polaris isn't up.

That's right. We won't be looking at Polaris. We'll be looking at - just above ... ... Alphecca.

I'm not getting very far as far as ... --

Boy, that airglow is really prominent. Holy smoke! Gee, it really stands out.

Yes, I can see it. Obviously, you don't have to be a genius to figure out it's there (laughter).

Yes, you sure don't.

Three dummy astronauts can figure that out almost every day.

Let me see, I got 9 minutes before I got to get - adaptate to -

Hey, Dave, I'm not going to be there.

Well, I'm sorry - I mean - I ... That's okay. Listen, let me explain this to you. I just read up on it.

(Laughter) Yes, would you?

Yes.

I'd like to know what you're trying to do because I got to -

I got to begin dark adaptation at 40 - 15 minutes prior to sunrise. And then I count the stars at sunrise.

Oh, you're supposed to be in that attitude, huh?

At sunrise, I got to be in the attitude, but I don't have to be - We don't have to be there at 15 minutes prior, because I just focus - close my eyes.

Sunrise minus 15 is 49, so --
00 06 40 39 CMP Yes.
00 06 40 40 CDR \-\ - 7 - 7 is when I have to be there - 7 o'clock. 20 minutes. And I've got to go - pitch ... I got to go ... 
00 06 40 55 CMP Think I'm going to take the Sony into the ... when I go.
00 06 41 01 CDR Yes, you don't even - can't even see a change - I'm - I'm on the 1-degree-per-second scale here, and I fired 10 to 12 pulses here and it doesn't even wiggle the needle.
00 06 41 08 CMP You know - you know something I'm beginning to realize?
00 06 41 12 CDR What?
00 06 41 13 CMP All this time, I've been playing around in the simulator -- 
00 06 41 14 CDR Yes?
00 06 41 15 CMP \-\ - docked, you've been in the LM. You've never seen this. I've seen it in the simulator. It's - That's the way it is in the simulator. Holy Christmas. Terrible!
00 06 41 22 LMP Hey, how about the water gun?
00 06 41 25 CDR What are we going to - what are we supposed to do with these? I guess we're supposed to wad up the garbage, and put it back where we got it?
00 06 41 29 LMP Yes.
00 06 41 30 CMP Let's see if the Sony is recording at 6 hours 41 minutes.
00 06 41 36 LMP Jim, you got the water gun?
00 06 41 38 CDR No, I haven't; I'll get it for you in just a minute.
00 06 41 39 LMP Okay.
00 06 41 40 CDR Stow this crap, so I'll know about where it is.
What do I do with all - Oh, you wanted the water gun, that's right.

Maybe if I put water in the bag, maybe it will make me think of leaking.

I think it will, but let's see. Start thinking about emptying my bag, here. My water bag.

Hey, what is this supposed to be, half-ounce squirts?

I don't know. Let's see, ... 6 minutes I think I'll do - talk about the T&D - ... want to talk about the T&D ... Yes.

And, I wonder if we ought to try the hot water. Hey, we - we never turned on the hot water.

We did T&D -

Yes, we did.

-- It started out just about as planned. We pitched around, and when we got around facing the S-IVB, we were directly lined up and just exactly right according to the angles on the ball, although we seemed to be a little bit high in pitch. We did - we did some pitchup to get the - the needle, and it looked like we were lined up relative to the COAS. And the vent seemed to be somewhat more than we expected; the S-IVB started closing, and I had about 0.6 of a foot per second in at separation, and when we turned around, I never took any out. And the S-IVB closed the gap, naturally. I guess we were something like 50 feet away when we turned around and were facing it. In the process of trying to get lined up with the target, we noticed there was no left translation, and we started drifting over some to the right; and I backed off to keep clearance, for the S-IVB to continue to close, and I tried to find the problem. And after a while, it became apparent there definitely was no left translation. And we cycled the switches for RCS AUTO CONTROL and changed A/C ROLL all up to BUS A; all the rest were on BUS B, and nothing seemed to work there. We got no translation in SCS RATE COMMAND or any control mode, for that matter. We
drifted out to our right of the S-IVB, and I yawed left to try and get back in by translating forward which put us across the front of the S-IVB to the left side. And about that time, figured out the problem and discovered that the quad C primary and secondary propellant isolation valves were talkback talkbacks were barber pole, and that the quad B secondary isolation valve talkback was barber pole. And another thing we had tried prior to discovering the talkbacks was the DAP, to see if that might be a problem, and it seemed to be working alright except for the translation to the left. Back to the talkbacks, when Jim closed the isolation valve - or opened the isolation valves and the talkbacks were gray, we definitely knew - got a definite translation capability to the left, and went to CMC HOLD and realigned with the COAS, and on the target on the S-IVB. And about the time we got realigned visually, the needle had preset, with a VERB 62; we were lined up almost exactly, which showed that the preflight-calculated angles were just right. And we needed no closing velocity; the S-IVB closed the gap with the venting. And we proceeded on in, and contacted it at approximately 0.3 foot per second, and capture occurred immediately, and there were no postcontact dynamic to speak of. It drifted up a little bit and yawed left a little bit, which would have been an apparent pitchdown, yaw left to get it centered; and we went to CMC FREE on contact, and it seemed to damp out the position, misaligned by a couple of degrees in pitch and about 1 in yaw. I attempted to align with the translational thrusters, just MINIMUM IMPULSE, and it didn't seem to do much good. So, I went to SCS MINIMUM IMPULSE and the rotational controller and that seemed to work alright, aligning the COAS to the target. And the one thing that was noticeable: with the COAS full bright, it was very difficult to see the illuminated reticle against the bright target background, and by this time, the sun was pretty much over our shoulders and there was - the target was very bright. Once we got aligned with the - the target, the standoff cross, why we initiated retraction, and it took 8 to 10 seconds to retract. The vehicles went straight in, and it sounded like we got two sets of latches in almost very - in a very short time in between,
but it sounded like you could hear two groups of latches going, and dynamics was very slight. Fe
d like a good solid line. I guess that was about the size of it. Jim, you want to go through what you saw?

00 06 48 04 CDR Yes. Well -
00 06 48 08 CMP Why don't we - why don't we all go through what -
00 06 48 10 CDR Well, there's a nice little ... that just came of
00 06 48 15 LMP How do you get the gas out of these bags, I wonder
00 06 48 24 CDR Drink it, I guess.
00 06 48 26 LMP Hmm.
00 06 48 27 CDR Dave, would you stick this under the hot water an
give me a shot or two - -
00 06 48 32 CMP Can you wait a minute.
00 06 48 33 CDR Sure. You want me to try to fix that for you?
00 06 48 46 CMP It's not running and it's not - You got to push
the red button right there.
00 06 48 50 CDR ... I'm going to have to ... move it slow. Okay
Well, let's see, there's hardly anything else I
can - there's very little I can add to what Dave
has already said except that when we extended the
probe, it only took a - just a second or so for i
to get out. There was a definite thunk, and the
talkbacks changed, and there was a - every indica
tion that it had gone out immediately. When we
came back in, I was watching the talkbacks, and t
both changed to gray, at - at the same time, whic
would indicate that all the latches were close to
gether. When we checked the tunnel, we found all
the latches had secured and everything looks okay
up to there. There didn't seem to be any problem
I didn't get a chance to - to examine the - the
drogues, to see if they had any damage. I don't
think ... we were in a little bit of a hurry. An
I couldn't see up there very well at the time; we'll
got to that tomorrow.
00 06 50 07 CMP  Give it to Rusty and we'll have that all here.
00 06 50 09 CDR  Yes.
00 06 50 10 LMF  I don't think I have anything on it.
00 06 50 12 CMP  Okay.
00 06 50 14 CDR  Boy, this has really got the gas in here. Holy cow!
00 06 50 16 LMF  Boy, it really does.
00 06 50 20 CMP  Okay, star-adaptation dock - dark-adaptation time.
00 06 50 23 CDR  Okay, now I got to start stopping this mother.
00 06 50 28 LMF  Oh, the DAP? Oh, no.
00 06 50 30 CDR  No.
00 06 50 32 LMF  ... in the morning.
00 06 50 34 CDR  Yes, looks like the coloration would be a little better.
00 06 50 38 CMP  I don't think so.
00 06 50 41 CDR  Here, let me try one in yaw and see what happens. Oh, man, and that really wiggles, doesn't it?
00 06 50 57 LMF  Yes, it really does. Shaking up all my food.
00 06 51 10 CMP  How close are you, Jim?
00 06 51 12 CDR  I'm about 15 degrees in pitch, Dave, and about 25 degrees in yaw; 70 degrees off in roll.
00 06 51 28 LMF  Oh, yes. That chicken and gravy would be good with hot water.
00 06 51 30 CDR  (Laughter) You always do that.
00 06 51 36 LMF  Dave, do you have any hot water? For any of this stuff?
00 06 51 38 CMP  Yes.
00 06 51 53 CMP  You want some, Rusty? :-}
Yes, I need 3 ounces if you got time.

How much does a squirt give? I've forgotten.

I don't know either. It's either a half or a whole.

Hello, Apollo 9. This is Houston through Tananarive. Do you read?

Roger, Houston. This is Apollo 9 here, reading you loud and clear. Houston, how do you read Apollo 9?

Hey, that COMM is going to have to get better, or we're not going to do any rendezvous.

Well, that's pretty clever. Looks like they sealed the bag on the other side of the line.

Let's see, one squirt is how much, you think?

It's either a half of an ounce, or a whole ounce.

How much do you put in this bag, Rusty? You remember? Oh.

3 ounces.

Three - I'll give you three squirts.

Is it warm?

Boy, it's really warm.

Good.

Hot! I'll give you a cold.

Noo!

It's really hot, Rusty.

Well, it tastes good.

Alright. I'm afraid it'll melt the bag.
Ah, my God, that hot?

Well, I'm going to let you look at it and tell me how you like it, because I'm going to have to turn the lights down here.

Okay.

Okay?

Boy, that's neat, Davey.

Oh, man, ...

Rusty, I'm going to count stars, so maybe you could remember the number for me. Okay?

Okay, you want me to ... 1, 2, 3, 4, 5, or mark, mark, mark, mark, or what?

Oh, I'll count the number and give you a number.

Okay --

I'll count them in quadrants. I'll count – four – I'll give you four numbers per quadrant, okay?

Okay. When are you going to start? Oh, you're not going to start yet.

At 7 hours ... the number ...

Okay. Well, 15 minutes after 49, huh?

49, 59:05. Is that right?

Oh, yes.

Oh, okay.

Don't cheat now.

Hey, I'm not; I'm not going to cheat now.

Hey, that really wiggles that thing. I wonder what that stroking test is going to feel like.
00 06 54 49 CMP I'm going to run the DSKY here to line the optics up, Jim, in case you want to --

00 06 54 51 CDR Go ahead.

00 06 54 52 LMP Leave unto tomorrow the evils thereof.

00 06 54 58 CMP Throw me an alarm, huh! I bet I know what's wrong on the zero. Okay. Stupid idiot.

00 06 55 04 CC Okay, Apollo 9. This is Houston through Tananarive. We're probably not getting you here. We got about another minute and a half, and if you can read me, we'll see you over Guam at about 17.

00 06 55 15 CDR Roger, Houston. This is Apollo 9. We're reading you loud and clear through Tananarive. We'll look for you over Guam. How do you read me?

00 06 55 22 CC Oh, we're getting you here now. I didn't read you at all the first time or two around.

00 06 55 26 CDR Okay, I heard you call us a couple of times and I answered. I guess we're just not getting down to you.

00 06 55 33 CC Roger. It hasn't been too stern here off Tananarive today.

00 06 55 39 CDR Okay. We're just taking a little time out to eat here right now. We haven't had anything to eat yet, so, that's a - If you wonder what we're doing, that's it.

00 06 55 49 CC Okay. Our plan is that as we come over Guam and back across the States, why, we'll discuss all our systems problems and so forth before you go to sleep tonight.

00 06 56 05 CMP Roger. I got bad news for them.

00 06 56 07 CDR What's that?

00 06 56 08 CMP The moon's in the way.

00 06 56 10 CDR Oh, no, is it really? (Laughter)

00 06 56 11 CMP Are we at the attitude, Jim?
00 06 56 15  CDR  We're 30 more degrees in roll.
00 06 56 16  CMP  Oh, 30. Okay, maybe it'll be alright.
00 06 56 18  CDR  No hurry.
00 06 56 20  CMP  Don't hurry! Hey, can somebody fix me a Tang or something?
00 06 56 31  LMP  Yes.
00 06 56 32  CMP  I'm thirsty.
00 06 56 35  LMP  Although, I don't dare put anymore in the bright end.
00 06 56 40  CC  And we speak Sayonara at Tananarive. See you over Guam.
00 06 56 43  CDR  Adios.
00 06 56 45  LMP  Undo my chin strap.
00 06 56 52  CMP  Oh, boy, does that taste good. Oh, boy, umm, umm.
00 06 56 56  CDR  (Laughter) We're just going to leave Dave down there and -
00 06 56 59  CMP  Nice guy.
00 06 57 17  CMP  The moon's still there.
00 06 57 26  CDR  We're right at the pitch attitude, Dave, I've got - 30 degrees to go on roll.
00 06 57 31  CMP  Which roll?
00 06 57 32  CDR  Rolling right.
00 06 57 34  CMP  (Laughter) Right.
00 06 57 36  CDR  Another 20 degrees to go - -
00 06 57 38  CMP  Hey, it shouldn't be bad all the way.
00 06 57 39  CDR  - - yaw. But really yaw is turning into pitch now, so -
<table>
<thead>
<tr>
<th>Time</th>
<th>Code</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 06 57 43</td>
<td>LMP</td>
<td>Boy, are those stars bright out there.</td>
</tr>
<tr>
<td>00 06 57 50</td>
<td>CMP</td>
<td>The old Southern Cross. Hey, wonder if I can see the Magellanic Clouds?</td>
</tr>
<tr>
<td>00 06 57 58</td>
<td>LMP</td>
<td>We'll look some other night.</td>
</tr>
<tr>
<td>00 06 57 59</td>
<td>CDR</td>
<td>Yes, that's what I was thinking.</td>
</tr>
<tr>
<td>00 06 58 34</td>
<td>LMP</td>
<td>Have you had chicken and gravy up yet, Jim?</td>
</tr>
<tr>
<td>00 06 58 35</td>
<td>CDR</td>
<td>Yes, I'm eating it right now. Oh, boy. ...</td>
</tr>
<tr>
<td>00 06 59 09</td>
<td>CMP</td>
<td>Is that pulses? ...</td>
</tr>
<tr>
<td>00 06 59 10</td>
<td>CDR</td>
<td>Those are acceleration pulses.</td>
</tr>
<tr>
<td>00 06 59 11</td>
<td>CMP</td>
<td>No, don't do that.</td>
</tr>
<tr>
<td>00 06 59 14</td>
<td>CDR</td>
<td>Dave, I can't even - I don't even - I'm in the 1-degree-per-second scale, here, and I can't even make it move.</td>
</tr>
<tr>
<td>00 06 59 20</td>
<td>CMP</td>
<td>You got to be patient, Jim.</td>
</tr>
<tr>
<td>00 06 59 23</td>
<td>CDR</td>
<td>I am, but I'm going in the wrong direction.</td>
</tr>
<tr>
<td>00 06 59 24</td>
<td>CMP</td>
<td>...</td>
</tr>
<tr>
<td>00 06 59 25</td>
<td>CDR</td>
<td>You know, it's better - One - one acceleration pulse will - give you the same rate as 50 minimum impulses.</td>
</tr>
<tr>
<td>00 06 59 30</td>
<td>CMP</td>
<td>...</td>
</tr>
<tr>
<td>00 06 59 32</td>
<td>CDR</td>
<td>Lord, give me patience and hurry up (laughter).</td>
</tr>
<tr>
<td>00 06 59 38</td>
<td>LMP</td>
<td>(Laughter) Don't make me laugh; I'm eating.</td>
</tr>
<tr>
<td>00 06 59 51</td>
<td>LMP</td>
<td>That moon is going to be right -</td>
</tr>
<tr>
<td>00 06 59 55</td>
<td>CDR</td>
<td>Is it really?</td>
</tr>
<tr>
<td>00 06 59 56</td>
<td>CMP</td>
<td>Yes.</td>
</tr>
<tr>
<td>00 07 00 06</td>
<td>CDR</td>
<td>Okay, we're up to roll attitude, and we're just about 3 or 4 degrees from pitch attitude, and - -</td>
</tr>
</tbody>
</table>
Hey, Dave, in the daytime, I bet the moon will go - maybe it will. Yes, it probably will.

What about - You got to pitch down? Is that right, Jim?

Yes, to you, it looks like I'm going to have to pitch down about another 10 degrees.

Oh, well, it'll be alright, then.

I'll get the roll off.

Okay, you got 3 minutes. Hey, at 3 minutes, I'll just go ahead and stop it wherever we are.

Okay. Let's see, you got to pitch down there, ... the moon's right on the edge of the field of view right now.

Okay, I'm only going to pitch down another 6 degrees.

6 is what I need, Dad. If you do that, we'll be alright.

Umm. Boy, now, are we going to be ...? (Laughter)

We have to use a little tablet, huh?

Yes.

... shining on the prism. I'll be darned.

Yes. ... the prism. It's splitting the prism, almost.

Have I pitched down far enough?

Yes, just about.

Because I'm there. What I should do now is yaw left about 5 degrees.

Well, that would be just about - just about right.
00 07 02 34  CDR  Will it?  Okay.
00 07 02 37  CMP  I wouldn't sweat it though, Jim.
00 07 02 39  CDR  I stopped the pitch motion now.  Now, I'm just going to let what I - my yaw that I had in there going on over.  Now I got about 0.000001 degree per second.
00 07 02 51  LMP  Oh, boy.  One down.  David, I'm going to make you a drink if you're -
00 07 02 59  CMP  Good for you.
00 07 03 07  LMP  Hey, sunrise is coming up.
00 07 03 08  CMP  Yes, ... almost time right now, huh?
00 07 03 11  LMP  What?  No, about 45 seconds and it's going to be sunrise.
00 07 03 18  CMP  In 45 seconds, tell me and I'll start time.
00 07 03 20  LMP  Okay.  Tell me if - if - it is about 10 seconds to go.
00 07 03 27  CDR  Okay, the LM is starting to get lighter.
00 07 03 29  CMP  Okay.
00 07 03 33  LMP  Jimmy, can you handle some trash, here?
00 07 03 47  CMP  How are we doing, Rusty?
00 07 03 49  LMP  You got another 10 seconds -
00 07 03 52  LMP  MARK.
00 07 03 53  CMP  Okay.
00 07 03 54  LMP  Go.
00 07 03 55  CMP  10 seconds until sunrise?
00 07 03 56  LMP  Oh, yes, 10 seconds until Ok.  It's not really sunrise yet.  We really ought to wait until sunrise.
No, let's do it on the - on the - on the time.
It was 06:49:45.
Oh, 45, okay, Jim. Excuse me, Dave, you got awhile - ways to wait yet.
Oh, do I?
Yes, you got 40 seconds more - That's about right.
Okay. We're rotating, or rolling, or something.
We are?
Or it's me. Man, that thruster - Ha ho. The quad.
Okay, close your eyes for just a minute, Dave, and I'll give it one little shot here.
Okay, closed. Okay.
Okay, back to MINIMUM IMPULSE.
Okay, 10 seconds, Dave. Okay, there, now it's sunrise.
Yes.
Okay, now stand by; 3, 2, 1 -
MARK.
Okay.
Okay, I got 19.
19 in one quadrant?
19 altogether.
19, total?
Yes. Boy, now, it's just - it's really zapping right off of the quadrant. Man, oh man!
Okay, the daylight star check, started out about 10 seconds prior to the official sunrise, and
counted through to about 19 stars, the last few of which were in the Big Dipper - Well, the Big Dipper is the last one to remain visible starting from the upper right quadrant, going counterclockwise. When the sun came up, it filled the inside of the quad, and one of the jets on the LM quad that sticks down, the one that points to about - it's like about minus X. And as soon as that filled up with light, it washed out everything but a couple or three stars and the Big Dipper.

You can still see some, Dave?

Yes, I can still see a few stars, and right now it's how late, Rusty?

It's 06:15.

06:15.

07:06:15.

07:06:15. I can still see a couple of stars, and the Big Dipper.

Great.

And another thing that was noticeable: the moon was probably about 4 or 5 degrees above the field of view, and it reflected on the prism, on the telescope, and gave a light gray band right across the center.

Okay, GET plus 5; I've got to do it again.

Plus 5?

Plus 5, yes. Okay, that's going to be at - What time now - That's ---

Let's see what - I wonder what - It was 07:04:45 was the first one.

Okay, so this one's going to be 07:09:45. Okay, you got - you got over 2 minutes, Dave.

Okay.
00 07 07 14 IMP I'll give you your cocoa, here, if you want to make some hot cocoa.
00 07 07 17 CMP Oh, great.
00 07 07 19 IMP Stand by. I'm going to cut the bottom for you.
00 07 07 21 CDR Don't lose your dark adaptation.
00 07 07 23 CMP Yes, that's right. Don't lose my dark - I'm going to just keep my eyes closed. Let's wait for a while. I'll eat later.
00 07 07 28 IMP Okay, I've got it all ready, so - I was just feeling sorry for you.
00 07 07 39 CMP I know it.
00 07 07 40 CDR Me too.
00 07 07 42 IMP It's going to make me some salmon salad, now. How was that, Jim?
00 07 07 49 CDR What?
00 07 07 50 IMP The salmon salad.
00 07 07 51 CDR How is it?
00 07 07 52 IMP Yes.
00 07 07 53 CDR I don't like it.
00 07 07 55 IMP Did you eat it?
00 07 07 56 CDR I haven't gotten to it, yet.
00 07 07 57 IMP Oh.
00 07 08 02 CMP You know what I need is something to drink before I die.
00 07 08 09 IMP You got that gun? No, I got the gun.
00 07 08 15 CDR All I get out of there is air.

CONFIDENTIAL
00 07 08 16 IMP I know. You know, the hot water didn't put in - as near as much gas as the gun does. I wonder why? I bet the cold water is better down there, too.

00 07 08 47 CDR I wonder if this plastic on this thing will melt - Oh, ...

00 07 08 55 IMP (Singing) Cloudy.

00 07 09 00 LMP You've got just about a minute, Dave. Okay.

00 07 09 06 LMP (Singing) --

00 07 09 12 CDR I'm going to shoot a little pulse here, David.

00 07 09 13 CMP Okay. (Singing)

00 07 09 14 LMP -- (Singing) --

00 07 09 19 CMP Can you even the needles, Jim?

00 07 09 20 CDR Yes.

00 07 09 21 LMP -- (Singing)

00 07 09 26 CDR Oh, hell, it's ...

00 07 09 29 LMP 20 seconds, David.

00 07 09 30 CDR Probably got to pack these things with - with as little bit of air in them as possible, too --

00 07 09 33 CMP Okay, how many seconds, Rusty?

00 07 09 37 LMP About 10, now.

00 07 09 38 CMP Okay.

00 07 09 40 CDR -- so that when we depressurize this thing, we don't have them all inflate.

00 07 09 44 CMP Give me a mark, ... when you get there.

00 07 09 45 LMP Okay, 1 -

00 07 09 46 LMP MARK.
00 07 09 51 CMP    ... 
00 07 09 53 LMP    Nothing?
00 07 09 54 CMP    Got the horizon!
00 07 09 56 LMP    Ooh.
00 07 09 57 CDR    Really?
00 07 09 58 LMP    What kind of a star check is that?
00 07 10 08 CMP    ... 
00 07 10 10 CDR    What?
00 07 10 12 CMP    ... trying to figure out how to make this thing ...
00 07 10 14 CDR    Okay.
00 07 10 15 CMP    On the - 5 minutes after sunrise, got the horizon and no - no stars at all, and the quads are now very bright. Got a - the cloud cover - it seems the earth is mostly blue - -
00 07 10 35 LMP    (Laughter)
00 07 10 36 CMP    -- with (laughter) white clouds, but it's not a dense cover of white clouds. ... and the sky is black, and there are no stars visible at all, and I can still see the prism split - the reflection on the prism split, which gives me a light band across the center of the field of view. And I guess that's about the size of it.
00 07 11 12 LMP    Okay, I got that down in the record ... Hey, you're supposed to have horizon in here, I guess.
00 07 11 18 CMP    You are?
00 07 11 19 LMP    Yes.
00 07 11 25 CMP    Sure no stars out there.
00 07 11 28 LMP    You want your drink?
00 07 11 30 CMP    Yes, guess I'll put it down ...
Oops, made me spill it.
I have it; I have it.
Say, did you cut the end off for him?
Yes, it's all set.
Okay, I guess we ought to look at the flight plan, and see what else we're supposed to be doing here.
I got it right here. Nothing.
Weren't we supposed to change one of those lithium hydroxide canisters or something?
Oh, yes. We need that --
We need - we need to get the big flight plan out, I guess.
-- filter change, number 1; we missed it. 3 to A, 1 to B-5.
Davey, here's your thing.
Okay.
Oh, if there's a smile on my face, it's because I just took a leak.
(Laughter) Dave, would you also fill mine up for me when you get -
Sure. This water gun is terrible. It didn't do too bad last time, Jim. Look.
Did it?
No, I got - I don't have that much air in that one.
Oh, yes. Maybe you just have to get the head off of it. Pchoo!
Okay, let's see. I guess I might as well eat some dry things here. Unfortunately. Lug-lug-lug-lug, chug-a-lug, chug-a-lug. Now, which ones are
worst? Toasted breadcubes or sugar cookie cubes? I guess I'll save them for dessert. You know, no matter which way I look, it feels like it's down.

Yes, me too.

(Singing) Oh, cloudy. (Singing)

How did your stuff come out, ounce-wise —

Hey, did we ever get the cabin vent open again down there?

No. Oh, my God, let's open the cabin vent.

Yes, boy.

Hey, it's alright; we were going to close it at noon – at night.

Yes, why don't we open her?

No kidding. That's right. I have the IM as holding at zero. Okay, waste stowage vent, right?

Right.

Shoot, open the ... vent.

(Laughter) Look what just came off.

What?

The optics eyepiece. Great, great.

Tape them down.

Hey, how did your water come out ounce-wise, on those two things I have you?

Oh, mine came out good, Dave.

Seemed about right?

Yes.

Would you squirt mine full when you get a chance down there?
00 07 15 25  CMP  Yes, chunk it here ... --
00 07 15 27  CDR  Sure.
00 07 15 28  CMP  -- let me get my - some tape on these optics, so I don't lose them.
00 07 15 31  LMP  Oh, does this food taste good.
00 07 15 33  CDR  Does the what taste good?
00 07 15 34  LMP  Food.
00 07 15 35  CDR  Oh, yes.
00 07 15 46  LMP  You know, the thing that impresses me most is how quiet it is.
00 07 15 49  CDR  What are we doing with the cabin fan? I think they're both off, aren't they?
00 07 15 52  LMP  Turn one to see what it sounds like.
00 07 15 56  CDR  Go ahead; number 2 coming on.
00 07 16 01  LMP  Right in the air, huh?
00 07 16 03  CMP  Yes.
00 07 16 04  LMP  Even that's not too bad.
00 07 16 19  CDR  Supposed to start our rest period in less than 2 hours - an hour and 45 minutes.
00 07 16 23  LMP  Ha ha!
00 07 16 42  CDR  They forgot a few things in here, like taking your suit off, and putting it back on, and -
00 07 16 47  CMP  Yes.
00 07 16 48  LMP  Dave, you want some more food?
00 07 16 52  CMP  Well, let me get - I haven't got what I got, yet. I'm busy as a little beaver.
00 07 17 04  CDR  Gee whiz, we don't have a thing to do until -
Oh, Dave's got to change that filter.
Yes, I will; just hang on, gang.
Yes, no, I'm not rushing you. I just want to - I just don't want to forget it.

Let me have that water gun. Man, I need something to drink.
Okay, ...
Okay, Jim, I'll get yours now.
Okay.
Hot or cold?
Hot.

Oh, man, that's a load of air. Whooee. Man, I'll tell you, this toasted bread c - cubes never tasted better.

Hmm.
How's that stuff taste?
Okay, Houston, go ahead with the NAV check.
Okay. Time: 008:10, all zeros; minus 2719, plus 02980, 1256. End of update.
Roger, understand. 008:10, all zips; minus 2719, plus 02980, 1256. How's that?
Houston, Apollo 9. Did you get the readback?
Houston, did you get the readback? Okay.
How does that look?
You got it there, Jim - Dave?
Hey, it's the wrong sign on the latitude - on the longitude.

Okay. They're both - both minus.

Yes, that's funny. We've got a plus here.

Houston, Apollo 9. Oh, we lost them. Hey, I hear thrusters firing. You know?

I might have kicked something down here.

Sounds like it.

Hey, listen, are we about time to take suits off, and all that stuff?

Yes, if we're going to sleep with them off, we're going to have to start taking them off.

Say again.

You want to sleep with them off, you can go ahead and start taking them off.

What are you going to do?

I don't know. It's a pain in the can to get them off. I wonder if I - I might not just keep it on tonight.

Hey, here's another card; here's your S-IVB, ...

Oh, yes.

Oh boy, oh boy! Would you believe that even the salmon salad tastes good?
Well, let's see, what do we have else to do?

Not much. Vent the batteries, terminate the cabin purge; ... we just got it started. (Laughter) Change that lithium hydroxide canister.

Yes. Yes, I got a real problem trying to pee, you know that? It's terrible.

Yes, I'll tell you, it took me a long while, too. I just - finally made it.

Maybe if you took your suit off, it may help, Dave.

You know, I might just do that.

Oh, hell!

What?

Some of my chocolate got away. Maybe I dropped

Gee, and we've got to get those napkins and all that stuff out, too.

Yes.

I think I will take my suit off.

Hey, that ought to be interesting. Here goes David for an hour.

If he's not doing P52's, he's under the seat.

Who's making that racket down there?

Where?

Sounds like it's right under my couch. Maybe it's Dave's suit -

Man, this blue suit's stable, isn't it?

Yes, sure is.

See if we got any perigee torquing now there. We're headed towards perigee, right now.
Here's another piece of trash.

Wonder what this blue stuff is.

I don't know.

That was really good.

What's that?

That chocolate.

Umm.

I want some water or something to drink.

Save mine for dessert.

What?

Yes. Here, hold on, Dave.

Man, you really going at it, aren't you?

Hold on. There you go.

You want a hand with anything?

Here, you want a hand, Dave?

Oh, hey, you had your watchband on. That might have had something to do with it.

What?

Well, I hope the girls have got the champagne out.

Hov's that surge tank, Rusty?

Surge tank is hovering at 700.

Boy, that thing sure doesn't refill very fast, does it? I'd like to get that fifth tank filled up. Can you see what the --

Maybe we ought to shut --
00 07 32 26 CC Greeting, Apollo 9. This is Houston through Hawaii.
00 07 32 29 IMP Roger, Houston; Apollo 9.
00 07 32 34 CC Roger. I didn't get to confirm all your NAV check-out. If you run it, you have probably discovered the sign was wrong on the longitude.
00 07 48 23 LMP Hey, Dave (laughter).
00 07 48 24 CDR (Laughter)
00 07 48 25 IMP You want to check with - the panel 250 is configured right, and I'll start charging battery B up?
00 07 48 31 CMP Okay.
00 07 48 32 CC We'll see you over Tananarive at about 24 or 25.
00 07 48 36 CDR Roger; thank you. And we'll get a PRD report for you as soon as we figure out what it is.
00 07 48 42 CC Roger.
00 07 48 45 CDR And, Houston, I'm going to start charging battery B right now for you.
00 07 48 48 CC Okay, and that's a dosimeter reading over Tananarive.
00 07 48 52 CDR Roger.
00 07 49 02 CDR What'd you say?
00 07 49 12 LMP Ah. ... I'll take ..., Dave. Didn't say you wanted ... or anything? Oh, boy. Look on the top, right there.
00 07 49 30 LMP Oh, my aching back. Number 1, and the time you took it out was 07:49, Dave.
00 07 49 42 LMP Well, we're right on there?
00 07 49 47 CDR Yes, how about the one we put in? Was it marked? Huh? Oh. ... 
00 07 49 59 LMP I ought to put a charge on B. Okay.
00 07 50 01 CDR Okay.
Whee! 2-1/4 amperes.

Oh, it's way down. 07:50:00 - start charge on BAT B; 2.25 amps and 83, 1.5. Oh, no; hey, you know, this stuff ... And 33 volts, 3 volts.

There isn't a single ...; well, I'll be a son of a gun.

...?

What? Here, let me take a peek.

Dave, could you run a P50 and see if everything is normal there? Okay.

Hey, our O2 flow's up again, finally. 0.55 now.

That's what I get.

Here's the number here, Dave. Here it is right here, I think. This supposed to be number 3? Is this one supposed to be number 3, that I have here? Yes, here it is, marked right here.


Hey, I'm telling you we're going to get in trouble with those lithium hydroxide canisters. I'll bet you two bits.

Well, I guess if he keeps marking them well, we may be able to avoid it.

I'm going to go ahead and power down to G&N and stop worrying about getting in gimbal lock.

What? What'd you say, Dave?

Hey, Jim, look at the sun coming through the sextant.

Where? Oh, yes.

(Cough) Excuse me.

Beautiful, Rusty, beautiful. You've got an eyeful of chocolate. (Cough)
Isn't that amazing, that the IM held together?

Yes, it is.

Uh oh! Look at that $O_2$ flow, Jim.

Huh?

That $O_2$ flow is working its way up.

Oh, shoot, it is.

What? Do you? What's the matter, aren't you feeling good?

Okay. I may go down and try to empty my bladder, here.

I'm trying to figure out what we're supposed to be doing.

It's - Coming up on 8 o'clock, vent the batteries and terminate the cabin purge, you're supposed to do.

You're supposed to do another P52 IMU realign to REFSMMAT ... You're supposed to do P52 IMU realign at about 08:20, about 25 minutes. Want me to do that one, Dave?

I'd better do that one of mine, and see what the optics look like. Rusty, sit here and watch this, and make sure we don't get any gimbal lock. Everything's turned off. Yes. Why don't you do that?

Boy, I'll tell you, I feel - I feel a heck of a lot better after eating. I didn't really feel bad before eating, but I felt hungry. ... myself to the hoses. (Laughter)

Yes. Yes, it does feel good after a hot lunch ..., doesn't it?

Boy, you know, swallowing all of this gas, you can't help but fart all over the place.

Yes.
That's a real challenge for that poor lithium hydroxide.

Yes?

Yes, I'll do that, Dave.

Dave, you're kind of socking them in there, aren't you?

Hey, I'm going to try a small one, here, Dave. You want some? No? Is that white?

Hey, I'll have a couple of pieces of medium.

Here you go.

I can't figure out whether I'm sleepy.

Here's a tissue dispenser. Here's a tissue dispenser. Say, and Dave, there's a couple - You want some towels, too? You want some towels, too?

I'll get you one. No problem. Yes, me too. I don't know how I'm going to get more - any more to eat, though. I don't know but what I should go and eat one of those 'yuk' meals? I wonder if I eat one of those things -.

Did you clean your ...?

My ... support?

Yes.

No, I have it over there.

Look, don't hold back.

Why don't you go ahead?

Yes, this time ...

There's our friendly O₂ FLOW HIGH.

Oh, shoot, is that right?
Yes.

Dave, is that thing pulled out over there?

Is that ECS return valve over there pulled out? I think it is.

Yes.

Well, I suggest we turn off the LM tunnel vent.

Or close the purge. Let's see what happens. Here, let me - Hold on. Let's see which one is doing what. Let's do them one at a time and look at the ECS.

Let's turn off the purge valve first.

Okay.

We're supposed to have that on, come to think about it. Ready?

Yes.

I'm not sure that you're going to see any response, right away.

Yes, I got an O$_2$ FLOW HIGH (laughter).

I don't even know what I did with that --

Hey, yes, it's coming down.

Yes. Let's just leave it there for a while and see what it stabilizes out.

(Laughter) David, you need another arm! Here, let me - Give me something. Hey, Dave, watch out, you're going to get your fingers in your eyeball.

Hey, here's a good way to hold your chow. At least it seems to work pretty well. You get a pair of ... like this - Dave, let me have one of those
anyway. David, let me have one of those before you put it away.

Oh, this is going to feel good, too.

Oh, boy, what a mess. You know how to get out that dump and take the ...? ..., I can't get the urine dump stopped.

We're supposed to do a P52 or something, aren't we?

Yes. Sure are.

Jim, the flow is down to 0.6 and it's still going down a little bit.

Would you believe we're looking right at the earth?

Yes, you sure are. Let's see, we're going to our right, so if David rolls left a couple of pulses, we'll be able to see it in a little while, Jim.

Okay.

Do you know where I put - Where's my checklist? If ..., I'm going to do this thing. I've got to get my checklist. Okay, what did I do with it? It's in my pocket. Never mind. It's in my pocket.

(Singing) Hey, I feel like a new man.

I'm going to get something to eat. I haven't eaten since ...

Hey, you want me to get some of that good food out?

Yes, would you get some of that ...? I'll have some of that.

Yes, I think I can reach it; let me try.

We're not going to do a sextant calibration to the trunnion bias, are we?

Ah -

Huh?
You're not going to do a sextant - sextant calibration to the trunnion bias, a P27 midcourse ...?

I doubt it.

P52, IMU realign.

CMC, ON; ISS, ON; SCS, operating; BMAG, three; G\&N POWER OPTICS; CMC MODE, FREE.

Dave, where are your hoses? Where are your hoses

We've got to get the screens and put on that one. Oh, did you? Oh. Oh, what's that?

Good. That's - that, we want to happen.

Trouble is, you know when it comes back on and flips us off - flip ON - OFF like that a couple of times, it's going to blow the horn.

Well, but it's not going to - it's going to stay on now.

I know it; when it comes back up in the middle of the night, it'll - going to blow a horn.

No, it'll only come to 235, see?

Now, what's it - what's it - what's the horn come on at?

I don't know. I got - I'm - under the effect of this turning effect, here. Hold on.

Dave, don't these eyepieces move around?

Do these eyepieces move around?

What do you want, Jim?
CDR  Oh.
LMP  I got turkey and gravy out. You want turkey and gravy?
CDR  Yes.
LMP  Would you?
CDR  Any of that stuff there.
LMP  Give me a - give me a pair of scissors, Dave, since you got them out.
LMP  (Singing) Oh, baby (laughter).
CDR  Is it okay to go to zero optics here, Dave? Zero optics, CMC?
LMP  (Singing) Oh, shoot. I can't reach that, silly ... What bag is that? What's this bag - What's this float-
ing here? What's that?
CDR  Look's like -
LMP  (Singing) Is this somebody's trash? I guess that's Jim's lunch.
CDR  That's my water bag up there. Don't ... the DSKY.
LMP  No, I'm just steadying myself.
LMP  Okay, David, baby.
CDR  There is nothing down there but earth, Dave.
LMP  Yes, Dave. If you roll left, I think - Well, I don't know, shoot. We're winning the - Rolling right. Which way are we rolling - on the rate meter? What?
CDR  Where's all that equipment we dump the urine bags with?
LMP  Hey, I'll look for that in a minute. Here you go, Jim. You want this?

CONFIDENTIAL
<table>
<thead>
<tr>
<th>Time</th>
<th>User</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 08 09 16</td>
<td>CDR</td>
<td>Yes. Wonder what I'm going to do with that? Let me see. Right in here.</td>
</tr>
<tr>
<td>00 08 09 27</td>
<td>LMP</td>
<td>Dave, do you want one? Okay. Oh, I've got to get our spoons out of there, too. (Singing)</td>
</tr>
<tr>
<td>00 08 09 46</td>
<td>LMP</td>
<td>I don't know where in the heck that - Yahoo!</td>
</tr>
<tr>
<td>00 08 10 01</td>
<td>LMP</td>
<td>Dave, there's your scissors. I don't know if they're going to stay there or not. (Singing)</td>
</tr>
<tr>
<td>00 08 10 23</td>
<td>CDR</td>
<td>Hey, I wonder if we're supposed to dump our waste water?</td>
</tr>
<tr>
<td>00 08 10 25</td>
<td>LMP</td>
<td>Let me see how high it's getting, Jim. (Singing)</td>
</tr>
<tr>
<td>00 08 10 33</td>
<td>LMP</td>
<td>Water, water, water, water. Waste water is 67 percent. Potable is 90, about. Waste is - waste is about 68 percent, Jim.</td>
</tr>
<tr>
<td>00 08 10 54</td>
<td>CDR</td>
<td>Okay.</td>
</tr>
<tr>
<td>00 08 11 03</td>
<td>LMP</td>
<td>(Singing)</td>
</tr>
<tr>
<td>00 08 11 11</td>
<td>LMP</td>
<td>Yes, I'm about to dive in for them here.</td>
</tr>
<tr>
<td>00 08 11 19</td>
<td>CDR</td>
<td>No, we're still looking at the earth, Dave.</td>
</tr>
<tr>
<td>00 08 11 37</td>
<td>LMP</td>
<td>(Singing) Have you got the utility light? Hey, anybody got the utility light?</td>
</tr>
<tr>
<td>00 08 11 45</td>
<td>CDR</td>
<td>There isn't one.</td>
</tr>
<tr>
<td>00 08 11 46</td>
<td>LMP</td>
<td>Oh.</td>
</tr>
<tr>
<td>00 08 11 48</td>
<td>CDR</td>
<td>You want the flashlight down here?</td>
</tr>
<tr>
<td>00 08 11 49</td>
<td>LMP</td>
<td>You can't be serious. No, I think I see them.</td>
</tr>
<tr>
<td>00 08 11 59</td>
<td>CDR</td>
<td>(Laughter)</td>
</tr>
<tr>
<td>00 08 12 01</td>
<td>LMP</td>
<td>Boy, oh boy, these things weren't packed very well! These spoons are - the bags of the spoons are all blown - are all blown up.</td>
</tr>
<tr>
<td>00 08 12 18</td>
<td>LMP</td>
<td>(Singing) Boy, this damn turning effect really grabs you, doesn't it? (Singing)</td>
</tr>
</tbody>
</table>
Day 1

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Look, Dave. We're getting some stars out there.

(Singing) Look at that bag, Dave. Isn't that good packing?

(Singing)

David, you're white, huh? That bag smells, too.

(Singing)

Hey, Dave, doesn't that eyepiece slide around down there?

Yes. Then it turns around like this.

Hey, look at that. They engraved the spoons. It says, "Commander 9."

No, it's open, sir.

(Singing)

Well, David, congratulations. You made it through a docking this time. How about that? Spoons! Part number SED 39104130.

Okay, Dave, just a little bit farther and I think I can get Rigel and Sirius. You're going to have to come down here and show me how this thing works, tomorrow.

Yes. A spoon - I see a spoon. Oh, a spoon ... spoon. That's rich!

Okay, let me start through this dude. Let's see, I want to call VERB 37; VERB 37, ENTER; 52, ENTER. I want to do a REFSMAT. Okay, I want a VERB 22 -

We've got more plastic bags! I guess I might as well throw them away. You got the TSB over there, David?

... like that?

PROCEED. That's 225. Let's see, I can come out of zero now, can't I? On zero. Then it proceeds to PICAPAR.
00 08 15 37 LMP  Why don't you name them? You want Rigel and Sirius, don't you?
00 08 15 39 CDR  Yes.
00 08 15 40 LMP  Okay, then enter in 215; that's Sirius.
00 08 15 43 CDR  Okay, there's a 14. Why don't you stop us now, Dave? 14. That's Canopus.
00 08 15 52 LMP  That's not a bad one. Moderately bright star.
00 08 16 07 CDR  Shoot, I can't get the God-blessed thing in focus.
00 08 16 19 CDR  Okay, I see him down there. We do PICAPAR - we got that. 01 70. CMC verify; OPTICS ZERO, OFF; PROCEED - you hit a PROCEED here, and then it goes and looks for it, doesn't it?
00 08 16 39 CDR  That right, David? Okay.
00 08 16 45 LMP  OJT.
00 08 16 46 CDR  Okay, that's it; now, put your shaft and trunnion out.
00 08 16 49 LMF  Man, oh man. I'm making up for what you guys were doing before, let me tell you. I am challenging the system!
00 08 17 00 CDR  Okay. Okay, that's good. Now what do I do? Do I go to MANUAL here? Got that?
00 08 17 19 CDR  There's Canopus. Okay, go to MANUAL.
00 08 17 33 CDR  Boy, oh goodness gracious sakes alive! They're going like a scalded ape. Back to CMC. Yes, we're really whipping along there, aren't we?
00 08 17 46 LMF  Now don't say that.
00 08 17 47 CDR  Let me just see if I can catch it, Dave.
00 08 17 51 LMF  Whee! Just see if he - he'll - he'll see if he can catch it.
00 08 17 55 CDR  They're really going. I just can't keep up with them.

CONFIDENTIAL
Look at this, Dave.

Well, I guess I can't even stay up with it in LOW. Let me -

Okay, that looks like about enough. I'm getting I'm catching up with it now. OPTICS, LOW, will get it there.

You open that new meal, Dave? You open that goo' meal? How'd it taste?

Okay, 50, 25, 16. PRO.

Have you done marked? Was it a good mark, I gue

Yes. Terminate marks. Okay, on those good mark I'll hit a PROCEED; and that was a bright star, so hit a PROCEED. Go back to CMC. 16, Sirius; want that. And I hit a PROCEED. Okay, ...

(Singing)

Oh, shoot, Dave.

Looking at the earth, again?

That's behind the - oh, that's - behind the IM, I think. Where do we go now? I'm looking at ch IM. Go to the what?

Sextant. Yes? May not be behind the IM in the sextant.

My gosh, it isn't. There's a star out there.

Well, should I mark on it? I can't possibly identify it as Sirius.

Is it bright?

Bright.

Mark on it.

I have a feeling that when I open this bag that everything is going to fall in my face.
Okay, 50, 25, 16 ... 16 - Oh, that says Procyon.
Okay. I read the wrong number, anyway.
Alright, and that one's the right star; I guess and ... give it AUTO optics.
Oh, look at that!
Oh, shoot, damn, I screwed up!
Well, let's see, you want to go to the next - We want to get the torquing angles here, don't we? Oh, darn, next thing. Hey, that's pretty good. Why don't you write those down on something or other?
Okay, I've got them. Mm-hmm. We ought to get the big flight plan out.
Where is it? Is it in R-12 here? Dave.
You know where it is?
Okay. Stand by, Jim; I'll get it for you now.
Alright.
Where have you been writing yours down, Dave? Where have you been writing yours down?
Jim.
Careful, boy, there's a - -
(Laughter)
Now, you got to write the time, huh?
Okay.
Gee, it doesn't say. Is this it here?
That's the wrong - That's at 9 hours. We're over here. I'll just write it down in there.
The time is 08:20 - Oh, you've got it down there, don't you?
00 08 23 41 CDR  No, I don't. What ti -
00 08 23 42 CDR  Yes, 08:22.
00 08 23 43 LMF  Yes, 08:23 was the time. Oh, but you do it when you proceed, 08:24. No, when the hell do you do it?
00 08 23 52 CDR  I do it - I did this one when I did the -
00 08 24 18 LMP  You know, turkey and gravy is pretty good, but that other stuff will never hack it.
00 08 24 22 CDR  Okay, ready to torque, Dave? Oh. Time to fire at 24:30.
00 08 24 32 LMP  20 - 24:30.
00 08 24 40 CDR  Okay, now what do we do with this one? ENTER; that ends it, doesn't it? Hey!
00 08 24 47 CMP  ...
00 08 24 48 CDR  Hey, how about that? I got right through that, and didn't screw it up much.
00 08 24 56 LMP  Hey, we'd better get this - this data figured out. It's absolutely atrocious the way it is. The data, the flight plan.
00 08 25 02 CC  Apollo 9, this is Houston through Tamanarive.
00 08 25 07 LMP  Roger, Houston; Apollo 9. Go ahead.
00 08 25 10 CC  Roger. I'm not reading you very good at all, but are you reading me well enough to take in your block data? I'm ready to send that if you can read it.
00 08 25 20 LMP  Roger. Stand by just 1.
00 08 25 24 CC  Okay.
00 08 25 26 LMP  The block data, here I'll copy it - I got a - All I need to do is get rid of a few things here. Where'd it go? Where's the - You got that book? Block data.
Okay, Houston, go ahead.

Roger. Reading block data number 2: 009 3 Bravo, plus 256, plus 14:50, 013:14:31, 2928; 010 - okay - Charlie Charlie, minus 195, minus 1617, 015:02:51, 2928; 011 Alfa Charlie, plus 008, minus 0230, 015:40:24, 2928. And am I coming through alright, Apollo 9?

Roger. What was the first area?

Okay, I - I've still got some more for you, but my first area was 009 3 Bravo.

Roger. Ready to continue.

That is the end of the block data, and your SPS trim angles for this: pitch, minus 133; yaw, plus 135, and that is the end of the block data. Before you start the readback, there are a couple of other comments for you.

Okay, go ahead.

Roger. We'd like to have you verify that you will do a waste water dump down to 25 percent prior to the rest period.

Roger. Waste water dump down to 25 percent prior to the rest period.

That is affirmative, and I guess I'd like to have a dosimeter reading if - if you've got it.

Roger; stand by. Do you have your dosimeter?

Here, I'll get mine; just a minute.

See if I can find mine, here. Oh, shoot, there's the Hasselblad down there. What do you know?

Okay, the LMP dosimeter is 8001.

Mine's 3102.
Houston, do you read?
Roger; 80 - Go ahead.
Roger. LMP is 8001.
Roger. I copy the LMP 8001. Say the next one.
Roger. Say yours, Jim.
CDR is 3102.
Roger. And the CMP?
We're not going to be able to get his. His dosimeter is all packed up.
Roger. Copy. No reading for the CMP, thank you. And we've only got about 20 seconds here before we leave. On this surge tank coming up, we say, if you would bring the REPRESS pack on the line and give us a reading on that, it might help us troubleshoot that.
Send a REPRESS back on the line!
And we're going to lose you here, Apollo 9, at the end of the pass. The next pass is scheduled over Hawaii at 05, which is right at the beginning of your rest period.
You want our fuel cell purge?
Well, we can dump the waste water. Hey, you want to - What do we want to do with the block data? We've got to figure out what to do with some of these.
Yes, we've got to have a little council of war here when we - when we get through here. Why don't you go ahead and eat, Dave? I want to find a couple of other things. I want to get the suit-hose thing. We got to get that data figured out. This is terrible, the way it's going around.
Yes, we got too damn many books.
We've got to get the checklist out. I'm going to start using that as the Bible. Let me get a couple I want to get this thing to dump my urine bag overboard, and I also want to get this thing to put on the vent line. Hey, would you check, Rusty, and see how many hours of sleep we have tonight? I think we have 10.

Okay, I'll check that. Sunrise coming up out at the front there.

Ouch (laughter).

I guess we ought to stow the optics. Whoop-te-do, whoop-te-do.

Put the dark slide back in the Hasselblad.

Let's see, we want this on return line, don't we?

I'm going to turn your suit flow back on now, Dave.

Let's see, the waste water is 70 percent.

Oh, boy. These hoses of mine are really keen. These hoses of mine are really keen.

What - what did you say, Dave? Yes, I wouldn't doubt that at all.

Hey, that was my bang. Rusty, would you like a towel?

No, not right at the moment. I wouldn't quite know what to do with it.

Okay. Now, if I could just find - Urine bag, receiver, roll-on ..., waste management water in case of emergency - Whooee, I'm hot! These fans are so persistent. Do you know where that hose is, Dave? Do you know where that hose is that we use to dump our suits?

Yes, right down ...

Right down on - Oh. Where's the contraption that goes on the thing?
It's up - it's there right under my foot, Jim. Right up in there.

Huh! Most of it's right here. - (laughter) on the flo - What in the heck is that? Here's that contraption.

Yes.

Huh. Let me get it hooked up here. Do you remember how to do?

Yes.

I guess it doesn't make any difference which of these two we plug it into; they just ... together

Let's just use - let's keep using the same one, though.

Yes.

Which one are you going to use?

I'd like to use the one closest to the LEB.

Okay.

What does this do?

You could start powering down to G&N if you want, Dave. You could probably start powering down to G&N.

My knees hurt. Feels like I have the bends in my knees.

Well, that was pretty stupid (laughter). I want to dump my urine bag, and I just went ahead and plugged it all ... in there. Let's see, we got to turn the heaters and stuff on, don't we? Are they on?

The breaker's in.

Yes, the URINE DUMP HEATER's ON.
00 08 38 35  CDR  Waste $H_2O$'s dumped? Sure are.
00 08 38 40  LMP  Yes.
00 08 39 07  CDR  Okay. Hey, why don't we get the book out - the
                  book of instructions out and read it to me?
00 08 39 13  LMP  Uh.
00 08 39 14  CDR  Wait a minute, I'll just get the book of instruc-
                  tions out, and read it to myself.
00 08 39 17  CDR  Yes.
00 08 39 18  LMP  I'm about done eating here, I think.
00 08 39 24  LMP  God, I've been eating for two REV's.
00 08 39 33  CDR  Gracious, what happened? This thing - this thing
                  must have blown up my suit. It blew up up
                  (laughter) - my urine collection. It must had
                  15 psi air trapped in it. I plugged it in and it
                  went oops! Grabbed a hold of me. Oh man, is that
                  thing ever tight!
00 08 40 03  LMP  Is that your UCD?
00 08 40 05  CDR  Yes, the thing actually inflated.
00 08 40 16  CDR  Just a second there, and I'll give you one more ...
00 08 40 52  LMP  I'll say one thing for this chow; it's tasty. Kind
                  of gooey, but - -
00 08 41 13  CDR  Hey, Dave, where did you put my old towel? My
                  little towel? Oh.
00 08 41 25  CDR  Urine dump mode; here we go. P and GA - PGA urine
                  collection bag dump: connect urine transfer hose
                  and filter through urine ...; connect urine transfer
                  hose to 5 QD; WASTE MANAGEMENT URINE valve to DUMP.
00 08 41 47  LMP  Complicated, huh? Didn't even say anything about
                  the heater, huh?
00 08 41 51  CDR  No. Good checklist.
00 08 42 08  CDR  Okay.
00 08 42 15  CDR  What?
00 08 42 18  LMP  Don't get sucked overboard, Jim.
00 08 42 25  CMP  Ho, boy. Back with you.
00 08 42 27  LMP  Hello, David, welcome home.
00 08 42 29  CMP  Oh, boy. Hey, you want to start that powerdown, Rusty?
00 08 42 32  LMP  Yes.
00 08 42 33  CMP  Yes, let me - let me just fold up this bag.
00 08 42 36  CDR  The circuit breakers and everything are ready for the urine dump.
00 08 42 39  LMP  Yes, sir, let me verify them. Yes, sir, they stayed in.
00 08 42 43  CDR  Okay, I'm going to go ahead and dump this.
00 08 42 46  LMP  Hey, which one is it going to come out now, David? You ought to - might as well watch it out there.
00 08 42 50  CMP  Yes.
00 08 42 52  LMP  I think it comes out your side over there.
00 08 42 54  CMP  Yes, it does. Right above the hatch - or right over here.
00 08 42 59  CDR  Man, I can feel it gurgling like mad.
00 08 43 01  LMP  I see it, too.
00 08 43 03  CMP  Yes, it's raining.
00 08 43 05  LMP  Oh, yes, look at it. Holy smoke! Frosty particles. There goes our roll rate (laughter). No, it isn't either.
00 08 43 15  LMP  It's a nonthrust urine dump, huh?
Why don't you take all your stuff when you get through with it and put in one big bag and wrap it up with tape, Rusty? What do you say?

Oh, I already gave some to Jim.

Okay --

I thought he was putting it in -- in over there.

Well, I'll stick it in --

Yes, I did. I put it back the food container over here, Dave.

That's a good idea, though. We ought to wrap it in tape -- you know.

But we need to split -- start splitting that tape in half.

Yes ...

I wonder how you know when this thing is empty.

Your dick goes out the door (laughter). I shouldn't say that; we're being recorded, I guess.

I don't know, but when you're done, shoot; you can just pass it to me.

Yes, and when you're done, you can pass it to me.

... Snowing out there, though.

By George, there's a LM out there. Would you believe that?

Urine is purging all over that. Bouncing off.

Is it bouncing?

Yes, especially off the black stuff.

Hey, it's really neat. Oh, I ought to have a movie of this. Hey, no kidding.

What?
It goes out - it will ricochet off of one - off of one surface and up to the other and bounce off the other. It's real neat!

Yes, I'm watching them, too.

Boing! (Laughter) You know what it's like, it's like salt moving something. Probably going to end up with urine in the thrusters. Hey! By Jove, is that a hole?

Where?

Not sure you can see it. Can you see the quad over here in front of me?

Yes.

Do you see the black --

Yes.

-- shroud inboard? Do you see a piece of yellow tape there? I don't think you can see it, Dave.

I don't think I can either.

No. I don't know - I can't tell whether it's a little patch or whether it's a hole.

I don't know whether I'm sucked on or not. I guess I am.

No, you're still flowing, Jim. You're still putting out lots of particles.

Hey, Rusty.

Yes.

Why don't we go through that powerdown? Okay?

You know, there's one little particle out there that's spinning like mad.

Tell you what I'm going to do: I'm going to just pull this thing off of mine and let it purge through for a minute.
Okay, now, let's see. That's the --
Wait. It won't purge, though, will it?
-- on the back of your checklist.
On the back of my checklist.
Here, who wants this? Who else wants to get plugged in? Get that --
Here, why don't you just stick it right on me?
No, didn't make it.
Okay, better?
Yes, I think so. Oh, I can feel it going down.
Man, a lot more room in that thing now. Okay, we ought to dump the water now, too, I guess, huh?
Yes, give me about a minute. Here, let me find it, Dave. Cabin REPRESS, command module pressure dump, bias, past urine water dump, potable chlorination, ... alignment. SPS. What's that? Powerdown or up?
Should say powerdown.
Waste water tank dump.
Spacecraft powerdown?
Yes, spacecraft powerdown.
POO.
Okay. We're in POO.
Get VERB 48, ENTER; hey, I think I'm empty.
Do you?
Yes, I ...
VERB 48, ENTER.
Okay, loss R-1, A equals zero, so I guess it says zero - anything.

Jim, have you seen this - this sun - on the DSKY?

Boy, oh boy. Look at that.

Have you seen it, Jim? The sun on the DSKY?

No, I haven't really. Did it completely blank it out?

It re - it really wiped it out. It really wiped it out.

... spraying water out there like mad!

Yes, aren't we?

And it's not even hooked on you anymore. Wonder how they'd do a purge on it now.

On - that?

Yes, it still doesn't have any purge fittings.

It doesn't have to have any purge fittings.

How do you purge the urine out of the line when they get done with it?

There's another little fitting you put in there -

Yes, but I wonder where it is.

Well, the last time I saw them, they were up underneath the couch here where I'm sitting. No, there's a - there's a - an elbow somewhere down here.

I think - I think it's right over here.

Yes, I think it's in the top one up there.

No, it's not.

Well, it - No - Hey, Jim, it's in the back one over there, and it's in that - in that piece of - of stuff that came out. There it is, on that wall.
Listen to it gurgle.

Now I need to pee. Now I need to do all that. Does it gurgle, Jim?

Just sucking it through there, Dave.

No, I thought you were --

I was cleaning it out, just to see if it was going to clean out.

Okay, Dave, you want to load a zero in the first slot. No DAP, huh? And a PRO, PRO, PRO.

Here you are, sir.

And a VERB 46, ENTER.

Okay.

Okay, VERB 37, ENTER; 06, ENTER.

Okay.

You got the flashing 52?

Right.

Okay, CMC powerdown. PRO. Hold until the STANDBY light's ON.

The light switch here.

STANDBY light's not ON!

No, I was - I was turning my lights up, Jim.

Okay.

Okay.

Stand by.

There it is.

Okay, CMC MODE to FREE.
Ihh

Day 1

FREE.

00 08 50 25 CMP

G&N IMU POWER, OFF. ISS warning, RESET.

00 08 50 26 LMP

Wait a minute; G&N POWER IMU. Here goes our ball, gang. You ready to bite the bullet?

00 08 50 33 CMP

(Laughter)

00 08 50 40 LMP

You mean if it's not one, we watch it grow.

00 08 50 41 CMP

You've got to throw the switch, Charlie.

00 08 50 45 LMP

Oh, okay, G&N POWER, OFF.

00 08 50 50 CMP

And IMU POWER, OFF.

00 08 50 53 LMP

G&N POWER and IMU, huh? That does it; that zaps it. Which area, now?

00 08 50 54 CMP

Huh?

00 08 50 59 LMP

What area do you want? You want G&N POWER - IMU -

00 08 51 00 CMP

G&N - It says it - I don't know -

00 08 51 02 LMP

No, it says G&N POWER, IMU -

00 08 51 03 CMP

No, it doesn't. It says G&N IMU POWER. All one word. G&N IMU POWER, OFF.

00 08 51 04 LMP

How about the OPTICS POWER?

00 08 51 09 CDR

Okay, that's next.

00 08 51 10 LMP

Oh, that's next. Okay, G&N POWER IMU, OFF.

00 08 51 11 CDR

Let's see - That's the only one we got.

00 08 51 14 CMP

Here goes IMU, OFF.

00 08 51 15 CDR

G&N OPTICS POWER, OFF.

00 08 51 21 LMP

Okay, SCS ORDEAL POWER, OFF. FDAI, INERTIAL.
Okay.

What are our rates right now, Dave? I wonder if we ought to damp them down at all.

No, we're almost zero. We got a little bit of yaw.

Okay.

Forget it then.

Huh?

Let's just forget it.

EMS FUNCTION, OFF.

EMS FUNCTION's OFF.

EMS MODE to STANDBY.

STANDBY.

CMC ATTITUDE, IMU.

Oh, yes, yes. Oh, this one's ... to use.

Yes, it's always ... FDAI SCALE, 5 and 1.

Right.

FDAI SELECT, 1.

1.

FDAI SOURCE, CMC.

CMC.

ATTITUDE SET, IMU.

IMU.

MANUAL ATTITUDE, three, to RATE COMMAND.

Okay, let's see.

You got that?
Yes, I'm thinking, you know, we're - Here we go.

Okay.

What?

We're turning them all off.

Let me see if we're in the right thing here.

What do we do - what do we go to --

We just go down to WARM UP, don't we?

Yes.

Okay, I think I'll wait for the - if I go to RATE COMMAND. Let's turn off the jets before I do that. Okay? We should have thought of that, because if I go to RATE COMMAND now and then SCS -

Why don't I change the checklist now? We're probably going to do this a few times.

Yes.

Okay, let's turn the jets off.

What do you want?

Let me see where the jets are now. We had moved those to a certain point. Let me look at your checklist.

AUTO - AUTO RCS THRUSTERS came OFF way down here.

I wonder if we should have coarse aligned? No. No, the IMU is just drifting now, isn't it?

See, we're up here: MANUAL ATTITUDE, three, RATE COMMAND.

Yes, well, let me look at - on down. I want to see whether --

Yes, right here.
Day 1

00 08 53 21  CMP  -- and what is -- It comes before -- We moved it up for a reason. Now, I want to see if I can remember why.

00 08 53 33  CDR  Are you going to find another thing here to --

00 08 53 35  CMP  Let's move that up, so we don't turn the jets on.

00 08 53 37  LMP  Move what up?

00 08 53 38  CMP  Move the 16 RCS jets OFF prior to going to RATE COMMAND.

00 08 53 42  LMP  Okay. That's all you want to move up?

00 08 53 44  CMP  Yes.

00 08 53 50  LMP  Okay, AUTO RCS SELECT, 16, OFF.

00 08 53 54  CMP  Okay.

00 08 53 57  LMP  MANUAL ATTITUDE, three, to RATE COMMAND? Oh, I'm sorry.

00 08 54 04  CMP  We're about 0.1 of a degree per second, Jim. You want to damp that or let it go?

00 08 54 08  CDR  No, why don't we just let it go?

00 08 54 13  LMP  MANUAL ATT - oh (laughter).

00 08 54 15  CMP  16 of them, man.

00 08 54 17  LMP  Yes, I know, I --

00 08 54 18  CMP  Okay, three, to RATE COMMAND.

00 08 54 21  LMP  Okay, three, to RATE COMMAND.

00 08 54 22  CMP  Okay?

00 08 54 23  LMP  LIMIT CYCLE, ON, of all things to have.

00 08 54 24  CMP  ON?

00 08 54 25  LMP  ATTITUDE DEADBAND, MAX.

00 08 54 26  CMP  MAX.
00 08 54 27 LMP  RATE, LOW.
00 08 54 28 CMP  LOW.
00 08 54 29 LMP  THC POWER, OFF.
00 08 54 30 CMP  OFF.
00 08 54 31 LMP  ROTATION CONTROL POWER NORMAL, two, to OFF.
00 08 54 32 CMP  OFF; OFF.
00 08 54 34 LMP  DIRECT, two, to OFF.
00 08 54 35 CMP  OFF; OFF.
00 08 54 36 LMP  SPACECRAFT CONTROL, SCS.
00 08 54 37 CMP  SCS.
00 08 54 38 LMP  CMC MODE, FREE.
00 08 54 39 CMP  FREE.
00 08 54 40 LMP  BMAG MODE, three, to RATE 2.
00 08 54 42 CMP  RATE 2.
00 08 54 43 LMP  SCS TVC, two, to RATE COMMAND.
00 08 54 44 CMP  RATE COMMAND.
00 08 54 45 LMP  EMS ROLL, OFF.
00 08 54 48 CMP  EMS ROLL's OFF.
00 08 54 49 LMP  0.05g SWITCH, OFF.
00 08 54 50 CMP  OFF.
00 08 54 51 LMP  LV/SPS INDICATORS to Pc, GPI. What! What was that?
00 08 54 59 CMP  What's that?
00 08 55 01 LMP  L-V/S-P-S IND
Yes, okay, Pc, GPI. I thought that I heard something --

Oh.

Go, go.

TVC GIMBAL DRIVE, PITCH and YAW, to 1.

TVC GIMBAL DRIVE, PITCH 1; YAW 1.

EDS POWER, OFF.

OFF.

Don't wiggle your feet around, Rusty. There's some long pieces of plumbing sticking out down there.

Your EDS POWER, OFF?

It's OFF.

TVC SERVO POWER, two, OFF.

Two, OFF.

FDAI POWER, 2 - FDAI POWER, OFF.

FDAI/GPI POWER, OFF.

LOGIC POWER 2/3, OFF.

2/3, OFF.

Let me see what our fuel cells are doing now.

Okay.

SCS ELECTRIC - SCS ELECTRONIC POWER, OFF.

Okay. ELECTRONIC POWER's OFF. Okay.

SIGNAL CONDITIONER/BIAS POWER, OFF.

OFF; OFF. Okay.
BMAG POWER, two, to WARM UP.

Okay. BMAG 1 to WARM UP; 2 to WARM UP. Okay.

What was that? We got a MASTER ALARM - Do we get one when we turn that off?

Yes, we sure did. And I think we were supposed to.

Correct, remember?

I don't remember it, but I - That's what I wondered - -

Yes. Yes, I remember hearing that now.

Okay, that's it. We sure didn't drop much current. I'll say that for it.

That's all there is to the whole bloody powerdown checklist?

Well, systems. Go next to the systems.

Oh, yes, well, that ought to take some more. Let's see, did you turn the S-BAND, ON? Yes, you did. You can turn that OFF now, too.

Oh.

We're on HIGH GAIN ANTENNA.

Oh, it's OFF. No, I turned that OFF right after I turned it ON.

Oh, okay.

I turned it ON, slewed it, and turned it OFF.

Okay.

Okay. We don't want to purge, huh?

I don't know.

Well, geez; you're the captain, for Christ's sake.
I asked them; they didn't know either (laughter).

(Laughter) They didn't hear you, I'm afraid.

I know.

Hey, I wonder if I could con you into pulling a fruit pack out there with some Tang in it, Jimmy?

Yes, I'll get — I'll get that stuff in just a minute. Hey, you want to dump your urine?

Oh, yes.

Why don't you get that dumped and over with so we can —

Oh, yes. Oh, yes, then we got to start the waste water dump.

Where'd that other piece go?

What other piece?

Oh, hell, we didn't lose that thing?

You didn't give me but one. I only saw one piece.

Oh, screw it! There's another piece on it.

You sure?

It's not snapped in here?

No.

It would snap around the thing, Jim.

Snapped right around here, yes.

I didn't see anything. Here's a screw (laughter).

Oh.

(Laughter) Where the hell did that screw come from

I don't know.
Hey, give me that towel. I'd like to wipe up fingers. They're sort of dirtied up.

I was going to give you my fresh one when I got to it, but -

Well, that's okay - -

Oh, son of a buck. Look around for a - You can't dump your urine with that - You have something already hooked to your - I'm sure you don't. Hey, Dave, you just can't dump your - You're going to have to put your suit back on to dump it.

Don't tell me that. Where - where - where - where could it - that thing go?

Hey, Jim, the cryo pressure's coming down to 200. They wanted to put the fan on, right?

Yes, when it got to 200.

Yes, why don't I let it go a little bit more?

I don't see that thingamajig, Jim.

Well, Dave, I don't either, and I don't - sure don't know where it went. I thought it was right there on that strap.

Was there a strap for it?

Yes, right here.

Oh. Shoot.

It's not down in there, in amongst this stuff anyplace, is it?

Sure isn't.

Oh, boy!

This isn't it here; it's - it's the other one. I'm sorry, Dave. You just can't dump your urine.
00 08 59 13 CMP   I'm going to have to dump my urine.
00 08 59 15 CDR   I know it. Let's look around, and see if you can't find it.
00 08 59 18 CMP   I'm looking.
00 08 59 27 LMP   Hey, I see it.
00 08 59 28 CDR   Where is it?
00 08 59 29 LMP   It's underneath my head. Stand by. Let me go dive for it. Here, hold my checklist.
00 08 59 35 CMP   Oh, I can get it, Rusty. I think I can long-arm it.
00 08 59 37 LMP   No, I don't think you can make it, Dave. It's too far over.
00 08 59 42 CMP   Yes, look. Here, I got it.
00 08 59 44 LMP   You're sure, huh?
00 08 59 45 CMP   Yes.
00 08 59 46 LMP   Oh, okay. You're not strapped in it yet there, are you? You got it?
00 08 59 52 CMP   Yes, that's it. We keep cleaning up for McDivitt.
00 09 00 02 LMP   Fuel cell O₂ purge; fuel cell H₂ purge; cryo fans O₂ and H₂ on for 3 minutes. Oh, we need to get out my new timer. I knew there was a sound missing.
00 09 00 19 CDR   Hey, where's the --
00 09 00 22 LMP   Oh, boy!
00 09 00 26 CDR   -- the female QD on the waste-water panel? I don't know where in the heck that thing is. Anybody know where that is?
00 09 00 32 LMP   Yes --
00 09 00 33 CMP   Yes, it's under the dash.
00 09 00 34 LMP   -- right up --
Under where?

What female QD? There's one in R-5.

It's under where?

Right under me - You mean the one to do the water dump?

Yes.

It's right under my shoulder - The far left one as you go up there. Your left, the far one.

Boy, that purge tank sure isn't coming --

It's dumping. Oow!

It's really not coming up very much.

I'm dumping.

You sure you are?

Yes, I can feel it. See, and this bag --

Oh, yes, there it goes again.

That bag was like full, George. I mean that bag was really full.

Dave?

Yes.

When you get done, why - why don't you stick this on the end of it and let us purge through it - for a while?

Okay.

Oh.

Hey, Jim, where are you? On the couch?

No, I'm right down here in the LEB again. I'm trying to find some place to put this cottonpick-ing checklist.
Okay, I'm going to get ready to dump the waste water, here.

Let me finish dumping my urine.

Yes. Waste water tank drain: Use as desired to ... maintain; attach the ... hose filter to the ... QD; install the female QD on the waste water tank.

Hey, have we gone duplex A, receive A, only at night, here?

Yes.

Oh, screw me. I need another tool.

Toolkit's under Rusty's ass. Under here - Yes.

Why do we need another tool for that thing? Well, I sure do. I didn't realize you needed another tool for that.

Yes, you do.

Hell, it's going to take us 3 hours a day to figure out what to do in here. My knees hurt.

Yes, I'm going to get out of my suit as soon as we've done this powerdown.

I'll tell you, it's sure a lot better.

I'll bet. Jim, are you up under the couch again?

No, I'm going to - I'm looking for the toolkit. I'm sort of under your couch now, yes. Why?

Toolkit's right there in the --

That's alright. I'll get it.

-- it's right there --

I know where it is. I --

Okay.
Day 1

00 09 03 18 CDR  Just trying to get to someplace that I can reach it.
00 09 03 24 LMP  Boy, I'll tell you, R-12 is not much help.
00 09 03 28 CDR  Oops! There's something. I wonder what that is? Here's some little bags. I wonder what they do. Anybody know what this does?
00 09 03 38 CMP  What?
00 09 03 39 LMP  Yes, that's the bag for the jack screws. Leave it in there. That's for when we get ready to do all that fancy show biz.
00 09 03 56 LMP  Get my little --
00 09 03 57 CDR  Ouch!
00 09 03 58 LMP  Did I get you?
00 09 03 59 CDR  Just a little.
00 09 04 00 LMP  Excuse me.
00 09 04 03 CDR  Do we screw this female thing in here and just leave it there, I wonder?
00 09 04 08 CMP  No, you take it back out, I think.
00 09 04 13 LMP  (Singing)
00 09 04 17 CDR  Hey, here's our other tool. We want to get that out - our other tool E -
00 09 04 22 CMP  Well, let's don't lose it.
00 09 04 23 LMP  (Singing)
00 09 04 25 CDR  You don't want to have both tool E's out?
00 09 04 26 CMP  Huh?
00 09 04 28 CDR  Don't you want to have both - both of --
00 09 04 29 CMP  Oh, yes, but I don't want to - you know - Yes, gosh. Two tool E's out. Agreed.
00 09 04 33 CDR  What tool goes in there? God damn it! R?

CONFIDENTIAL
00 09 04 41 LMP I - I don't know. Anybody else want anything else out of R-13 while I'm in there?
00 09 04 44 CDR I want something to eat, but I'm going to get to that in a minute.
00 09 04 52 CDR There it is right there. Tool L.
00 09 05 01 LMP (Singing)
00 09 05 05 CDR Holy Christmas!
00 09 05 06 LMP (Singing) Watch out for my feet. I'm trying to turn over here, and it isn't the easiest job in the world. Okay. Oops! (Singing)
00 09 05 28 CDR Would you believe I can't open it?
00 09 05 29 LMP (Singing)
00 09 05 32 CDR There it is.
00 09 05 33 LMP (Singing)
00 09 18 25 LMP The fuel cell.
00 09 18 29 CMP We're presently in the process of purging the O₂ fuel cell.
00 09 18 33 CC Affirm.
00 09 18 35 CMP Okay. 2 is going to purge.
00 09 18 39 CC And is your H₂ tank 1 fan on at this time?
00 09 18 45 CMP We'll bring it on now. We notice it's 200.
00 09 18 47 CC Okay.
00 09 18 50 CMP H₂ fan 1, ON.
00 09 18 51 CDR Oh, we didn't have the QD's to the other thing go ...
00 09 19 02 LMP Hey, Jim, it's still flowing like mad.
00 09 19 03 CDR Is it really?
No, it stopped.

It's probably --

No, it's going in spurts.

-- it's probably what was in the line, Rusty.

Yes, it's going in spurts.

Oh, boy, what a mess. I guess the water --

You get a lot of water?

Oh, enough to make it kind of messy here. We're going to have to --

Here's a towel, Jim. Right here.

No, I'm going to suck it out of here in just a minute. Would you hold on to this for me?

Here, I'll get it.

As long as I have the - end of this water hose, I'll just stick it in there --

Let's not pick up any dirt with it.

Don't intend to.

How - Does it have a filter on it?

Yes, it has a filter on the other end.

Yes. That's right. It's already sucked the water up. How about that?

That quick, huh?

Yes. What happened was - it sucked it right through the quick disconnect here - And the ... just sucked it out by itself.

Why don't I turn the cryo fans on, too?
Okay, Dave, would you give me that wrench - that tool again, please?

Yes, sir.

(Laughter) I hate to tell you this, but that hunk of Velcro isn't fixed to anything.

Okay.

CO₂ canister change - We got done; WASTE MANAGEMENT OVERBOARD DRAIN will be going OFF, and WASTE STORAGE VENT valve to CLOSED; S-BAND OMNI to B; COMM, basic, DUPLEX A and RECEIVE (A) ONLY, so I'll do that. DUPLEX A.

You got to put number 2 in the ..., Dave, because number 1 has ...?

Yes.

What did you say, Jim?

Got to put number 2 in ...

Well, you're right. You know, I even wrote him a big question about that.

Right. ... answer back ...

Yes ... number 2. ...

I ate mine. Because it's got ... - Oh, that's Rusty's.

Hey, has everybody had some water? Because if they do, I'm going to chlorinate the water.

Yes, I've got some.

Rusty, did you get some?

Rusty, where are our ...?

What are you looking for?
160 Day 1

00 20 58 03 CMP Rusty's ...
00 20 58 07 CDR Well, he thinks it's on the floor, here?
00 20 58 21 CDR There it is, up there in the tunnel.
00 20 58 30 LMP There you go.
00 20 58 34 CDR ... to chlorinate the water ...
00 20 58 39 CMP ... flight plan.
00 20 59 04 IMP Hey, Jim.
00 20 59 05 CDR Yes?
00 20 59 06 IMP Before you chlorinate, let me figure this ...
00 20 59 11 CDR Okay.
00 20 59 19 IMP There's 15 minutes before realignment, Jim.
00 20 59 28 CDR Yes, you better do that first.
00 20 59 49 CDR We really ought to chlorinate the water at night when we go to bed ...
00 21 00 55 IMP If somebody's getting into A-7, I'd like to get film pack U.
00 21 01 01 CDR Okay, stand by. ... pretty full, Rusty?
00 21 01 17 IMP Fairly full.
00 21 01 24 IMP I'm going to put next to this film pack how much we've used out of it - by the way - so far. Yes.
00 21 02 08 CDR Can I give you a hand, Dave?
00 21 02 52 IMP Tell you what, maybe we ought to wait until we get through ... this alignment gets done, before we do that ..., before we do the ...
00 21 04 02 CDR Well, maybe we ought to unstow the covers here ... The Wally Schirra dark-adapt covers.
00 21 04 18 IMP Guess we ought to stow these film packs where they came from, huh?
00 21 04 23 CDR  Yes, if they don't ...
00 21 04 27 LMP  Well, no. See, it's not empty, but I've logged how much we have remaining --
00 21 04 31 CDR  Okay.
00 21 04 33 LMP  -- I think I'll write it on the tape, too.
00 21 04 35 CDR  Only way we're ever going to know --
00 21 04 37 LMP  Yes.
00 21 04 38 CDR  -- where it is.
00 21 05 09 IMP  Okay, and it goes in B-8.
00 21 05 54 LMP  Hey, Dave, ... when you get a chance.
00 21 07 02 LMP  You know anything about this spotmeter reading? No, hell. We're in the wrong attitude anyway.
00 21 07 29 LMP  Jim, how far away do you think that target is?
00 21 07 33 CDR  The one right in front of us?
00 21 07 34 LMP  Yes.
00 21 07 39 CDR  3-1/2 feet.
00 21 07 40 LMP  Really?
00 21 07 41 CDR  Yes.
00 21 07 42 LMP  3-1/2?
00 21 07 51 CDR  It's probably about 5 feet to the ...  
00 21 07 55 IMP  Okay, I'm going to focus on 5.
00 21 08 54 LMP  Should be right up above my toe, but it's not, I guess.  Oh, I don't know.
00 21 12 47 LMP  Doesn't seem to taste as good this morning.
00 21 12 49 CDR  (Laughter)  Maybe you're starting to get ...
00 21 14 50 CDR  Got that? You're going to have to hurry.
Day 1

00 21 15 37 CDR  I'm going to give it a whack in yaw ... come in, Dave.

00 21 15 49 CDR  Boy, you know what, Dave? I wouldn't be a bit surprised if this stroking test isn't very exciting, because just these direct-yaw pulses couple with the pitch. I was thinking about this last night, you know. I think we ought to really evaluate what we see here and decide here whether we're going to do another one - decide whether we're going to do that 100-percenter or not.

00 21 16 17 CDR  Okay, you better - you better - ... P52.

00 21 16 25 CMP  Okay.

00 21 16 26 LMP  I need to stow one thing.

00 21 16 28 CDR  What?

00 21 16 30 LMP  Stow that -

00 21 16 33 CDR  Tell you what - He's only got an hour to get - do all those things. Let's us - What's the burn time?

00 21 18 29 CMP  ... VERB 48; 311.02 we have.

00 21 18 37 CDR  Yes.

00 21 18 39 CMP  Can tell when we get there whether ... Okay, we want that to be zero ...

00 21 19 07 LMP  We decide the 10 percent, huh?

00 21 19 37 CDR  Did I ever turn the DAP on VERB 46? I did a long time ago.

00 21 20 06 LMP  Okay, ready for thrusting?

00 21 20 18 LMP  MASTER ALARM ... nothing ... caution/warning ...

00 21 20 47 LMP  We've got a fairly high vent flow here ... Have a high vent flow in what, Rusty?

00 21 35 59 LMP  By God, I've finally seen our friendly Orion out there.

CONFIDENTIAL
00 21 36 36  CDR  You want me to get that for you, Dave? Hey, are you alright, Dave? Yes, I'll get it for you.

00 21 37 27  CMP  I'm ... go higher.

00 21 37 30  LMP  Go up higher, Dave. Dave, can you go up higher?

00 21 37 43  LMP  Hold on. Have you got it?

00 21 38 29  LMP  ... down ...

00 21 38 34  CDR  Who's ... are these? Are these yours?

00 21 38 35  LMP  Dave's.

00 21 38 38  CDR  You're going to lose that film pack.

00 21 38 40  LMP  No, it's going to be stowed as soon as Dave has time.

00 21 38 47  CMP  Hey, why don't you stick it in your pocket or something, Rusty? We're not going to have time. We're down to 30 minutes.

00 21 38 53  LMP  Okay.

00 21 39 15  CDR  What did you do? Did you hurt yourself? What? Oh, oh, you alright now?

00 21 39 37  LMP  ... doing down there, ...

00 21 39 53  CDR  Guess we're not going to have time to do a star check. I'm going to turn my ... stuff on ...

00 21 40 34  LMP  Hey, Jim? Jim? Yes, I can. Can you hear me? Do we want to change the configuration of the CABIN REPRESS or EMERGENCY valve when we put our helmets and gloves on, or not?

00 21 48 24  LMP  Have you got that flight plan?

00 21 48 30  CMP  No.

00 21 48 37  CDR  Is it still dark out there?

00 21 48 38  LMP  Yes.

00 21 48 39  CMP  Yes.

00 21 48 39  LMP  Hey, Jim? Jim? Yes, I can. Can you hear me? Do we want to change the configuration of the CABIN REPRESS or EMERGENCY valve when we put our helmets and gloves on, or not?
What's the time?

... your status?

Stand by. The star is 21.

Where is it?

... the horizon.

The angle - Here you go, Jim. Got it?

21.

Let's see, what can I call up here, Dave? 1692?

1691. ...

Oh, 1691. Okay. ... I'm at zero, moving to MANUAL, and I'm ... at - 208.

We're a few degrees off, Jim.

Okay.

Oh, there's the moon.

Want me to tighten it up for you, Jim?

No, if he's just out there, I'll be lucky. I'm not sure I'm going to be able to see if the moon's out there, Dave.

The sun's coming up, too.

Here comes the sun.

The sun's coming?

Yes.

... ought to be right there.

All I can see are the speckles right next to the spacecraft.

1691.
Yes, I bet you've had it.
Yes, I think I have, too. How much time do we have?
19 minutes.
Hold this, Rusty.
Okay, I got it.
Let's see, I want to go back to zero and CMC, right?
Right. I could tighten up P40.
No. Dave, I couldn't see out there.
Well, yes, but you can see stars in the daytime.
I could see a thousand of them, out there and I can't.
What? No, no, no, no.
In the sextant?
In the sextant. You ought to be able to see them. Just tighten it up and look, okay?
I just zeroed it, Dave.
You could unzero it - You want to look at it, or you want to assume we're okay?
Oh, let's assume we're okay. ...
What was it - what was it, 13.2?
They were 280, 280.4, and 13.2. 208.4.
That's 208, yes.
I'm going to go into P40 to get you there, Jim.
Okay.
Okay.
00 21 54 25 CDR 208.4 and 13.2.
00 21 54 38 CMP Okay, we're right there.
00 21 54 51 CDR I don't see any stars.
00 21 54 54 CMP Well, wait a minute. You got to get your - Okay.
00 21 55 04 CDR My what?
00 21 55 16 CDR Well, Dave, I don't see a thing.
00 21 55 17 CMP You don't, hey?
00 21 55 19 LMP Can anybody see the ground?
00 21 55 30 CMP Well, you ought to see it.
00 21 55 33 LMP How about looking down to see if you can see the ground?
00 21 55 36 CMP I can see the ground over to the right, here.
00 21 55 39 CDR I can see the ground in the -
00 21 55 41 CMP Are we out of plane north?
00 21 55 45 LMP Let's see, the ground is - Yes, yes, we are. Yes, we're out of plane north.
00 21 56 04 CDR How much time do we have?
00 21 56 06 LMP 16 minutes.
00 21 56 15 CDR The whole sky is just very light, Dave.
00 21 56 25 LMP You ought to be just about looking at the ground, Jim.
00 21 56 27 CDR Yes, you know, I don't understand. I am - I am with the sextant, and I'm not with the telescope. How about that? ... can't tell it if I am. Oh, yes, there I am. Yes. Okay, zero and CMC.
00 21 56 43 CMP Good ...
00 21 57 03 CMP Oh, what in the hell?
... on, Dave?

Yes, just a minute.

Well, there's a new strap; I never saw that one before.

What's your DELTA-V counter setting, Rusty?

DELTA-V counter is 845.7.

Okay.

Okay, Rusty, if you want to go ahead on, let's go ahead on.

Okay, are we in P40?

We're in P40.

Okay, and we're in AUTO and CMC. EMAG MODE, three, to RATE 2.

Rate 2.

Align the spacecraft in ROLL.

Aligned.

Proceed.

Okay, we've trimmed already.

Alright, check panel 8.

Okay, panel 8 looks okay.

Okay, AUTO RCS SELECT; A/C and B/D ROLL's, four, OFF.

Okay, your load is going --

... UCD.

A/C ROLL coming OFF. Are you going to want to hold this?
Yes, I'll hold that.

You want to hold that. I checked the --

Is your A/C ROLL, OFF?

A/C ROLL's OFF.

Okay, set the DELTA-V indicator?

Set.

Verify - Jim, you want to verify that number for the pad?

Okay. Whoops! ... there goes a ring. Now, what are we going to do with that? The numbers should be DELTA-V counter 245.7.

Okay. The EMS DELTA - FUNCTION to DELTA-V.

DELTA-V.

MANUAL ATTITUDE, three, to RATE COMMAND.

Three to RATE COMMAND.

ATTITUDE DEADBAND, MIN.

MIN.

RATE, LOW.

RATE's LOW.

TRANSLATION CONTROL POWER, armed.

Armed.

SCS TVC, two, to RATE COMMAND.

Two to RATE COMMAND.

DELTA-V\textsubscript{cg} to LM - CSM/LM.

CSM/LM.

Stand by for 6 minutes.
Okay.

What time is it now?

11.

Okay. Wonder if that's going to stay down.

No. Why don't you put it in the bag, over there, or something?

We don't have a bag.

...

Well -

Okay, 0.4 of a second, NO-GO for the second one and 1 degree per second, and we shut her down.

Right.

You got the ball - the ball aligned. Okay, and you're going to hit it after 1 minute, right?

After 1 minute. VERB 68, I'm ... go to low scale.

Okay.

What's the total burn time?

1 minute and 51.2 seconds.

Okay.

I got it all set up. That ought to hold it.

... is terrible.

Isn't it, though?

That's the worst I've ever seen it. Worse than the simulator.

It's amazing how that - that sextant doesn't look at the same thing that the telescope does when you're looking out at the ...
00 22 03 41 CMP Yes. Sure is.
00 22 03 59 CDR Well, we're going sideways. Headed north.
00 22 04 11 CMP That's encouraging.
00 22 04 12 CDR Yes.
00 22 11 36 CDR 30 seconds.
00 22 11 37 IMP EMS to AUTO.
00 22 11 38 CDR Okay. ..., OFF.
00 22 11 39 IMP Okay, PIPA, ... full count.
00 22 11 45 CDR Full count.
00 22 11 46 IMP Full count.
00 22 11 51 CDR Ready, Dave.
00 22 11 52 CMP Ready, Jimmy.
00 22 11 56 CDR 9, 8, 7, 6, 5, ...
00 22 12 05 CMP Got a good line.
00 22 12 06 CDR Good.
00 22 12 07 CMP Gimbal motors look good.
00 22 12 09 CDR Good.
00 22 12 14 CMP ... Pc is good. Okay, camera's back off.
00 22 12 20 IMP Okay, 1 minute and 30 seconds remaining in the burn. 2, 1 -
00 22 12 26 IMP MARK.
00 22 12 28 CDR Looks good, Rusty.
00 22 12 31 IMP Okay. PU's looking better now.
00 22 12 33 CDR Okay.
00 22 12 35 CMP. Pc looks good, gimbal motors are steady; we're coming back in on the steering.

00 22 12 40 CDR Okay. You've got 20 seconds to go to the ...

00 22 12 48 CMP Okay, we're drifting to the side in a roll ...

00 22 12 51 CDR Go to 51, Dave.

00 22 12 53 CMP Okay, 51.

00 22 12 54 CDR Okay.

00 22 12 57 LMP You have 9 seconds to go.

00 22 12 59 CDR You want to put VERB 68 up now?

00 22 13 01 CMP Okay.

00 22 13 02 CDR 3, 2, 1 -

00 22 13 05 CDR ENTER.

00 22 13 09 CMP Okay, got the gimbals; your rates are less than 0.1.

00 22 13 13 CDR Okay.

00 22 13 14 CMP Damps? Looks fine.

00 22 13 17 CDR Okay. Very good.

00 22 13 18 CMP Shoot, no, that is enough.

00 22 13 19 CDR Yes.

00 22 13 20 LMP Yes. Camera coming off again.

00 22 13 21 CDR Yes.

00 22 13 23 LMP Okay, 30 seconds to go.

00 22 13 24 CDR ... I can't hear you both.

00 22 13 26 LMP Mark, 30 seconds. Okay, the clock looks good.

00 22 13 30 CDR ... feet per second. How's the DSKY look?
00 22 13 32 CMP  Looks good. Looks good.
00 22 13 34 CDR  166 feet per second; 18 seconds to go.
00 22 13 41 CMP  Okay, looks great.
00 22 13 42 LMP  15.
00 22 13 46 LMP  10.
00 22 13 51 LMP  5, 4, 3, 2, 1 -
00 22 13 56 LMP  MARK.
00 22 13 57 CMP  SHUTDOWN. Pc's OFF; GIMBAL MOTORS coming OFF. Rusty?
00 22 13 59 LMP  DELTA-V's thrusts OFF first, Dave.
00 22 14 01 CMP  They're OFF.
00 22 14 02 LMP  Okay.
00 22 14 03 CMP  PITCH 1.
00 22 14 04 LMP  Go.
00 22 14 05 CMP  YAW 1.
00 22 14 06 LMP  Go.
00 22 14 07 CMP  PITCH 2.
00 22 14 08 LMP  Go.
00 22 14 09 CMP  YAW 2.
00 22 14 10 LMP  Go.
00 22 14 11 CMP  Okay, we're shut down - -
00 22 14 13 LMP  TVC SERVO POWER 1 and 2, OFF.
00 22 14 15 CMP  TVC SERVO POWER 1, OFF; 2 is OFF.
00 22 14 17 LMP  ATTITUDE DEADBAND, MAX.
00 22 14 19 CMP  MAX.
00 22 14 20 LMP  RATE, HIGH.
00 22 14 21 CMP HIGH.
00 22 14 22 LMP SCS.
00 22 14 23 CMP SCS.
00 22 14 24 LMP MAIN BUS TIES coming OFF.
00 22 14 26 CMP A, OFF ...
00 22 14 39 CC Apollo 9, I’ve got minus 0001, plus 0007, and plus 00003.
00 22 14 48 CDR Okay, that’s pretty good, and the DELTA-V counter was minus 5.0.
00 23 11 15 CMP I got the feeling ...
00 23 11 37 CMP What did you say ...?
00 23 11 54 CMP Boy, ...
00 23 12 03 CDR Are we?
00 23 12 09 CMP ... S-band.
00 23 12 56 CDR Okay, that thing ...?
00 23 13 58 CDR ..., now what do I do for the suit?
00 23 14 19 CDR Hey, Dave, where’s ...?
00 23 14 22 CMP Ruh?
00 23 14 24 CDR Where’s ...?
00 23 14 29 CDR ...
00 23 15 10 CDR Jim, try to remind me I can ... will you? ...
00 23 22 57 CDR Look’s good.
00 23 23 00 CMP ...
00 23 23 03 CDR Yes.
00 23 23 08 LMP Ahhh! My side.
... you didn't hurt yourself!
... got the front of my side ... Huh!
... last night, I ... my stars because I thought ...
Jim, ... look up the stars on my star ... sleep on my side last night.
Yes.
... I kept ... I kind of thought I'd been sleeping on my back last night and I wanted to get over on my side.
But for some reason there, I've been keeping my head up like this ... it's so stiff ... (laughter).
Hey, I like my ...
Do you?
Yes.
You know, it doesn't look like we're 150 miles up, does it?
What does it look like?
I don't know, but it sure doesn't look like it to me.
Well ... awfully hard ...
... - looking at the clouds and all ...
How many times have you ... from 150 miles?
... going like a bat out of hell ... on a piece of tape with a grease pencil.
Yes, good idea.
Dave, could you put this up there on the ... someplace? I've got a little one sticking in there already.
Okay, ... let's start cleaning up with ...
00 23 30 13 CMP  ..., Jim.
00 23 30 16 CDR I know it; I've got to ...
00 23 30 23 CDR Russ, ...
00 23 30 38 CDR Let me know ...
00 23 30 49 CDR Oh, look there at that ... Whoa!
00 23 31 01 CDR ... I wonder why it's ...
00 23 31 21 CMP Hey, ... didn't we take a couple of Hasselblad pictures of the S-IVB?
00 23 31 24 IMP Yes. I took a bunch of them, as a matter of fact
00 23 32 07 CDR How's that for ...
00 23 32 25 CMP Hey, Russ.
00 23 32 26 IMP Yes.
00 23 32 36 CMP I'm going back to ...
00 23 32 39 CDR Say, by the way, how does that look?
00 23 32 41 CMP It's down in the A-5, I think ...
00 23 32 45 CDR Oh, yes, ...
00 23 32 47 CMP Yes. Hold on.
00 23 33 19 CMP Would you load the cameras before the next check-list ...?
00 23 33 39 CMP ... I think it's ... star chart ... and leave it off.
00 23 33 53 IMP What the hell have you done with all the power in the fuel cells ...? Let's budget that; we need i...
00 23 34 28 CDR Jim, switch your cryos down.
00 23 34 29 CMP You ready, gentlemen?
00 23 34 29 CMP Ready. Let me get my ... down.
Okay, count them off, because that's number 50 that you refer to there.

Roger; I haven't heard anything.

Okay, stand by, Houston. How do you read Apollo 9?

Apollo 9, this is Houston. Reading you loud and clear.

Apollo 9, this is Houston. I read you loud and clear.

Roger; ready to copy ...

Houston, Apollo 9.

Apollo 9, I'm reading you loud and clear. How me?

Same here; ready to copy.

Roger. You'll have to stand by here; don't have it yet. Let me give you an estimate of when it's going to come out of the trench.

Okay.

I thought he said he ...

I thought he did, too.

I guess you better ... Okay, and you better hit it after 1 minute.

Okay, 1 minute; VERB 68 ... What's the total burn time?

1 minute 51.2 seconds. ... 51.2 seconds.

That ought to hold it.
DAY 2

01 01 17 07 LMP See if you don't - see if you don't feel two bump on the start. Okay?

01 01 17 10 CDR EMS MODE to AUTO.

01 01 17 11 CMP EMS to AUTO.

01 01 17 18 CDR Okay, go for the proceed. Okay? 20 seconds.

01 01 17 21 LMP That damn ullage is still counting - I mean, that PIPA.

01 01 17 31 CDR 10, 9, 8, 7, 6, 5, flashing; PROCEED.

01 01 17 41 CMP Good start. Pc looks good; gimbal motors look beautiful.

01 01 17 44 CDR ... SPS ... is no sweat.

01 01 17 45 CMP SPS.

01 01 17 48 CDR Okay.

01 01 17 53 CMP Stable.

01 01 17 59 LMP Okay, the camera's off.

01 01 18 01 CDR CRYO PRESS ...

01 01 18 02 CMP Rusc, put on the CRYO PRESS. We need a little li, you know?

01 01 18 09 CDR Yes. It's like the simulator.

01 01 18 11 CMP You're drifting over to the roll a bit, Jim.

01 01 18 14 CDR Okay. Okay, got about 20 seconds to go to RESTA. Okay, you can come up with your 5/1's scale.

01 01 18 24 CDR Okay. Come up 5/1's.

01 01 18 27 CDR Okay, call out VERB 68.

01 01 18 28 CMP VERB 68.
We've got 10 seconds to go. 5. 5 now --

Camera on.

-- 3, 2, 1 --

...

0.2, 0.0, zero. Holding zero.

Okay.

Now it's oscillating zero to point - minus 0.2; crossing in yaw at 0.2, and it's damped out - almost like the ME, but not quite --

Not quite as violent.

-- violent.

Yes. Okay, now to get it back under control, you want to go back to 5/5.

Completely damped?

Okay.

I think I'll go back to normal on the FU, here.
Okay, fine. A minute and a half to go.

Hey, that thing's a pain in the ass.

Okay, DELTA-V counter and the PGNCS look pretty good.

Okay.

Okay, you have a minute and 15.

Okay.

30 seconds until you start ... I'll count you down to it.

Okay, we're 5/5, okay?

Okay, we're 5/5. Everything looks good over here.

Alright.

You're going to have about 0.6 on this trim, and we're going to have you pitching at about - at least a half in yaw.

Okay.

Okay, 55 seconds; so we have 5 seconds to go.

Okay.

3, 2, 1 -

Switch, OPEN.

That a boy! Things looking good. At about 35 seconds to go now ... At 30 seconds to go on the PGNCS at 250 feet per second to go on EMS.

Okay. At 20 seconds to go -

MARK.

We're within time.

That's good. 150 feet per second to go; that's about 15 seconds. 100, now. 90, 80, 60, 40, 20; we have shutdown now.
180 Day 2

01 01 22 21 CMP Okay, DELTA-V THRUST, OFF.
01 01 22 23 CDR Okay.
01 01 22 24 CMP Okay, GIMBAL MOTORS, Rusty?
01 01 22 26 LMP Okay.
01 01 22 27 CMP PITCH 1.
01 01 22 28 LMP Yes, verify —
01 01 36 20 CC Roger; stand by. We haven't got that out of FIDO yet.
01 01 36 27 CDR Okay, go ahead and get it.
01 01 36 29 CMP Okay. And also, Houston, you might have some words to say after you look at the data there on the SPS P sensor. Both normal and AUX have a pretty high increase. I'd like to know if you want to go DECREASE on the next burn.
01 01 36 40 CC Roger. Apollo 9, we're going to have some words on the PUGS for — for the SPS 4.
01 01 36 48 CMP Okay.
01 01 36 49 CDR Yes, like disable it.
01 01 36 50 CMP Yes (laughter).
01 01 36 51 LMP There goes another one of my straps.
01 01 36 58 CDR Check that CB switch over there?
01 01 37 02 LMP Yes, sir. You want SPS 4?
01 01 37 04 CDR ...
01 01 37 17 LMP Malfunction, EPS.
01 01 37 18 CC Apollo 9, Houston. We're losing you here. We'll see you over Tananarive with a preliminary orbit, I hope.
01 01 37 25 LMP Roger.
You know, I find myself lifting my head.

Yes, me too. I guess that's why I have a stiff neck. I must have slept like that last night.

Yes, I-I-I'm generating. Oh, we have a little piece of metal sitting right outside the window, here.

Oh, really?

It's turning over slowly, slowly, slowly.

Take a picture of it.

Oh, it's not worth taking now.

Yes, but you know, it might be an interesting little sidelight.

Alright (laughter). I don't want to use very much film on it.

No, no, ...

I can give it to Bill Peterson and say, "See what fell off when he did the stroking ..." Let me put it down to six frames or so.

Okay.

Hey, what's this film magazine doing here? We could use --

That's the one that I was ... I just didn't have time to put it away --

Put it away.

-- ... easy to follow.

Sure is.

Should be marked, too; I wrote on it. I think I did.

C and D; f:11 and 2/50ths here?
Okay, I'll log that in the film log as piece of platinum.

... Why don't you set that on 24 again, Mr. Scott?

I guess it doesn't make any difference what that's set on, I guess.

Why don't you look and see where magazine H is supposed to go?

Okay, on - on G -

I'll take that, Dave.

G, H.

It's in that - it's in the book right in front of you, Dave, if you want to check it.

H, G; no, D-3, Jim. The very first one. The first one we used. The only place for D-3 to put it is on the camera. There's no - I don't think there's a hole for it in D-3.

Oh, yes.

Okay, I is going to circ - cycle the purge valve.

Yes, ...; put it in B-8?

The purge valve didn't seem to help. Stand by for the alarm; I'm going to try that again.

Hey, you know it purges too much, too.

Really?

Think so. It's only supposed to increase 0.6 on the O2, right?

Right. Whatever kind of panel there.

Yes, it goes a lot higher than that?

Oh. You mean it increases more than 0.6?
Yes. Let me just check out the ... and see what happens.

Yes, it sure does.

Maybe your sensor is screwed up.

Okay, it's reading 0.6 right now. No, it's reading 0.7. And 0.6 would be 1.3 - goes off scale high. That's interesting.

Goddamnest thing ...; there's no place to put the film magazine here either.

I took one out of there the other day, Jim. There ought to be an empty hole.

Yes, but I put "I" in it.

Oh.

Where is that?

The one we have in there - where'd you get it, I wonder? Why don't you just put it in the F-1 until we - pull another one out? Where did U go? Where did the ... U go?

Boing, boing.

Put it in A-7. Yes, A-7 has got a spot, Jim.

Boing.

Mind if I write in your malfunction book here, David?

Heck, no. That's what it's for.

Okay. We seem to be okay on the ammeter - right with the other ones, and the condenser exhaust, and all that stuff is looking good.

Did you report that last set of torquing angles to them?

No, I sure didn't, Rusty.

Okay, I guess we ought to do that.
Good.
Slowly, all of my gages are ... Boing.
Really?
Well, of these ... such as fuel cells, ..., flow have gone out.
SFS helium pressure, cryo pressure.
(Laughter)
Oh, boy. Say, how are our rates? We might want to --
 Right now?
-- Yes, we might want to damp them, because roll, pitch, and yaw were right about, you know, zero.
Oh, I know, but we're - we're way off. And there's no telling where we'll be.
Okay.
You know, if we're 90 degrees away, now, we're liable to go all the way back around.
I think it's the suit that bends me backwards that makes my back hurt.
Rusty, give me a flight plan ... the update.
Okay. Oh, it's getting toward sunset ... 2000 ...
(Singing) One of these books is the flight plan. (Singing)
What magazine is that, Dave, that's in there?
That's U.
U?
U,
Hey, I just put H down in A-7.
Where did you get it?
Out of F-1. ...
Well, this whole pass, we do nothing again. Don't we have DMU align the next time? ... up again? ...
As soon as we do that, we can get ready to go to bed.
Apollo 9, Houston through Tananarive.
I got them there.
Okay.
Roger, Houston; Apollo 9. How do you read?
They're not going to read us.
Houston, Apollo 9. How do you read?
Try the other antenna.
Apollo 9, Houston. I think you're trying to answer me, but you're unreadable. Our orbit is showing you at 271.8 by 109.5.
Okay, I got that.
Roger; how do you read on the other antenna here?
You're essentially unreadable, Apollo 9. I can detect you are transmitting.
Get that, Jimmy?
Yes.
That's about nominal, isn't it?
Yes. Sure is.
What's the setting up there? Something like f:ll on the 1/250th, right?
Yes.
What's the focus? 5 feet, right?
Right.

Okay.

Oh, boy. Tomorrow is going to be a long one.

Boy, you're right.

We get up at 3:30. At 5:30, we do SPS number 5. Whew! And at 57, we go to sleep.

Oh, you're kidding. That's a long day. How about that? We got frost on the inside of the window.

Yes. On this side of it?

Yes, it's right in here with us.

Condensation.

After all, it's cold out there.

Ohh, look at that star out in front of us. Hey, what the hell is that? A shooting star? Oh, God damn!

What?

That freaking quad. That fakes me out every time.

(Laughter)

The edge of the quad —

Hey, Rusty, there's a — there's a quad out there —

Why don't you shut up?

Would you look at it every once in a while to see if it's still there?

Can you see it, Dave?

The quad? Yes.

The edge of that thruster's being lit up. Looks like a streak, with a dash mark through it. Really, it looks like a persistent tail.
01 01 55 36 CDR  Boy, you know, you have — we have to be up and into the LM in 2-1/2 hours.

01 01 55 41 LMP  Boy, oh boy.

01 01 55 44 CMP  That's going to be sporty.

01 01 55 46 CDR  That's right; that's up, suit, crap, pee, eat, clear the tunnel.

01 01 56 03 LMP  Hey, by the way, talking about tunnel, how's the LM DELTA-P doing?

01 01 56 08 CDR  Well, let me look up there and see. Says zero.

01 01 56 13 CMP  ... probably still ... same ones ...

01 01 56 17 LMP  It's in LM PRESS.

01 01 56 19 CMP  Oh, it is LM PRESS?

01 01 56 20 LMP  Yes.

01 01 56 21 CDR  Good.

01 01 56 23 LMP  I don't think the gage reads, though.

01 01 56 27 CDR  Yes, it does.

01 01 56 28 LMP  Does it?

01 01 56 29 CDR  DELTA-P.

01 01 56 30 LMP  It ought to be zero if we have it in LM PRESS.

01 01 56 33 CDR  Huh?

01 01 56 34 LMP  It ought to be zero. If we have it in LM PRESS, it ought to be zero. It ought to be zero; I'm pretty sure.

01 01 56 41 LMP  Ohh, my feet. God!

01 01 56 44 CDR  Hey, son, you want to come stand down here for a while?

01 01 56 46 LMP  Hell, that's a good idea. That's a good idea ...
I want to get that Exer-Genie exerciser out. All the other guys said that really helped. Matter of fact, why don't I get it out right now?

Oh, what are we going to do with it, Jim?

We can't use it now. Wait until we get our feet propped.

I can use it right here. Okay?

If you want to exercise, don't let us stop you.

You never have before.

Huh?

You've never stopped me before —

... so crazy; you say you want to do some exercise.

Why don't you go run, Jim?

If you were — if you weren't in town carousing around at the beach — with all the broads and everything, you'd have been out at the gym with us working out every morning and every night.

I was working out. Isn't that right, Rusty?

That's right.

I was working out.

I wonder what you got going down there, baby. I don't know.

Oh, you wouldn't believe it.

Hey, where is the Exer-Genie? (Laughter) That ought to take the rest of the day.

It's up under his right shoulder.

That sounds like a suit-off exercise.

This water is really wild. You got any — any meals down there? I think I'll have me some juice.
Boy, I think I'll have some brownies.

I can't figure whether I'm acclimatizing to this game or not.

Why? You trying to feel better, or you don't know?

Well, --

Hey, Jim, ...

-- I don't feel bad, but I still don't --

Apollo 9, Houston. We're going to lose you at Tananarive in about a minute, and we'll see you over Carnarvon at 05.

Roger, Houston. How do you read us now?

How about it? I'd like a meal, Jimmy. You got a white --

Houston, Apollo 9. Say again.

Roger. Do you read us now?

I can make you out now, barely. Before, I couldn't read you at all.

Okay, we'll see you at 05 at Carnarvon.

Roger.

I don't want to talk to them when I can't hear --

Do you know what time it is down at the Cape?

What time is it at the Cape? It's 1 o'clock in the afternoon.

Noon in Houston! Seems like it's about nighttime again, doesn't it?

It does.

Are you particularly concerned about which one of these meals you get?
01 01 59 01 CMP  We ought to eat the white ones because they make this big sample thing afterwards to see who ate what. For science, I'll take a white one.

01 01 59 07 CDR  No, I mean, do you care which white one?

01 01 59 09 CMP  Oh, hell no. I didn't know that they were any different. I mean, I never even looked at the difference. I just ... eat ... what you give me.

01 01 59 18 CDR  Oh, shit, here's some more garbage. Got your scissors, Dave?

01 01 59 28 CMP  Yes.

01 01 59 34 CDR  Oops! Oops!

01 01 59 41 CDR  Can you wait just a second, there?

01 01 59 43 CMP  Yes, what the hell did I do with them - with my scissors?

01 01 59 46 CDR  Wow! That's the experiment, fully packed.

01 01 59 50 CMP  The what?

01 01 59 51 CDR  It's got to be a - LSMFT.

01 01 59 55 CMP  That's the stuff for your teeth.

01 01 59 58 CDR  A toothbrush?

01 01 59 59 CMP  Dental floss.

01 02 00 00 CDR  Dental floss.

01 02 00 01 CMP  Oh, no.

01 02 00 03 CDR  That's what I need.

01 02 00 05 CMP  You got any more of those meals up there above your head in U-2 - those good turkey dinners?

01 02 00 09 LMP  Yes. No turkey.

01 02 00 12 CMP  What have you got?

01 02 00 13 LMP  Should be beef and ham.
Oh, hey, you've got a beef sandwich —

Hey, I'll have one of those. Yes, I think I'll eat one of those.

I'll take a beef one, if you got it.

Y'all want some — you want something out of here?

A juice, yes. I want a — Give me a meal, and I'll take the juice out.

Okay. Stand by.

Stand by, Jim; I've got a grape up here. I forgot. Wait just a second.

You're way ahead of me on meals, you know that? I don't like that.

I haven't eaten — I haven't eaten two whole meals yet.

You what?

I don't think I've eaten two whole meals yet.

I haven't either.

Neither have I.

Okay, I give up looking for it. Where is the Exer Genie? Up here, did you say?

Under Rusty's right shoulder.

Where's that?

The one on the far side over there.

R-13, or whatever that's called.

It's in A-1, but it's way over here — on the side. A-8 or A-1 or whatever the one is over there.

Way up at the head end, huh?

Yes.
Hey, while you're up there, Jim, you could get some meals for us.

Oh no, I think my... are coming off.

(Laughter) All 10 of them, huh? 11 of them?

Ohh.

Oh, shoot.

I heard that funny noise, too; what is it?

I don't know. What's that noise? Anybody know?

No, I don't.

The hiss?

Yes.

No, I don't know, either. Do you know?

Stopped?

Yes.

It stopped.

Okay.

... for Houston; it looked - it sounded like...

No, that was coming up on the RT.

(Singing)

Dave.

Oh, what a good fellow. Hey, you're a winner. Beef and potatoes.

Here's a --

Just what I wanted.

-- here's a white bag.
Hey, as a matter of fact, I will. Oh, no. Did it wrong.

What happened, Jim?

Boy, I'm warm in this suit.

I'll try red to blue and blue to red again.

Hey, that's the way to go: red to blue and blue to red; the hell with the return.

... that these beef and potatoes are the ones that you ate ...

Hey, you know something, Jim?

Uh oh.

What?

What?

Boing!

I was thinking last night - about that noise. We got ignition late.

What?

We got ignition late on launch. You know that? We usually get it at 9; we got it about 5 seconds. Did you notice that? You were pretty busy, probably.

No, we got it about when I thought we were going to get it.

Usually get the thrusters at 10, ignition, 8, 7. We were 10, 9, 8, 7, 6, ignition.

Then we lift off at zero.

Yes, but I don't think we lifted off when we should have lifted off. I think we were late.

We lifted off right with it -

I don't think so; I think we -
01 02 22 49 CDR  -- within a second or so maybe.
01 02 22 50 IMP  Yes, but I think we were late, all the way down the
line. I was really surprised because as we went --
just standing there, and we hadn't got ignition yet,
I -- I thought --
01 02 23 00 CDR  Uh oh.
01 02 23 01 LMP  -- that was bad news.
01 02 23 04 CDR  Hmm!
01 02 23 05 LMP  But I just -- that's all I had to do was sit there
and listen and watch, you know? And I'll bet you
we were late.
01 02 23 11 CDR  That's what I was doing, too.
01 02 23 12 LMP  Yes, but you were thinking about a lot of other
things. And I'll bet you we were late.
01 02 23 31 CMP  Boy, talk about dry, wow!
01 02 23 35 CDR  What -- the meat? (Laughter)
01 03 23 36 CMP  Yes.
01 02 23 38 CDR  Good thing the potatoes aren't -- they're soggy.
01 02 23 50 CMP  ... the door in that waste compartment; it will pop
open when you press on it.
01 02 23 55 CDR  Hey, I'm putting most of that stuff over here in
the big temporary stowage bag, then. But, trouble
is, I don't know what we're going to do with it.
01 02 24 25 LMP  ...
01 02 24 27 CDR  What?
01 02 24 29 LMP  The Kleenex.
01 02 24 30 CDR  What?
01 02 24 31 LMP  The Kleenex.
01 02 24 32 CDR  What? Oh.
Apollo 9, this is Houston through the Huntsville. We're transmitting now --

... go, Schweickart ...

Be quiet.

-- trying to evaluate the COMM, and it's pretty noisy to me. Can you read me at all?

Houston, this is Apollo 9. Roger; we read you. You're weak and a little bit noisy.

Apollo 9, this is Houston. If you can read me, and you've got the time, could you give me a short count?

Roger. Short count: 1, 2, 3, 4, 5; 5, 4, 3, 2, 1. Apollo 9, out.

Golly! There's sure a lot of air in this thing here.

Hey, Jim, I let mine sit for a long while, and all the air gathered in one bubble, and it went away from all the rest of it. I'm getting really nice water.

And, Apollo 9, this is Houston. Giving you a short count. Maybe to try to help set up their equipment: 1, 2, 3, 4, 5; 5, 4, 3, 2, 1. Houston, out.

Roger, Houston; Apollo 9. 1, 2, 3, 4, 5; 5, 4, 3, 2, 1. How do you read us?

Apollo 9, Houston. Do you read?

Houston, Apollo 9. Read you weak, but clear.

Roger; how do you read now?

You're coming through, but real weak. I can make it out, however.

Roger; that's the same for you. You're coming through clear, but very weak.

Okay, understand; clear, but weak. Are you getting this background static?
<table>
<thead>
<tr>
<th>Time</th>
<th>Call Sign</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 02 28 13</td>
<td>CMP</td>
<td>No, there's some background static, but not tremendous.</td>
</tr>
<tr>
<td>01 02 28 19</td>
<td>CC</td>
<td>Copy.</td>
</tr>
<tr>
<td>01 02 28 37</td>
<td>CDR</td>
<td>Say, you can really taste the chlorine in our water now!</td>
</tr>
<tr>
<td>01 02 28 40</td>
<td>LMP</td>
<td>That's great!</td>
</tr>
<tr>
<td>01 02 28 41</td>
<td>CDR</td>
<td>Yes.</td>
</tr>
<tr>
<td>01 02 28 53</td>
<td>CDR</td>
<td>Boy, we're sure getting a lot of moisture on a lot of windows.</td>
</tr>
<tr>
<td>01 02 28 58</td>
<td>CMP</td>
<td>Houston, Roger; Apollo 9.</td>
</tr>
<tr>
<td>01 02 29 16</td>
<td>CDR</td>
<td>You ever get the air bubble out, Rusty?</td>
</tr>
<tr>
<td>01 02 29 46</td>
<td>CDR</td>
<td>You want down here?</td>
</tr>
<tr>
<td>01 02 30 43</td>
<td>CMP</td>
<td>Would you fill that, Jim, with water?</td>
</tr>
<tr>
<td>01 02 31 02</td>
<td>LMP</td>
<td>I may die of malnutrition up here, but I don't feel hungry.</td>
</tr>
<tr>
<td>01 02 31 04</td>
<td>CDR</td>
<td>You ought to keep eating though.</td>
</tr>
<tr>
<td>01 02 32 11</td>
<td>CMP</td>
<td>Jim, here you go.</td>
</tr>
<tr>
<td>01 02 32 14</td>
<td>CDR</td>
<td>What?</td>
</tr>
<tr>
<td>01 02 32 15</td>
<td>CMP</td>
<td>... would you put some water in here for me, please?</td>
</tr>
<tr>
<td>01 02 32 18</td>
<td>CDR</td>
<td>Just a second, I've got to get one bite of food of my own in here between water spurts.</td>
</tr>
<tr>
<td>01 02 32 21</td>
<td>LMP</td>
<td>Oh, no. You didn't shave today.</td>
</tr>
<tr>
<td>01 02 32 27</td>
<td>CDR</td>
<td>I know it. Neither did you, but you can't tell it on you.</td>
</tr>
<tr>
<td>01 02 32 32</td>
<td>CMP</td>
<td>... Hey, I need seven squirts of cold. It said 7 ounces.</td>
</tr>
<tr>
<td>01 02 32 39</td>
<td>CDR</td>
<td>What is it, pudding?</td>
</tr>
<tr>
<td>01 02 32 41</td>
<td>CMP</td>
<td>Ruh?</td>
</tr>
</tbody>
</table>
01 02 32 43 CDR What is it?
01 02 32 45 CMP Pineapple-grapefruit drink.
01 02 32 47 CDR Seven squirts?
01 02 32 48 CMP Oh, I don't know; fill it up.
01 02 32 49 CDR Hey, that's pretty up against the sun.
01 02 32 54 LMP What, your bag?
01 02 32 55 CDR Yes.
01 02 33 58 CMP Comemos, amigo.
01 02 34 00 CMP Hey, amigo, would you give me one with hot water, please?
01 02 34 04 CDR Hey, amigo, how'd you like to take a flying leap?
01 02 34 08 CMP I ain't your amigo.
01 02 34 10 CDR May I have another bite of my own in the middle, he
01 02 34 12 CMP Sf.
01 02 34 13 CDR These aren't even mine; I don't know whose they are
01 02 34 17 LMP They any good?
01 02 34 18 CDR Yes, they're cheese crackers, or something.
01 02 34 20 LMP Oh, I had some of those last night; they are pretty good.
01 02 34 23 CDR Maybe they are mine. I never did have any.
01 02 34 27 CMP ...
01 02 34 28 CDR Okay, four shots of cold, right?
01 02 34 29 CMP No, three shots of warm!
01 02 34 30 CDR Oh, gees, Dave; I'm sorry.
01 02 34 32 CMP Golly, I like warm juice.
01 02 34 35 CDR        Huh?
01 02 34 37 CMP         I like warm things - warm and sweet.
01 02 34 41 CDR         Hey, listen, I've already got two shots of cold in it. You want me to mix it up, or you want me to go all cold?
01 02 34 49 CMP         Put some warm - put warm water in it.
01 02 34 51 CDR         I'll put one warm in there, okay.
01 02 34 52 CMP         It's too late to ...  
01 02 34 55 CDR         Yes (laughter).
01 02 34 59 CMP         Alright. I'll be down there later.
01 02 35 02 CDR         When you send an amateur to do a pro's job, that's what you get.
01 02 35 05 CMP         Huh.
01 02 35 08 CC           Apollo 9, Houston through Hawaii. How do you read?
01 02 35 12 CMP         You're coming in about 4 by 5, Houston.
01 02 35 18 CC           Apollo 9, say again.
01 02 35 21 CMP         Roger; you're coming in 5 square, now.
01 02 35 25 CC           Oh, real good. Stand by and let me check and see if we're ready for your long count.
01 02 35 31 CDR         For a what count?
01 02 35 32 CMP         Either long or wrong. I would suggest --
01 02 35 33 CDR         Long.
01 02 35 34 CMP         -- long.
01 02 35 35 CDR         Yes, okay, that's - right - He asked me - he told me --
01 02 35 38 CC           Okay, Apollo 9, this is Houston. We'd like you to start --
01 03 15 46 CC           -- if it did, the readings before and after.
Okay, the answer is yes; it did change. The unbalance tended to decrease, but then it came back up again; and it also caused the MASTER ALARM to go on and off, and so I switched back to NORMAL. Both NORMAL and AUX indicate an increase in the oxidizer unbalance. I can't give you a quantity reading on the auxiliary system because it was moving. Just for information, during a burn, the oxidizer unbalance jumped all around.

Okay, Apollo 9. We copied that. Thank you very much.

Okay, and if you can't think of anything better to do with it, we might consider shutting it off on some of these later burns, because it - it takes a lot of time to reset those MASTER ALARMS in the middle of a burn.

Roger, Apollo 9. We've been considering that, and - unless we can come up with something better, that's probably going to be our recommendation. We're still trying to troubleshoot it; that's the purpose of this question.

Okay.

Besides that, it changes the pulse rate, too.

(Laughter)


Heart rate.

Afraid our MASTER ALARM changes the heart rate.

Oh, Roger. Understand. Didn't notice that down here you looked cool as a cucumber.

Sweaty palms.

Evaporative cooling (laughter). Whoop. There's always hot food there.

It is dark out there?

Yes.
01 03 18 07 CMP Starting to -
01 03 18 08 CDR Okay, let's go to 40.
01 03 18 09 CMP Your big chance, Jim.
01 03 18 10 CDR What?
01 03 18 11 CMP Your big chance.
01 03 18 12 CDR Okay. Go to 40.
01 03 18 20 CDR Okay. What do you say we go to 52, huh?
01 03 18 24 CMP Jimmy.
01 03 18 25 CDR VERB 37, ENTER; 52 -
01 03 18 32 CMP The sun setting through the center hatch?
01 03 18 34 LMP Yes.
01 03 18 42 LMP Hey, Dave, this time when you start to maneuver, watch - Oh, hell, that antenna blocks your view.
01 03 18 47 CMP I'll try to see it - I'd like to -
01 03 18 49 LMP Boy, it really flares up out there, no kidding.
01 03 18 52 CMP I'll try to watch it.
01 03 18 53 LMP You know, it's not just the flash from the exhaust going by - It really - I don't know what it is. It might be actually burning the paint there.
01 03 19 06 CDR Okay, 52. We want to do a preferred, right?
01 03 19 10 CMP One this time, and through forevermore.
01 03 19 12 CDR (Laughter) Okay, we'll do a PRO here?
01 03 19 19 CMP Middle gimbal angle is 61 degrees and after - It doesn't like that - Well, that's okay. We're at 63 right now.
01 03 19 26 CDR Are we? Okay, well, you even want to look at it?
01 03 19 30 CMP Yes, let's look at it.
Okay, VERB 5 - NOUN ... desired angles and GIMBAL LOCK. Okay. RESET. 08. You ready to go?

Proceed. ...

Okay, go.

Okay, PRO.

That god-blessed moon.

Want to look at that program alarm, too?

That should be the same one, Jim. Did you get a RESET?

Yes, I had a RESET.

Let's look at that one and ... --

Okay. Oh, it is. RESET; 08. Okay, 50/15.

Boy, that moon's bright.

Okay, that says PICAPAR - At least, it did last time - still does. It's PRO. 01 70 16.

Must be Procyon or something, isn't it?

Let's see. Procyon, yes.

Okay, let's see. You get the zero; OPTICS going to CMC; OPTICS, ZERO OFF; proceed.

There you go.

Right into the antenna.

Would you believe I can't even identify Procyon?

Ohh!

No, I can't. It's halfway between the radar antenna and the leg or something. I really can't.

It's the S-band antenna.
Well, the landing radar and then there's something else there. It's probably just the S-band antenna.

Yes.

Okay. I'll be in RESOLVED and LOW ... Want 51 up? We sure do. Right there. Okay.

Kind of drifting, aren't you?

Oh, no, not too bad.

You want me to stop it?

No.

You are headed for the right way.

Okay.

Okay, that's ... by 16; that says, "Did you like it?" and I guess I did, so I can proceed. Procyon was 16. Still can't identify it. Proceed; okay, 23 - Denebo. CMC; and if you like that, we can proceed again.

PRO - Oh, shoot, we're right behind it.

(Laughter) Would you believe I can't recognize that one either?

Oh, well. ...

It's about 8 degrees from the moon.

Well, our onboard star charts have ... moon.

Do they?

..., yes. It's along the Mercator area.

Oh, shoot, I don't even know where that is.

Yes, I don't either ...

Thanks.

I thought that would be a big help.
Hey, I can't see out.

Okay.

I don't like that one.

That fuzzy reticle is really kind of crappy, isn't it?

Yes, it sure is.

Shit, I don't like that one either.

That's a good one - 23. Denebola. I ought to be able to see Regulus or something. I guess not. Oh, I screwed up, didn't I?

That's alright, for a beginner.

Well, I'm not the pro. Okay, shall we PRO? We shall proceed.

Where's the flight plan? Anybody know?

Yes.

Right here.

Thank you.

Apollo 9, this is Houston through Tananarive.

Roger, Houston. How do you read?

Houston, Apollo 9.

Okay, I'm reading you okay. Just standing by here. We'll have you here for about 8 minutes across Tananarive.

Roger. You want to copy some torquing angles?

I'll read it to him.

... will have to read ...

Roger; go ahead.

Okay, plus 00298, minus 00374, minus 00649.
01 03 27 48 CDR  You ready, Dave?
01 03 27 49 CMP  Yes.
01 03 27 50 CC  Roger; I copy.
01 03 27 52 LMP  Okay, and the time will be 27:28:00.
01 03 27 59 CC  Roger. Copy time - 27:28:00, and I copied the angle.
01 03 28 03 LMP  Roger.
01 03 28 04 CMP  How about that. Now try a third star check, Jimmy.
01 03 28 10 CDR  Okay, we go back to - We PRO here, don't we?
01 03 28 13 CMP  We PRO here, yes.
01 03 28 14 CDR  Okay. Do we PRO here?
01 03 28 18 CMP  PRO here.
01 03 28 28 CDR  21.
01 03 28 29 CMP  Is that a new one?
01 03 28 30 CDR  Yes, that's Alphard.
01 03 28 32 CMP  Okay, let's see - proceed here, go to Alphard.
01 03 28 37 CDR  Okay, let's go back to CMC; proceed.
01 03 28 39 LMP  Man, I got to watch this, because I don't know where
01 03 28 43 CDR  the heck we are.
01 03 29 00 CDR  PRO:
01 03 29 05 CMP  I don't even see a star. I think we're inside the -
01 03 29 06 CDR  I think we're inside the spacecraft.
01 03 29 08 CMP  Can you see in the sextant?
01 03 29 14 IMP  Yes. There is a star right there in the sextant.
01 03 29 15 CDR  Right in the middle?
01 03 29 15 CDR  Yes. Well, it's about a - it's 0.05 degrees out maybe.
Does it have a 20-something next to it?

(Laughter) No, it sure doesn't.

Doesn't, huh?

It's just disappeared, too. The LM is in the way again. It's disappeared in the sextant, too. Is that a star check or not, Mr. Scott?

You can't recognize it?

No.

Does it look like it's close to Alphard?

I can't tell, Dave; I can't see any sky at all right now. All I can see is the IM.

Oh, you --

And the star already disappeared in the sextant, too, so -- it was in there in the beginning.

-- you can go another way, and -- You can go back --

How about Regulus? Is that in your field of view?

No, there's nothing in the field of view right now, except the IM.

Why don't we go to the burn attitude and check it out?

Yes, that's probably the best thing to do.

Yes, I think so. There's three stars -- I'm pretty --

I'm pretty -- I would call that a star check if you got one right in the sextant, really, wouldn't you?

Yes, I guess so. I didn't -- I couldn't recognize any of the three of them, though.

We got -- we got lots of time --

Okay, what?
01 03 30 27 **CMP**  Why don't you go to POO, and I'll sweep this over here?

01 03 30 32 **CDR**  Okay, I'll go to POO right here.

01 03 30 33 **CMP**  Yes, I'll just start sweeping this over here.

01 03 30 34 **CDR**  Okay, VERB 37, ENTER; 00, ENTER; and the next time through, we don't want to use a one, huh?

01 03 30 44 **CMP**  That's correct.

01 03 30 49 **CDR**  Wait a second. Are we - are we going to torque it again and do another whole alignment?

01 03 30 53 **CMP**  No.

01 03 30 54 **LMP**  No, not if you don't use a one.

01 03 31 03 **CDR**  It looks like the moon is shining off the IM. It's shining right into the telescope. I can see the vague outline out there of something, and this great big halo.

01 03 31 19 **CMP**  Good grief, we don't want that.

01 03 31 22 **CDR**  I wonder where it is with respect to our stars, Rusty?

01 03 31 26 **LMP**  Well, it looks like it was right next to - Denebola there.

01 03 31 33 **LMP**  That's because it's not too close to Sirius.

01 03 31 40 **CMP**  People who can't recognize Procyon: Whoop!

01 03 31 45 **CDR**  Well, Procyon - I couldn't recognize Procyon, Dave, because it was between a couple protrusions on the IM.

01 03 31 50 **CMP**  Oh.

01 03 31 51 **CDR**  It was just lucky that the star was even there.

01 03 31 58 **CMP**  Hey, Jim, you close to the garbage bag?

01 03 32 00 **CDR**  Yes.

01 03 32 01 **CMP**  I got a garbage for you.

(Confidential)
That LM really gets in the way, doesn't it?

Yes, it sure does.

Boy, I can see trying to do - alignments on the way to the moon like that. Holy Christmas. I wonder how you'd ever do it?

Do them on the planets - sun and the moon - and then get a star in the sextant.

Yes, but we wouldn't be able to do any better than we're doing here.

Right.

You - you just - you'd look and there'd be a star in the sextant, and say, "Yes, that must be my star."

That's right.

But heck, if you get small torquing angles, it's your star.

Jimmy, I got all the numbers to the planets. When we get all through with all the other stuff, I'd really like to find some time trying to do some daylight alignments.

Why sure.

Alright?

Like day 5, 6 - I mean 6, 7, and 8.

Yes. You know, when we're through with everything.

Hey, maybe you and I could do an alignment, huh?

I don't know. We'd have to talk to the boss.

I don't know.

It takes a lot of skill.

That's right. It takes a lot of skill.
When you fire, pitch up, that's the time to look out the window, Dave.

Yes, I don't want to do that now ...

Yes, I mean - I don't want you to, either.

How is it that thing keeps skewing - It hits the deadband, I guess?

Yes, ... 5-degrees deadband ...

Man, that IM really obscures a lot of the field of view.

Well, I guess I feel better after having eaten that.

You mean that you didn't like it, huh?

I - No, I forced it down.

Yes, you got to keep your strength up.

You're right. What a crummy existence: eat when you don't like to; sleep because it says so on the flight plan; if you don't sleep, you just lay there. You ought to be out carousing around with a bunch of broads or something - or making more money.

You're making a lot more money. You're overpaid as it is.

Right. This zero-g existence is easy.

Wonder what kind of per diem we're getting now?

A dollar a day, I think. I tried to claim mileage on Gemini IV; they wouldn't give it to me.

(Laughter)

Hey, Jim, you got any tape down there?

Yes, what kind of tape you looking for?
Something that'll - I want to get this stuff - in a fairly tight ball.

Oh, okay. ...

Are we getting there, Mr. Maneuverer?

Oh, very, very slowly.

Damn it. That was the piece I didn't want to get out. Oh, don't go up there!

Apollo 9, we'll see you over Carnarvon at about 42.

Roger. Somewhere at 42.

Here you are.

You got another one?

Another one, whoo!

Whoop! That stays here; you get the little piece.

Up to cryo PRESS.

Cryo PRESS. Okay. Cryo PRESS is on for the night.

Hey, man, I'm sure - I was sure glad when that finally went off last night.

Hey, listen. We're going to have to tape that thing over - or something. That mother kept bothering me all night long.

Me, too.

I have to look away from the sunny - sunlit window, then I'd be looking right at that thing.

Okay, Jim, here's some garbage.

Try some of my wonderful hydrogen-filled water.

Let's see. The star check we want is - the star angle we want anyway is - I wonder if we ought to tell them about our broken readout here?
Boy, oh boy, that water tastes terrible, doesn't it?

Is it chlorine or the hydrogen?

The chlorine. That's the first time I've tasted chlorine in it.

You pitch up yet there?

No.

Okay.

Why? You see it?

Turn out your light and watch it.

Wow!

See that.

It really lights it up, doesn't it?

I don't think it lights it up; I think it's more than that.

No, I mean - the sparkle.

Yes, but I think it's - I think it's actually -

Yes, you can almost see the -

-- burning to it, kind of.

Yes.

What do you know?

Boy, that water is so bad, I don't believe it's digestible.

(Laughter)

I'm serious. That's really bad. Has it changed taste for you guys?

Yes. Considerably more chlorine in it than the way.
01 03 39 14  LMP  Shoo, boy!
01 03 39 17  CMP  ... can't hardly see ...
01 03 39 25  LMP  Oh, that's so bad it - it - it actually stings my mouth.
01 03 39 30  CDR  Oh, yes?
01 03 39 32  LMP  Yes. Oh boy. Oh, let me have the water gun. God, that's terrible! Phew!
01 03 39 47  CDR  The water gun has really got the gas in it.
01 03 39 50  LMP  Yes, I know it, but --
01 03 39 51  CDR  Be prepared. Well, this probably has a lot of chlorine in it, too.
01 03 39 58  LMP  I'll try it.
01 03 40 10  LMP  Augh yuck, it sure does! Augh! That water gun ...
01 03 40 22  CDR  Smells like a swimming pool in here.
01 03 40 24  LMP  Oh God, that tastes terrible. Man, let's not do that for another couple of days.
01 03 40 32  CDR  (Laughter)
01 03 40 40  CDR  Maybe I put in two chlorines and no buffer. What about that?
01 03 40 43  LMP  Oh, man, that is really bad. Pssshoo!
01 03 40 47  CMP  It's not too bad with juice.
01 03 40 49  CDR  In a disguise, you mean?
01 03 40 52  LMP  Wow!
01 03 40 58  CDR  Well, let's see. You're not using the DSKY, are you?
01 03 41 01  CMP  No.
01 03 41 03  CDR  Let me load in my - Drive this thing over to the right place.
01 03 41 07 CMP Your what?
01 03 41 08 CDR Let me just drive the optics over to the right place.
01 03 41 11 CMP We've got a ways to go, Jim.
01 03 41 12 CDR I'll just get them there and leave them there. Then when they keep dribbling on over, I can watch. Let me put this in. 1691; is that correct?
01 03 41 25 CMP Yes, sir.
01 03 41 30 LMP You could do an AUTO drive, if you want.
01 03 41 32 CDR No.
01 03 41 36 LMP I thought you were going to load the DAP maneuver.
01 03 41 38 CDR I was, but I ... going the wrong way.
01 03 52 55 CC And Apollo 9, this is Houston. We're about to lose you here at Carnarvon. We'll see you at Huntsville at about 59.
01 03 53 04 LMP Roger. You want me to try that test in AUX, or are you still thinking about it?
01 03 53 07 CC Well, our plan is, we're going to have you disable these - the PUGS for this burn, and we'll talk about that over the Huntsville or Hawaii. We're coming up on 30 minutes of the burn, and we figure we should just go ahead and chuck it for this one.
01 03 53 24 CDR Okay.
01 03 53 25 LMP What'd he say? - Go ahead and do what for this one?
01 03 53 27 CDR Disable them.
01 03 53 28 LMP Well, hell, we might as well run the test then.
01 03 53 31 CDR No, I think they are going to do something next time.
01 03 53 34 CMP Okay, Jim, you ought to be just about there.
01 03 53 36 CDR Okay. There is a star - just about there, Dave. It's a bright star. I see another bright star that might be Arcturus ... something else ...
01 03 53 48 CMP Deneb ought to be out there close to it.
01 03 53 51 CDR No, I - I can't see anything that dim. There are thousands of little bits and pieces floating around, and then there's a star out about 4 or 5 degrees.
01 03 54 00 LMP Anybody happen to know where the PUGS breakers are?
01 03 54 03 CMP Yes, they're over here, Rusty.
01 03 54 05 LMP Oh, okay. Shoot, I'd like to test that son of a gun ... to see what it's going to do.
01 03 54 17 CDR Okay, we're like 30 - 30 minutes prior to the burn. You can ... here.
01 03 54 24 LMP You know we lose the PUGS here, and that means we don't have any onboard readout of quantity.
01 03 54 32 CMP Yes, that's right; we sure don't, do we?
01 03 54 34 LMP (Laughter)
01 03 54 41 CDR Well, Dave, all I can tell you is there is a bright star about 4 degrees from the center.
01 03 54 45 CMP Beautiful. Jim, you've been doing so good --
01 03 54 47 CDR (Laughter)
01 03 54 48 CMP -- and you're so proficient now that I have every confidence in you that this'll be the right way.
01 03 54 54 CDR I'll tell you there's a thousand of them that aren't holding still, though.
01 03 55 03 CMP I think we ought to - get the - Make sure we're ready. Want to do helmets and gloves this time, Jimmy?
01 03 55 11 CDR I don't care. I don't think we need to.
01 03 55 14 CMP Goody.
01 03 55 18 CDR It's going to be a short one.
01 03 55 21 LMP I need to get my glove out, to get my watch off.
01 03 55 39 CDR 27 seconds - Is that what it is here?
I think ... ... 28.3.
Okay. 243 to 260. Okay, it's off 2 degrees in sha and 1 degree in trunnion --
Oh, that - that's something new to me.
Yes, I'm not sure that that's the star, though. All I - There's just a star there, Dave, ...
Yes. Yes, if there's no --
It's a bright star --
... ... in the daytime.
There are no other stars that I can see.
Close that panel down there - the B-1.
Yes, I'll tell you, I sure feel a lot better after I ate.
Even when you're not hungry, huh?
Even when you're not hungry. Yes, it's a terrible thing, to force-feed, but -
Okay, OPTICS to zero and CMC. Gee, I'll bet I'm getting about that.
Yes, I've been listening to that.
(Laughter) Well, now I have a wealth of informatic available to me: the moon, landing lunar, the quad
Do you need any of this hot poop for your ...
... nobody else is doing them anyway.
Let me put the optics away, and I'll be right with you.
We ought to check these optics in the morning and see if they're still clean.
Well, you been putting your fingers on them?
No, just the - All the water that's been splashing around and the lint and putting your fingers on them. The whole bit.

You're not supposed to put your fingers on them.

I know you're not. But you're not supposed to have dirt floating in here either. We do have that.

Not more than 90 percent of the time.

Yes, we do. 100 percent of the time!

I've yet to make that thing work. ...

The spacecraft looks like it is getting smaller all the time.

I think it looks like it gets dirtier.

Kind of like the TV set doesn't look as good, and the wife doesn't look as good, you know.

Yes.

It's all those things. Familiarity breeds contempt.

Where's that tape I had down there?

How long to the burn time?

25 minutes.

Hey, my toothbrush managed to stay there during all that.

-- CAP COMM. How do you read?

Roger; understand. Would you give me a call when you do?

Can you hear that?

... bad and then some.

Give them extra volume when you -

Houston, Apollo 9.
Apollo 9, Houston. You are loud and clear.

Roger; you're still quite weak, but -

The Huntsville, bouncing down off a satellite ...

Yes, it's the Huntsville off a satellite, that's why.

Wonder what this goes to?

Nothing, I was just listening. Here, Rusty, the flight plan again. Can you stash it away over there, or you want me to just hold it?

Oh, I'll stash it away.

First unsuited burn! Okay. A new milestone. Where do I put my head?

That's what I was wondering - Do you want to put the helmet on?

I think I will, because it puts my head upright.

I bet you don't have a bit of trouble holding it.

I bet you're right. Good idea to leave it like it is.

Houston, Apollo 9. How do you read now?

Apollo 9, this is Houston. I read you loud and clear. Did you copy my last transmission?

That's a negative. You were way down in the mud.

Okay. We're recommending that you disable the PUGS for this burn. We'd like to have you turn the SPS GAGING switch OFF, and pull the two circuit breakers on panel 8, labeled SPS HEATER GAGING, MAIN A/MAIN B.

Okay?
Roger. SPS GAGING, OFF, and the breakers are OPEN.

Okay, very good. Thank you, Apollo 9.

Roger.

Okay, now, you want the DAP loaded, maybe?

Yes, sir. Roger.

...

He didn't say any more about those dips, did he, Rusty?

No, he didn't.

No.

Okay, ...

Remind me, Jim, on those cryo's. We want 175 MIN.

175 MIN, okay.

The LM's going to be the heavy one after this one, you know?

Yes.

Yes, how about that?

Boy, it's almost bedtime.

Yes.

Maybe I'll close up these tapes, so I don't get all that stuff in the tape.

10 degrees in pitch, 10 degrees in roll, and about 3 degrees in yaw, with two out. That's not bad.

I'm going to test the camera here again. Okay, it works.

Getting them both banked again, huh?

... --
01 04 06 02 CDR Yes.
01 04 06 15 LMF Houston, Apollo 9. You're breaking up very badly.
Lots of noise on the S-band cutting you out there.
01 04 06 22 CC Roger. We'll see you over Hawaii at 10.
01 04 06 24 LMF Roger. Hawaii at 10. You came through pretty good
that time, if you want to try it again.
01 04 06 33 CC No, I understand that we're LOS.
01 04 06 36 LMF Okay. We get the GO/NO-GO over Hawaii.
01 04 06 50 CDR Okay.
01 04 06 58 LMF Now, isn't that funny? That damn fuel cell O₂ flow
(cough) came back in (cough).
01 04 07 26 LMF Ain't any ... like the service. ...
01 04 07 36 CDR Better ... the PGNCS (laughter).
01 04 07 38 LMF Test caution and warning, here.
01 04 07 45 CDR Get your MASTER?
01 04 07 46 LMF Yes.
01 04 07 48 CDR Okay.
01 04 07 53 LMF Okay, you got the DAP loaded and all that?
01 04 07 56 CDR Yes.
01 04 07 57 CMP DAP's loaded.
01 04 07 58 LMF TVC's roll jets selected?
01 04 08 00 CMP Roger; AC ROLL, OFF.
01 04 08 02 LMF Okay, and you got an ullage selection this time,
too, right?
01 04 08 06 CDR Yes, that's right.
01 04 08 07 CMP I don't know ... ullage is ...
01 04 08 12 LMP Here's where we use our fuel.
01 04 08 14 CMP What did we agree to? Four jets, 17 seconds. Right?
01 04 08 18 CDR I got four jets, 18 seconds.
01 04 08 20 LMP 17.
01 04 08 22 CDR What's the flight plan say?
01 04 08 28 LMP Flight plan says four jet, 18, unfortunately.
01 04 08 33 CDR Pity.
01 04 08 35 LMP Pity. You've got a slow reaction time, though, Dave.
01 04 08 40 CMP Say again?
01 04 08 41 LMP I said you've got a slow reaction time.
01 04 08 44 CMP Yes. Let's hope I got a safe SPS engine, too. Give me a number for the DELTA-V counter, please.
01 04 08 51 LMP Okay, DELTA-V counter is 294.5.
01 04 08 56 CMP Thank you.
01 04 08 58 CDR Can you verify that change?
01 04 08 59 LMP Yes. Sure. 294.5.
01 04 09 02 CDR Okay, ready to PRO down this thing here?
01 04 09 05 CMP Yes, I think we can.
01 04 09 06 LMP What time is it?
01 04 09 07 CMP 15 minutes. Oh, we're alright —
01 04 09 10 LMP Yes, let's wait.
01 04 09 11 CMP — for a while. 18 seconds.
01 04 09 17 LMP Boy, that sun is really in the wrong place, you know it?
01 04 09 19 CMP Yes.
It hits you very nicely for these burns, doesn't it?

Yes, all these north burns. Luckily, at burn time it's a little bit better. Look at that thing.

Oh, my goodness!

That's how my stomach feels.

Yes, mine too. That's exactly what I was thinking. I imagine my tummy looks exactly like that.

Apollo 9, this is Houston through Hawaii; standing by.

Roger, Houston; Apollo 9. We're coming up on the burn here.

Roger. You're loud and clear, and we'll have your GO/NO-GO shortly. Let everybody take a look at your data.

Okay.

Okay, I've got EMS to AUTO.

Okay, EMS to AUTO.

20 seconds.

... Good ullage. Alright ... Proceed.

10 seconds.

599, proceed.

Good start; ... Pc is good; GIMBAL MOTORS are good.

Looks good, men. 19 seconds. 15 seconds on the FNS.

Okay, looks good.

6, 5, 4; looks good.

Shut down? A-1 four shut down. GIMBAL MOTORS, Rusty?

Ready.
PITCH 1, YAW 1, 2 - PITCH 2 -

Okay, so the purge we're going to do later; CRYO FANS, O\textsubscript{2} and H\textsubscript{2}, ON, for 3 minutes; and the fan thing -

Let's see. Oh, that little goody I looked up in the big flight plan: our special little heater operation. Wonder if they want to do the fan?

Which one?

I would assume we'd do the - You know, the powerdown and let these things go.

I would think we would.

H\textsubscript{2} -

I think we ought to -

fan or the O\textsubscript{2} fan?

Well, if we just turn it on to stir it up, that'll get rid of the - the stuff, and it's not going to disturb - and as long as we don't put any heat in, that is not going to disturb it for 3 minutes.

Yes, I'd assume that we'd do that, unless they say otherwise.

Yes. Okay, little timer, coming out. H\textsubscript{2} 1. Watch this, David, I'll try this O\textsubscript{2} fan. It didn't do it that time. Last time it went "boing!"

Waste water dump - let's see how our waste water is doing. It - it's 57 percent today. Want to dump it?

Yes, we probably ought to.

Yes.

It's down to 25 ...

Here's the flight plan back again.

Okay. You want it back?
No, I said, "There, it's back again to you for a minute." Oh, let's see. Where'd I put all that stuff? Oh, it's way up here on top.

When do we have another CO₂ canister change? Tonight or tomorrow morning?

Tonight.

See if I find that? I don't see it.

Yes, wasn't there one in there?

No.

I don't see it either. Yes, sir. 30 hours. I thought.

30 hours! Oh, hell, I'm looking at the wrong flight plan here. Hold on.

Got an eat period in here.

I'm eating again, fellows.

I could take a little more before bed.

I'd like to get rid of this gas, or whatever that stuff is that's churning around.

Why don't we get out of our suits? This would be a good time to do that. Huh?

Hey, it would. I could do that before I went down there and got the roll.

Why don't you - why don't you hop out of your suit?

I wonder if I ought to leave my suit on tonight. I really froze to death last night.

Why don't you change your suit?

You know what I --

Look at that. I got a washer hanging on the window.
01 04 43 50 CDR Maybe I could get a - Rusty, were you warm in that sleeping bag?
01 04 43 53 LMP Yes.
01 04 43 54 CDR There's another one down there, isn't there?
01 04 43 55 LMP Yes.
01 04 43 56 CMP Yes.
01 04 43 57 CDR Maybe if I put my lightweight suit on, and put my - Get in the sleeping bag, too. You know.
01 04 44 07 LMP Here's today's collection of trash. Here's your thing, Jim.
01 04 44 12 CDR What thing?
01 04 44 13 CMP The thing being the ... --
01 04 44 16 CDR No, I have another one down here.
01 04 44 17 CMP Okay, check.
01 04 44 20 LMP By the way, red to red, blue to - I mean, red to blue, blue to red works good, having the red this way. Got a few things on it, too.
01 04 44 31 CDR Like this blue in, and then suck it out someplace else?
01 04 44 34 LMP Yes.
01 04 44 44 CMP Did you know we have some rates! I mean just all of a sudden.
01 04 44 47 CDR They're looking good to me.
01 04 44 50 LMP We turned the EMAG's off.
01 04 44 53 CMP No. I mean - I can tell - I mean, by watching the IMU.
01 04 44 57 CDR Oh.
01 04 44 58 CMP But it has stopped moving.
01 04 45 00 LMP  It stopped moving?
01 04 45 01 CMP  Yes.
01 04 45 02 LMP  Hey, you have a big frosty spot over there, don't you?
01 04 45 03 CMP  Yes.
01 04 45 04 CDR  Oh, yes. It comes and -- But I think that's on the inside, isn't it?
01 04 45 08 CMP  Yes.
01 04 45 09 CDR  That's on the inside of the inside pane.
01 04 45 11 CMP  That's correct. I can wipe it with my fingers.
01 04 45 17 LMP  It's a colder window over there. Well, shoot. I guess I've lost the COMM channel. Audio --
01 04 45 36 LMP  And when you're done down there, you're going to dump the waste water, right?
01 04 45 39 CDR  What?
01 04 45 40 LMP  You're going to dump the waste water, too, huh?
01 04 45 41 CDR  Yes, as soon as I can get my suit off, I can dump the waste water.
01 04 45 43 LMP  Okay.
01 04 45 45 CMP  Pardon me, gang. I just said "Pardon me." I got rid of some gas!
01 04 45 56 CMP  Hey, listen, I'll take -- Before you get into all that, how about handing me a food pack, Jim?
01 04 46 05 LMP  Whoo, boy! (Laughter) Hey, I'm hungry too, now. EMERGENCY CABIN PRESSURE to BOTH. We got that?
01 04 56 33 CDR  I got them.
01 04 56 45 LMP  Houston, Apollo 9. We'll catch you with the injector TEMP on next station.
Roger. We're about to lose you here at Ascension and the next station is Tananarive at about 04. Our COMM has been pretty bad. I won't even try to talk with you unless you contact us, and I'll contact you next over Carnarvon at 19.

Roger.

What do you say?

I thought I heard something. Maybe it was you, bumping around.

Thought we had some hoses.

Yes.

Boy, that's as low as I've seen those fuel cells.

Sure has powered down.

15 amps apiece.

Huh!

Jim, can you get some systems test meter stuff? 5 C and D; 6 A, B, C, D.

4 point what?

Okay.

I put it in the far right-hand corner over there?

Do you have your little crew logbook, Rusty? You did? I always get you when you put it away, now.

Yes.

Why don't you just leave it out over there, because I - Stick it up there while the night's going on in case ... (Sneeze)

Hey, do you know which radio they're ...?

Jim, when you're ready down there, you can dump the water anytime. Okay?
Hey, our surge tank is tanked up again. Do you want to fill it again?

Hey, Dave.

Yes.

The surge tank is full. Do you want to dump it?

Jim was going to fill the ...

O₂ ... is 82 and 84.

...

Houston, how do you read over Tananarive here?

Yes. Yes. Already.

Check. 52 percent.

Turn your lights out back there, Jim.

We just passed Tananarive.

Isn't that pretty.

Boy, that airglow is really thick outside. Wow! On the side, it's not very thick at all.

Stand by. 49. Got a long way to go.

Hey, it's real thick out ...

... the tunnel for IM PRESS.

Okay.

How about the systems test meter? 4 Delta?

Right.

Good.

It's 35.

Boy, my lips are drying out.
Day 2

01 05 16 02 CDR  I need some cold water. How's yours?

01 05 17 14 LMP  7 ounces of cold, please. Oh, Jim, you can shut off the deadband, please. Yes, it's already down to 20.

01 05 18 07 CMP  Hey, we're all done through powerdown.

01 05 18 40 LMP  Thank you.

01 05 28 28 CC  -- 034:19:01, 3859; 023 4 Charlie, plus 145, minus 1675, 035:56:03, 4856; 024 Alfa Charlie, minus 216, minus 0070, 036:24:11, plus 53 --

01 05 30 07 LMP  At 30 hours, we got to change the cartridge. At 30 hours, we change a CO₂ cartridge.

01 05 30 25 CMP  SIMPLEX A isn't taking. If we want them, we'll tell them on B. They'll be standing by B.

01 05 30 29 LMP  B and A. They're going to be receiving both. Right.

01 05 30 45 CMP  What did I say?

01 05 30 46 LMP  Huh?

01 05 30 47 CMP  Isn't that what I said?

01 05 30 48 LMP  Well, the way you said it, it sounded like you were saying they were going to listen only on B.

01 05 30 51 CMP  No, I said that we'd be on SIMPLEX B - A, and they'd be standing by.

01 05 30 55 LMP  Yes, you said they'd be listening on B. Yes.

01 05 31 01 CMP  Do you want to come up here, Jimmy? Do you want to go down; you're going to get down. Go ahead. I'll eat.

01 05 31 08 LMP  Well, I - You want to copy the - finish up the block data?

01 05 31 10 CMP  Yes.

01 05 31 11 LMP  Okay. We should be getting it over Guam. I'm - I got that far through.
You know it would be better if you got something to eat or something.

Yes?

If I go down, because then we'll have the sets off.

Okay. Good idea.

Then Jimmy can come up here, and I'll go down and ... stay there.

Okay.

Hey, I want to chuck those. I know damn right well I'm not going to eat them. Those are this morning's. You probably ought to tape over the end. Yes. And then throw them in the PSB there, I guess.

Yes, I can put it in, Jim.

Apollo 9, Houston. Do you read through Guam?

Houston, Apollo 9. Roger; we read you; how us?

Read you 5 square. How far did I get?

Okay, I got to the last line in 24 Alfa Charlie, and I got a 53 there and that's all.

Okay, the last line in Alfa Charlie is 5397. And reading on the next one: 025 4 Charlie, minus 178, minus 1620, 039:13:13, 8020. The last one: 026 Alfa Charlie, minus 042, minus 0260, 039:33:59, 4000. That's the end of the update. I'd like to go back to the third line and 4 Charlie - 023 4 Charlie, the third one I read. The third line in that should be minus 1625. And the - your SPS trim angles: pitch, minus 0.9; yaw, minus 0.7.

Okay, a readback on them all. Do we have enough time to read them all back?

Apollo 9, before you start the readback, we'd like to have you turn on the H₂ purge heaters. And what we are working up to is, just before your rest period,
it looks like we're going to have to purge to get the pressure in \( \text{H}_2 \) cryo tanks down to 175.

01 05 39 31 LMP Okay, the LMP is now reading 8002. Whoa!

01 05 39 41 CDR Hello, Houston. This is CDR. I already have my suit off, and I've got it packed down in the bottom. Do you want it or - I can get it for you, if you really want it.

01 05 40 03 CDR Houston, Apollo 9.

01 05 40 07 LMP Houston, Apollo 9. Jim, I'm not hearing you at all. You must not be on intercom. You probably don't have the suit power on or anything.

01 05 40 37 LMP How come I'm not hearing you?

01 05 40 47 LMP Here you are, Jim. Jim! Jim!! Can you hear me?

01 05 40 54 LMP I know - Why aren't you hearing me?

01 05 40 59 CDR I wonder if I can talk to Dave.

01 05 41 00 LMP I don't know. Okay.

01 05 41 15 LMP How was it coming out, David? Any better than going in?

01 05 42 00 LMP Hum.

01 05 42 10 LMP What? I didn't hear you.

01 05 42 19 LMP Oh, ... busy.

01 05 42 50 CDR Whoa! That hot water is really hot water.

01 05 42 54 LMP Yes, it is, isn't it?

01 05 43 04 CDR (Singing)

01 05 43 19 CDR Boy, that orange tastes good. Umm!

01 05 43 21 LMP Yes, doesn't it though?

01 05 43 26 LMP It doesn't dissolve too well, though.
I'm sure I had a bag of water up here. Where did I - where'd it go? ...? There it is. Which is the ...?

(Laughter) The way you did that, it looked like you stepped right through a hole. You went up a little ways, then you went down and you just kept getting lower and lower and lower.

What is it?

Going out?

(Laughter) I doubt that.

You monitoring the radio, Jim?

Yes.

Okay.

I'm going to start disrobing here.

Alright.

(Laughter)

Ooh, that's hot!

Oh, hell. I guess I got a wad in there. Mostly just gas.

What? Yes.

Boy, do my legs feel better today - Whoo! They really ached last night.

Well, that's what I did.

Okay, very good. That solved that problem and we've reminded you of the canister, and that will keep you from getting a MASTER ALARM, and we're not going to answer you anymore.

What are you, a smart guy? Hey, which one of those good teams is on right now, Gold, or White, or Orang.

It's the - it's the G² team, good Gold.
01 06 18 08 CDR  The big Gold, huh? Okay.

01 06 18 42 CDR  Hey, Smokey, is Sonny coming on tonight?

01 06 19 00 CDR  Change A and put in B - This place is foul out there.

01 06 19 20 CDR  That's what his mother calls him. Hadn't you heard about that? Yes. Yes, yes, when Ward got - tried to make an astronaut. You know, he lives in Jackson. My mother sent me a clipping - Oh, on - There's another boy from Jackson who wants to be an astronaut. It was a clipping from the paper, and it was a report from Mrs. Ward saying, "Oh, Sonny wanted to be an astronaut for such a long time, and I'm glad Sonny made it" (laughter). You know, the first time I saw him down here, I said, "Hi, Sonny, how are you doing?" Shoot, but he turned 18 shades of red and purple, and Sam Ward almost dropped dead on the spot. He said, "I thought I got rid of that!"

01 06 20 31 CDR  Yes, but you've got a name for - Oh, shoot, no, I haven't; have you got any nicknames?

01 06 20 47 CDR  (Laughter)

01 06 21 00 CDR  (Laughter)

01 06 21 09 CDR  Yes, those are great.

01 06 21 34 CDR  It says 30:20.

01 06 21 49 CDR  Do you realize, Dave Scott, that if you got sick right now and you couldn't fly until the end of June, that you'd get paid for it without this flight?

01 06 22 06 CDR  I'm just trying to get even; I don't - at least I don't have my heavy boots on.

01 06 22 17 CDR  Hey, when you get through with that, fellow, would you throw this in the garbage?

01 06 22 25 CDR  Dave, the - the only two that we need are those two right there on the left. Number 1's in front; number 2's in the back. I'll get you that piece of tape. It's in the ...
(Laughter) Shake it. Careful; it's going to run off. ...

Let's see, did you ever get that ... on the wall fill up - filled up full?

I'm about ready to go to sleep. I'm about ready to go to sleep.

Now, why do you want to do that?

Sure.

No, I'm sure I don't. Why don't you take yours?

Why don't you turn it - Oh, yes, you could turn it down, but he wants a lot of air, I guess. If you can turn it down -

Ooh. (Yawn)

What? It's right underneath you.

Hey, Jim, (yawn) did you say you knew where the - Excuse me - where the lightweight headsets were?

I can get it. I think I might try it today. I'll get it.

We need somebody to go on watch.

My ears can't breathe with this thing on.

That's what I'm doing.

Oh, yes, good hand. I'll tell you in a minute. JAD. Must be James A. Divitt. You want yours?

It says RS. Now who in the world would that be? Hey, you could - There's one - Oh, this is C. We got a C. Why don't you pull the other one? Let's look at it while you're already down there.

Shoot, another red one?

Oh, here's Rusty's. RLS. Okay. We got them all.

Yes. What?
It is?

Here's yours.

Huh? Yes. I'll tell you what. Huh? No, just turn it on and leave it on. We don't have to wake each other up.

Hey, Rusty. Here's your COMM stuff. Maybe you want to put it in your pocket. Then you know where it is. Get it in your eye? Up your nose?

(Laughter) I figured you'd put it in your pocket and you'd know where it was.

Here, give me your - I'm missing a piece, so let me - I'll - I'll take it.

I've twisted a bloody peach in here. Yes.

The thing that goes from here to here. I'm not even going to use that. Forget it. Stick it in your pocket.

Too complicated for me to understand.

That's yours, old buddy.

Roger; understand. 39:55, primary glycol accumulator refill, fill to 50 to 55 percent, LMP 2-7, step 4. Gumdrop.

Houston, 9. Did you get the readback?

Houston; Roger. Came through kind of weak, but it was okay. Change: move S-band conference MSFN relay up to 44 plus 18 over Honeysuckle, systems page 27. Over.

Okay, move S-band conference MSFN relay up to 44 plus 18 over Honeysuckle, systems page 27.

Roger. Next one: move CSM one-way relay up to 45 plus 38 over Carnarvon, systems page 31. Over.

Roger. Move CSM one-way relay up to 45 plus 38 over Carnarvon, systems page 31.
Roger. That's all of the general things. We're going to try to give your state vector and your reference - REFSMMAT; we'll send it over Guam at 40 plus 51.

Roger. 40 plus 51 for the state vector REFSMMAT.

Roger; and I have your consumables.

Roger; and the consumables, okay.

GET 039: 75, 17, 76, 22, 81, 22, 76, 22; 528, 44, 36, 31, 39. Over.

Okay. 039, 75, 17, 76, 22, 81, 22, 76, 22; 528, 44, 36, 31, 39.

9, Houston. Your readback is correct.

Roger.

Houston, 9. Did you want to go through the block data, also?

Roger. I have it if you're ready.

Okay, go.

Roger. 027 Alfa Charlie, plus 090, minus 0310, 04h:16:03, 3529; 028 2 Alfa, plus 249, minus 026 ...

-- plus 340, minus 0290, 046:24:14, 385 ...

-- ... rest of that mission and have the trouble postflight. Let me ask you two other quick things while we've got you on here and ... Have you had any symptoms at all up there, Jim - any of you?

Symptoms of what?

Any - anything of the cold. You sound pretty nasal up there, and have you had anything that looks like any recurrence of your cold symptoms?

I don't believe so. My - my nose is stuffed. I'm going to slip some nose drops in this morning, but I expected that, and - Just let me check this.
No, Rusty doesn't have any symptoms of a cold.

And I don't have it at all, Chuck, at this date.

Good. Okay, Jim, it's no worse as far as you're concerned than it was in Gemini. Is that right?

Negative.

As a matter of fact, Jim opened up the nose drops yesterday, and we had enough fumes in here to clear everybody up within 10 minutes.

Very good. Listen, could we get a quick report on what you did for sleep yesterday and today? We didn't get that yesterday morning and we'll wipe it out right now, if you got a minute.

Okay, this is Jim. I got up - On the first night, I slept in about 10-minute stretches, very restless; and I don't know how much I got cumulative, maybe a couple of hours. Last night, I slept pretty good in about - Except I had one big 4-hour period, and I had another one of about 2 or 3 hours. I slept pretty well last night.

That's good. Your heart rate looks that way, Jim.

Okay, this is Dave. I slept the first night about four 1-1/2-hour cracks; and, last night, I guess I got about, oh, 7 hours total and about, maybe a couple of 3-hour stretches and another hour or hour-and-a-half stretch.

And all good?

Yes, it's all pretty good.

Good show. How about Rusty?

Rusty feels like he got a good 7 hours last night. As a matter of fact, he wanted to - he wondered when he woke up how long it had been since he went to sleep.

Good. How about the first night, Dave?
He says he thinks he got about 7 also, and he said he only woke up one time last night.

Okay, I think that - that clears us from here. We've still got some - some time there. Did any of you get any motion sickness in the - yesterday?

This is Jim. Negative, I don't have any. Just a second.

Dave; negative.

Rusty says he took a Marezine this morning just to stay ahead of it. And he also, I guess, wanted you to know that he took a Seconal each night.

He did take a Seconal last ... or the ...

Both nights.

Yes, sir.

Tool - no, tool E up there is the one you need. They're both up by your shoulder.

Yes, I'm sure they'll want to watch it, and we got about 4 minutes before the time that he called.

Hey, this food even smells good this morning. I don't know whether I can smell it or not. It's all wrapped up. How can I smell it?

Oh, gee, that's nice.

Hey, can somebody reach the hot-water spigot down there?

Thank you. This is good old hot. I'm going to have me some hot chocky.

Well, Jim, we're not over a station. I guess they don't really care, so anytime you're ready, you can grab your tool E and proceed to the glycol accumulator fill; and I shall read you the checklist - a very long, difficult process.
You're not broadcasting to me. You're on PTT. That's alright. I can see your motion. Excellent! Ooh, that's nice.

Okay, step number 1: PRIMARY ACCUMULATOR FILL valve - ON! Let me see, we want to go to 50 to 55 percent; and right now we're about 35, so just turn it ON and I'll give you a call at 50, and we'll see how it stabilizes out. Okay?

Add more. Okay, turn it OFF. I figured that. Okay, turn it - you can turn it back ON. It just takes it awhile - It'll overshoot.

Okay, OFF.

Okay, back ON.

Okay, OFF.

Be ON just a tweek.

Okay, OFF. Beautiful. Well done. Now turn OFF, and that's all. Gee, you did a good job, Jim.

Okay, are you reading me now?

Yes.

Oh, yes ... 

Okay, let's see, and the first thing we're going to have to do, is in 1 hour and 3 minutes is the P51, so that gives you an idea what we are in time.

Okay, fine.

Here you are. I'm going to go ahead and fill my other bags up right away.

Well - Why don't you keep - why don't you keep going? Why don't you keep - You want me to open this stuff for you?

Whew!

Too many things to hold on to here.
01 15 59 05 CDR  Okay?  Why don't we get another one then?
01 15 59 22 CDR  What is that anyway?  I never even heard of it.  You cracked one?
01 15 59 34 CMP  Let's hope we get this squared away so we can get
our update.
01 16 00 19 CDR  Think I'll take a couple of aspirins; just a touch
of a sign of a headache — runny nose.
01 16 00 41 CDR  Get that? ...
01 16 00 43 CMP  Huh?
01 16 00 56 CDR  Do you need anything down here, Dave?
01 16 00 59 CMP  No, not yet.  I will in just a second, though.
01 16 01 02 CDR  Okay, I'm just waiting.
01 16 01 14 CDR  Get the other bag, too, Rusty — put the rest of the
stuff in it.
01 16 01 37 CMP  Okay, got a RESTART this morning when we started the
computer.
01 16 01 42 CDR  How about that?
01 16 02 31 IMP  Jim.
01 16 02 32 CDR  Yes?
01 16 02 33 IMP  I think ...
01 16 02 40 CDR  Oh, good.
01 16 02 45 CMP  Alright.  I'll hand you the empty bag as soon as
I drink my hot chocky.
And, Gumdrop, you're cleared to maneuver as desired.

Okay.

Gumdrop, Spider. Are you starting to clear the tunnel yet?

Okay, fine, Davey.

I think we ought to skip that REG's check. I've got to get something to eat here, and we're starting a sublimator dryout. We'll just go ahead and skip the REG's check.

Okay.

You got anything to eat over there?

Yes, Dave. I've got something to eat.

Okay, Spider, I'm ready to clear the tunnel out if you're ready to go with it.

Okay, why don't you go ahead and clear the tunnel out, Dave, so we can start getting back on the command module ECS? We've cut the sublimator off over here, and it's kind of dried out, and we want to get off of this thing.

Gumdrop, is your tunnel - is the tunnel pressurized?

That's a negative?

Okay, let us know when it is.

Say the word; we can pressurize it for you if you like.

...\)

Okay, we'll do it.

Hey, Dave. I pressurized the tunnel, but it might be at a higher pressure than you have there in the spacecraft. Make sure you open up that pressure valve in the tunnel hatch.
02 02 28 06 CMP ... it looks like we're getting about a 0.1 differential right now.

02 02 28 10 CDR Okay.

02 02 30 03 CMP Roger. HIGH BIT RATE, Houston.

02 02 38 58 CC Gumdrop/Spider, this is Houston through Carnarvon.

02 02 39 04 CMP Gumdrop, 5 by.

02 02 39 06 CDR I'd like to go private with you.

02 02 39 09 CC You cut each other --

02 04 18 23 CDR Okay, I go back and get it going the other way? I'm down here, down this way? It's going this way!

02 04 18 31 CMP I should have called you up and accused you of firing the thrusters, but I knew you weren't.

02 04 18 48 CMP Oh boy, that stuff's really terrible.

02 04 18 49 LMP What's that?

02 04 18 50 CMP Chicken with vegetables.

02 04 18 52 LMP I had that last night; I thought it was pretty good.

02 04 18 55 CMP I bet!

02 04 19 00 CMP (Laughter) When you guys (laughter) started to get ready for the burn, I realized you were going to go backwards, so I had to run around here and get everything that wasn't settled to go plus X, and fix it to go minus X.

02 04 19 14 CMP Hey, there isn't hardly any storage here at all.

02 04 19 16 CDR No.

02 04 19 18 CMP I was disappointed. I braced myself against the panel.

02 04 19 25 LMP That's a pretty good burn, you know it?

02 04 19 27 CDR Right.

02 04 19 28 CMP ... 6 or 8 minutes of it.
02 04 19 30 LMP  Yes, but I mean it was - it was well-guided, much better than in the simulator.
02 04 19 34 CDR  Yes.
02 04 19 35 LMP  Gosh! It's hard to believe - hardly --
02 04 19 36 CDR  Here.
02 04 19 37 CMP  Oh, here, let me cut it for you.
02 04 19 38 LMP  -- hardly any excursions and - looked pretty good.
02 04 19 55 CDR  We've got to figure out some way of getting this dirt out of here.
02 04 19 56 CMP  Boy, you're not kidding.
02 04 20 00 CDR  I got a piece in my eye a little while ago. I got a piece of hair in my mouth.
02 04 20 43 LMP  You want to close it?
02 04 20 45 LMP  Thought I'd caught you.
02 04 20 55 CDR  Is the hand controller on?
02 04 20 56 LMP  Sir?
02 04 20 57 CDR  Is the hand controller on?
02 04 21 00 CMP  What I'm going to do next time is to set that 50-degree deadband around zero, and let it do it. It's just not working.
02 04 21 07 CDR  Yes.
02 04 21 08 CMP  Chase, chase, chase. And I bet I've spent more gas chasing it --
02 04 21 13 CDR  Yes.
02 04 21 14 LMP  Than letting it deadband.
02 04 21 19 CDR  You're darned right.
02 04 21 29 CMP  What do we have to do during the alignment?
Next night pass.

I'd like to get some cold water one of these ... Pardon me.

That's quite true of spaghetti. You know, I dream about oxygen. Black ox --

Lots of croutons, huh?

If you'll hand it over this way, Rusty, I'll get it Hand it up here, and I'll squeeze it.

Are we on our way out of that gimbal-lock area now?

Yes, I think so, because --

I'm sure I can't see it now.

Okay.

I think we're awfully close.

Here you go, Rusty.

Can I take a drink?

Yes.

Probably going out the other side.

No, it's not -- it's in the same place; it went back in.

You don't suppose there's some magnetic anomaly?

Turning itself -- The turning is along the flight path, and it's -- The ball aligns.

(Laughter)

That stuff doesn't dissolve.

You got to squeeze it.

I just did ... I didn't see much meat in it.
02 04 27 02 CMP  Oh boy, is it going to feel good to get that suit off tonight!
02 04 28 24 LMP  Sounded like the TV was good.
02 04 29 03 CMP  Hey, Jim, tell you what. Tell me where that water stuff is, if you've got time.
02 04 29 13 CDR  Well, one fitting - Dave, it's a fitting about this long, with the QD on one side and the screw-in on the other.
02 04 29 19 CMP  Okay.
02 04 29 20 CDR  Well, right up on the top end.
02 04 29 23 CMP  Okay.
02 04 29 38 CDR  In that little box, where Rusty's sitting.
02 04 29 40 CMP  Yes, I know - I know where you mean.
02 04 30 01 CDR  You see it?
02 04 30 02 CMP  Not yet.
02 04 30 03 CDR  Alright.
02 04 30 04 CMP  Okay.
02 04 30 07 CDR  Now you want to get the toolkit out.
02 04 30 09 CMP  (Cough)
02 04 30 12 CDR  You know where that is?
02 04 30 13 CMP  Yes. I'm going to take Rick Nigel's job when I get back. (Coughing)
02 04 30 33 CMP  We want - which one?
02 04 30 35 CDR  Take the whole toolkit.
02 04 30 46 CMP  You want the one to - you want that - (coughing)
02 04 30 56 CDR  You want to cap it.
02 04 31 00 LMP  Here's the ... Dave. Where do you want that?
Now I'll get tool E.

There was one right over here.

Okay.

Really? There's only one? No, I got the one that you gave me this morning. There's only one, isn't there?

No, I had the other one out and had it right over here, just for Dave.

B or E? The screwdriver?

Oh, E.

Okay -

That son of a buck doesn't want to get out of gimbal lock.

Very slowly.

I had it very slowly going out, too, and then it started slowly going back in.

I think we're trimming - along the flightpath.

Oh, oh!

Don't lose it! Did you lose it?

No, I got it. I wonder what happened to the wire? We capped it.

It was?

Right. It's not anymore. Lots of wire down there, but it doesn't do any good.

Okay, give me that fitting.

There's a lot of hose.

Which end would you like?

I want the -
Now I'll get tool E.

There was one right over here.

Okay.

Really? There's only one? No, I got the one that you gave me this morning. There's only one, isn't there?

No, I had the other one out and had it right over here, just for Dave.

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Oh, oh!

Don't lose it! Did you lose it?

No, I got it. I wonder what happened to the wire? We capped it.

It was?

Right. It's not anymore. Lots of wire down there, but it doesn't do any good.

Okay, give me that fitting.

There's a lot of hose.

Which end would you like?

I want the -
That's the wrong end.

I know. There should be a filter on that end down there, Dave.

I put the filter away this morning.

Oh, okay, plus it right in the — urine, huh?

Yes. You got that thing going right over you.

Well, gee, that's just a little black hose. It doesn't even compete with the other ones. Okay, now you have it rolling down the back of your suit. I'll get out of the way and ... now.

(Cough)

Lo and behold, you're going to be ... going to the john, Dave.

Hum, let me set the control for you.

What were those gimbal angles again, Rusty?

What?

Did it go up?

You're all set ... 

Would you shut off the vent, Dave? It feels cold. It feels like ...

Yes.

Well. I wonder why ...

It looks like there's a big bag on there, doesn't it?

Yes, I know.

Yes. Yes. 25 degrees. 20 or ...

Hardly any ...

Really?
... What did you say about 25 degrees, Dave?

Well, folks, we might not get the attitude in time to get a star check for the burn.

Yes, I - I see that. If you could do it ...

... do a good job here.

I'm not sure ... on this deal.

I get ...

Yes.

Even though it ...

... sleepy ... stop.

... What do you want to do with these?

...

No.

Yes, that - that's silly.

Okay, ...

Yes, we should be coming on ... a star like this one.

Yes, I've got the Big Dipper again.

Right where we started. ... than this, Jim.

No, I'm not; but if we just get the ..., I think we're going to get a lot more stars in the ...

Oh, okay.

Yes, okay, I see ...

There's a couple of big ... not too many.

Seems the Apollo ... won't roll.

Who put this on starboard? ... a light come on for that.
Oh! (Laughter) That's Dave.
No, I didn't think that ... would do it.
Shit, ... right to it.
... You that far?
Yes. You don't think we can do it, Dave?
No,
Yes, that's what I've been doing ... flight plan.
Yes. It is, too.
You're right, Jim.
Well, that ... was planned.
Let it stay down here for this time. ... I come back up here.
Dave, you want to change my hoses over to the right side?
Okay. Come here. ... You want all these helmets and gloves off?
Yes.
... on this thing.
You want - you want to try to make a third star check when we get there, Jim?
Go ahead.
You ... stars in here ... alright, Rusty.
Yes? You want to use their star check? We've never had one yet. Oh, I'll try. If we have to ... up there, I'll try it.
Alright, let's see.
I don't want to put a light on it ...
I ought to go back up and wrap around.
I know.
Make sure it's alright, Jim.
Hey, how do you like that?
Rusty's --
Turn that thing off. ... Okay?
Hey, I got - I'll do my COMM, too.
Okay.
Hey, you got my air ..., Dave?
Yes.
... Tananarive.
Hello, Houston; Apollo 9. Hello, Houston; you read Apollo 9?
Where's my helmet? Is that it down there?
... that silly gravel out there, Jim.
... Houston. We'll see you over at Carnarvon at 4
Okay, Houston; Apollo 9.
Oh, you've got that strut there now.
I think we could probably take that strut down. Dave, we're not using that ..., are we?
... Dave have to leave it there.
(Laughter) We're not using that support strut any more, are we?
That's okay; it's not in my way.
Are you getting around here?
Okay.
Okay.
It's alright.
It's alright, Dave.
What?
Ohh!
(Yawn)
Bypass the - RESTART routine, and exit the program. Okay?
Okay.
Your input's 47? You ... a DELTA-V ... minus Y ... put a time in ... Is the meter on?
There's no light.
Yes, yaw is 30 degrees.
... 
Yes, we're going ... that ... should be going back-wards, turning to the north with - down. Not this way. So, what we'll do is we'll just come up and yaw. Okay?
Roll right.
Roll right.
What?
Okay.
But I would think you'd probably want to ...
At 4 or 5 feet per second ...
All we're trying to do is satisfy the DELTA-V for the ...
Okay.
Then you have to go back and retarget it for the...

Yes, you know that - that was almost three times the ...

... and one time, it's four times as ...

You want to take this ... down, or can you read it okay? ...

Have any trouble with your head yesterday? Your head - holding it up?

With my head?

Holding it up during the burn?

You're going to do what?

Trying to see if I can ...

What if you can't?

Burgie hasn't seemed to be much help to us on this, has he? (Laughter)

Who?

Burgie.

Hey, Ron, is Sonny there with you?

Is who with me?

Oh, never mind. I'll get you over Hawaii.

Roger. Smokey is still here.

No, Sonny. Sonny Morton.

Yes. He's here, too.

Okay.

(Laughter) You dirty rat, McDivitt - -

Hello, Jimmy.
<table>
<thead>
<tr>
<th>Time</th>
<th>Call Sign</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 06 05 30</td>
<td>CMP</td>
<td>Oh, boy. Oh, (laughter) ye gods!</td>
</tr>
<tr>
<td>02 06 06 14</td>
<td>CMP</td>
<td>How much time we got, Jim?</td>
</tr>
<tr>
<td>02 06 06 16</td>
<td>CDR</td>
<td>20 minutes.</td>
</tr>
<tr>
<td>02 06 06 17</td>
<td>CMP</td>
<td>Be right here.</td>
</tr>
<tr>
<td>02 06 06 18</td>
<td>CDR</td>
<td>I think - I think this thing is trimming, you know that? although they still say zero.</td>
</tr>
<tr>
<td>02 06 07 08</td>
<td>LMP</td>
<td>I'll try a ...</td>
</tr>
<tr>
<td>02 06 07 19</td>
<td>CMP</td>
<td>Okay, how many feet, for sure?</td>
</tr>
<tr>
<td>02 06 08 58</td>
<td>CDR</td>
<td>(Laughter) What you doing down there?</td>
</tr>
<tr>
<td>02 06 09 36</td>
<td>CDR</td>
<td>Boy, that DELTA-V counter is really drifting.</td>
</tr>
<tr>
<td>02 06 09 41</td>
<td>CMP</td>
<td>Did you get it set?</td>
</tr>
<tr>
<td>02 06 09 43</td>
<td>CDR</td>
<td>No.</td>
</tr>
<tr>
<td>02 06 09 45</td>
<td>CMP</td>
<td>5 - 7.3.</td>
</tr>
<tr>
<td>02 06 09 47</td>
<td>LMP</td>
<td>7.3.</td>
</tr>
<tr>
<td>02 06 10 16</td>
<td>LMP</td>
<td>How low are we supposed to let the cryos go?</td>
</tr>
<tr>
<td>02 06 10 24</td>
<td>LMP</td>
<td>We did?</td>
</tr>
<tr>
<td>02 06 10 26</td>
<td>CDR</td>
<td>The fans are supposed to be ON now?</td>
</tr>
<tr>
<td>02 06 10 37</td>
<td>CMP</td>
<td>No. You want the fans OFF - both?</td>
</tr>
<tr>
<td>02 06 10 53</td>
<td>CDR</td>
<td>... reading 700.</td>
</tr>
<tr>
<td>02 06 11 20</td>
<td>CMP</td>
<td>Want me to do the reading this time, Rusty?</td>
</tr>
<tr>
<td>02 06 11 23</td>
<td>LMP</td>
<td>No, I'm - I'm okay.</td>
</tr>
<tr>
<td>02 06 11 24</td>
<td>CMP</td>
<td>Okay. It may be better to do something.</td>
</tr>
<tr>
<td>02 06 11 27</td>
<td>LMP</td>
<td>Yes, oh yes, I think it would be.</td>
</tr>
<tr>
<td>02 06 11 30</td>
<td>CDR</td>
<td>Boy, that rendezvous window is really getting cloud up, isn't it?</td>
</tr>
</tbody>
</table>
02 06 11 38 CMP I think the windows are doing pretty damn well!
02 06 11 40 LMP Well, I do, too.
02 06 11 41 CDR All of them except the rendezvous window.
02 06 11 43 LMP Mine is doing great over here. There's not any on it at all.
02 06 11 47 CDR I didn't even get a chance to look at this - the sight. I looked up there at one time to see if was ... and it was, and then I tried to put the COAS up for you.
02 06 11 54 LMP Yes.
02 06 11 55 CMP I turned it on for you a couple of times, but you couldn't get me.
02 06 11 58 LMP Yes?
02 06 11 59 CMP It works.
02 06 12 04 CDR I think I found out at one time that ...
02 06 12 06 CMP Yes. I seem to recall it. Had your curtain drawn, didn't you?
02 06 12 12 CDR Huh?
02 06 12 13 CMP You had your upper curtain drawn.
02 06 12 15 CDR Oh, yes.
02 06 12 18 CMP Hey, did - did you start up the glyc - the evap this morning, or not?
02 06 12 21 CDR No, huh uh, no.
02 06 12 25 CMP Take it or leave it.
02 06 12 27 CDR Leave it go.
02 06 25 39 CMP EMS, OFF.
02 06 25 41 CDR OFF.
02 06 25 45 CMP ... my watch.
02 06 25 55  CDR  How we doing?
02 06 25 56  CMP  Okay. Hold on back there. Brace your head.
02 06 26 01  CMP  Average g is working.
02 06 26 04  LMP  10, 9, 8, 7, 6, 5, proceed, 2, 1 -
02 06 26 13  LMP  IGNITION. 3 is ON.
02 06 26 17  CDR  Okay - It opened all the way.
02 06 26 19  LMP  Okay.
02 06 26 22  CMP  35 seconds. Okay. Looks good. DSKY and the EM agree.
02 06 26 28  CMP  25 seconds to go. I think the entire DSKY and E are good.
02 06 26 32  CDR  ... clock.
02 06 26 34  LMP  The clock - if it stops, you're okay.
02 06 26 36  CMP  20 seconds. DSKY and EMS are good.
02 06 26 41  CDR  DSKY's ...
02 06 26 42  CMP  15.
02 06 26 43  CDR  It's coming back. It might knock it out.
02 06 26 47  CMP  10.
02 06 26 48  CDR  Time agrees.
02 06 26 49  CMP  Okay.
02 06 26 51  CMP  5.
02 06 26 57  LMP  Okay, they all closed.
02 06 26 59  CMP  Okay, get the breakers in. Okay, then GIMBAL MO OFF, one at a time.
02 06 27 04  CDR  1, 2, 3, 4.
02 06 27 08  CMP  Okay, verified. TVC SERVO POWER 1 and 2, OFF.
02 06 27 12 CDR Two, OFF.
02 06 27 13 CMP ATT DEADBAND, MAX.
02 06 27 14 CDR Okay, DEADBAND, MAX.
02 06 27 15 CMP RATE, HIGH.
02 06 27 16 CDR RATE, HIGH.
02 06 27 17 CMP SPACECRAFT CONTROL, SCS.
02 06 27 18 CDR SCS. That thing is really pulsing. Would you say -
02 06 27 21 LMP Houston, Apollo 9.
02 06 27 24 CC Houston, Roger. We copy your residuals; request DELTA-V_c.
02 06 27 26 LMP Roger.
02 06 38 48 CDR ... You go ahead.
02 06 38 50 LMP Deke, this is Rusty. I'm not sure that it's not a combination of things, but I think it is related to motion also. And unless I can get some food in me, and keep it in me, I'm not going to be feeling much better. Now, I'm planning to try and eat up a storm tonight, but, in all frankness, I sure won't have much appetite.
02 06 39 13 CC Well, the Marezine doesn't help you much, huh?
02 06 39 18 LMP Well, it's kind of hard to say. This morning, I took a Marezine before breakfast, and then very shortly after breakfast, it all came back up - in the middle of all that commotion that we were - that we were going through, getting ready to get through that tunnel. I would guess that, under the same circumstances tomorrow morning, it'd probably be very much the same.
02 06 39 51 CC Roger.
02 06 39 52 CDR And another thing, Deke, I think we've got to stretch out the - we got to get a little extra time in here. Today I had a bag of fruit salad and a bag of cocoa or something like that for breakfast. About 12 hour
later is - I have time to eat. And I think that if - We don't want to attack that rendezvous, which is about an 18-hour day, like that.

I couldn't agree more; we'll have to take a look at the book.

I think if we have enough time tomorrow, to prepare the spacecraft pretty good tomorrow night, then we can get up in the morning, and maybe get to bed a little earlier, get up in the morning the next day, and probably make that timeline.

Roger. I just wanted to make one comment on this private loop so you all understand it. We are summarizing it down here; it's not being released word by word, but it is being summarized to the press. I don't know if you guys understood that or not, so we don't want you to hold back telling anything you think is appropriate. But you should understand that it is being summarized. It is considered ...

Roger; I understand that.

And we'd like to express our thanks to you for doing a great job today. It was outstanding.

Well (laughter), we're just up here, trying to do what we've been practicing for a few years. I'll tell you, we sure got a lot of comments on how to operate in the spacecraft with suits on and with three - three great big pairs of hoses. Also, I'll tell you off the record here, ... if we're still in private - (cough)

Yes, we're ...

There's a lot of little things that have to be fixed up (cough) to make this spacecraft really operable inside - like -

I think they're gone, Jim.

- - like numbering those God-blessed lithium hydroxide cans.

Oh, yes.
And that water --

That LM. Nothing's fit for that God-blessed LM, Dave. I -- Hey, do you know that -- the OPS came -- pallet came loose during that burn -- (cough) ... Did it really?

Yes, it went floating around when I went back to get it.

Oh, boy.

There's not -- I bet you there's not 50 percent of the things over there that work.

Where are we?

You know something?

Oh shit, no, I didn't ...

I was going to say, boy, that water that I got, chlorinated water, taste ... either.

Hey, this -- this is terrible, this water here.

We haven't -- we haven't chlorinated it yet, have we, today?

No.

Okay, look. Let's get our food before we chlorinate it.

When are we due to do that stuff, David?

I don't know, but, boy, I don't want to eat food with all that crap in it again.

It'll still have to be chlorinated.

But it's not -- I've been tasting it -- it's not as bad as it was last night. I'll tell you, that -- that -- that water I had last night burned my mouth when I put it in there.

Jim, could you wait just a second? Hey, Jim?
Yes.
Let me get this stuff put back together here before you come down.
... right over here ...
Be with you in just a second, Jim.
Have you got the AUTO RCS, OFF, Jim?
AUTO RCS, OFF.
Okay, MANUAL ATTITUDE, three, to RATE COMMAND.
RATE COMMAND.
LIMIT CYCLE, ON.
LIMIT CYCLE, ON.
ATTITUDE DEADBAND, MAX.
MAX.
RATE, LOW.
RATE, LOW.
THC POWER, OFF.
...
ROT CONTROL NORMAL, two, to OFF.
OFF.
DIRECT, two, to OFF.
OFF.
SPACECRAFT CONTROL to SCS.
SCS.
CMC MODE, FREE.
FREE.
02 06 44 08 LMP
02 06 44 10 CDR
02 06 44 11 LMP
02 06 44 13 CDR
02 06 44 14 LMP
02 06 44 16 CDR
02 06 44 17 LMP
02 06 44 18 CDR
02 06 44 19 LMP
02 06 44 22 CDR
02 06 44 23 LMP
02 06 44 28 CDR
02 06 44 29 LMP
02 06 44 32 CDR
02 06 44 35 LMP
02 06 44 37 CDR
02 06 44 40 LMP
02 06 44 42 CDR
02 06 44 45 LMP
02 06 44 47 CDR
02 06 44 50 LMP
02 06 44 52 CDR
02 06 44 54 LMP
02 06 44 57 CDR

BMAG's, three, to RATE 2.
RATE 2.
SPS TVC to RATE COMMAND.
RATE COMMAND.
EMS ROLL, OFF.
EMS ROLL, OFF.
0.05g SWITCH, OFF.
OFF.
LV/SPS INDICATORS to Pc.
Pc.
TVC GIMBAL DRIVE, PITCH and YAW, to 1.
1.
EDS POWER, OFF.
EDS POWER, OFF.
TVC SERVO POWER, two, to OFF.
... 
FDAI POWER, OFF.
... FDAI POWER ...
LOGIC POWER 2/3, OFF.
LOGIC POWER 2/3, OFF.
SPS ELECTRONIC POWER, OFF.
... 
SIGNAL CONDITIONER BIAS POWER to OFF.
...
02 06 45 58 LMP  BMAG POWER, two, to WARM UP.
02 06 45 01 CMP  That's it?
02 06 45 03 LMP  Yes.
02 06 45 12 CMP  Okay, Jim. Done?
02 06 45 16 LMP  Yes. We supposed to purge tonight? They said anything about it?
02 06 45 24 CMP  No, it's - I'll tell you, I would go - Let's see, wish -
02 06 45 30 CDR  ...
02 06 45 32 CMP  Yes. Let's see what the flight plan says here.
02 06 45 44 LMP  55.
02 06 45 47 CDR  ...
02 06 45 50 LMP  So am I. I got some last night. I was coughing last night.
02 06 46 01 CMP  ... and go chase it. Yes, take one in the other hand, too, and blow.
02 06 46 06 CDR  Okay.
02 06 46 12 LMP  You say anything about a purge, Jim or Dave?
02 06 46 15 CDR  Well, they did say to activate the water, though.
02 06 46 18 CMP  No, they never have. And I guess that means do it. I - Let's see, where's our next station pass? Ascension we want at 46. We just had Ascension, didn't we?
02 06 46 33 LMP  Yes. What's next?
02 06 46 38 CMP  Pretoria? 55:05.
02 06 46 40 LMP  Tananarive.
02 06 46 43 CDR  Dave, I didn't ...
02 06 46 45 CMP  Yes.
Okay, I'll just get the cryo fans.

Why don't we ask them what they want when we get there?

Alright.

Let's start eating then. Yes, why don't you just eat, and let's just ask then what they want done with the fan, because they've been different --

Now, let me see if there's something else I can do here. Waste water dump; we already did that. WASTE MANAGEMENT OVERBOARD DRAIN, OFF; WASTE STOWAGE VENT, CLOSED; S-BAND, OMNI B; and COMM, basic. Which is A duple - Oh, what are we going to do tonight on the COMM? Could it - Probably ... A SIMPLEX, ... I guess.

Yes, A SIMPLEX.

EMERGENCY CABIN PRESSURE to BOTH. Have we got the cabin pressure configured yet?

Yes. I been doing that off and on today several times.

Okay. SURGE TANK, ON. I'm sure it is. PLSS, OFF.

I'll check it.

Yes?

Yes.

LM TUNNEL VENT to LM PRESS.

Yes.

SYSTEMS TEST to 4 Delta.

Here it is.

Onboard readouts to MSFN. Okay, I'll get that stuff. Where's the log, Dave?

It's in - The crew log? It's over where you can log them in.

Oh, yes, that's right.
Hey, you know, I found today the 70-millimeter thing - We started on the last page.

Yes, I know. I took that on the 16-millimeter, didn't I?

Yes. Well, it's - I don't know; it's hard to tell those tabs really are meaningful.

Well, at times, they're -

You want me to help?

Put the time in.

Oh, okay. 54:48:37.

You want to give me a service module RCS ...

Yes. Quad A, 75; B, 76; C, 69; D, 69. Oh, I'm sorry. 74, 74. I'm sorry.

I was saying: Man, we really ate it out of those today.

Yes, pardon me.

Okay, I need - I need the systems test meter stuff, Jim.

Coming up.

5 C, D, and which one of those other things?

... 5 C and D? ...

Right.

Let's see, ...

Okay, thank you.

Houston, Apollo 9.

Oh hell.

We're supposed to be using about 4 percent out of everything - 5 percent out of everything except Bravo. And Bravo we use 8 percent.
02 06 51 01 CMP
Yes, we used lots of gas today.

02 06 51 05 LMP
How are we on our redline?

02 06 51 06 CMP
Well, we dropped a little low on it; we lost today. But I'm not surprised with all that damn running in the gimbal lock every 5 minutes.

02 06 51 16 CDR
...

02 06 51 18 CMP
Yes.

02 06 51 38 LMP
Houston, Apollo 9.

02 06 51 42 CC
Houston; go.

02 06 51 47 LMP
Roger. We've got consumable status for you here.

02 06 51 48 CC
Roger. We're ready to copy.

02 06 51 50 LMP
Okay, service module RCS, A, B, C, D. Ready to copy?

02 06 51 55 CC
Go.

02 06 51 56 LMP
75, 76, 74, 74.

02 06 52 04 CC
75, 76, 74, 74.

02 06 52 07 LMP
Roger. BAT C, 37.0; PYRO A, 37.1; B, 37.1. And we got the command module injector temperatures for you.

02 06 52 27 LMP
5 Charlie, off scale high; 5 Delta, 4.85; 6 Alfa, Bravo, Charlie, and Delta, all off scale high.

02 06 52 42 CC
Roger; all off scale high except 5 Delta at 4.85.

02 06 52 47 LMP
That's for Charlie. I mean that's affirmative.

02 06 53 03 CMP
(Laughter)

02 06 53 03 CC
Okay. We show you 129.1 by 123.6. We're refining it, but it looks okay.

02 06 53 03 LMP
Hmm!

02 06 53 04 CMP
Roger. Do you have any words on a purge tonight?
You're getting a lot out of plane here. Is that 11 feet per second?

Say again. Words on a purge?

Roger. Do you want us to purge the fuel cells tonight?

Roger. Stand by.

We didn't lose too much.

Yes, but, Houston, I don't - I didn't know if I commented or not right there - right after SPS 5, but that was really some wild steering that we got on that one. I don't mean that we were out of --

... wild.

-- it wasn't out of control or anything. It is just that we sure built up some large attitude errors.

Mister Wild, you're cranked up (laughter). Your errors went out to like 3 degrees or -

Yes, really out to about 5 or 6. They went off scale.

Did they really?

Yaw went way off scale. Went off scale and kept going out off about another degree and a half.

Okay, we're 2 percent low on A, 2 percent low in C, 1-1/2 percent low in B, 1-1/2 percent low in D. That's not too bad.

No, shoot, I thought you had - I thought you were getting --

I did it wrong.

I thought ... went down farther today. That's what we are with respect to the nominal.

Yes.

That's pretty good.
That screwed up the first time.
Oh.
Houston, Apollo 9.
Dave, they call out a purge in the - in the flight plan?
Yes, I think they do, Rusty -
If I can find it.
Nope. They haven't been putting purges in here either.
Yes, they have.
Yes, they sure did.
Do we have any of that real food left?
Yes.
What is it?
I wonder.
Ugh, ham.
Oh, boy. That ought to make you thirsty.
Boy, I wish that sounded good. I really do. Man, I wish it sounded like it -
Yes.
It just doesn't sound good. Nothing sounds good. Even the thought of food doesn't sound good.
That's too bad. It takes a miserable situation and turns it around into an almost unbearable one.
Yes.
Hey, you can do almost anything, if you're not sick. You know? You can go and go and go. You get pissed off, but - sure, but you can go.
02 06 56 50 IMP Yes. Okay, well, we got everything done in the powerdown except the DSKY —
02 06 57 02 CDR Did we ever get that state vector?
02 06 57 03 LMP — the fuel cell purge and the —
02 06 57 04 CMP No.
02 06 57 06 CDR I never thought it came up either.
02 06 57 08 CMP We were in BLOCK.
02 06 57 10 CDR Oh, we are in BLOCK when they tried to send it?
02 06 57 13 CMP No, they didn't try to send it yet. They didn't try and send — I just said we are in BLOCK.
02 06 57 15 CDR Oh. I guess ... timing.
02 06 57 23 CMP Well, who wants to take their suit off? I'll help them.
02 06 57 27 CDR You want to? I've had mine off first each night.
02 06 57 30 CMP No, I beat you the first night.
02 06 57 32 LMP Yes, you did.
02 06 57 33 CDR It's Rusty's turn.
02 06 57 34 CMP You going to take your suit off?
02 06 57 36 CDR Yes, why don't we give Rusty his druthers.
02 06 57 39 LMP Yes, I guess.
02 06 57 40 CMP Get comfortable.
02 06 57 43 LMP Yes, if I don't get sick getting comfortable.
02 06 57 46 CMP Why don't you let all the rest of the poweringdown stuff and all that be ours, and you go get your suit off, clean up, try to eat, and go to bed?
02 06 57 56 IMP Okay. Cleaning up sounds pretty good.
02 06 57 59 CMP Get one of those towels and wash and —
Yes.

- - all that stuff. That'll make you feel better.

Okay. You want to watch the radio?

Yes, I'll take it.

Tell you what, Rusty. Why don't we get up here in the top and let you unsuit, pack your suit away down here, and you could just go there on the bottom of your - of your seat, fold your seat up, and sit there and clean up while Dave and I take care of all the rest of this. You'd be out of the way, and you'd be vertical and -

Okay, SUIT POWER coming OFF.

That's fine.

Dave, ...?

Yes. Right up in the F-1, right above your head.

Okay.

That's F-1. Go ahead and I'll put it on.

Oh, no.

Boy oh boy, are you cute!

...

You'd make a great basketball player. I hope you been trying to teach your kids.

Oh, yes.

(Laughter)

No, go get it. Let's don't stuff up anymore in - of that good stuff in -

Hey.

...
You want to hand me that stuff and I'll ...
What?
That ... stuff.
No, I can get it. Go ahead. No sweat.
I'm not doing anything ...
There's nothing going on now. We're not even there wherever "there" is.
... looks like ... getting ...
I know it. Hey, you might check that screen down there where those suit circuits ... I cleaned it about an hour after you went over it this morning. It was filthy then.
It looked like it ... on it, or something on it.
Yes.
... something ... a lot of ... washing from ...
What?
... RCS ...
No. Thank you. I've got a stable position, here. Gravity gradient. I usually float up, but I'm not floating up tonight.
It's coming in on the PDA.
...
Yes.
... get past that period --
That's right. Maybe you do overcome it. Very interesting.
Guess I'll go to bed later on.
Oh, I'll get one later, Jim. No, I've got one in my pocket. Thank you.

I'll tell you one thing, boy, that - that probe sure worked quick today. Oh boy, I couldn't believe it. I was a little afraid of the forces on putting it back in - that they had doubled. Gee, it was nothin' less than 50 pounds all the way. Right number of strokes. Gee, it worked good. Those guys, they really ought to get a - a rose or something out there! They really did a good job.

... Huh?

It's a new bunch of guys.

Oh, yes. They got a bunch - they got a couple of guys from LAD - He came from LAD. He was an airplane designer. He didn't even know how to spell Apollo when he got there.

He's the guy that really did the most work on that latch. That's sort of his big project.

We haven't tried those yet - but once.

Yes.

Yes. It really looked nice.

I did notice that somebody going through caught one of those umbilical covers and popped it open. I mean, that's no big deal. I just closed it. You know the little plastic ones that close down?

What? It should fold flat, Jim.

Yes, that center couch came out pretty good today, too. Yes. It's a lot easier to tell at zero g.

Really?
Oh, yes. Shoot, I'd - I had that flat done - I had the whole thing reconfigured from the time I'd - I had my helmet and gloves - I had to put helmet and gloves on. No, wait a minute - Took the couch out first. The end of the burn until I got the couch back in, and I was ready to put my helmet and gloves on - was 10 minutes from the time I started putting helmet and gloves on until I had the drogue out was 15 - which was really - That's pretty - that's pretty efficient, you know.

Yes, I rolled it up and put it down underneath there Sir?

Ouch! Oh-ho-ho-ho-ho-ho!

I think I stuck it in the front of the L-bag there, Rusty. I was in a pretty big hurry - I think. I put a bunch of stuff in there.

(Laughter) ...

Find it?

Trying to figure out why we keep going the same way.

Oh, I know it.

Hey, there's a satellite. I ... see one. No, no, no! It's way out there, it's stable. You got to come up here and look down. You got to come up farther. An look down almost between minus Y and plus Z. ... out of your way ... there it is.

... 

See that, Dave?

... 

No, there's only one! You guys saw a satellite last night. I see one tonight. That's the one.

... 

A satellite! Go back to the LEB.
What?
Go back to the LEB! You don't like my little th
God, what is that? Oh, where'd you get it from?
Yes. Well, you know we ought to be able to --
... stuff in there?

The one down there is useless - down here is all
I cleaned that out this morning. Thanks.
Hey, there's a big one. A great big one went by
Yes, this window's really getting foggy, isn't i
That'll hold for a couple of days.

Apollo 9, Houston through Guam.
Roger, Houston; Apollo 9. Go ahead.
Roger. We're kind of standing by for S-band loc
here to get an E-memory dump from you.

Oh, very well. And we never saw the state vectc
in.
Roger. It'll be coming in there shortly, as soc
get the lockup.

Okay.
-- was that we have to be in HIGH BIT RATE for
PGNCS-to-AGS initialization.

Roger; understand. Hey, they said they had to l
HIGH BIT RATE for the PGNCS-to-AGS initializatio

Now, we're just about to LOS here. I'll give you
more dope on tomorrow's activities when we get c
Hawaii.

Okay. Understand. And he also said --
And if you think about it, if there are any changes in the window fogging from yesterday.

No. Well, yes, as a matter of fact, the left-hand rendezvous window is picking up some more around the edges. It looks like it'll be okay for the rendezvous, but it's - the only one of the bunch that's degrading. The rest of them still look pretty good.

By-by, Houston.

Said the PLSS COMM checks were all good. They were having trouble with the sites. They recorded them, and sent them back from the sites and they all sounded real good.

That was pretty good.

Night-night, computer.

Are you getting your oral thermometer, or temperature? Oh, isn't that cute?

Hey, you know, these books really aren't too bad the way they're set up. They're really not bad. It's where - we all got stuff to play with.

Yes. Or maybe - or maybe we're just not smart enough to be able to change it. You have - you know, roll with the punch.

Yes. And - and if somebody's passing a block update you could still be working with the other stuff. I don't think they're bad. Given 7 more days, I bet we'd think they're probably pretty good.

Hey, I don't know what to do with this thing.

You know, it -

Got to do that. I was all ready. I know it. I kno it.

What is it?

Nominal, 98? 
That's probably close to nominal, isn't it? Well, see, that should convince you you're not sick. It convinced me.

I guess, if you don't have anything to eat. Oh, I'm sorry. Anybody want something?

I hate to put this camera up there without a lens on it, because I'm afraid some dirt will get in it. Huh? No, this lens doesn't fit on it - on the window. Yes, let's put it in here. Let me -

You know, I was going to take a picture after you dock ... burn. No, you had the lens. There wasn't anything to take a picture of anyway.

Yes, I never saw a plume either, and I looked hard.

Oh, yes.

Here you go, Rusty.

Oh yes, well -

Here's a power cable you can stick in there, Jim.

Yes, they sure are.

Oh, I always thought that was a pretty good idea.

Testing. Yes, I guess you're not on the intercom though, Jim. I'm not hearing you anyway.

Can you hear me now, Rusty?

Yes, that last one, I did.

Okay, I think I'm ...
You got some salve there, Dave, or something for your lip? Oh, I thought you - I saw you wiping something on.

When you get a chance, Dave, I'd like a bagful of water here.

Yes.

No.

Yes.

Very good.

Oh. Jim? Hey, never mind, I'll get it. Yes.

Apollo 9, Houston through Carnarvon.

Go ahead, Houston; Apollo 9.

Roger. Did you get my comments there on EVA - AH 5?

Stand by. Houston, we only got part of it, and then you cut out.

Okay. Are you ready to go over it a little bit more there?

Jim, you want to take it or not?

Okay, on EVAH 5, step 3, delete lines 2 and 3; step 4, delete line 1.

Roger.

And add LMP SUIT ISOLATION to SUIT DISCONNECT.

You got it now? Do you? Okay.

Okay.

Okay, it sure increased the heart rate yesterday. Three of them (laughter).

Roger; understand; Mercury at 26 with block data.

Okay.
Okay, it's already supposed to be done. And it's 8 to B; 6 to B-6. Right.

Yes, I had a couple of honest-to-God barfs this morning.

Houston, Apollo 9. How do you read?

Roger, Apollo 9; this is Houston. We've got you through Mercury.

Good morning, Smokey. How you doing?

Oh, real good. How are things in the wild blue?

The wild black. We're doing alright this morning.

Okay, and I've got block data number 8 for you when you're ready to copy.

All set. Go ahead.

The way you are reading them is fine, just keep pressing.

471 Bravo, plus 33.1, minus 62.0, 73:20:28, 435.4;
481 Alfa, plus 28.8, minus 64.0, 74:54:09, 435.4;
494 Bravo, plus 32.0, minus 161.9, 77:40:30, 435.4;
54 Bravo, plus 33.7, minus 162.0, 79:14:13, 435.4.
Pitch trim, 1 point - minus 1.07; yaw, minus 1.11.

Houston, 9.

No, I'm not even using that UCD. The only thing I use is that UCDA. Man, I think that's great.

What?

8 to Bravo; 6 to Baker 6.

Oh! Oh, I'm sorry, Dave. What did I -

Hey, Dave.

Hey.
Look, the only reason we had an IMU alignment was for the photography. We're not going to take any pictures, so why don't we just screw it?

Why? Why not just float?

What do we need to even fire up at all for today? Why do we have to fire up the platform at all today? I don't see any reason at all. It was only for the EVA attitude. We shouldn't even have to fire a jet.

Hey, can I get a breakfast out, Jim? Yes.

Okay. Thank you. And here's a piece of trash for the basket.

Hey, Dave. Next pass, why don't I ask them? Okay.

No, let me cut it for you first.

Let me know, Dave, when you got time to get me some water.

What about them? I haven't - I never started.

What - what didn't you do?

Where'd you put my checklist?

Here - why don't I just mark one? No, I can tell by the numbers. Hold on a minute.

Yes, this one's mine.

We supposed to take pages out? That's going to be tough because those rings are sealed. Oh, no, they're not.

Hey, can you give me yours? I got data marked on mine. 17 and what? Oh, wait a minute. Systems 17 okay, systems 17. I thought that was already in the EVA checklist. I guess not.
Man, I don't have enough hands.
Okay, there's systems 17. What were the other one 33 and 34? 32 and 33.
We do, huh? Okay.
Okay -
Where did Jim put that?
Yes, just a minute, Dave, Jim.
Now, see - There's - they're three - Dave, there are three - three rolls of film in a bag over there in A-7. Did you look in there?
Did we log that S-1 in the film log, Rusty? That we used it for - used it for the dock ...
No.
I wonder if I should put the exterior or the interior on this one. Put the interior on?
What's the setting for interior?
I don't know.
What magazine was it - it was S that we used?
Yes. It was S.
And that was 49 something, wasn't it? What the hell was that burn time?
What is the setting for the interior, do you have it in that log there? ...
Stand by. I'm flipping pages like mad, here.
I'm going to put the 18-millimeter - I mean the 5-millimeter lens on it also.
Okay, f:2 at a 60th.
f:2.
02 21 16 15 LMP    Six frames per second.
02 21 16 17 CDR    f:2 at 1/60th, six frames per second.
02 21 16 31 LMP    Which one are you using? Q?
02 21 16 33 CDR    R, the one we had with us yesterday.
02 21 16 38 LMP    Oh, okay. You - you're talking about the LM.
02 21 16 43 CDR    Yes.
02 21 16 44 LMP    Which one are we loading on the CSM?
02 21 16 46 CDR    I don't know. (Cough)
02 21 16 59 LMP    Q is the one we're supposed to use on the IVT.
02 21 17 06 CDR    Dave had that one all loaded yesterday when we came back, but we were in such a big hurry, he didn't get a chance to take a picture.
02 21 17 27 CDR    Let's see, the sample end goes on to the - -
02 21 17 43 CDR    Goes where, now?
02 21 18 05 CDR    Here, I'll get it, Dave.
02 21 18 16 CDR    Yes. It's got some junk in it. Smells!
02 21 18 42 CDR    Want to use my EVVA. Okay. Fine.
02 21 19 05 CDR    Yes.
02 21 19 18 CDR    Oh, boy, we're running late again.
02 21 19 48 CDR    Yes. We have some antifog, if that's what you want to know.
02 21 20 18 CDR    That it?
02 21 20 24 CDR    I went through the film pack; where did that come from?
02 21 20 30 CDR    Magazine M.
02 21 20 45 CDR    Okay. Very good.
Yes. I'd like - I think we start getting all this kind of stuff out of here.

We don't need stuff like that right near the hatch.

Here, I'll leave this stuck up here, Dave, because you get a chance to eat that again.

This is going to really be a play-it-by-ear day, mar...

Yes.

Oh, I think we ought to be able to get most of these objectives accomplished.

Okay. I've got two more food packs here that I - to wrap up and throw away.

Say, you know what we ought to do today, Jim? I do not know if they mentioned it, but we ought to unstow the radar and do the rendezvous radar self-check.

No, they didn't mention it. We talked to them about that last night.

Yes. Let's mention it today - If we get time over there somewhere, let's make sure we remember to do that.

I want to check out lights, too. Maybe we ought to bring our systems rate checklist back over there with us.

Yes.

Well, we started that boiler dryout too fast yesterday. Boy, we were lucky we didn't hurt something there. In fact, we may still have hurt something. We may have that damn tube saturated with water. I think we ought to wait until Dave has got the tunnel almost ready, so that as soon as we start that thing you can get off the suit loop, Jim.

See who got it, huh?
Dave, do you have the tape anywhere there?
I used the only one I see. Oh - I know.
Sure did.
Okay, you got that nasty old food - waste bag around there?
Yes. I've got it. Okay.
Here.
Okay, here's some - a meal that I didn't eat all that.
Close that up...
Now, what the hell am I going to do with that?
Here, I'll take it and stick it over here in this other temporary storage bag.
Okay. I'll try to remember it's in there, because I want to finish it up later.
Yes. There's a whole bunch of loose food; right now.
A lovely snowstorm.
Is Dave dumping?
Yes.
What? Oh. (Laughter)
... 
Well, all I can figure is stick it underneath the right seat, now, Dave. I don't think we ought to do it out in orbit here.
I don't think it would be bothering us for the rendezvous though, Jim. Give it a half a foot per second; a day later, it's going to be nowhere near us.
A half a foot per second out of plane brings it back into plane. Every -
Yes. I can't believe a day later it's going to be in the plane again. Hey - Where are you, Dave? Still taking a leak? Okay. Well - here, maybe I can get it. Oh - oh, there it is. Let's put it over here. Hey, you are right in the right place. You know, I think you should throw this little thing in that waste disposal.

Boy, they ought to have more of those around.

No, the one - the one that was - that right there. The other one, I don't know where that came from. This is the one I wet this morning, yes. Yes, that is the one is a good one, though.

What?

Okay. Let me see what I can do.

All the stuff out of that waste bag. Yes, boy, I too, and I can't imagine it's not going to. Either that or split the bag down the side. Some of the bags are probably going to explode, Dave. I mean, you know, go boom. So be ready to hear some boom booms. I wonder where I can put this towel?

Look at what we have for string.

Hey, we had some string. No, that was great big
tape. What?

I'm going, too. Here's a - You know -

You try to do it with this scrap.

Dave, you're not going to be using this mirror, you? Okay, I'm going to put my towel up underne it.

Don't - don't rush it. Groove.
Say, I'm going to have to put my command module checklist away. What other books do you want out?

I'm afraid they're not all going to fit. You want the flight plan out or not?

Okay. Here's the systems EVAL checklist, Jim. We don't want that anymore, right?

Yes. Why don't you take it with you? Put it in the ISA. Let's take it back over there with us.

Okay.

Maybe we'll want to - want - maybe we can test another run out of it.

You want - Dave - Here - Hey, Jim, most of them are in the rendezvous checklist, which is over there.

Let's take it along anyway -

Okay.

-- just put it in the ISA. Will you put that in the ISA?

Okay.

Oh, excuse me.

Hey, where's that other checklist? You got it with you?

Yes. I have it.

Okay. Boy.

There you are, Davey. I got it closed up, but I don't know if it's going to stay.

What?

Wonder where I ought to put it.

I'd just put it underneath the right seat. I don't know where else you could put it.
 Shoot, man. I guess.

I can see, tomorrow, we're going to have to get up about an hour earlier than we planned.

Okay. We've got a procedures book, a log, and a something. That's six today - LCC, update book, crew log, and procedures book. You don't want any of the out, do you? Dave?

He can't -

Yes. Do you want the crew - the crew log, the procedures book, or the - Okay. Okay. Then we're ready to stow anytime. And my IMP checklist, too. Okay, and there's a pair of scissors.

Hey, you don't have anyplace to stow these, do you?

No, I sure don't.

Okay.

Okay, I've got almost everything cleaned up over here that looks like it - it could possibly be any trouble.

Man, our rates are almost zero.

We got a - we get about a little bit of pitch down.

0.1 of a degree per second pitch. Not very much ya got almost 0.2 of a degree per second roll.

Oh, you got the BMAG's?

Right.

You got that camera over there?

No, I haven't.

Okay, I want to take - I'm supposed to take moving pictures of you guys stowing the tunnel, I guess.

Dave, how do you have that - What - what film pack does that camera have in it?
Yes. Listen, never mind, you get - you get going. You're the pacing item on how late we're going to be. Why - why don't you go ahead and do that, and we'll work out - See if you can take him with this other camera - They don't have camera ... problem.

Yes. We got to get the power cable.

We can take some SWA pictures.

Oh, boy, we ought to take - we ought to -

Shoot! We're so God-blessed far behind right now, better not screw around.

If you can get the power cable, I can wrap it up over here and just leave it hanging right here after we get done, Jim.

We'll probably ...

Well, let me see if I can see it there. There's the remote cable hanging right there.

The power cable for the camera - Why don't you go ahead and get suited up?

It looks like it's all the way down at the other end here.

Go ahead. Listen, we're about an hour late now and so - We don't - I'd rather be on time and get the rest of the test done and to hell with the pictures. We could fake taking it all out sometime.

There is the drogue -

Where's that camera?

Okay, I'm going to stop taking pictures and get read to go.

Okay.

Can you -

Dave, want me to go across the top?
Wa - wait. Can you pick your feet up? I need to get in here.

They're already as high as they can go.

Those hoses! Unbelievable!

Yes, as a matter of fact, they are sort of, aren't they?

Absolutely unbelievable! The best thing, Rusty, I guess, though, you can go anyway you want.

Yes, well --

Your hoses are down here; you've got to come out through --

I've got to go this way.

No, you've got to come this way; your hoses are all across here.

No, that's alright, Dave. I'll just --

--- that pole, Dave.

Oh, okay! I did that purposely. ...

This morning - I was clever. Okay, I've got to get my helmet and gloves on here.

Do you really?

Yes.

Why don't you just take them with you?

Okay.

It's probably going to be alright over there. We've already pressurized.

We're here. If you - you know, if you have your helmet and gloves on when you go through the tunnel, and we don't have ours on, why - we're in trouble!

Okay, now I need my hoses.
In here. Here you go.

Hoses, hoses, hoses!

Okay, I'm going to - dump the dump valve; and - we're in AUTO, so we're probably going to get a hiss here.

Okay.

Watch the O$_2$ flow - or watch the cabin pressure.

Yes. Okay, the O$_2$ flow is going up very slowly, very slowly. Cabin pressure's staying right up. O -

Okay.

- - O$_2$ flow's up at 1; we're going to get a MASTER ALARM. Cabin pressure's staying right on up.

DELTA-P is okay. No more leakage.

Okay, we'll still probably get the MASTER ALARM, here.

Hatch in open.

Okay.

There's the MASTER ALARM, O$_2$ FLOW HIGH; alright.

Okay, lights are on again.

Okay.

... couch, if anything.

Hey, Jim?

Go.

I don't think I'm going to need it, but you want to bring that barf bag over?

Yes.

Ouch!
Where is it?
In the ...
Rusty.
Stand by l. Okay.
Well, I'll send it to you, just a minute. ...
Okay, here it comes.
Stand by. Okay, go ahead. Jesus, not so hard!
That thing really goes good, doesn't it?
(Laughter) God damn!
Did you get it?
Yes!
You alright?
Man!
Thought that little piece of plastic wouldn't hardly go at all.
It's a Bob Sellers shot.
LMP verify LCG is donned; remove the leg pockets from the PGA —
Yes, we went through all that.
CDR retains scissors; stow in the ISA: sequence camera; one 16-millimeter MAG of P; one partially full, R; don't take any C-IN —
Alright, we went through that once.
Remote cable, we don't need that; sequence camera bracket, don't need that; SWA, you got that? One 70-millimeter magazine, E.
02 21 59 16 LMP  Something else we might bring over, by the way, is some of that tape, so we can collect some of this trash over here.

02 21 59 22 CDR  Yes, I have some in my pocket.

02 21 59 24 LMP  Okay.

02 21 59 25 CDR  LMP transfer --

02 21 59 26 LMP  Oh, God damn it!

02 21 59 28 CDR  -- LMP transfer to the LM with the EVA checklist and the flight plan cards, two. I'm not sure whether where those flight plan cards are.

02 21 59 35 LMP  No, I'm not either. As a matter of fact, we really need one of those.

02 21 59 40 CDR  Actuate the dump cabin valve and ingress the LM.

02 21 59 43 LMP  Okay, we're in.

02 21 59 44 CDR  FLOODLIGHT, ALL; EXTERIOR LIGHTING, OFF.

02 21 59 47 LMP  EXTERIOR - FLOODLIGHTS to ALL; EXTERIOR LIGHTING is OFF.

02 21 59 50 CDR  DESCENT H₂O, OPEN.

02 21 59 52 LMP  Stand by. I've got a big bunch of stuff here; I got to stick it in this bag.

02 21 59 59 LMP  Okay, DESCENT H₂O --

02 22 06 47 CDR  PRIMARY EVAP --

02 22 06 48 LMP  Number 2, CLOSE.

02 22 06 49 CDR  DESCENT H₂O, OPEN.

02 22 06 50 LMP  OPEN.

02 22 06 51 CDR  WATER TANK SELECTORS, DESCENT.

02 22 06 52 LMP  DESCENT.

02 22 06 53 CDR  SUIT TEMP, COLD.
288 Day 3

02 22 06 54 LMP COLD.
02 22 06 55 CDR CABIN TEMP, NORMAL.
02 22 06 56 LMP NORMAL.
02 22 06 57 CDR Next step, CABIN RELIEF AND DUMP, two, to AUTO.
02 22 07 00 LMP FORWARD is in AUTO, and the UPPER is in AUTO.
02 22 07 02 CDR Okay, next step: DFI: PRIMARY, ON; SECONDARY, OFF.
02 22 07 07 LMP Stand by.
02 22 07 12 LMP PRIMARY, ON; SECONDARY, OFF?
02 22 07 14 CDR Yes.
02 22 07 16 CDRUTILITY LIGHTS, both, as desired.
02 22 07 17 LMP As desired.
02 22 07 18 CDR Forward hatch closed and locked.
02 22 07 19 LMP Forward hatch is closed and locked.
02 22 07 20 CDR EPS activation checkout: DFI, ON. Let's see, AC POWER, ON. What's this (cough) "DFI, ON" at down at the bottom mean? R/D, A and B, POWER, OFF.
02 22 07 39 LMP No, that's after the power transfer, Jim.
02 22 07 41 CDR Okay. CSM position LM POWER to RESET, then OFF. Okay? Going RESET, then OFF. Ready?
02 22 07 47 LMP Stand by. All set.
02 22 07 50 CDR Okay. RESET?
02 22 07 52 LMP Okay, did it.
02 22 07 53 CDR Then OFF. Okay, we're showing - we're showing 00 lighting: ANNUNCIATOR/NUMERICS to BRIGHT. Okay, one caution -
02 22 07 59 LMP Stand by; I'm trying to stow this stupid eye thing. (Coughing) Damn it, come on; get in there, you son of a gun!
Hey, there's something wrong with something. I don't think you're getting it.

Yes, I'm getting it here.

Okay.

Okay.

What was your next one now?

LIGHTING: ANNUNCIATOR/NUMERICS to BRIGHT.

ANNUNCIATOR/NUMERICS to BRIGHT.

One caution light, nine power-failure lights.

That's a verify.

Next step: CB(11), INSTRUMENTATION: SIGNAL CONDITIONER 1, CLOSE; INSTRUMENTATION --

Okay, stand by. SIGNAL CONDITIONER 1, CLOSE.

EPS: TRANSLUNAR BUS TIE, CLOSE.

TRANSLUNAR BUS TIE, CLOSE.

DESCENT ECA CONTROL, CLOSE.

ECA CONTROL, CLOSE.

DC BUS VOLT, CLOSE.

DC BUS VOLT, CLOSE.

CB(16), INSTRUMENTATION: SIGNAL SENSOR, CLOSE.

SIGNAL SENSOR, CLOSE.

PCM/TE, CLOSE.

PCM/TE, CLOSE.

SIGNAL CONDITIONER 2, CLOSE.

SIGNAL CONDITIONER 2, CLOSE.
02 22 09 05 CDR  COMM: PRIMARY S-BAND; POWER AMP, CLOSE.
02 22 09 07 LMP  PRIMARY S-BAND; POWER AMP.
02 22 09 09 CDR  PRIMARY S-BAND; TRANSMITTER/RECEIVER, CLOSE.
02 22 09 11 LMP  TRANSMITTER/RECEIVER.
02 22 09 12 CDR  PMP, CLOSE.
02 22 09 13 LMP  PMP.
02 22 09 14 CDR  EPS: DISPLAY, CLOSE.
02 22 09 15 LMP  EPS: DISPLAY.
02 22 09 16 CDR  DESCENT ECA, CLOSE.
02 22 09 17 LMP  DESCENT ECA CONTROL.
02 22 09 20 CDR  No, this says DESCENT ECA, CLOSE.
02 22 09 23 LMP  Oh, I thought you said "ECA, CLOSED."
02 22 09 25 CDR  DC BUS VOLT, CLOSE.
02 22 09 26 LMP  DC BUS VOLT, CLOSE.
02 22 09 28 CDR  TRANSLUNAR BUS TIE, CLOSE.
02 22 09 29 LMP  TRANSLUNAR BUS TIE, CLOSE.
02 22 09 30 CDR  Next step: CB(11), COMM: VHF B TRANSMITTER, CLOSE
02 22 09 35 LMP  Stand by.
02 22 09 36 CDR  Dave, get ready to set up the receivers a little bit early.
02 22 09 38 CMP  Okay.
02 22 09 40 LMP  VHF B TRANSMITTER, CLOSE.
02 22 09 42 CDR  VHF B to DATA.
02 22 09 43 LMP  VHF B coming to DATA right now.
02 22 09 45 CDR  TELEMETRY to LOW.
Okay, Dave, --

...

LOW? Okay? Next step: verify BAT's 1, 2, 3, 4, and talkback LOW.

Verified.

DESCENT BAT's?

Gray.

Gray.

BAT 5 and 6, NORMAL, BACKUP, four, talkback barber pole.

Roger.

Check the BAT and BUS voltages. When BUS voltages less than 27, you go to high tap.

Okay, they're right at 27, so I'll go to high tap.

Okay, CROSS TIE BALANCE LOADS, OPEN.

Okay, stand by. BALANCE LOADS, OPEN.

Okay, then we go each battery --

Okay.

-- to HIGH VOLTAGE.

All HIGH VOLTAGE.

Okay, CROSS TIE BALANCE LOADS, CLOSED.

BALANCE LOADS, CLOSED.

Okay, DFI, ON.

Okay.

R/D A and B, and POWER, ON, I guess.
Okay, that's R/D A; R/D B; DFI, ON.

Okay, CB(11), AC BUS B and A: BUS TIE INVERTERS 2 and 1, four of them, CLOSE.

Got them.

AC BUS VOLTAGE, CLOSE.

AC BUS VOLT, CLOSE.

EPS: INVERTER 1, CLOSE.

INVERTER 1, CLOSE.

CB(16), EPS: INVERTER 2, CLOSE.

INVERTER 2, CLOSE.

And the next step: POWER/TEMP MONITOR to AC BUS.

MONITOR going to AC BUS.

Go.

INVERTER 1, then INVERTER 2.

INVERTER 1, into the upper end of the green; INVERTER 2, into the upper end of the green.

Okay, CB(11), EPS: INVERTER 1, OPEN.

INVERTER 1 coming OPEN.

Let's see, R/D INSTRUMENTATION B, CLOSE. We've already done that.

Got it.

Activate the S-BAND for TM.

Okay, go.

S-BAND to PM, PRIME, PRIME, VOICE, PCM, RANGE, OFF, LOW.

Go.

Glycol pump activation: CB(16), ECS: DISPLAYS, CLOSE.
02 22 11 41 LMP ECS: DISPLAYS, CLOSE.
02 22 11 43 CDR CB(11), ECS: GLYCOL PUMP AUTO TRANSFER, CLOSE.
02 22 11 48 LMP GLYCOL PUMP AUTO TRANSFER, CLOSE.
02 22 11 49 CDR GLYCOL PUMP 1, CLOSE.
02 22 11 50 LMP 1, CLOSE.
02 22 11 51 CDR GLYCOL PUMP AUTO TRANSFER, OPEN.
02 22 11 52 LMP AUTO TRANSFER, OPEN.
02 22 11 54 CDR Then go to GLYCOL PUMP 1.
02 22 11 56 LMP Roger; 1.
02 22 11 57 CDR Okay. CB(11).
02 22 12 01 LMP Gee, that sounds like it's got some air in it.
02 22 12 02 CDR What?
02 22 12 03 LMP Go ahead. It sounded like it had some air in it.
02 22 12 06 CDR Okay, CB(11), ECS: GLYCOL PUMP 2, CLOSE.
02 22 12 09 LMP 2, CLOSE.
02 22 12 10 CDR GLYCOL PUMP AUTO TRANSFER, CLOSE.
02 22 12 11 LMP AUTO TRANSFER, CLOSE.
02 22 12 14 CDR Okay, caution and warning checkout: CB(16), INSTRUMENTATION: CWEA, CLOSE.
02 22 12 18 LMP Stand by. CWEA, CLOSE.
02 22 12 21 CDR Okay, you should have the LOC, CES AC, CES DC warning lights, the PRE AMPS, the HEATER, and the GLYCOL, and ECS caution lights.
02 22 12 28 LMP Got them all.
02 22 12 29 CDR H2O SEP COMP lights, ON.
02 22 12 30 LMP Got it.
Okay, LIGHTING: ANNUNCIATOR/DOCKING/COMPONENT, CLOSE; that's a circuit breaker.

Okay, got it.

MASTER ALARM, CLOSE.

MASTER ALARM, CLOSE. Got the ALARM.

Okay, HEATERS: DISPLAY, CLOSE.

Reset; HEATERS: DISPLAY, CLOSE.

Okay, next step. RCS TEMP/PRESS MONITOR, cycle, then HELIUM.

Okay. I don't know - I don't know why the hell we do that. We don't have that light on --

Okay, HEATER TEMP MONITOR, cycle, then LANDING. Let's just put it up and see.

A hangover.

GYRO TEST, POSITIVE RATING.

Hey, wait a minute, let me look at the quads here. The way, the quad temperatures are 70, 90, and in ball park.

Okay.

Okay.

LAMPS ON? Good. Check all positions.

Okay, coming up.

4 - they're all ON; 3's are all ON; 2 - they're all ON; 1 - they're all ON; ALARM TONE works, then OFF again. Okay, go ahead.

Okay. Circuit breaker activation: CB(11), row 1, all OPEN except: AC BUS B: SYSTEMS ENGINEER WIND HEATER is CLOSE.

All OPEN except?
Yes, row 1, all OPEN except. And I'm going to run a bunch.

Okay.

AC BUS B: SYSTEMS ENGINEER WINDOW HEATER is CLOSE.

Go.

NUMERICS LIGHTING is CLOSE.

Go.

BUS TIE INVERTER 2 and 1, CLOSE.

Roger. Go through AC BUS VOLT.

AC BUS A: BUS TIE INVERTER 1 and 2, CLOSE; AC I VOLT, CLOSE; COMMANDER WINDOW HEATER, CLOSE.

COMMANDER WINDOW HEATER. Boy, we could do with those.

TAPE RECORDER, CLOSE.

TAPE RECORDER, CLOSE.

INTEGRAL LIGHTING, CLOSE.

INTEGRAL LIGHTING, CLOSE.

Row 2, all OPEN except: FLIGHT DISPLAYS: MISSION TIMER, CLOSED.

MISSION TIMER, CLOSED.

That one is OPEN?

CLOSE; OPEN.

Row 3, all OPEN except: HEATERS: RENDEZVOUS RADAR STANDBY, CLOSE.

RENDEZVOUS RADAR STANDBY, CLOSE.

LANDING RADAR, CLOSE.

LANDING RADAR, CLOSE.
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>02:22:14:34 CDR</td>
<td>DOCKING WINDOW, CLOSE.</td>
</tr>
<tr>
<td>02:22:14:35 LMP</td>
<td>DOCKING WINDOW, CLOSE. Boy, we could do without all those window heaters.</td>
</tr>
<tr>
<td>02:22:14:39 CDR</td>
<td>Well, just leave them ON and we'll see if we open them up when we go along. Okay, INSTRUMENTATION: SIGNAL CONDITIONER 1, CLOSE.</td>
</tr>
<tr>
<td>02:22:14:46 LMP</td>
<td>Go.</td>
</tr>
<tr>
<td>02:22:14:48 CDR</td>
<td>ANNUNCIATOR/Docking/Component, CLOSE.</td>
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<tr>
<td>02:22:14:51 LMP</td>
<td>Go.</td>
</tr>
<tr>
<td>02:22:14:52 CDR</td>
<td>Row 3, all others OPEN.</td>
</tr>
<tr>
<td>02:22:14:54 LMP</td>
<td>OPEN.</td>
</tr>
<tr>
<td>02:22:14:56 CDR</td>
<td>Row 4, all OPEN except: CABIN FAN 1, CLOSE.</td>
</tr>
<tr>
<td>02:22:14:58 LMP</td>
<td>CABIN FAN 1, CLOSE.</td>
</tr>
<tr>
<td>02:22:14:59 CDR</td>
<td>GLYCOL PUMPS 2 and 1, CLOSE.</td>
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<tr>
<td>02:22:15:01 LMP</td>
<td>Go.</td>
</tr>
<tr>
<td>02:22:15:04 CDR</td>
<td>GLYCOL PUMP AUTO TRANSFER, CLOSE.</td>
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<tr>
<td>02:22:15:06 LMP</td>
<td>AUTO TRANSFER, CLOSE.</td>
</tr>
<tr>
<td>02:22:15:07 CDR</td>
<td>COMM: VHF B TRANSMITTER, CLOSE.</td>
</tr>
<tr>
<td>02:22:15:09 LMP</td>
<td>VHF B TRANSMITTER, CLOSE.</td>
</tr>
<tr>
<td>02:22:15:10 CDR</td>
<td>VHF A RECEIVER, CLOSE.</td>
</tr>
<tr>
<td>02:22:15:11 LMP</td>
<td>A RECEIVER.</td>
</tr>
<tr>
<td>02:22:15:12 CDR</td>
<td>CDR AUDIO, CLOSE.</td>
</tr>
<tr>
<td>02:22:15:13 LMP</td>
<td>CDR AUDIO.</td>
</tr>
<tr>
<td>02:22:15:14 CDR</td>
<td>PGNS: IMU STANDBY, CLOSE.</td>
</tr>
<tr>
<td>02:22:15:15 LMP</td>
<td>PGNS: IMU STANDBY.</td>
</tr>
</tbody>
</table>
02 22 15 17 CDR  All others, OPEN.
02 22 15 18 LMP  All others, OPEN.
02 22 15 19 CDR  Row 5, all OPEN except: EFS: BAT FEED TIE, two, CLOSE.
02 22 15 22 LMP  Go.
02 22 15 23 CDR  CROSS TIE BALANCE LOADS, CLOSE.
02 22 15 24 LMP  Go.
02 22 15 25 CDR  TRANSLUNAR BUS TIE, CLOSE.
02 22 15 26 LMP  Go.
02 22 15 27 CDR  DESCENT ECA CONTROL, CLOSE.
02 22 15 28 LMP  Go.
02 22 15 29 CDR  DESCENT ECA, CLOSE.
02 22 15 30 LMP  Go.
02 22 15 31 CDR  ASCENT ECA, CLOSE.
02 22 15 32 LMP  Go.
02 22 15 33 CDR  DC BUS VOLT, CLOSE.
02 22 15 34 LMP  ASCENT ECA, CLOSE; DC BUS VOLT, CLOSE.
02 22 15 37 CDR  R/D INSTRUMENTATION B, CLOSE.
02 22 15 40 LMP  Okay, I got it - all the DPI, ON.
02 22 15 42 CDR  All others OPEN.
02 22 15 44 LMP  Okay, go.
02 22 15 45 CDR  CB(16).
02 22 15 46 LMP  Go.
02 22 15 47 CDR  Row 1, all OPEN except: FLIGHT DISPLAY: EVENT TIMER/SYSTEMS ENGINEER FDAI, CLOSE.
02 22 15 51 LMP  Got it.
02 22 15 52 CDR  All others OPEN.
02 22 15 54 LMP  Go.
02 22 15 55 CDR  Row 2, all OPEN except: LIGHTING: FLOOD, CLOSE.
02 22 15 56 LMP  Go.
02 22 15 57 CDR  ANNUNCIATOR/Docking/Component, CLOSE.
02 22 15 58 LMP  Go.
02 22 15 59 CDR  MASTER ALARM, CLOSE.
02 22 16 00 LMP  Go.
02 22 16 01 CDR  STAB/CONTROL: ASA, CLOSE.
02 22 16 02 LMP  Go.
02 22 16 03 CDR  INSTRUMENTATION: CWEA, CLOSE.
02 22 16 06 LMP  Go.
02 22 16 07 CDR  SIGNAL SENSOR, CLOSE.
02 22 16 08 LMP  Go.
02 22 16 09 CDR  PCM/TE, CLOSE.
02 22 16 11 LMP  Go.
02 22 16 12 CDR  SIGNAL CONDITIONER 2, CLOSE.
02 22 16 13 LMP  Go.
02 22 16 14 CDR  ECS: SUIT FLOW CONTROL, CLOSE.
02 22 16 15 LMP  Go.
02 22 16 16 CDR  SUIT/CABIN REPRESS, CLOSE.
02 22 16 17 LMP  Go.
02 22 16 18 CDR  All others OPEN.
02 22 16 19 LMP  Go.
02 22 16 20 CDR Row 3, all OPEN except: COMM: DISPLAYS, CLOSE.
02 22 16 23 LMP Go.
02 22 16 24 CDR SYSTEMS ENGINEER AUDIO, CLOSE.
02 22 16 25 LMP Go.
02 22 16 26 CDR VHF A TRANSMITTER and B RECEIVER, CLOSE.
02 22 16 29 LMP A TRANSMITTER and B RECEIVER?
02 22 16 31 CDR CLOSE.
02 22 16 32 LMP Alright.
02 22 16 33 CDR Okay, PRIMARY S-BAND POWER AMP's ON.
02 22 16 36 LMP Go.
02 22 16 37 CDR PRIMARY S-BAND TRANSMITTER/RECEIVER, CLOSE.
02 22 16 38 LMP Go.
02 22 16 39 CDR PMP, CLOSE.
02 22 16 40 LMP Go.
02 22 16 41 CDR ECS: DISPLAYS, CLOSE.
02 22 16 42 LMP Go.
02 22 16 43 CDR PRIMARY GLYCOL EVAPORATOR, CLOSE; PRIMARY EVAPORATOR - PRIMARY GLYCOL EVAPORATOR FLOW, CLOSE.
02 22 16 48 LMP Go.
02 22 16 49 CDR CABIN FAN 2, CLOSE.
02 22 16 50 LMP I'm going to leave that OPEN. It makes too much noise as it is. Go ahead.
02 22 16 53 CDR CABIN FAN CONTROL, CLOSE.
02 22 16 54 LMP Go.
02 22 16 55 CDR CABIN REPRESS, CLOSE.
Go.
SUIT FAN 2, CLOSE.
Go.
SUIT FAN DELTA-P, CLOSE.
Go.
SUIT/FAN component light come on?
It is.
DIVERTER VALVE, CLOSE.
DIVERTER VALVE.
CO₂ SENSOR, CLOSE --
Go.
MASTER ALARM may come on; all others OPEN.
No MASTER ALARM. Go ahead.
Row 4, all OPEN except: HEATERS: DISPLAYS, CLOSE
Go.
EPS: DISPLAYS, CLOSE.
Go.
DC BUS VOLT, CLOSE.
Okay, we got S-BAND ANTENNA, too. Go ahead.
INVERTER 2, CLOSE.
INVERTER 2.
ASCENT ECA, CLOSE.
Go.
DESCENT ECA, CLOSE.
02 22 17 27 LMP  Go.
02 22 17 28 CDR  DESCENT ECA CONTROL, CLOSE.
02 22 17 29 LMP  Go.
02 22 17 30 CDR  TRANSLUNAR BUS TIE, CLOSE.
02 22 17 31 LMP  Go.
02 22 17 32 CDR  CROSS TIE BALANCE LOADS, CLOSE.
02 22 17 33 IMP  Go.
02 22 17 34 CDR  BAT FEED TIE, two, CLOSE.
02 22 17 35 IMP  Go.
02 22 17 36 CDR  All others OPEN.
02 22 17 37 LMP  Okay.
02 22 17 38 CDR  Okay, get your timer set. It'll be 70 —
02 22 17 39 LMP  Yes, let me - let me turn on the water first.
02 22 17 42 CDR  Okay.
02 22 17 45 LMP  Okay, water's on.
02 22 17 46 CDR  Okay, MISSION TIMER set; it will be 70:18 in 10 seconds.
02 22 17 52 LMP  No, I can't make it.
02 22 17 53 CDR  Well, set it to whatever you think you can make.
02 22 17 55 LMP  Okay. How about 70:18:30?
02 22 17 57 CDR  Okay.
02 22 18 15 CDR  15 now.
02 22 18 20 LMP  70:18:30. Okay.
02 22 18 22 CDR  Okay. 22, right?
02 22 18 24 LMP  Okay.

CONFIDENTIAL
02 22 18 27 CDR 3, 2, 1, -
302 Day 3
02 22 18 30 CDR MARK.
02 22 18 32 LMP Okay, now I'll give you a 35: 2, 1 -
02 22 18 35 LMP MARK.
02 22 18 37 LMP 70:18:35.
02 22 18 39 CDR Okay. CB(16), INSTRUMENTATION: CWEA, OPEN and
RECLOSE.
02 22 18 43 LMP Okay, CWEA coming OPEN and RECLOSE.
02 22 18 47 CDR Okay, MASTER ALARM, ON; ECS: HEATER and GLYCOL
caution lights, and H₂O SEP, SUIT FAN component
lights, ON.
02 22 18 55 LMP Go.
02 22 18 56 CDR Okay, ECS activation and checkout: O₂/H₂O QUANTIT
MONITOR, ASCENT 2, ASCENT 1, and DESCENT.
02 22 19 03 LMP ASCENT 2 - You want to copy these?
02 22 19 04 CDR Yes.
02 22 19 06 LMP Okay, it's 99 and 99, 99 and 97, and the DESCENT 1:
95 and 82. Okay?
02 22 19 23 CDR DESCENT O₂, OPEN.
02 22 19 25 LMP DESCENT O₂. Stand by. DESCENT O₂, OPEN.
02 22 19 31 CDR SUIT GAS DIVERTER to PUSH/CABIN.
02 22 19 33 LMP SUIT GAS DIVERTER going PUSH/CABIN.
02 22 19 37 CDR PRESS REG's A and B to EGRESS.
02 22 19 39 LMP Okay. REG's A to EGRESS, B to EGRESS.
02 22 19 44 CDR SUIT GAS DIVERTER automatically extends and CABIN
FANS go OFF.
02 22 19 47 LMP Roger.
02 22 19 48 CDR Okay, SUIT PRESSURE, 4.8 to 5.2.
02 22 19 51 LMP That's a verify: 5.0.
02 22 19 53 CDR CB(16), ECS: CABIN FAN CONTROL, OPEN --
02 22 19 57 CDR/LMP Okay.
02 22 19 58 CDR -- cabin fans should pop off.
02 22 19 59 LMP CABIN FAN CONTROL, OPEN.
02 22 20 01 CDR Okay. SUIT FANS back to 2 -- I mean, SUIT FAN 2.
02 22 20 05 LMP SUIT FAN 2.
02 22 20 07 CDR Okay, MASTER ALARM, SUIT/FAN warning light ON momentarily.
02 22 20 10 LMP Got it. You're going to have to talk a lot louder now, Jim.
02 22 20 12 CDR ECS caution light, H2O SEP COMP light, ON, then OFF in less than 2 minutes.
02 22 20 17 LMP Roger.
02 22 20 19 CDR PARTIAL PRESSURE CO2 should be less than 7.6.
02 22 20 21 LMP It's zero.
02 22 20 23 CDR Okay. Ready to go on to the next step?
02 22 20 24 LMP Go.
02 22 20 25 CDR Suit fan, H2O SEP check. CB(16), ECS: SUIT FAN 2, OPEN.
02 22 20 33 LMP SUIT FAN 2 coming OPEN.
02 22 20 34 CDR You get the MASTER ALARM, SUIT/FAN warning light, and SUIT FAN component warning light.
02 22 20 37 LMP Got them.
02 22 20 39 CDR Next step. When ECS caution light, H2O SEP light, and MASTER ALARM are ON, CB(11), ECS: SUIT FAN 1, CLOSE. I guess it's OFF.
02 22 20 49 LMP SUIT FAN 1 going CLOSED.
Okay.  H₂O SEP SELECTOR, SEP 1.
H₂O SEP going to - push SEP 1.
Okay, SUIT FAN to 1.
Okay, SUIT FAN to 1.
Okay, SUIT/FAN warning light and SUIT FAN componen:
light, OUT.  ECS caution light, H₂O SEP COMP lighl
OUT in less than 2 minutes.
Okay, go.
CB(16), ECS: SUIT FAN 2, CLOSE.
SUIT FAN 2, CLOSE.
Hello, Houston; Apollo 9.
I think that's it.
Need a count on the DFI.
Hello, Houston; Apollo 9.
No lock, Jim.
No lock, okay.  Well, no sense in doing a ... Why
don't you POWER, OFF and R/D A, OPEN?
Okay.  Or you want to wait until we get them?
The heck with them.  Let's just go on.
Okay.  Stand by.  DFI POWER has gone OFF; R/D A,
OPEN; and LEB, CLOSED.  You don't have that.
Okay, S-band and VHF activation.  Set your COMM co-
figuration.  S-BAND.  Ready?
Go.
FM, PRIME, PRIME, VOICE, PCM, RANGE, RIGHT, LOW.
Go.
02 22 22 05 CDR  VHF; ON, ON, VICE, ON.
02 22 22 10 LMP  Go.
02 22 22 11 CDR  S-BAND and VHF ANTENNA, as desired. AUDIO, both -
02 22 22 15 LMP  (Sigh)
02 22 22 17 CDR  S-BAND to T/R, volume to just hear MSGW; ICS to T/R.
02 22 22 24 LMP  Okay, go ahead and read through them, Jim. I'm doing them while you're reading them.
02 22 22 28 CDR  Okay. S-BAND to T/R; ICS to T/R; RELAY OFF; AUDIO CONTROL to NORMAL.
02 22 22 34 LMP  Okay, I've got it all complete.
02 22 22 46 CDR  VOX, ICS; VHF A COMMANDER is T/R, LMP's is OFF; VHF B COMMANDER is OFF, LMP's to T/R. Connect the umbilical to your right side: red to red and blue to blue.
02 22 22 51 LMP  Okay, that's in work.
02 22 22 55 CDR  Okay, Dave, you want to configure simplex' B?
02 22 22 57 CMP  Simplex B. Hey, we forgot to chlorinate the water.
02 22 23 02 CDR  I know it. I didn't forget it; I kept remembering it
02 22 50 04 CMP  Spider, Gumdrop.
02 22 50 09 LMP  Go ahead, Gumdrop.
02 22 50 11 CMP  Roger. The tunnel's closed now - the hatch is closed and I'd like you to verify the dump valve's in AUTO.
02 22 50 18 LMP  It's verified.
02 22 50 20 CMP  Okay, I'm going to vent the tunnel now, okay?
02 22 50 24 LMP  Okay.
02 23 08 23 CMP  Spider, Gumdrop.
02 23 08 29 LMP  Yes, go ahead.
What you guys doing over there?
Making noises.
Yes.
We're making our regulator check; it's going to make a few noises here for you.
Okay.
You can hear that all the way over there, huh?
Oh, yes. Very loud.
Okay, stand by for another one.
Here comes another noise, Gumdrop.
Okay.
Gosh!
Another noise.
Boy, that was a big one.
Apollo 9 - Gumdrop/Spider, this is Houston through Carnarvon.
Roger, Houston; this is Apollo - this is Spider, Gumdrop.
And the Gumdrop.
Spider, Gumdrop.
Go ahead.
Are you going to be ready for the COMM check here over Mercury?
Keep trying.
Okay, I'll be standing by for you to give me the go whenever you want me to go to EVA configuration.
Okay. How much time have we got, Dave?
We've got about 3 or 4 minutes until you hit the Mercury.

Okay, we're not - we're probably not going to make it, but we'll - we'll mush on.

Okay.

-- in about a minute - here. Let's see if we can give you a fast reading.

Okay, he's feeling a lot better, and he looks like he's - he's acting like he feels a little better. Maybe we can extend this a little bit.

Okay. That's - that's your - judgment there, and we say go ahead if you feel that way, Jim.

Okay --

Let me - I'd like to configure them that way, and we'll see how things go.

Okay, very good. And we'll see you over Guaymas about 52.

Okay.

Hey, Gumdrop; Spider.

Roger. Go ahead.

Hey, Rusty's feeling a lot better and he's looking better, too. Maybe we ought to let him get out of the front porch or something.

Hey, man, I agree with that; the camera's all set.

Okay, good --

Great!

-- just hang loose and we'll see how it goes here.

Okay, all I've got to do is push the button.
Okay, I think we still ought to terminate it - at the end of that daylight pass.

Okay.
03 00 19 09 CC  Roger. You're loud and clear on that one.
03 00 19 17 CDR  Let me check to see if everything is glued down.
03 00 19 19 CMP   (Laughter)
03 00 19 39 CDR  Okay.
03 00 19 40 LMP  Okay. Why don't we get this pressure-integrity check out of the way?
03 00 19 43 CDR  ... okay. Verify the following: helmet and visor, two, locked and adjusted; helmet tiedown, two, adjusted.
03 00 19 50 LMP  Okay. My helmet's tiedown ..., your helmet is lock alright.
03 00 19 55 CDR  $O_2$ connectors.
03 00 19 59 LMP  Okay, you've got two connect and locked ...
03 00 20 03 CDR  Okay, are they in?
03 00 20 04 LMP  Those are in and locked. You want to check two of them on me? Okay. Those you don't have to worry about.
03 00 20 16 CDR  ... $O_2$ connectors, six locked; $H_2O$ connectors, two, locked.
03 00 20 24 LMP  Okay, yours are locked.
03 00 20 25 CDR  Okay, ... are locked; I checked yours earlier this morning.
03 00 20 28 LMP  Okay.
03 00 20 29 CDR  RELIEF valve, two, open.
03 00 20 31 LMP  Mine's OPEN - to OPEN. Boy, that sun is bright.
03 00 20 38 CDR  Yes. Wrist locks, four, locked.
03 00 20 51 LMP  It's locked.
Day
2053
CDR
Glove
straps, four, adjusted.

LMP
Okay, mine are alright. Let me tighten this one a
little.

CDR
PGN
DIVERTER, two, vertical.

LMP
I already checked those.

CDR
Okay. Verify necessary service module RCS thrusters
disabled. Hey, Gumdrop, you got the right thrusters
disabled?

LMP
I heard him fine. Okay, SUIT CABIN RELIEF, CLOSE; SUIT
CABIN GAS RETURN, OPEN - midposition, midposition.

LMP
Let me see where we are now. Okay, I already checked those.
I know, but when you - you try to talk to him, and
you're both on A, you see, and it was just garbled.

CDR
I heard him fine. Okay, SUIT GAS DIVERTER, pull to
midposition on that.

LMP
You want me to read out to you, Jim?

CDR
CABIN GAS RETURN, close.

LMP
You don't want me to read out to you, Jim?

LMP
What?

CDR
I'm ready.

LMP
... again.

CDR
I'm ready.

LMP
... I heard him fine.

CDR
... I heard him fine.

LMP
You're both on A, you see, and it was just garbled.

CDR
Midposition.

LMP
Okay, mine are alright. Let me tighten this one a
Okay. PRESSURE REG A, CLOSED.

PRESSURE REG A, CLOSED.

Okay, purge the suit loop by setting PRESS REG B to DIRECT O₂ for 2 minutes.

Okay.

Okay, now the cabin may relieve on this.

24 ... Okay, what else do we need to do in here?

Well, we've got to wait for 2 minutes. But after ...

Okay, the next thing you do then is set the CABIN GAS RETURN to EGRESS, and then PRESS REG B to CLOSE. And we want to maintain the suits above the cabin. We may have to go to DIRECT O₂ occasionally in order to do that, because we breathe them down..

PRESS REG B goes to CLOSE.

Yes. We - we got them to CLOSE, see, and then, although we have high O₂ in the suit loop - Jim, I think you're pretty far over towards secondary on that. Not that it makes any difference - Okay. And then the next thing that we do is a - verify that we're disconnect from all restraints. And unstow and mount the EVAH card.

Okay, and the next thing we discuss is on the EVAH card. It should start out with PLSS FAN, ON; SUIT ISOLATION LMP to SUIT DISCONNECT; et cetera, is that right?

It says CDR PRESSURE-INTENSITY check: SUIT/CABIN REPRESS, CLOSED; CABIN REPRESS, CLOSED.

Okay, on top of that - written right on the top should be --

Oh, PLSS FAN, ON.

-- yes.
Okay, so that's where that picks up. Jim, while you're waiting, you might as well stow that water gu a little better.

Okay.

And in order to keep from snagging — for a few minutes.

Okay, let me ... SUIT GAS RETURN to EGRESS. All the way around, clockwise.

What was that? What did you get - the CABIN GAS RETURN to EGRESS?

CABIN GAS RETURN to EGRESS. Right. And I want to - Okay, PRESS REG B, CLOSED.

PRESS REG B, CLOSED.

Okay, now we want to keep our suits up by going to DIRECT O₂ on occasion. Either REG. Okay, CO₂ CANISTER SELECT to PRIMARY. Okay?

Okay.

Okay, why don't we build our suits up a little bit just to make sure we don't ... back in? Okay. And now we're ready for the EVAH card. So if you want to stow this, you can.

Okay, PLSS FAN, ON. It's 32 minutes; we're going to have to —

No, we're just about right.

... so I can see.

Okay, flip the light ... - Oh, okay, I don't know which way you want your light.

Okay.
I'm going to go to ... here and then turn the PLSS FAN, ON, and you're going to make the integrity check. You want me to read to you?

Yes. Why don't you go ahead and do that?

Stand by there, I want to turn this off. Turn mine off too, Jim. Okay, and I got the PLSS FAN, ON.

Warble tone is off.

Stand by. Okay, it's off.

SUIT ISOLATION, LMP, SUIT DISCONNECT. Okay. Go ahead.

Okay. SUIT/CABIN REPRESS to CLOSE.

SUIT/CABIN REPRESS, CLOSE.

Okay, ... you go to CABIN REPRESS, CLOSE.

CABIN REPRESS, CLOSE.

Okay, CABIN REPRESS valve to AUTO.

CABIN REPRESS to AUTO.

SUIT GAS DIVERTER, PULL/EGRESS.

PULL/EGRESS.

CABIN GAS RETURN to EGRESS, and SUIT CIRCUIT RELIEF to CLOSE.

EGRESS and CLOSE.

Okay. PRESS REG A, CLOSE.

PRESS REG A, CLOSE.

PRESS REG B, DIRECT O2.

DIRECT O2.

Okay, build up your suit to 8.85, and I can - I can give you a call on that. Oh, you can see it on your gage, actually.
Okay, let me know when you're going to do it; I'll time you 1 minute.

Okay. ... now wait until you got down there again. 35 seconds to go.

Okay.

Okay. And you want it to be less than 0.3 decay. Okay, you got about 25 seconds to go.

Okay, there you are.

Okay, 

Okay, PRESS REG B to CLOSE. Okay, SUIT CIRCUIT RELIEF to AUTO. When suit decays to about 5.5 psi, SUIT CIRCUIT RELIEF to CLOSE; you don't want to get down to the CABIN PRESS. And the cabin's about to relieve, Jim. We are - The cabin's all the way up to 5.5 right now. ... I'll check it: I'll give you a call.

Okay, yes. I can't see it.

Okay. You're - you're at 7 now. Keep coming. Keep coming; you're at 6.5, 6.3, 6.2. Okay, you're about 6 now. Alright, back to CLOSED.

Hey, Gumdrop; Spider.

Roger; go, Spider.

We'll be relieving here shortly .. into the tunnel.

PRESS REG A and B to EGRESS.

PRESS REG A and B to EGRESS.

Okay. Here, I want to turn the PLSS FAN, OFF, and then you can turn on my suit flow, again.

Okay.

Okay, PLSS FAN's OFF. No, the other one.
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0300 29 58</td>
<td>CDR</td>
<td>I'm sorry (laughter).</td>
</tr>
<tr>
<td>0300 30 01</td>
<td>LMP</td>
<td>There I go. Okay, I'm back on.</td>
</tr>
<tr>
<td>0300 30 08</td>
<td>CDR</td>
<td>Okay, and I got the warning tone back again.</td>
</tr>
<tr>
<td>0300 30 11</td>
<td>LMP</td>
<td>Okay, we're -</td>
</tr>
<tr>
<td>0300 30 16</td>
<td>LMP</td>
<td>... again. Okay, we're standing by for 30 minutes.</td>
</tr>
<tr>
<td>0300 30 28</td>
<td>CDR</td>
<td>Gumdrop, are you calling?</td>
</tr>
<tr>
<td>0300 30 31</td>
<td>CMP</td>
<td>Negative.</td>
</tr>
<tr>
<td>0300 30 52</td>
<td>CDR</td>
<td>Gumdrop, how long do you have us until DEPRESS - or, egress. I mean? To sunrise?</td>
</tr>
<tr>
<td>0300 30 56</td>
<td>CMP</td>
<td>... until now ...</td>
</tr>
<tr>
<td>0300 31 07</td>
<td>CDR</td>
<td>What time - What are you counting down to? Do you have a clock counting down?</td>
</tr>
<tr>
<td>0300 31 12</td>
<td>CMP</td>
<td>Matter of fact, I don't.</td>
</tr>
<tr>
<td>0300 31 18</td>
<td>CDR</td>
<td>Hawaii says about 35 minutes until first sun - sunrise</td>
</tr>
<tr>
<td>0300 31 30</td>
<td>LMP</td>
<td>Okay, we got the battery connectors; we got plenty of O₂, fan's off, and the pump is off.</td>
</tr>
<tr>
<td>0300 31 37</td>
<td>CDR</td>
<td>Not fixed up yet.</td>
</tr>
<tr>
<td>0300 31 40</td>
<td>LMP</td>
<td>Say again?</td>
</tr>
<tr>
<td>0300 31 41</td>
<td>CDR</td>
<td>We got to get your OPS hooked on you properly.</td>
</tr>
<tr>
<td>0300 31 44</td>
<td>LMP</td>
<td>Well, that comes during this second series of things here.</td>
</tr>
<tr>
<td>0300 31 53</td>
<td>CDR</td>
<td>Okay, but what I'd like to have you do is just go up there, and I'd get on that porch and be exercising out around the golden slippers and stuff. If you feel bad, don't hesitate to get back in here, because that's going to -</td>
</tr>
<tr>
<td>0300 32 04</td>
<td>LMP</td>
<td>Okay.</td>
</tr>
<tr>
<td>0300 32 06</td>
<td>CDR</td>
<td>...</td>
</tr>
</tbody>
</table>
316 Day 4

No problem.

... one-g mockup at about 2 in the morning.

If you get back through the door okay, we can close the door and REPRESS just like that, and get your helmet off.

Yes, ...

Okay, now on this next series of steps, that's the one where we don't want to dally or I'm going to get pretty hot.

So even though it's not the egress time, I want to get the door open and get the ... off.

Okay.

And I've got these so I can read them. Okay.

Right.

Spider, Gumdrop.

Go ahead.

... sunrise is at 7 ...

Okay.

Okay. It's 29 minutes away, right?

Okay, they - they gave me a time - a different time on that update this morning, Dave. I can't remember what it was. I wrote it down in the book here.

I just - I ...

Okay.

I'm going to set that to 29, ...

Okay, why don't we just let it go and we'll sort of assume that it was 29? We'll just subtract 3 minute
03 00 33 38 CDR  LMP pressure-integrity check, CB(16).
03 00 39 46 CMP  Roger. I copy.
03 00 41 32 CMP  Say again.
03 00 41 40 CMP  Spider, Gumdrop.
03 00 41 47 CMP  Okay.
03 00 47 30 LMP  Oh, very good.
03 01 01 56 CMP  Okay, Spider; Gumdrop. The hatch is open. No sweat. It just swings like it ought to swing.
03 01 02 06 CMP  Yes. It stays just where I want it, where I put it.
03 01 03 21 CMP  Yes.
03 01 03 43 CMP  Oh, man, that's really pretty.
03 01 03 54 CMP  Hey, I can see Rusty's foot!
03 01 03 59 CMP  Yes. All set.
03 01 04 07 CMP  Okay. Hey, this is like spectacular!
03 01 04 13 CMP  Oh, boy. Sure can.
03 01 04 27 CMP  If Jim looks out the top window, he can see me.
03 01 04 33 CMP  Oh.
03 01 05 32 CMP  Yes, you really can see her at night, can't you?
03 01 06 27 CMP  Okay. Rusty, the sun's going to be just about over your left shoulder. How's that?
03 01 06 33 CMP  Right.
03 01 06 38 CMP  Yes, I had to turn the LIMIT CYCLE, OFF; it was just banging too much.
03 01 07 24 CMP  Sort of looks like it. ...
03 01 07 52 CMP  Yes, I missed that one.
03 01 07 55 CMP  You missed that one.
Oh, there! That looks comfortable. Isn't that spectacular?

Really is.

5 square. How me?

That's right. Why don't you - Say hello to the camera, or something.

Yes, I can see the one behind you, and - as a matter of fact, I don't even see the probe. Must be ...

Oh, really.

No, I haven't gotten it yet. Isn't it there?

You're kidding?

By George, you're right. I can see where it was, but it's gone. Sure enough.

Gee, that's too bad.

Okay. Coming off now.

Fine, fine.

They're fine.

Hey, come out to take a peek.

Hey, yes, right through the hatch window.

Yes. Yes. Matter of fact, if I can get number 1, I can get them all, right? I better get the tether.

Pretty, pretty, isn't it?


Hey, Jim. Hey, you can take a picture of me getting the thermal samples, maybe.

Say again.

Okay. I'll stand by.
<table>
<thead>
<tr>
<th>Time</th>
<th>CMP</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>03 01 14 12</td>
<td>CMP</td>
<td>Okay.</td>
</tr>
<tr>
<td>03 01 14 25</td>
<td>CMP</td>
<td>The left hand? (Laughter) Hey, they're fine.</td>
</tr>
<tr>
<td>03 01 14 39</td>
<td>CMP</td>
<td>I am a mole in the hole.</td>
</tr>
<tr>
<td>03 01 15 05</td>
<td>CMP</td>
<td>Yes. I noticed.</td>
</tr>
<tr>
<td>03 01 15 14</td>
<td>CMP</td>
<td>Alright! Fair deal. Get out here where I can line up on you.</td>
</tr>
<tr>
<td>03 01 15 28</td>
<td>CMP</td>
<td>Okay, amigo.</td>
</tr>
<tr>
<td>03 01 15 36</td>
<td>CMP</td>
<td>Hey, I like these handles.</td>
</tr>
<tr>
<td>03 01 15 44</td>
<td>CMP</td>
<td>Oh, me. Yes.</td>
</tr>
<tr>
<td>03 01 15 53</td>
<td>CMP</td>
<td>Good, Jim. I'm not going to stay in the sun too long, but it feels fine.</td>
</tr>
<tr>
<td>03 01 16 12</td>
<td>CMP</td>
<td>Yes, I'll just come out, take a couple of snaps, and then go back in.</td>
</tr>
<tr>
<td>03 01 16 22</td>
<td>CMP</td>
<td>Yes.</td>
</tr>
<tr>
<td>03 01 16 46</td>
<td>CMP</td>
<td>Yes, that's what I'm set on.</td>
</tr>
<tr>
<td>03 01 18 31</td>
<td>CMP</td>
<td>Yes, that's a pretty one.</td>
</tr>
<tr>
<td>03 01 19 03</td>
<td>CMP</td>
<td>Oh, hey! I got one of those too, now that you mention it. Just don't move, Russell.</td>
</tr>
<tr>
<td>03 01 19 19</td>
<td>CMP</td>
<td>Me and my big ...</td>
</tr>
<tr>
<td>03 01 50 08</td>
<td>CDR</td>
<td>I got my foot caught.</td>
</tr>
<tr>
<td>03 01 50 14</td>
<td>LMP</td>
<td>Okay, you ready?</td>
</tr>
<tr>
<td>03 01 50 16</td>
<td>CDR</td>
<td>Yes. Let's go back to that 215 thing there.</td>
</tr>
<tr>
<td>03 01 50 20</td>
<td>LMP</td>
<td>CM sequence camera, off. OPS antenna, stow. You want to stow that?</td>
</tr>
<tr>
<td>03 01 50 32</td>
<td>CDR</td>
<td>It's alright; just leave it right there.</td>
</tr>
<tr>
<td>03 01 50 33</td>
<td>CC</td>
<td>... we lose you over Canaries here in a couple of minutes. We'll see you over Tananarive about 06.</td>
</tr>
</tbody>
</table>
Okay.
Okay, DUMP valves, both, in AUTO.
Wait a second, I want to check --
Get it? Well, the heck with it.
Okay, I got it. DUMP valve, AUTO. Looks like it should be in AUTO. It is. Okay?
Okay. DUMP valves, both, in AUTO; CABIN REPRESS to AUTO. Okay, now, I'm going to -- ... up here, I want to ... my oxygen ... Okay, go ahead.
CABIN REPRESS going to AUTO. Let's see, let's -- What are the steps after that? Log DELTA-T CABIN REPRESS to AUTO/CABIN?
Yes.
At 4.4 psi.
Okay.
Okay.
Huh?
Is it in AUTO?
... AUTO?
How about that? It's not repressing.
Oh, that's alright. SUIT FLOW CONTROL, CLOSE. Jim?
What a second. What's that?
SUIT FLOW CONTROL, CLOSE.
Oh, yes. Alright. SUIT FLOW CONTROL, CLOSE.
Okay, now. CABIN REG's A and B to CABIN; PRESSURE REG's A and B to CABIN, and now it will REPRESS.
There we go!
<table>
<thead>
<tr>
<th>Time</th>
<th>Station</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>03 01 52 24</td>
<td>CDR</td>
<td>How are your ears? How are your ears, Rusty?</td>
</tr>
<tr>
<td>03 01 52 30</td>
<td>LMP</td>
<td>...</td>
</tr>
<tr>
<td>03 01 52 39</td>
<td>CDR</td>
<td>Okay. Okay, we’re at 2 psi.</td>
</tr>
<tr>
<td>03 01 52 48</td>
<td>LMP</td>
<td>Okay. 2.6. ...</td>
</tr>
<tr>
<td>03 01 52 59</td>
<td>CDR</td>
<td>Okay, 3. Boy, I don’t even see the cabin pressure ... 3.5.</td>
</tr>
<tr>
<td>03 01 53 28</td>
<td>CDR</td>
<td>Are you coming up with it, or are you slipping down?</td>
</tr>
<tr>
<td>03 01 53 30</td>
<td>LMP</td>
<td>I’m right with it now.</td>
</tr>
<tr>
<td>03 01 53 32</td>
<td>CDR</td>
<td>... beautiful.</td>
</tr>
<tr>
<td>03 01 53 34</td>
<td>LMP</td>
<td>Okay.</td>
</tr>
<tr>
<td>03 01 53 35</td>
<td>CDR</td>
<td>Okay. CB(16): SUIT FLOW, CLOSE. Okay, we’ve had the MASTER ALARM ... Verify pressure increase and give CMP GO for REPRESS. Okay, Gumdrop; this is Spider here.</td>
</tr>
<tr>
<td>03 01 53 48</td>
<td>CMP</td>
<td>Roger, Spider. I’m ready to REPRESS, if you are.</td>
</tr>
<tr>
<td>03 01 53 56</td>
<td>LMP</td>
<td>Yes, we are already repressed now, Dave.</td>
</tr>
<tr>
<td>03 01 53 58</td>
<td>CMP</td>
<td>Okay.</td>
</tr>
<tr>
<td>03 01 54 00</td>
<td>LMP</td>
<td>Okay, now we can REPRESS you, too.</td>
</tr>
<tr>
<td>03 01 54 03</td>
<td>CDR</td>
<td>You’ll have to do the last part of it.</td>
</tr>
<tr>
<td>03 01 54 05</td>
<td>LMP</td>
<td>Okay, we got – we’re much greater than 35 percent, though.</td>
</tr>
<tr>
<td>03 01 54 08</td>
<td>CDR</td>
<td>We have about 68.</td>
</tr>
<tr>
<td>03 01 54 10</td>
<td>CMP</td>
<td>Okay, give me a minute, and I’ll keep you posted.</td>
</tr>
<tr>
<td>03 01 54 18</td>
<td>CDR</td>
<td>...</td>
</tr>
<tr>
<td>03 01 54 20</td>
<td>CMP</td>
<td>Great. Looks good.</td>
</tr>
<tr>
<td>03 01 54 28</td>
<td>CDR</td>
<td>Yesterday, I wouldn’t have given you a plug nickel for that.</td>
</tr>
</tbody>
</table>
I wouldn't have either.
In fact, I wasn't sure we were even going to be up here today.
I feel hungry.
(Laughter)
I'll tell you what. Let's get us back on the... here.
You ready to go?
Yes.
Okay. So you want PLSS O₂, OFF?
Yes, it's off. I --
Okay, LMP operates the OPS PURGE valve to DEPRESS the suit. You've done that?
Yes, I've already --
REPRESS valve closes at 4,4; if LM DESCENT O₂ - DUMP valve, OPEN; verify ...
Okay, I've already done that.
CABIN REPRESS --
That's okay.
Let me give you these next two readings. CABIN 1 FAN, CLOSE. ...
Okay, ...
CABIN FAN 2.
Okay. CABIN GAS RETURN to AUTO.
CABIN GAS RETURN to AUTO.
SUIT CIRCUIT RELIEF to AUTO?
RELIEF is in AUTO.
03 01 55 44 LMP SUIT GAS DIVERTER valve to PUSH/CABIN.
03 01 55 47 CDR PUSH/CABIN.
03 01 55 49 LMP Okay. Doff gloves, helmets, and EV visors. Okay.
03 01 55 56 CDR We're not going to pressurize him.
03 01 55 58 LMP Huh?
03 01 56 00 CDR You want to take your helmet off? You'll have to put that stuff back on if we're going to pressurize him.
03 01 56 04 LMP Right.
03 01 56 05 CDR ...
03 01 56 14 CDR Dave, how are you doing over there?
03 01 56 16 CMP ...
03 01 56 22 LMP Okay. ... also want to do something here. I want to turn the pump off before I turn the boiler on. I have to remember to do that ...
03 01 56 55 LMP Okay, plug me in, and then go to it.
03 01 56 58 CDR Stand by just a minute, Dave.
03 01 57 01 LMP I'm okay where I am, Jim.
03 01 57 04 CDR Well, I have a backup.
03 01 57 13 CDR Hey, I just want to put Rusty on the suit hoses from the spacecraft, and I'll be right with you. Okay?
03 01 57 20 CMP Very well.
03 01 57 27 CDR Okay. Okay, now, ...
03 01 57 43 LMP Probably not open?
03 01 57 44 CDR It is open.
03 01 57 45 LMP Okay.
03 01 57 52 LMP Hey, tell you what --
03 01 57 53 CDR  I don't want to force it in.
03 01 57 55 LMP  I can . . . a lot better than you can, I think.
03 01 57 57 CDR  . . . push . . . on the . . ., if you want to push on it.
                   To get it started, all you do is push it.
03 01 58 02 LMP  ...
03 01 58 05 CDR  Yes. Okay, Dave, are you ready?
03 01 58 08 CMP  Ready for what?
03 01 58 18 CMP  Hey, say again what you want me to be ready for.
                   Say again. Go ahead. Stand by.
03 01 58 26 CDR  Me repressurize you with the LM oxygen.
03 01 58 31 CMP  Stand by. I'm not . . . yet out of the PLSS . . .
03 01 58 49 LMP  Jim, you can hear him, but he can't hear the first-
                   part of what you say; that's the problem.
03 01 58 54 CDR  I can hear him cut off. It sounds like - I can hear
                   something; it goes along and stops like that.
03 01 59 02 LMP  Yes, but about 50 percent of the time, you're talking
                   while he's saying stuff to you, and you miss the
                   first three words. That's right.
03 01 59 12 CMP  Stand by and let me make sure that the . . . is con-
                   figured right.
03 01 59 18 LMP  Since we're in CABIN, all we got to do is open that,
                   and it will automatically REPRESS.
03 01 59 29 CMP  Okay, Jim, I'm going to have to open the VENT valve
                   in . . . first. . . .
03 01 59 33 CDR  ...
03 01 59 35 CMP  Right.
03 01 59 36 CDR  Okay, what's your cabin pressure now?
03 01 59 38 CMP  Okay, I'm up to 2.0 with the PLSS package only.
                   I'm going to go ahead and open the . . . PRESSURE
                   EQUALIZATION valve, and that will drop me back
down until I fill the tunnel up, and then you can fill me up. Okay?

03 02 00 01 LMP  Okay, very good.

03 02 00 04 CDR  I heard him cut off again. He goes along, drops right off like that.

03 02 00 07 LMP  You heard his voice cut off that --

03 02 00 09 CDR  No, there's a long string of static that just - just cuts off.

03 02 00 14 LMP  ... some trash.

03 02 00 16 CDR  I know it ... copper with a screw through it. ... 

03 02 00 24 CMP  Okay, Spider, go ahead and give me ... 

03 02 00 30 CDR  Yes, I'll give you ...

03 02 00 33 CMP  Okay.

03 02 00 38 CDR  Cabin pressure, Rusty; would you read that to me?

03 02 00 41 LMP  Yes, it's 4.5, 4.4, --

03 02 00 47 CDR  Dave, going up?

03 02 00 48 LMP  -- 4.3, --

03 02 00 49 CDR  Are you going up?

03 02 00 50 CMP  Roger. Up to 2.0.

03 02 00 52 LMP  Okay, it's going up slowly, Jim. You just leave it open.

03 02 00 58 CMP  Okay, I'm up to 2.3.

03 02 01 01 LMP  How's your O₂ quantity? Okay, it's going to cut off in a minute. We got 65 percent. No sweat. And it's building up, Jim; we're ahead of them, so it's going to cut off and open up again.

03 02 01 14 CDR  Yes, I'm cutting it off myself, too, because there's so much crap floating around back here, I want to get in the DUMP valve.
03 02 01 19  LMP  Okay.  Okay, you can open it up again.  Leave it open.
03 02 01 27  CDR  ...
03 02 01 32  CMP  Okay, it's coming down again; it's about 4.2.  There it goes again.
03 02 01 42  LMP  Okay, our O₂ quantity is 62 percent.  No sweat.
03 02 01 48  CMP  Okay, I'm up to 3.5.
03 02 01 51  LMP  We're up to 4.7, Jim.
03 02 01 53  CDR  Okay.
03 02 02 07  LMP  Okay, we're 4.8; it's going to cut off again here.
03 02 02 13  CDR  Where are you at now, Dave?
03 02 02 15  CMP  Okay, I'm at 4.2, and the cabin pressure ...
03 02 02 19  CDR  4.2?
03 02 02 21  LMP  Give it one more shot here ...
03 02 02 24  CDR  At 4.2?
03 02 02 27  CMP  4.2.
03 02 02 32  LMP  Could you read that, Jim?  He's 4.2.
03 02 02 36  CDR  I'll give you just a little more.
03 02 02 39  CMP  Okay.
03 02 02 42  CDR  ... for you.
03 02 02 44  LMP  Okay.  If we can - That's all you're getting?
03 02 02 46  CMP  Yes.
03 02 02 47  LMP  Okay.
03 02 02 55  LMP  Okay, ... tank up again.
03 02 03 01  CDR  The tank?
03 02 03 02 LMP  Yes, go ahead.
03 02 03 05 CDR  Configuring here now. I'm giving you all you're going to get.
03 02 03 06 CMP  Okay, thank you.
03 02 03 18 CDR  Okay, CABIN FAN 1, CLOSE; CABIN GAS - doff helmets and gloves.
03 02 03 22 LMP  Okay.
03 02 03 38 CDR  Oh, boy. All the time did not have those ... on.
03 02 03 40 LMP  Yes. I guess I'd better stay here until I connect it into the COMM. You want to open my flow, Jim?
03 02 04 02 CDR  Okay, you all set?
03 02 04 05 LMP  Okay, thank you.
03 02 04 19 LMP  Boy, now I can see better.
03 02 05 25 CDR  Okay.
03 02 05 28 LMP  Okay. CABIN FAN 1 and 2, CLOSE; CABIN GAS RETURN to AUTO; SUIT CIRCUIT RELIEF to AUTO; GAS DIVERTER, PUSH/CABIN now. Okay, CABIN PRESSURE REG's are in CABIN. Doff gloves, helmets, and visors; set the LM COMM, basic. I believe I'll go tell Dave we're going back to basic COMM, huh?
03 02 05 49 CMP  Roger. I caught that; going back to basic COMM.
03 02 06 07 CDR  Okay, now we want to configure --
03 02 06 16 CDR  He can't hear me, I don't believe.
03 02 06 18 LMP  He can't?
03 02 06 19 CDR  I can't hear you. Come back out here. I can't hear you.
03 02 06 55 CC  Spider/Gumdrop, Houston through Tananarive. Receiving no transmission. I'll stand by and talk to you over Carnarvon at 22.
Okay, Houston, this is Spider here. We're about to repressurize at this time. Everything is hunky-dory onboard, and we're just reconfiguring. We're trying - we're trying to make that TV pass for you.

Houston, Gumdrop. Did you copy Spider?

Let's see. ... on this, and I'll put the cover back on this again.

Spider/Gumdrop, Houston through Tananarive. How do you read?

Houston, Gumdrop. 5 by. How me?

Roger. Are you hearing anything from the spacecraft?

Negative. Downlink from the spacecraft, but you are going out, though.

Spider, Gumdrop.

Okay, go ahead, Gumdrop.

How are you doing over there?

Okay, we're trying to get through the - the mess in here and get it back stowed again.

Okay, everything's squared away over here. We're back up to 5.1; ...

Okay.

Good job, David Scott.

Good job to you guys! Hey, that was really a neat demonstration. That really looked pretty neat.

Yes, it really was, as a matter of fact.

Hey, Gumdrop.

Go ahead.

Find out what we do with this superwide, whether we leave it here or bring it back?
Okay. Stand by.

Thank you.

See, I've got no way of telling really. There's — there's nothing I have here that really tells me what to do.

Okay. It tells me that you take it back over there tomorrow, but it doesn't — doesn't say what.

Okay. It says we take the superwide back here tomorrow?

Let's see, let me check the other books.

Okay.

Don't sweat it, Dave. We'll just bring a couple of cameras back.

Okay.

Hey, Spider. How far are you from ... update?

We're pretty quick.

Oh, really?

Yes, where — where do you stand, Dave?

Well, I can ..., I'll get it ready for you.

Okay. Let us know when — when you're ready.

Okay.

We've got some more cleanup too, but probably by the time you get ready, we'll be ready to go ...

Okay, I'm trying to get a little bit of ...

Gumdrop/Spider, this is Houston through Ascension, and we're deleting this backup voice check.

Roger.
03 03 25 57 LMP And, Houston, this is the Spider. As soon as we get the tunnel clear, we're going to be transferring back and drying out the sublimator.

03 03 26 05 CC Roger. We agree with that. We'll just be standing by.

03 03 32 08 CC See you over Tananarive at 42.

03 03 32 16 CMP Roger.

03 03 39 47 CDR Hey, Gumdrop? You about ready?

03 03 39 50 CMP I've got a bunch of other things to do, but I'm taking the hatch out right now.

03 03 39 56 CDR Okay, I think we're getting ready to leave here.

03 03 39 59 CMP Okay, I've got the basic stuff down here, just a bunch of little cleanup items.

03 03 42 37 CC Spider/Gumdrop, Houston through Tananarive; standing by for about 4 minutes. See you at Carnarvon at 56.

03 03 42 45 CDR Spider.

03 03 42 47 CMP Gumdrop.

03 03 43 01 CDR Hey, Dave? How would you like to have us mix up some food for you with this IM water?

03 03 43 03 CMP Oh, hey, that would be alright.

03 03 43 10 CDR Okay. It's really a lot better.

03 03 43 12 CMP Gee, I wouldn't mind trying some of that.

03 03 43 18 CMP You're the good guys.

03 03 47 55 CDR Dave, are you up working in the tunnel?

03 03 47 58 CMP Say again.

03 03 47 59 CDR Are you up in the tunnel?

03 03 48 00 CMP Yes, open the door.

03 03 48 02 CDR Okay.
Roger. We're recommending that you be off of the LM ECS hoses by 76 plus 10. That's about 8 minutes from now, if you can make it. We'd also like to know the time at which you do go off. About 1 minute to LOS here at Carnarvon, and I'll probably see you over Hawaii around 21.

Okay, I'll be on the command module hoses by that time.

And, Spider, one more question. Could you - would you have time to tell me whether the suit isolation disconnect circuit breaker is in or out?

Suit flow control circuit is closed. I believe that's what you want.

That's what I wanted, Rusty. Thank you. It's closed.

Roger.

Okay, Gumdrop; Spider.

Go, Spider.

Roger; how about sending ...?

Okay.

Okay, and I'm going to go off the LM COMM now, and why don't you give me about a minute and then put me - all the switches ON on my COMM panel.

Okay.

Okay, I'm ON.

Okay. Let's start counting this mother down.

Okay.

Anybody know where the camera fuses are?

Ahh - No, I don't.

Boy, I knew.
03 04 09 04 CDR  I saw it once, too. In something.
03 04 09 07 LMP  Yes, we ran into one earlier in the flight.
03 04 09 10 CDR  Yes.
03 04 09 11 LMP  A fuse, a camera fuse. Where is it?
03 04 09 17 CDR  There's one in your data bag.
03 04 09 20 LMP  That's where we saw it.
03 04 09 24 CDR  It's worth a try.
03 04 09 41 LMP  You going to try to get back to the same place, Jim?
03 04 09 57 CDR  Hey, did you put it in the middle - the COAS? The slot?
03 04 10 00 LMP  Okay.
03 04 10 29 CDR  Great!
03 04 12 08 CDR  Well!
03 04 12 43 CDR  Okay.
03 04 12 56 CDR  Too bad!
03 04 13 01 LMP  Did you find your camera, Jim?
03 04 13 06 LMP  Voila!
03 04 13 10 LMP  Voila! Le camera, she work!
03 04 13 14 CDR  She works! Did you get the fuse?
03 04 13 17 CC  Gumdrop/Spider, this is Houston through the Huntsville. I'll have you about 2-1/2 minutes. And Gumdrop, do you read?
03 04 13 29 CDR  What's going on? Okay.
03 04 13 31 LMP  This is Spider here; go ahead.
03 04 13 34 CC  Okay. Could you pass the word to Gumdrop there the we will pick him up - We'll pick y'all up over Haw in about 8 minutes at 21.
<table>
<thead>
<tr>
<th>Time</th>
<th>User</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>03 04 13 39 LMP</td>
<td>Hey, dummy, he's calling you.</td>
<td></td>
</tr>
<tr>
<td>03 04 13 41 CMP</td>
<td>Oh. Houston, Gumdrop; go.</td>
<td></td>
</tr>
<tr>
<td>03 04 13 44 CC</td>
<td>The first item will be some block data that I'd like to get out of the way, and then we'll have some questions on the optics, and on the cryo plan for tonight.</td>
<td></td>
</tr>
<tr>
<td>03 04 13 53 CDR</td>
<td>Did you get that, David?</td>
<td></td>
</tr>
<tr>
<td>03 04 13 55 CMP</td>
<td>Roger. When did you say you were going to do that?</td>
<td></td>
</tr>
<tr>
<td>03 04 13 58 CC</td>
<td>We'll do that over Hawaii - coming across the States - We'll have Hawaii at 21, and we would like to have them to have their block data pad out.</td>
<td></td>
</tr>
<tr>
<td>03 04 14 05 CMP</td>
<td>Okay, we'll be all set.</td>
<td></td>
</tr>
<tr>
<td>03 04 14 08 CC</td>
<td>Okay.</td>
<td></td>
</tr>
<tr>
<td>03 04 14 09 CMP</td>
<td>Okay, Jimmy.</td>
<td></td>
</tr>
<tr>
<td>03 04 14 13 CC</td>
<td>And, Gumdrop, we're trying to do some COMM troubleshooting here. This will be VHF only at Hawaii, if we can make it, and I'd like to insure that your VHF is set up.</td>
<td></td>
</tr>
<tr>
<td>03 04 14 25 CMP</td>
<td>Okay, all set. VHF only.</td>
<td></td>
</tr>
<tr>
<td>03 04 14 27 CC</td>
<td>Okay.</td>
<td></td>
</tr>
<tr>
<td>03 04 14 36 CMP</td>
<td>You ready to go, Jimmy?</td>
<td></td>
</tr>
<tr>
<td>03 04 14 46 CDR</td>
<td>Oh, no, I'm going ...</td>
<td></td>
</tr>
<tr>
<td>03 04 14 53 CMP</td>
<td>Wait a minute, wait a minute ...</td>
<td></td>
</tr>
<tr>
<td>03 04 14 58 CMP</td>
<td>Whooh!</td>
<td></td>
</tr>
<tr>
<td>03 04 15 30 CDR</td>
<td>Okay, Rusty. You ready?</td>
<td></td>
</tr>
<tr>
<td>03 04 15 32 LMP</td>
<td>Yes.</td>
<td></td>
</tr>
<tr>
<td>03 04 15 33 CDR</td>
<td>Okay, we got initial powerdown. FDAI 1 and 2, INERTIAL.</td>
<td></td>
</tr>
<tr>
<td>03 04 15 38 LMP</td>
<td>Roger.</td>
<td></td>
</tr>
</tbody>
</table>
03 04 15 39 CDR  EARTH/LUNAR POWER, OFF.
03 04 15 41 LMP  EARTH/LUNAR POWER, OFF.
03 04 15 42 CDR  LIGHTING, OFF.
03 04 15 43 LMP  LIGHTING, OFF.
03 04 15 44 CDR  MODE, HOLD/FAST; ALTIM - ALTITUDE SET at 130.
03 04 15 48 LMP  Roger.
03 04 15 49 CDR  MASTER ALARM, OFF? ASC HELIUM SELECTOR, both?
STAGE, SAFE and guarded.
03 04 15 54 LMP  I'll verify it.
03 04 15 56 CDR  AUDIO CONTROL, all switches, OFF. COAS, OFF.
03 04 15 59 LMP  Alright. Stand by.
03 04 16 06 LMP  Okay, go ahead.
03 04 16 10 CDR  Next step: TTCA (COMMANDER's), JETS, down.
03 04 16 11 LMP  JETS, down.
03 04 16 12 CDR  Next step: OVERRIDE ANUN, OFF; NUM, OFF; INTEGRAL, OFF. Are you SIDE PANELS, OFF?
03 04 16 19 LMP  Okay.
03 04 16 20 CDR  I didn't think they would be. INTEGRAL's DIM.
03 04 16 22 LMP  Okay.
03 04 16 23 CDR  Next step: TRANSPONTER SCALE, HIGH MULT.
03 04 16 27 LMP  HIGH MULT.
03 04 16 28 CDR  RATE/ERROR MONITOR, LANDING RADAR/COMPUTER.
03 04 16 31 LMP  LANDING RADAR/COMPUTER.
03 04 16 32 CDR  ATTITUDE MONITOR, PGNS.
03 04 16 35 LMP  PGNS.
03 04 16 36 CDR GUIDANCE CONTROL, PGNS.
03 04 16 37 LMP PGNS.
03 04 16 38 CDR MODE SELECTOR, LANDING RADAR.
03 04 16 40 LMP LANDING RADAR.
03 04 16 41 CDR Alright, RANGE/ALTITUDE MONITOR, ALTITUDE/ALTITUDE RATE.
03 04 16 43 LMP ALTITUDE/ALTITUDE RATE.
03 04 16 44 CDR SHAFT - SHAFT and TRUNNION, 50 degrees.
03 04 16 46 LMP 50.
03 04 16 47 CDR RATE SCALE, 25.
03 04 16 49 LMP Alright, stand by just a minute here, Jim. I want to plot a point here. My temperature just started going up.
03 04 16 59 CDR How soon --
03 04 17 00 LMP Ahh, I just turned down the - 26; yes.
03 04 17 18 CDR Is that COAS on? Or is that docking part of it ... right, Dave?
03 04 17 22 CMP Yes.
03 04 17 23 LMP 3, 14, 7 --
03 04 17 24 CDR It's off 4-1/2 degrees in pitch and about a half degree in yaw.
03 04 17 26 CMP Oh, you're kidding!
03 04 17 28 CMP And, what it is. I'm not in the right place ...
03 04 17 37 CDR You!
03 04 17 38 LMP You'd better keep a sharp eye on --
03 04 17 39 CMP Okay.
03 04 17 42 CDR RATE SCALE, 25.

CONFIDENTIAL
03 04 17 43 LMP 25.
03 04 17 45 CDR THROTTLE CONTROL, AUTO.
03 04 17 46 LMP AUTO.
03 04 17 47 CDR MANUAL THROTTLE, COMMANDER.
03 04 17 48 LMP COMMANDER.
03 04 17 49 CDR ENGINE ARM, OFF.
03 04 17 51 LMP ENGINE ARM, OFF.
03 04 17 52 CDR X-TRANSLATION, 2 JETS.
03 04 17 54 LMP Roger; 2 JETS.
03 04 17 55 CDR BALANCE COUPLES, ON.
03 04 17 56 LMP BALANCE COUPLES, OFF.
03 04 17 57 CDR ASCENT HELIUM --
03 04 17 58 CMP No-o-o.
03 04 17 59 CDR BALANCE COUPLES, ON!
03 04 18 00 LMP Okay, Jim.
03 04 18 01 CDR ASCENT HELIUM REG's 1 and 2, talkback gray.
03 04 18 04 LMP Gray.
03 04 18 05 CDR DESCENT HELIUM REG: 1, talkback gray; 2, talkback barber pole.
03 04 18 09 LMP Ahh --
03 04 18 10 CDR ... got the barber pole one.
03 04 18 12 LMP No.
03 04 18 13 CDR We turn the POWER, OFF, on this one?
03 04 18 14 LMP No, the POWER, OFF, is three grays and one barber pole.
03 04 18 18 CDR Have we had the POWER, OFF, yet?
03 04 18 19 LMP  Yes, we never put the breakers on there.
03 04 18 21 CDR  Oh, that's right, yes.
03 04 18 22 CDR  PROPELLANT QUANTITY MONITOR, OFF.
03 04 18 25 LMP  PROPELLANT QUANTITY MONITOR, OFF.
03 04 18 27 CDR  PROPPELLANT TEMPERATURE/PRESSURE MONITOR, ASCENT.
03 04 18 30 LMP  ASCENT.
03 04 18 31 CDR  HELIUM MONITOR, OFF.
03 04 18 32 LMF  HELIUM MONITOR going OFF.
03 04 18 33 CDR  ABORT and ABORT STAGE, flush and guarded.
03 04 18 35 LMF  Flush and guarded.
03 04 18 36 CDR  ASCENT SYSTEMS A and B, ASCENT FUEL and ASCENT OXIDIZER, four, talkback - talkback barber pole.
03 04 18 41 LMF  Roger.
03 04 18 42 CDR  SYSTEMS A and B, QUADS 1, 2, 3, 4, (eight), OPEN; talkback gray.
03 04 18 46 LMF  Gray.
03 04 18 47 CDR  THRUSTERS, talkback barber pole.
03 04 18 49 LMF  THRUSTERS, barber pole.
03 04 18 51 CDR  A and B MAIN SHUT OFF VALVE, talkback --
03 04 20 23 SC  Roger.
03 04 20 24 CDR  ... LMP JETS, down.
03 04 20 27 LMF  JETS, down.
03 04 20 28 CDR  CONTROL, all systems, OFF.
03 04 20 31 LMF  All systems, OFF.
03 04 20 32 CDR  Roger. VHF TRANSMITTER and RECEIVER is OFF.
Okay.

TRACK MODE, OFF.

Say again.

TRACK MODE, OFF.

TRACK MODE, OFF. Did you say B TRANSMITTER, OFF, also?

Yes, A and B TRANSMITTER and RECEIVER, OFF.

Okay.

Next step. SUIT GAS DIVERTER, PUSH and CABIN.

Okay, it won't stay there.

CABIN REPRESS, CLOSE.

Okay, if you're ready, here it comes again.

Yes, here comes that ... --

Apollo 9, we are going to lose you here at Antigua. We'll see you over Ascension at about 59.

Roger.

Hey, tell them we're done with the dryout.

Hey, Houston, looks like we're all done drying out the water boiler. What do you think?

Stand by, Apollo 9.

You know, when you called it that time, the damned thing was shining right through the hatch window.

Looks to me like it's just about right, Dave.

Yes, I maneuvered about 5 --

That's negative. We don't think it's dry yet. Apollo 9. We'll try to give you a hack here on our estimate.
Okay, please do.

They don't think it's dried out yet, Rusty.

They don't?

No. Well, I had to maneuver about 90 degrees, I guess, altogether; I had an hour to do it in, so it worked out fairly well. I'm glad we sat down and talked about that now - that sun-angle bit. You know, with the model, that day we did it, a long, long, long time ago, you know?

Yes.

You know? Instead of having gimbal angles - torquin angles. That was a - that was a good thing.

Jim, here's your pea soup.

Oh, good! I think I'll eat that right now. Cold pea soup ... cold pea soup ...

(Laughter)

Well, I tell you, I'm really scramble.

(Laughter)

Another day of up, up, up (laughter).

Listen, you just get things set tomorrow, because it's my day for looking out the window; man, you're going to have to fight me to get your hands - to get one of those cameras away. I haven't taken a picture yet, hardly. I'm going to take some nice pictures of the ground - of the whole world; I'm just going to make a strip map of the world. You're supposed to do SO 65, yet (laughter).

Hey, listen, I need to get a picture of Rusty coming down through the hatch. Why don't I ...
I meant to tell you that TCA helped yesterday. Give me another one today. Oh, yes, oh, I see a lot easier ...

Okay, Dave.

Yes. I got the camera working. I changed the fuse, and it works. That doesn't mean that's what was wrong with it, but at least that's - that made it work.

Hmm, ... gummed up the inside; I've already gummed up the outside. I'm going to have to take another crap tonight.

You take one last night?

Yes. ...

Ha!

Hey, has anybody done that - How about sending me some - some of my own food so I can eat. I'm hungry, man.

Yes. That's a good idea. ... These are the two that he sent up here, okay?

Hey, look what's coming down my way.

What?

Toothpaste.

Well, how did that get out?

I don't know how, but it did. Dave has a lot of good useful things - all kinds of things ... like the toothpaste, the ... cover. ... something like this.

Okay, just a minute, let me put the toothpaste away before I get more mess. I had it away ... the food bag. Hey, what's the setting in here of earth? Better get the spotmeter.

Hey, how are they going to let us know when it's dry?
They're going to talk to us over some other place in about 57 minutes, roughly.

Umm. Not enough light in there. Hey, that's a pretty picture out there. The clouds. Hey, this thing is as stable as a rock, isn't it?

I don't think it's going to work. But it's worth a try. Wide open at 1/50th. That's what it is. Let me get down here where I can get - more ov de whol show!

Hmm. Yes.

Do you still have the BMAG's on?

What?

I just wondered if you still had the BMAG's on? Why is it we're not going into gimbal lock today?

Well, we have -

Are you doing anything, Rusty?

Yes. I'm eating.

...

Oh, yes. Hey, I can see one of the running lights on the LM.

Can you really?

Yes, it's lit up.

Here, let me turn it off.

Okay.

Did you really?

Yes. Now it went off. ... I'll be darned; there's another one right out there. Well, the next I need to get is ...
342 Day 4

CONFIDENTIAL

03 04 58 44 CDR
Oh, boy, that pea soup is really not mixing too well. The world's lumpiest pea soup. Hey, did anything blow up over there?

03 04 58 56 LMP
Huh?

03 04 58 57 CDR
Did anything blow up ... door open?

03 04 58 58 LMP
No. ...

03 04 59 02 CDR
Oh, man. I really had a tough time getting my door open. Whoa!

03 04 59 04 LMP
Yes! You'll have a tough time getting it closed, too.

03 04 59 07 CDR
Oh.

03 04 59 08 CMP
Yes, it always makes the ground go "gulp" when McDivitt starts working on a hatch.

03 04 59 13 CDR
(Laughter) ... It's just that Rusty wouldn't get out of the way.

03 04 59 21 CDR
...

03 04 59 22 LMP
...

03 04 59 23 CDR
He's like a big ... He comes in and stands around, and lets you wait on him. Close the door, will you?

03 04 59 36 CDR
Oh, boy!

03 04 59 37 CMP
Well, I'm sorry that camera didn't work for the little transfer you did, because it looked pretty easy.

03 04 59 44 LMP
Well, it was.

03 04 59 46 CMP
I tried to take some Hasselblads, but I didn't have that ready, because I'd been fighting with that damn camera. That EVA glove I had was so bad - I just thought that my right hand - it was good for grabbing hold of the hatch handle and that was about all.

03 05 00 13 CDR
Oh, you take more than ... this water --

03 05 00 15 CC
Apollo 9, Houston through Ascension.

CONFIDENTIAL
Hello, Ascension. Hello, Houston; this is Apollo 9.

LANDING RADAR STANDBY, CLOSED.

Oh, I'm sorry. Hold on. Okay, now, LANDING RADAR, STANDBY: RANGE RADAR going OFF - Yes, LANDING RADAR, CLOSED.

INSTRUMENTATION: LANDING RADAR, CLOSED.

Roger.

SIGNAL CONDITIONER 1, CLOSED.

Roger.

LIGHTING: ANNUNCIATOR/DOCKING (laughter) CLOSED --

Got them.

-- all others OPEN.

Got them.

Row 4, all OPEN except PGNS: IMU STANDBY.

Go.

All others OPEN. You get a MASTER ALARM and a GLYCOL PUMP.

Go.

Okay, row 5, all OPEN except: EPS: BAT FEED TIE, two, CLOSED.

Got it.

CROSS TIE BALANCE LOADS, CLOSED.

Go.

DESCENT ECA CONTROL, CLOSE.

Go.

DESCENT ECA, CLOSE.

CONFIDENTIAL
03 05 06 46 LMP Go.
03 05 06 47 CDR DC BUS - BUS VOLTS, CLOSE.
03 05 06 52 LMP Go.
03 05 06 53 CDR DFI POWER, OFF.
03 05 06 55 CDR DFI PWR, OFF.
03 05 06 57 CDR CB(16).
03 05 07 01 LMP ... I don't - Did you read DESCENT ECA CONTROL and DESCENT ECA, CLOSE?
03 05 07 04 CDR Yes, I did.
03 05 07 05 LMP Okay.
03 05 07 06 CDR Then I read DC BUS VOLTS, CLOSED, too.
03 05 07 07 LMP Alright, go ahead.
03 05 07 09 CDR Okay, well - CB(16), row 1, all OPEN.
03 05 07 14 LMP Go.
03 05 07 15 CDR Row 2, all OPEN except LIGHTING: LIGHTING is CLOSE.
03 05 07 19 LMP Go.
03 05 07 20 CDR STAB/CONTROL: ASA, CLOSED.
03 05 07 21 LMP Go.
03 05 07 22 CDR INSTRUMENTATION: SIGNAL SENSOR, CLOSED.
03 05 07 26 LMP Go.
03 05 07 27 CDR SIGNAL CONDITIONER 2, CLOSE.
03 05 07 28 LMP Go.
03 05 07 29 CDR Row 3, all OPEN - Oh, all others OPEN on row 2.
03 05 07 31 LMP Okay.
03 05 07 33 CDR Row 3 is all OPEN.
03 05 07 34 LMP  Row 3, all OPEN?
03 05 07 35 CDR  Yes.
03 05 07 41 LMP  Okay.
03 05 07 42 CDR  Row 4, all OPEN except: HEATERS: S-BAND ANTENNA, CLOSED.
03 05 07 47 LMP  Go.
03 05 07 48 CDR  EPS: DISPLAY is CLOSED.
03 05 07 50 LMP  Go.
03 05 07 51 CDR  DC BUS VOLTAGE, CLOSE.
03 05 07 52 LMP  Go.
03 05 07 53 CDR  DESCENT ECA, CLOSE.
03 05 07 54 LMP  Go.
03 05 07 56 CDR  DESCENT ECA CONTROL, CLOSE.
03 05 07 58 LMP  Go.
03 05 07 59 CDR  BAT FEED TIE, two, CLOSE.
03 05 08 00 LMP  Okay, once again. We got to leave the ... BUS TIE, CLOSED. BALANCE LOADS, CLOSED? That's missing, too. Okay, go.
03 05 08 12 CDR  That's the BAT's and the BUS VOLTAGES. Wait a second, do we have DC - DESCENT ECA CONTROL, CLOSE?
03 05 08 17 LMP  Yes.
03 05 08 18 CDR  BAT FEED TIE, two, CLOSE.
03 05 08 19 LMP  Yes.
03 05 08 20 CDR  Okay. Check the BAT's and BUSES.
03 05 08 26 LMP  You want them read out?
03 05 08 28 CDR  Yes, go.
Okay, all four of them are 31; 37 and 37 on 5 and 6; BUSES are 31 and 31; and the ED BAT's are 36.5 and 37.3.

... Okay, BAT 1, LOW VOLTAGE, OFF/RESET, talkback barber pole.

Okay.

Got BAT 1, LOW VOLTAGE, and talkback, LOW.

Go.

Got them.

... BAT BUS VOLTAGES ... ED/OFF.

CB(11), INSTRUMENTATION: SIGNAL CONDITIONER 1, OPEN.

SIGNAL CONDITIONER 1, OPEN.

EPS: DESCENT ECA CONTROL, OPEN.

DESCENT ECA CONTROL, OPEN.

DC BUS VOLT's OPEN.

DC BUS VOLT's OPEN.

CB(16), ... - CB(16), INSTRUMENTATION: SIGNAL SENSOR, OPEN.

SIGNAL SENSOR, OPEN.

SIGNAL CONDITIONER 2, OPEN.

SIGNAL CONDITIONER 2, OPEN.

EPS: DISPLAY's OPEN.

EPS: DISPLAY's OPEN.

DC BUS VOLT's OPEN.

DC BUS VOLT's OPEN.
03 05 09 52 CDR DESCENT (cough) - DESCENT ECA CONTROL, OPEN.
03 05 09 56 LMP Go.
03 05 09 57 CDR CROSS TIE BALANCE LOADS, CLOSED.
03 05 09 59 LMP Go.
03 05 10 01 CDR CROSS TIE BALANCE LOADS, CLOSED!
03 05 10 03 LMP Yes, we left it CLOSED.
03 05 10 05 CDR Okay, DESCENT H₂O, CLOSED.
03 05 10 08 LMP I think I'm going to want a drink of water.
03 05 10 13 CDR ... drink some water. ...
03 05 10 26 LMP Really good water.
03 05 10 43 LMP Oh, DESCENT H₂O, CLOSE.
03 05 10 49 LMP I'll tell you, if ... the CSM. Yes. You know something, we didn't close the DESCENT O₂ again.
03 05 10 55 CDR ... I noticed that ... --
03 05 10 58 LMP I got it closed now. Let's see what else we've got. We've got --
03 05 11 01 CDR ... -- we've got the REG's in EGRESS, too. That should be in CLOSE.
03 05 11 05 CDR I wonder how come they do that? I never thought about that.
03 05 11 10 LMP Okay. Now I've got a little bird. Okay, everything looks good, now.
03 05 11 23 CDR Okay, CSM position LM POWER to CSM.
03 05 11 29 LMP Hey, when - when that happens, look out the window and see ... docking lights.
03 05 11 32 CDR I'm already looking.

CONFIDENTIAL
03 05 11 34 LMP  Alright. ... good.
03 05 11 37 CDR  How about that? Goes out. Wheel! Everything works!
03 05 11 41 CDR  FLOOD's OFF.
03 05 11 43 LMP  FLOOD, OFF.
03 05 11 44 CDR  Lights should stay on.
03 05 11 45 LMP  They do.
03 05 11 46 CDR  LIGHTS - UTILITY LIGHTS, both, OFF.
03 05 11 48 LMP  Okay, both, OFF.
03 05 11 51 CDR  CSM LM POWER; ...?
03 05 11 53 LMP  Yes.
03 05 11 54 CDR  ... checking the volts. ... the wrong thing.
03 05 11 59 LMP  Really?
03 05 12 00 CDR  ...
03 05 12 09 CDR  OVERHEAD DUMP - CABIN DUMP valve to AUTO.
03 05 12 11 LMP  Yes, it's in AUTO.
03 05 12 13 CDR  LMP transfer to the CSM and secure the hatch --
03 05 12 15 LMP  Okay, let me get my helmet here.
03 05 12 16 CDR  -- with the EVA checklist. Wait a minute, let me also ... take some pictures.
03 05 12 23 LMP  Well, I'm going to ... the helmet up first - and the gloves.
03 05 12 40 CDR  Okay, stand by, here comes some gloves. Humph! Come on, gloves! ... Okay, ready?
03 05 13 15 LMP  No.
03 05 13 16 CDR  Okay. Let me know.
03 05 13 45 CDR  That pea soup still tastes like pea soup.
Okay, I ready.
You ready?
I ready.
...
Okay, now, I'm ready.
Now you're ready, huh?
Ready.
Okay.
I guess I'll come up feet first.
Okay, I got it.
You want to pull up the hose, Jim?
Wait, I don't know; let me - No, I can't pull up your hose. ...
... can you pull my hose?
Okay, ...
Okay, just give it a -
Is this the way?
Yes.
Okay to start pulling, okay?
Let me see, let's figure out how the best way to do this is going to be. How about taking a ... over here? That makes it a little better. Oh, I'll close the hatch, Jim.
I - I can close the hatch, Rusty.
No, I don't want to ..., Dave. Let me just put my feet down on this side of it until my feet down through there and go in here. Okay?
Well, I don't know where you mean it, but alright.

Oh, stand by.

Okay, ...

Okay, you ... - As a matter of fact, if you want to put your feet towards me -

Yes. That's what I --

This way -

Now, that did it.

They're hooked the other way, Jim.

Let me disconnect them ...

Okay.

... Would you get that, too, please?

Yes.

(Laughter) Oh, wait a minute here, let me get that ...

Where's that superwide-angle Hasselblad?

Boy, are we going to have a short night tonight. Whooee!

...

Okay. Okay. Yes. Oh, boy!

Yes. I'm still - Don't like to eat, I must admit.

Yes, I do - Well, I know it; there's no question if I'd eat, I'd feel a lot better, but boy, I'm - I really ... I don't have much appetite.

Yes. I know it.

Oh, boy! Tomorrow we have 2-1/2 hours to do everything we did today plus a P51 in the morning. It took us 2-1/2 hours today to do that - just get
ready. We've got to figure out some better way to get the hell out of here tomorrow.

03 05 22 16 LMP
Yes, but we've ...

03 05 22 18 CDR
There's one little ground station ... What we ought to do is get up an hour earlier and get a little more organized, get over there quicker.

03 05 22 27 LMP
Why in the hell do they put the whole job in 1 day? What the hell is the goddamn rush?

03 05 22 32 CMP
Because we're liable to die ... --

03 05 22 33 LMP
Oh, shoot! We're liable to die.

03 05 22 38 CDR
Well, one thing we ought to do is fix up that ISA tonight - bypass the ... star check. Oh, there's the place - Oh, they can call us an hour early. They'll call us over Ascension an hour and a half earlier. They can - yes, they can call us over Guam about 50 minutes early. I think if they got us up over Guam? Oh, hell, Guam is ... If they get us up over Guam, and we've got the ISA all squared away, and we don't dillydally getting our suits on, I think we can be out of here on time. ... we've got a bypass ... if we take plenty of time ... Yes, you know the status check is about 4 to 5 minutes.

03 05 24 01 CMP
...

03 05 24 18 CMP
What else have we got to do?

03 05 24 24 CDR
I tell you what, is everybody going to get out of these suits?

03 05 24 28 LMP
No, I'm not ...

03 05 24 34 CDR
... going to get out of your suit. What? Well, maybe two of us ought to get out of their suits, and put it back together in the ...

03 05 24 56 CDR
... already we're into our sleep time; that extra hour that we were supposed to have is all gone.

03 05 25 09 CMP
Where - where's my helmet bag? Hey, Jim, I think that's mine over there. This one's for ...
03 05 25 15 CDR  Here's mine here. Here's mine, right here, Dave.

03 05 25 23 CMP  Okay, well, I'll go below.

03 05 25 26 CDR  Right out where I could see it. That's why we couldn't find it.

03 05 26 02 CDR  One more big day.

03 05 26 05 LMP  Yes, ... exactly ...

03 05 26 08 CMP  Boy, I'll tell you, I'm ...

03 05 26 11 CDR  (Laughter)

03 05 26 15 CMP  I'm agreeing with what you said, huh?

03 05 26 17 LMP  Yes.

03 05 26 19 CMP  ... hungry ... normal food.

03 05 26 58 LMP  ... all the way around.

03 05 27 04 CDR  ... EVA visors ...

03 05 27 12 CMP  The one that - the old ones don't cover all the visible glass.

03 05 27 17 CDR  I know, but that doesn't have anything to do with that little hunk of black rubber. I guess we ought to be ... a little more specific. Why do you have to put them on with a piece of black rubber when all the other ones fit so well?

03 05 27 27 CMP  Yes, but it's the space that I ..., Jim. ... worry about black rubber. It's just a much ...

03 05 27 34 CDR  Yes.

03 05 27 40 CDR  What? What? Oh.

03 05 28 07 CMP  You know that ... scared hell out of me?

03 05 28 10 CDR  What's that?

03 05 28 11 CMP  That first ... check.
Hey, we also have to figure out something to cover you up with tonight, Dave.

... cryo PRESS.

What did you say --

Apollo 9, Houston.

Roger, Houston; Apollo 9.

Roger. Rusty, we've got a message for you if you're ready to copy.

Roger. Stand by. Let me get a book.

Okay. It's just a message on the malfunction procedures. You don't need to copy it.

Okay, go ahead.

Okay, the message is: we've reviewed the --

Roger.

Looks like the day to get that one - that one COMM cable up.

Well, we're still putting the spacecraft back together, getting the drogue and the probe and stuff like that in the tunnel, and rearranging the other stuff.

Okay. Are you going to have a chance to get spacecraft batteries and service module RCS readouts for us?

I'll get that for you in just a minute.

Okeydoke.

Have we powered down yet?

No, we haven't done that either. Why don't you and I do that and get on this other stuff here first?

Well, we've got to power down to ..., Jim.
<table>
<thead>
<tr>
<th>Time</th>
<th>Role</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>03 05 34 48</td>
<td>CDR</td>
<td>Well, okay ...</td>
</tr>
<tr>
<td>03 05 34 51</td>
<td>LMP</td>
<td>No, I think Dave ... Let me see if Dave has got one in ... No, Dave doesn't have one ... He doesn't have the systems book. ...</td>
</tr>
<tr>
<td>03 05 35 30</td>
<td>CDR</td>
<td>Okay.</td>
</tr>
<tr>
<td>03 05 35 40</td>
<td>CC</td>
<td>Apollo 9, Houston.</td>
</tr>
<tr>
<td>03 05 35 43</td>
<td>CDR</td>
<td>Roger.</td>
</tr>
<tr>
<td>03 05 35 45</td>
<td>CC</td>
<td>You can go AUTO on the heaters now and turn the fans off.</td>
</tr>
<tr>
<td>03 05 35 51</td>
<td>CDR</td>
<td>Okay. AUTO on the heaters and turning the fans off.</td>
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<tr>
<td>03 05 35 54</td>
<td>CC</td>
<td>Yes. On the H2 tanks.</td>
</tr>
<tr>
<td>03 05 35 56</td>
<td>CDR</td>
<td>Okay, I hope you're back on ...</td>
</tr>
<tr>
<td>03 05 36 08</td>
<td>CC</td>
<td>Roger. Apollo 9, Houston; we're going to lose you here in a minute, and we'll pick you up at Guam for the systems stuff. That will be about 41.</td>
</tr>
<tr>
<td>03 05 36 15</td>
<td>CDR</td>
<td>Okay, fine.</td>
</tr>
<tr>
<td>03 05 37 00</td>
<td>CDR</td>
<td>Did they already pass us all our block data?</td>
</tr>
<tr>
<td>03 05 37 02</td>
<td>LMP</td>
<td>I thought Dave copied that ...</td>
</tr>
<tr>
<td>03 05 37 12</td>
<td>CDR</td>
<td>Yes, Dave, we need the checklist for the powerdown here, so when ... on the batteries.</td>
</tr>
<tr>
<td>03 05 37 17</td>
<td>CDR</td>
<td>Okay, ... What?</td>
</tr>
<tr>
<td>03 05 38 27</td>
<td>CDR</td>
<td>Let's see, you power up, then power down.</td>
</tr>
<tr>
<td>03 05 38 53</td>
<td>CDR</td>
<td>Say, did we - did we ... the CMC? Yes, ... Okay, POO; VERB 48, ENTER. Dave, did you get our state vector update?</td>
</tr>
<tr>
<td>03 05 39 08</td>
<td>LMP</td>
<td>Okay, VERB 48, ENTER.</td>
</tr>
<tr>
<td>03 05 39 12</td>
<td>CDR</td>
<td>And no DAP.</td>
</tr>
<tr>
<td>03 05 39 13</td>
<td>LMP</td>
<td>No DAP's in there.</td>
</tr>
</tbody>
</table>
Okay, PRO, PRO, PRO.

PRO, PRO, PRO.

VERB 46, ENTER.

VERB 46, ENTER.

Call PO6.

VERB 37, ENTER; 06, ENTER.

Okay, now -

PRO until STANDBY, is that what you mean?

STANDBY! CMC MODE, FREE.

CMC MODE, FREE.

G/N IMU POWER, OFF, and G/N OPTICS, OFF.

Okay, SCS ORDEAL POWER, OFF; FDAI, INERTIAL.

FDAI POWER, OFF.

EMS FUNCTION, OFF.

EMS FUNCTION, OFF.

EMS MODE, STANDBY.

STANDBY.

CMC ATTITUDE, IMU.

CMC ATTITUDE to IMU.

FDAI SCALE, 5/1.

5/1.

FDAI SELECT to 1.

1.

FDAI SOURCE to CMC.
03 05 40 41 LMP CMC.
03 05 40 45 CDR ATTITUDE SET to IMU.
03 05 40 47 LMP IMU.
03 05 40 48 CDR AUTO RCS, 16, OFF.
03 05 40 54 LMP Okay, OFF.
03 05 40 59 CDR MANUAL ATTITUDE, RATE COMMAND.
03 05 41 00 LMP RATE COMMAND.
03 05 41 01 CDR LIMIT CYCLE, ON.
03 05 41 02 LMP LIMIT CYCLE, ON.
03 05 41 03 CDR ATTITUDE DEADBAND, MAX.
03 05 41 04 LMP MAX.
03 05 41 05 CDR RATE, LOW.
03 05 41 06 LMP LOW.
03 05 41 07 CDR THC POWER, OFF.
03 05 41 08 LMP OFF.
03 05 41 09 CDR ROTATIONAL CONTROL POWER NORMAL, two, OFF.
03 05 41 11 LMP Two, OFF.
03 05 41 12 CDR DIRECT, two, to OFF.
03 05 41 16 LMP Okay, two, OFF.
03 05 41 18 CDR SPACECRAFT CONTROL to SCS.
03 05 41 19 LMP SCS.
03 05 41 20 CDR CMC, FREE.
03 05 41 22 LMP CMC, FREE.
03 05 41 23 CDR BMAG MODE, three, RATE 2.
03 05 41 25 LMP RATE 2.
03 05 41 26 CDR TVC, two, RATE COMMAND.
03 05 41 27 LMP RATE COMMAND --
03 05 41 28 CDR SCS TVC to RATE COMMAND.
03 05 41 29 LMP Okay.
03 05 41 30 CDR EMS ROLL, OFF.
03 05 41 31 LMP EMS ROLL, OFF.
03 05 41 32 CDR 0.05g switch, OFF.
03 05 41 33 LMP OFF.
03 05 41 34 CDR LV/SPS INDICATORS to Pc.
03 05 41 36 LMP Pc.
03 05 41 37 CDR TVC GIMBAL DRIVES, PITCH and YAW, 1.
03 05 41 40 LMP 1.
03 05 41 41 CDR EDS POWER, OFF.
03 05 41 45 LMP EDS POWER, OFF.
03 05 41 47 CDR TVC SERVO POWER, two, OFF.
03 05 41 49 LMP Two, OFF.
03 05 41 50 CDR FDAI POWER, OFF.
03 05 41 52 LMP FDAI POWER is OFF.
03 05 41 55 CDR LOGIC POWER 2/3, OFF.
03 05 41 58 LMP OFF.
03 05 41 59 CDR SCS ELECTRONICS POWER, OFF.
03 05 42 00 LMP SCS ELECTRONICS POWER is OFF.
03 05 42 02 CDR SIGNAL CONTROL/BIAS POWER, OFF.
03 05 42 04 LMP OFF.
03 05 42 05 CDR EMAG POWER, two, to WARM UP.
03 05 42 09 LMP Let's see, two to WARM UP?
03 05 42 10 CDR One to WARM UP and ..., okay?
03 05 42 15 LMP Okay, did we ever --
03 05 48 58 CDR Okay, thank you.
03 05 49 01 LMP You know what? I just ...
03 05 49 09 CDR Okay, what else do you want to do?
03 05 49 12 LMP Oh, nothing, Jim.
03 05 49 13 CDR Okay. I need that systems test meter readout ... What did you do with that systems test meter readout, so we can get that data to Houston before we lose them? Did you get us that systems test meter readout from 5 C and - D? Well, hell, they've gone ...

03 05 49 46 CDR Wait a second. Wait a second. Rusty, --
03 05 49 51 CMP ...
03 05 49 53 LMP Yes.
03 05 49 54 CMP ...
03 05 50 05 CDR Okay.
03 05 50 29 CDR Why don't you take your suit off ... with your suit off ...
03 05 50 41 LMP Hey, we ... one for ... in quad B.
03 05 50 43 CDR Did we really? (Laughter) Are we doing ... today? ... than you had yesterday.
03 05 51 11 LMP ...
03 05 51 14 CDR B is ... Did you say A and B? Yes. Okay, use ...
03 05 52 07 LMP Dave, the first ... shows that the tunnel's okay.
... Good.

(Laughter)

Did we ... the tape?

Yes. It's right there.

Houston, Apollo 9.

Apollo 9, Houston. Go.

Okay. Ready to copy the systems readout?

Roger. Go.

Okay, quad quantities A, B, C, D: 75, 77, 71, 72; BAT C, 37.0; PYRO A and B, 37.1.

Apollo 9, Houston. We noticed the AUTO switchover to REG 2, and we'd like you to go back to number 1.

Okay. Roger. We'll do that.

Okay. We're just about LOS; Ascension at 27, and you might be thinking about it. We could use a rundown on crew health, sleep, and pills taken the last couple of days if you can give it to us there.

Okay, let me ask you a question with the radiators there. Do we have a problem or what?

We don't know yet at this time, but don't think so.

... but the automatic switch is in radiator 1 now. Okay?

Houston, ... Apollo 9.

Hey, Gumdrop, would you disable your B-3 thruster? We're going to unlimber the radar here.

Roger. It is disabled.

Roger; thank you.
03 19 24 07 LMP  COMP ACTIVITY light
03 19 24 09 CDR  Check your transponder. It'll be off, too, please.
03 19 24 11 CMP  Roger. Transponder is off.
03 19 24 16 CDR  Okay.
03 19 33 10 CMP  Spider, Gumdrop. That's about in.
03 20 27 57 CMP  That should be right lined up now.
03 20 28 08 LMP  What is your roll angle?
03 20 28 10 CMP  180.
03 20 28 13 LMP  Okay, I know what our problem is. It's the docking ring angle and it's - So we should read 2 degrees more than normal. Okay, let's go.
03 20 28 21 CMP  How about that?
03 20 32 54 CDR  ... 5 minutes on my mark.
03 20 32 55 CDR  MARK.
03 20 32 57 CDR  Okay.
03 20 56 44 LMP  Roger. ... That'll be Carnarvon at 23.
03 20 56 52 CMP  Okay, Spider. I'm just about at the attitude now in plane and the roll is the ... attitude ...
03 20 56 53 CDR  Okay, you look good to us.
03 20 57 20 CMP  Okay, thanks, Smokey.
03 20 57 21 CDR  If this COMM doesn't improve, David, we're going to have an awfully quiet rendezvous.
03 20 57 31 CMP  Roger.
03 20 57 49 CMP  Crew, I have 5 minutes on my mark. 2, 1 -
03 20 57 53 CMP  MARK.
03 20 57 54 CDR  Roger; we're right with you.
Right with you.

30 seconds. Average g is NOM.

Roger.

5, 4, 3, 2, 1 -

BANG.

Okay, 5 feet per second.

Roger. Looks good. Okay, zero residual.

Roger.

Hey, I'm getting a VERB 80. Okay, you just want to track them on the COAS. Right. AC breaker in place? VERB ...

... get the AC breaker in. Did you get a time on

No, I didn't.

Okay, I'll call you when it's about --

It was about 59 there.

Say again.

It was about -

Okay, we'll make sure.

Okay, Gumdrop. The tracking light's coming on.

Okay.

Yes. Wow! Yes, it sure is.

Yes, right between the eyes.

You know, I don't think I'd been able to track you on my COAS. It's not bright enough.

You can probably get it close, Jim.
Okay.

Okay.

Yes, the camera's off.

I'm standing by with a VERB h1, NOUN 72, as soon as I - get the flashing - Okay, there we go.

Okay, I got the big ...

Okay, Gum.

And I'm all ready - to the camera. Okay, stand by. I'll be 1 second.

Okay.

Okay, you ready?

It's ready.

Okay, here it goes.

And there it is. Stand by. We haven't got the NO TRACK light out yet, but it's blocked off. Okay, the NO TRACK light is out. ... Hey, ... we call a VERB 83 ... ENTER. Okay, it says he's a - 1200 feet.

Okay, the radar is a GO. Wait a minute, that's - that's going to change again.

Okay, Gumdrop, ...

Right. Go.

Gumdrop, you're - we're done with the radar check.

Gee, that's pretty good. Fine.

Now we're going to put our EXTERIOR LIGHT to DOCK and get ready for the alignment.

Roger.

Hello, Spider; Gumdrop. I've got my alignment, and third star check on two bright stars.
Okay, we're in the middle of ours, Gumdrop. We'll be right with you.

Okay.

Okay, a ... has you within 1 degree.

Man, that'll be great.

Gumdrop/Spider, Houston through Carnarvon. Standing by.

Gumdrop; Roger.

Gumdrop, confirm the SEP burn.

SEP burn on time and a good burn, and everything looks good.

Thank you.

And Spider's here. We've finished marking our Sirius and we're in the fourth set on Acrux.

Roger, Spider; you're loud and clear.

Would you believe five zeros?

Beautiful.

Roger, Spider.

That looks mighty pretty, Spider.

Thank you.

Spider, Gumdrop. I can see your jets burning just as clear as a bell.

Roger; I was watching your light down there.

You just gave a big burst.

Roger.

Lights up the whole sky.

Gumdrop, Houston. Did you do a P52 here?
03 21 26 56 CMP Right, and stand by and I'll give you the angles.
03 21 26 59 CC Roger.
03 21 27 04 CMP It'll be about 5 minutes.
03 21 27 07 CC Okay.
03 21 29 26 CC Okay, Spider and Gumdrop, this is Houston. I'll lose you at Carnarvon in about a minute; and bring up your S-band volumes about that time. We'll have you at Honeysuckle.
03 21 29 36 CDR Okay.
03 21 31 35 CMP Spider, Gumdrop. I've got you at 1.78 miles and 4.8 feet per second.
03 21 31 40 CDR Okay.
03 21 31 47 LMP Are you firing a lot out there?
03 21 31 49 CMP Yes, just spurts. Yes.
03 21 31 54 CDR Yes, it actually put your light out, I can't even see it.
03 21 31 56 CMP Just pulsing.
03 21 32 20 CMP Gumdrop, Spider. Do you have your light on? Is your light out?
03 21 37 08 CDR Okay.
03 21 37 10 CDR I have it showing about a degree or so out of plane, already.
03 21 37 25 LMP Yes, I do too.
03 21 37 43 CMP I have us about 7 minutes late on the crossing, and I don't know why.
03 21 37 46 CDR You gave us what?
03 21 37 47 CMP About 7 minutes late for the horizontal crossing.
03 21 37 49 CDR Oh, really?
Yes. I don't understand it, Rusty.

Gee, we're just about crossed right now. We're look - we're going to be looking up at you, I think, here, if I pitched all the way around. ...

Oh, my ORDEAL slewed good.

No, I better wait until you clear the ...

Okay.

Dave, it looks like we're having horizontal crossing right about now.

Spider and Gumdrop, this is Houston through the Mercury. Standing by for your burn.

Okay.

ENGINE GIMBAL to ENABLE.

... ENABLE.

Am I?

Everything looks good here, Spider. It was a good burn.

Okay, it was a little rough; it got a little rough and chuggy around 20 percent as I was throttling up. I waited for it, and then throttled to --

INVERTER 1, OPEN.

Check.

Roger; we're losing you at the Mercury and we'll see you over Texas about 05.

Okay, and you can debrief the burn.

Okay. Got it?

Yes.

Okay.
03 21 50 41 LMP You want to pitch now and -
03 21 50 43 CDR Yes.
03 21 50 44 LMP Okay.
03 21 50 45 LMP See, I - I'm going to -
03 21 51 01 CDR Get that one.
03 21 51 08 LMP Yes. See him?
03 21 51 10 CDR Yes.
03 21 51 18 CDR Hey, we really got to pitch pretty fast on that.
03 21 51 21 LMP Wonder what it looks like from over there?
03 21 51 26 CMP Your broadcast begins.
03 21 51 28 LMP Thank you. Hey, keep after us, will you, Davey?
03 21 51 32 CMP Okay.
03 21 51 36 CDR Boy, are you down below us!
03 21 56 01 CMP Hey, Spider; Gumdrop. I've had about three marks and it's starting to go away.
03 21 56 05 CDR Okay, we're getting 3 degree ... here, but they're starting to come in.
03 21 58 59 CDR Gumdrop, for your info, I can still see you out at 12 miles.
03 21 59 05 CMP Roger; and I can still see you.
03 21 59 06 CDR Good.
03 21 59 07 CMP Matter of fact, you're just a great big bright star in there. In the sextant, ... Ooh, I can still see your ...
03 21 59 16 CDR Is that right?
03 21 59 17 CMP Right.
03 22 05 53 CC Spider/Gumdrop, Houston through Texas. Standing by.
03 22 05 57 IMP Hello there, Houston ...
Hello, Spider/Gumdrop, Houston through Carnarvon. How did it go?

Houston, this is Spider. How do you read?

I'm reading you 5 square, Spider.

Hey, let me give you the CDH time. It is 96:58:14.

Roger. Copy 96:58 plus 14, and that is a bias time, affirmative?

Affirmative; that's the actual time we will perform CDH.

Roger; copy.

Houston, this is Spider. How do you read me?

I'm reading you loud and clear, Jim.

Okay. The staging went okay. We are staged. However, Gumdrop can't find us in his optics any longer, and we may have knocked out our tracking light.

Roger, Spider; copy.

Before, we could see it flashing out on our quads out here, and I don't see it flashing now, although the flash may have been reflected off something on the descent stage.

Roger; understand, Spider.

Okay. And, Houston, this is Spider. I forgot what I was going to ask you.

Houston, I know what I want to tell you. That burn we made was 40 feet per second; 40.0, in case you are interested.

Roger, Spider. Could you give me $T_{ig}$ and $\Delta V_y$?
Roger. The $T_{ig}$ of the burn was the $T_{ig}$ that you passed us on the pad for CSI and $\text{DELTAY}_y$ was zero.

Roger, Spider. Thank you very much.

Roger. And our first solution after CDH, we have a 4-second-early TPI.

Copy, Spider.

Houston, Gumdrop is reading you, but very weak.

You are coming loud and clear to me, Gumdrop.

Okay.

And, Spider, this is Houston. The first cut at it, your CDH time looks real good. And could you give me an onboard RCS quantity?

Roger. Onboard RCS is reading 85 and 77.

Roger, Houston. Gumdrop copies; pad over Huntsville at 47, and can you transmit to Gumdrop from ...

Gumdrop; transmit to Gumdrop how?

Gumdrop, Spider.

Go.

Okay. Here is the burn: minus 39.2, plus 0.1, and minus 13.7.

Roger. Minus 39.2, plus 0.1, and minus 13.7.

That's Charlie.

Spider, this is Houston. Do you read me?

Roger, Houston. Spider copies.

Roger. I just copied your solution. I have one that's pretty close to it, if you'd like to copy a CDH pad.

Roger; go.
Go; Gumdrop.


Roger. 096:58:1400, minus 382, minus 009, minus 151, 305, minus 381, minus 153.

Spider, that is affirmative. Your readback is correct.

Spider, Gumdrop here. I did not copy the update ... I got the ground pad ... did ...

That's affirmative ...

Okay. I've got the ground pad now, and I'll monitor it ... 1 minute late.

Okay. Very good.

Do you have all of our solution here, Dave?

Okay. That's plus 0.1.

0.1.

Alright.

Spider/Gumdrop, we'll see you over the Redstone at about 03.

Roger. Gumdrop copies; Redstone, 03.

Okay, Gumdrop, we're at 130.

MARK.

Roger; ...

Roger, Spider. Gumdrop's right with you and ready to support.

Very good.
CONFIDENTIAL

Day 5

04 01 02 03 CDR Gumdrop, is that how you ... them?
04 01 02 04 CMP ...
04 01 02 07 CMP Okay, we ... along here ...
04 01 02 51 CMP ... a meteor ...
04 01 02 56 CMP ... You're about ... 1 degree from the center of the sextant.
04 01 03 00 CDR That a boy. Remember that beer we were talking about the other night? I'll buy you one, Dave.
04 01 03 08 CMP Okay.
04 01 03 10 CC Spider/Gumdrop, Houston; standing by. How did it go?
04 01 03 15 CDR Well, it's sort of a kick in the fanny by comparison to the DPS, but it went alright. Good friend over there in the Gumdrop can see me again. I'm off at daylight.
04 01 03 27 CC Very good; understand.
04 01 03 31 CMP Houston, Gumdrop.
04 01 03 41 CC Spider, Houston. We are still showing the APS ARMED. Can you verify that?
04 01 03 47 CMP Oh, gee.
04 01 03 50 CDR Yes. Thank you very much. Thank you, Houston.
04 01 03 53 CC Roger. You're welcome.
04 01 04 06 CC Spider, this is Houston. Did you burn the solution that I heard you pass to Gumdrop?
04 01 04 13 CDR I burned the PGNS solution, which is the one that I passed to Gumdrop.
04 01 04 18 CC Very good. Understand you burned it and on the time.
04 01 04 22 CDR That's affirmative.

CONFIDENTIAL
... I don't know.

Gumdrop, why don't you give me your message, and we will relay it to them.

Okay. Wait just a minute.

And, Gumdrop, Spider. Anytime you want to check your range or range rate, just let us know.

Okay. Stand by.

Spider/Gumdrop, this is Houston. We're about a minute or so LOS from Canaries. There is an ARIA if you need it up to about 42. We'll see you at Carnarvon at 06, and Dave Reed's smiling now. And we might catch you at Tananarive at 49, but we haven't had much luck yet.

Okay.

And, Spider, this is Houston. Did you - did either vehicle read over Tananarive the last pass when we were calling?

Houston, this is Spider. I don't remember. We've been over so many stations so many times, I couldn't tell you.

Okay, it was right at around CSI, right - immediately after your CSI burn.

Roger; I read you once or twice, but it was pretty bad.

We called the CDH time down to you, too, but didn't get any reply.

Okay. Thank you.

And Gumdrop doesn't remember whether he heard you or not.

Okay.

Say, Davey, I think I see you again!
CQ

Day 5

04 01 37 28 CMP Oh, very good!
04 01 37 34 CDR Boy, I'll tell you, you're awful small.
04 01 37 37 CMP I don't doubt that at all. We're still out at 41 miles.
04 01 37 46 CDR Okay, and, as a matter of fact, you're fading on me.
04 01 38 01 CDR Now I've got you again. You're going through the horizon, right now.
04 01 38 11 CMP Okay.
04 01 38 25 CMP Spider, Gumdrop. Will you have your final solution before, like about a minute?
04 01 38 30 CDR I hope so, Dave.
04 01 38 32 CMP Okay. Just to remind you that I'd like your time as soon as you get it.
04 01 38 36 CDR Yes, we're going to proceed at 14 minutes, and then we'll give it to you as soon as it comes up, which should be in about a minute or 2.
04 01 38 43 CMP Okay, thank you.
04 01 42 48 CMP Okay, Spider. I still have you against the earth background.
04 01 42 52 LMP Great!
04 01 42 56 CMP This thing is really tracking!
04 01 42 59 LMP Do we have a light?
04 01 43 01 CMP No, no, it's still daylight to me. You're a little black spot in the dark, in the light background.
04 01 43 16 CDR Okay, we're at about 14:25 now.
04 01 43 19 CMP Okay.
04 01 44 17 LMP Okay, Gumdrop, this is Spider. Our time - You ready to copy?
Go ahead.
Gumdrop, you ready?
Roger; standing by. Go ahead and read it.
Okay, 97:57:59.
Okay, good. My last time was 97:58:08.
Roger.
That's great!
Where do you stand now?
What I'm - I'm looking for - a 40 - for a 304 re - I'm looking for a plot point.
Right there.
MARK.
Hot mike.
Hold. Okay, it's 31.9 - 32 - 3½ markup.
33.9, yes.
Hot mike.
... plus 60.
Okay, we're right on the plot.
11 ... 7 ... 081 is - Why don't you call in to him
Dave, here are our DELTA-V's.
Go ahead; I'm ready to copy.
Roger; plus 19.4, plus 0.4, minus 9.7.
Roger; plus 19.4, plus 0.4, minus 9.7.
Roger; that's correct.
Good.
04 01 46 49 CMP  Okay, Spider; Gumdrop.
04 01 46 53 CDR  Go ahead, Gumdrop.
04 01 46 54 CMP  Okay. You got a hot mike, and also my elevation
angle on your time is 27.32.
04 01 46 59 CDR  Great.
04 01 48 17 CDR  Dave, just as a matter of interest, the moon has
just come up, and it's going to be shining right
on our front face, so maybe you'll be able to
track us in the moonlight.
04 01 48 25 CMP  Great!
04 01 48 26 CDR  And I also got ...
04 01 48 28 CDR  I'll go to docking lights for you at this time,
since we don't have a light.
04 01 48 32 CMP  Okay. Here's my answer to your time.  19.4, 0,
and 8.8.
04 01 48 41 LMP  Great!
04 01 50 05 CC   Spider/Gumdrop, Houston through Tananarive; standing
by. I did copy your final solution; sounds great.
04 01 50 13 CDR  Roger; Spider.
04 01 50 16 CMP  Gumdrop.
04 01 50 26 CC   Spider, Houston. The only one I wasn't sure of was
your DELTA-V. I read it as 197.
04 01 50 36 CDR  I think it was 194; I'll have to check. Just a
minute.
04 01 50 39 CMP  19.4, Smokey.
04 01 56 17 CC   Spider/Gumdrop, this is Houston. We'll see you
over Carnarvon at 06.
04 01 56 22 CDR  Roger.
04 01 56 24 CMP  Spider, Gumdrop. Coming up to 133 now, and ready to support.
04 01 56 29 CDR  Okay, I was right with you.
04 01 56 31 CMP  Okay.
04 01 57 32 CDR  AVERAGE g is ON.
04 01 57 33 LMP  Right.
04 01 57 50 CDR  About 10 seconds.
04 01 57 52 CMP  Roger.
04 01 58 02 CDR  Thrusting.
04 01 58 16 CDR  Okay, we're getting it in slowly here.
04 01 58 18 CMP  Good.
04 01 58 25 CDR  You ought to be able to see it; it looks like the Fourth of July.
04 01 58 28 CMP  I can. I can see you perfectly.
04 01 58 45 CMP  How'd you do?
04 01 58 48 LMP  Looks good.
04 01 58 50 CMP  Okay.
04 01 58 53 CDR  Okay, we had all zips when we went.
04 01 58 55 CMP  Good.
04 01 58 59 CDR  There's two. Okay. Okay, coming to the next side here. Okay, VERB 93, ENTER, right away.
04 01 59 11 CMP  Okay, and I'll get that other.
04 01 59 14 CDR  VERB 93, ENTER.
04 01 59 16 CDR  Okay, VERB 37, ENTER; 20, ENTER. Did we ever break lock?
04 01 59 22 LMP  No.
04 01 59 23 CMP Hot mike.
04 01 59 29 CDR Okay, I'm going to bypass the maneuver.
04 01 59 34 CMP Hot mike.
04 01 59 35 CDR Thank you.
04 02 03 22 CMP Spider, Gumdrop. I'm afraid I just can't see you without that light.
04 02 03 25 CDR Okay, Dave. We only ask you to do what's humanly possible.
04 02 03 35 CMP Okay.
04 02 03 43 CMP You're against an earth background with a bunch of clouds which doesn't help anything.
04 02 03 46 CDR Yes, I know it. Are you all set up for our docking?
04 02 03 51 CMP All set.
04 02 03 52 CDR Okay, what do you think happened to the probe on the way out, Dave?
04 02 03 56 CMP I'm not really sure. I think it just got hung up on the capture latches. I took a look to see if it had extended all the way, and the ... was in the retract position; and, when I went back up to extend the second time, you dropped right off.
04 02 04 03 CDR Okay. I want to get on that thing as soon as possible, just in case something's wrong.
04 02 04 15 CMP Roger; I'm with you.
04 02 05 03 CDR Okay, Dave, we're ... for our first midcourse.
04 02 05 05 CMP Okay.
04 02 11 45 CC Spider/Gumdrop, Houston. We're about 1 minute LOS Carnarvon. We'll see you over Huntsville in about 8 minutes.
04 02 11 50 CDR Okay, Houston, what did you decide about that post - or after I get up there, should I go ahead and dock, or not?
Okay, Jim, we're looking through here, and there are a couple of things we really would like to have, and that's some pictures taken of the ascent-engine area. And we would like to get the rendezvous-radar corona test.

Okay. It depends on when I break out in the sunlight what I can do for you.

Okay, very good.

I'm going to go into darkness; I'm wondering how we're going to get the probe fixed.

Okay, we understand. And have you talked this over with Dave? We haven't heard his comments on the - on the probe.

Dave, can you hear him?

Roger; copied.

Roger, Houston. You copy Gumdrop?

We've got Gumdrop here, but I'm going to lose you in just a few seconds. We'd like to have your comments on the probe, too, over Huntsville up there.

Okay, and be ready to give me a GO for the pyro arm there, too, please.

Okay, very good.

Okay, Dave, we're trying for our second midcourse.

Okay.

Want my DELTA-V for my next midcourse, Dave? Gumdrop?

Yes, go ahead.

Okay, plus 0.2, minus 0.9, minus 1.8.

Got it.

Okay, about 15 seconds to go, Dave.
04 02 19 51 CMP Roger.
04 02 20 03 CDR Okay, thrusting.
04 02 20 21 CDR Okay, they're essentially zero.
04 02 20 23 CMP Okay.
04 02 20 30 CMP ...
04 02 20 32 CDR I have 18 700 feet right now and 42 feet per second.
04 02 20 38 CMP Roger. That's 3.0 miles and 43 feet per second.
04 02 20 43 LMP Great.
04 02 20 45 CMP What's your pitch angle?
04 02 20 47 CDR It's about 86 degrees, something like that.
04 02 20 53 CMP Okay.
04 02 21 24 LMP Did you get the 90 yet?
04 02 21 35 CDR Dave, did you hear them say they wanted to get some pictures of the ascent-engine area?
04 02 21 39 CMP Roger. I got that. Thanks.
04 02 21 41 CDR Okay.
04 02 21 45 CDR Oh, I see you out there, coming into sunlight.
04 02 21 48 CMP Great.
04 02 21 50 CDR You're the biggest, brightest, friendliest-looking star I've ever seen. Do you want --
04 02 22 01 CC And, Spider/Gumdrop, Houston. We are copying you through the Huntsville - next 5 minutes.
04 02 22 06 CDR Okay.
04 02 22 09 CC And, Gumdrop, in regards to your last request, we have no TM here at the Huntsville in regards to that pyro arm.
04 02 22 19 CMP Roger; understand.
Houston, Gumdrop.

Go, Gumdrop; Houston.

Roger; what we're going to do up here - The only thing I can think of on that probe is that my finger slipped off the switch before it got all the way out. Other than that, I just can't think of a thing.

Roger. That's about the only thing that we can come up here with, that you didn't hold the switch long enough, Dave. ... I guess - How do you feel about it? Do you think it's anything - any problem?

No, I really don't. I went back to see if it had gone all the way out, to RETRACT, and I had the barber pole which said that it had extended all the way. Then I went up to EXTEND again, and it dropped right off.

Roger, Gumdrop; copy.

-- tell me when you want --

Dave, I think what we'll do is come on up and stop out front there, pitch over so you can look at our ascent engine, then pitch back around; and then we'll start the docking.

Okay.

I agree; I think we ought to get on with it.

Yes.

What kind of rates do you have there?

I have 9800 feet and a range rate of 32-1/2 feet per second.

Roger.

I have just a little bit of line-of-sight rate up.

Alright. I got just about 9000 feet ...
04 02 24 55  CDR  Okay.
04 02 25 21  CDR  Okay, operate on my line-of-sight rate now, Dave.
04 02 25 26  CMP  Okay.
04 02 26 50  CDR  Okay, just went through 6000 feet at 30 feet per second.
04 02 26 54  CMP  Okay.
04 02 27 05  CC  Okay, we copy you. Right on the braking schedule, Spider, and we'll see you over Hawaii in about 3 minutes.
04 02 27 38  CDR  Okay, Dave, I can see the shape of the spacecraft now for the first time.
04 02 27 42  CMP  Good.
04 02 28 25  CDR  Okay, Dave, I'm at 3000 feet; I'm braking down at 20 feet per second.
04 02 28 30  CMP  Okay.
04 02 28 50  CDR  Okay, we're 20 feet per second now at 2400 feet.
04 02 28 54  CMP  Alright.
04 02 29 04  CMP  I got a little line-of-sight rate.
04 02 29 07  CDR  Yes, me too.
04 02 29 26  CDR  Okay, I'm coming up on 1500 feet; I'm braking down to 10 per second.
04 02 29 29  CMP  Okay.
04 02 29 45  CDR  Okay. There we are - We're at 10 feet per second at 1500 feet.
04 02 29 53  CDR  Boy, are you bright! Dave, I'm not sure I'm going to be able to see to dock with this COAS I have.
04 02 30 37  CDR  Okay, I'm at 950 feet, 10 feet per second.
04 02 30 40  CMP  Okay, that looks pretty good.
... I'm going to put it in lockup and hold it there ... don't be too ...

That a boy!

Okay, ARIA. You can go LOCAL. I guess we're not going to them. We'll try them through Ascension. Thank you.

Go ahead, Houston. You just came in.

Roger, Spider. We are curious about the option on the AOT star alignment; are you going to do that?

Houston, I don't know. How long do we have for that dock - or that on-band APS burn now?

Stand by.

I've got my flight plans stuck someplace else right now.

And, Houston, anytime you've got it, we'll take the update on the P30 for the APS burn.

Spider, Houston.

Houston, Gumdrop; go.

Gumdrop, would you relay to Spider that we would sure like to have him check that OPS heater again, before he stows that OPS that had failed. And I'm going to lose you here, and we'll try to talk to you over Tananarive at around 25.

Roger; understand. Spider, they want you to check the OPS heater - the one that failed before you put it away.

Okay.

They got it, Houston.

Roger, Gumdrop. Copy. And I copied Spider there.

Gumdrop, you got the tunnel pressurized?
I'm doing it right now.

Dave, if you want, we can pressurize it for you.

Well, I'll get it halfway. Why don't you do it halfway?

Okay.

All the way.

I've still got a DELTA-P. Huh!

Maybe our pressure just isn't high enough.

No, ours is higher than his; ours is 5.2. DELTA-P may be the other way, Dave.

No, because I started out from one end of the ... and worked halfway back to ...

Okay, well, it's - The tunnel's 5.2.

Okay, it came down; it must have just been hung there.

Okay.

Thank you.

REG's A and B are in EGRESS.

Yes.

OVERHEAD VALVE is OPEN; stow OPS for - stow - stow helmet bags on the deck, yes.

They go in - Get them as close as you can, and as far forward as you can, Jim.

That's good.

Really is.

Hey, Gumdrop. Are we in any kind of an attitude for docked alignment?
Oh, I don't know. I guess - I'll check. What kind of attitude do you want?

I fired that one, Dave. Hey, right now we're in the right kind of attitude.

Hey, listen now, maybe if you went to FREE, and we took control here, we could just jockey around and do it.

Okay, I'm for that. I'll go to FREE, and you got it.

Yes, we have it.

But I'm 12 - 30 something - I guess 55 degrees from gimbal lock; we're okay.

But I'm not going to be able to monitor your attitude. Okay?

Okay.

Spider/Gumdrop, Houston through Tananarive.

Spider/Gumdrop, this is Houston transmitting in the blind; I'm not picking you up. We would like to recommend you use the LM RCS just as much as possible. We used just a little more command module - CsM RCS there than we predicted on the rendezvous.

Roger, Houston. Gumdrop, did you copy? We're doing that.

I copied.

Okay, real good.

Spider, Gumdrop.

Go ahead.

How about that mate? 12 latches again!

Hey, that's really great, isn't it?
04 03 30 33 CMP Yes, all of them just locked in solid as they can be.

04 03 30 37 LMP When you threw me off into oblivion out there, I was wondering if - I was wondering if I was ever going to hear those latches go "click" again.

04 03 30 44 CMP Oh, yes, they were going to work.

04 03 30 53 LMP That's already there, Jim.

04 03 30 56 CMP Do you have a good pressure vessel over there?

04 03 30 59 CDR Roger; we do.

04 03 31 01 CMP Okay.

04 03 31 19 LMP Wait a minute now; hold on there --

04 03 31 23 LMP Okay, you can go either way.

04 03 31 28 LMP Far wide.

04 03 31 34 LMP No, I can't use pulse, Jim. I got to -

04 03 31 38 LMP Jim, I can't help that!

04 03 31 39 CDR Well, you couldn't mate --

04 03 31 41 CDR Got mate.

04 03 46 10 LMP Will you have a pad by that time?

04 03 46 13 CC That's affirmative. I have the pad in my hand now.

04 03 46 18 LMP Okay, we'll see you at Hawaii with it.

04 03 46 20 CC Roger.

04 03 46 26 LMP Okay.

04 03 46 45 LMP Huh?

04 03 46 48 LMP Well, no.

04 03 47 17 LMP Yes.

04 03 47 27 LMP Yes.
Yes, they're somewhere that's real handy.

Well, shoot!

Wait a minute.

There's so much junk over here.

Huh?

Oh, I don't know - soon as - (laughter). Yes.

Huh?

Sure. It's the COAS.

Yes, we got plenty of room over there for stuff.

Are you still attitude-holding over there?

Okay.

Hey, listen, don't stow this quite yet.

Yes.

I'm going to take me a pee.

It what?

... oh, come on. Dirty bastard outfaked me.

Gee, I thought I had one all figured out.

Hey, this thing is hot! Yes, whew!

Quite a surprise.

Those guys really make things strong.

Huh? This thing right here? Take that bolt out? That bolt out, it comes right off. Take that off.

Yes, I got that big bagful of garbage.

Here you go. Huh? Wait, just wait a minute, until I...
Is the toolkit out, or did you put it back?
Oh, shoot! I was going to go find the toolkit, but it's not where the toolkit goes!
What do you want - the ...?
I wonder what happened to that thing.
Hey, Jim. You don't remember where you put the toolkit, do you?
No, sir.
You're lethargic!
Yes, here it comes. Huh?
Is that far enough?
Yes, that's as far as it goes.
Well - well, I guess you can get it one more - Yes, you can collapse it a little bit more.
Here, I'll get it.
I'm not sure we can do it out here. Pull it out to the green ... Right there. Now stroke.
That's it. That's all the way.
What else you need?
Shouldn't we ought - You probably not ought to screw it up too much, because if the pyros don't go - That's the only way we're going to get off. Yes.
Yes, people will laugh. Not you.
Take those things off that and ...
Take that off and give them a ... boop-boop! ...
Oh, I'm sorry, Jim. Guess I was holding my too ...
All this stuff is being recorded for the ground review.

Yes.

Okay.

You know what else we need to do? Bring all the logs.

What are you bringing that for?

Got anything for ...?

(Laughter)... bad ...

Spider/Gumdrop, this is Houston through Hawaii.

Hello, Hawaii; Gumdrop. We're making progress.

Roger; understand, and, whenever you all are ready, I have your APS depletion pad and your LM jettison attitude.

Okay --

Okay. We're working on the block data, and we should have it before we leave here.

Okay, I'll be all set.

And, by the way, our LOS at Texas is about 30.

Okay.

And we're curious if you might have any additional comments on the LM jettison there.

No, it went off pretty clean. We had a - a bang like a regular pyro, and it pushed us back with a - something like 0.4 of a foot per second but it's kind of hard to tell, but that's what it - sort of felt like - it was supposed to be. And it looked like a complete separation. The docking ring looked clean, but we couldn't see too much of it because it went away pretty fast. And it got as much as a mile and a half away when it finally burned.
Oh, okay.

The maneuver to the separation attitude didn't work out good, because I guess we never tried it in the simulation. We sort of slipped into gimbal lock, but I think we got the right position.

Okay.

Anything else?

The angles that we got were new and different, and we just were watching the LM, because ...

Okay. And by the way, the LM is in an orbit 37 - about 3750 miles by 125.

Oh, really?

9, Houston. We could also use those dosimeter readings.

We thought you'd probably ask for that.

Roger.

Wait a minute.

What's that? BAT B in PYRO A ...

Oh, you know, we're supposed to put this -

Didn't want to reply.

That's right, Dave.

Hey, you know what I seem to do is ... you got to hold on. I hit the ceiling ...

... too bad you don't have the golden slippers.

Got a point. See the whole ... If you lean backwards too long, ...

Is it really?

Go get your color picture.
04 07 33 46 LMP  Huh?
04 07 33 55 CDR  I got the ... CDH in the wrong direction ...
04 07 34 05 CMP  Yes, it was.
04 07 34 12 CDR  Yes, sir, that hurt ... got a program.
04 07 34 16 CDR  Yes. I know.
04 07 35 09 LMP  Whoopee!
04 07 42 31 CDR  I don't know; we just changed that one out.
04 07 49 48 CDR  No, it's the ... seems sort of hot, isn't it?
04 07 50 32 CDR  I just went through all my -
04 08 08 09 CC  Apollo 9, Houston through Tananarive.
04 08 08 14 CDR  Roger, Houston. We're still here.
04 08 08 26 CDR  Houston, Apollo 9.
04 08 09 15 CMP  Too late, huh? Did ... camera ever -
04 08 09 29 LMP  Sure. Just wind it around and look at the skies, and all that stuff.
04 08 09 36 CMP  You're right. I ... That's kind of good.
04 08 09 41 LMP  Yes.
04 08 09 47 CMP  Besides, it's ... 
04 08 09 50 LMP  Yes, I know. Yes, I was thinking about it.
04 08 09 54 CC  Apollo 9, Houston.
04 08 09 57 CMP  Houston, 9.
04 08 10 00 CC  Roger, Dave. We showed a CMC restart between our last state vector update and the Redstone pass. Did you power it down and then back up?
04 08 10 14 CMP  Yes, we had it in STANDBY and we had a gimbal lock light on, which had our PGNCS light on. We decided
to go back and power everything up, so we could get the IMU coarse align out of gimbal lock, so we wouldn't have the lights on during the night. Did we bomb you?

04 08 10 30 CC Roger. But we're satisfied now with the restart, Dave.

04 08 10 34 CMP Okay. We didn't get a restart light, though.

04 08 10 39 CDR Hey, Rusty.

04 08 10 40 CMP He's ...

04 08 10 41 CC Roger. It's normal. It just adds our counter down here when you power up.

04 08 10 45 CMP Oh, oh, yes. That's right. Yes, the reading counter. Okay.

04 08 10 52 CC On the H₂ pressures, if it looks like it's going to trigger the MASTER ALARM, we'll wake you up for a manual REPRESS, and then you can go back to sleep.

04 08 11 03 CMP Okay, fine.

04 08 11 05 CC We don't expect it, though.

04 08 11 06 CMP Alright. You might have to holler a couple of times.

04 08 11 27 LMP We're almost through with that one, Jim.

04 08 11 29 CDR I know.

04 08 11 32 LMP Alright.

04 08 11 37 CDR Okay, ...

04 08 12 15 CMP (Laughter)

04 08 12 28 CC Apollo 9, Houston. Congratulations from the Gold Team. It was a very fine day. We'll see you in the morning.

04 08 12 34 CMP Oh, thank you very much, Gold Team. You guys did a very fine job, too.
04 08 12 40 CC  Roger.
04 08 12 42 CMP  Stand by. Somebody else wants to make a comment.
04 08 12 59 CDR  Hello, is this the wonderful Gold Team?
04 08 13 06 CDR  Houston, this is Apollo 9; this is Apollo 9.
04 08 13 16 CDR  Hello, Houston. Hello, Houston.
04 08 13 23 CDR  Hello, Houston; Apollo 9.
04 08 13 26 CC  Apollo 9, Houston. Go.
04 08 13 28 CDR  I just want to tell you guys what a great job you all did today.
04 08 13 34 CC  Thank you.
04 08 13 37 CDR  Yes, I - I thought the whole ground team was about as good as I've ever seen or hope to see. I want to congratulate you all.
04 08 25 20 AA  [Airport control tower conversation begins and continues uninterruptedly]
04 08 28 44 CMP  ... Tower, Apollo 9.
04 08 29 01 CMP  ... Tower, Apollo 9.
04 08 31 47 AA  [Control tower conversation ends]
04 08 32 49 LMP  Let's see. You know what I think ... 1.5 to 1.6 ...
04 08 33 51 LMP  Hey, you know, if you wait - You awake?
04 08 33 58 LMP  You awake, Mr. ...? And let it ...
04 08 34 03 LMP  Gee, that's very good. Ready? Okay, ORDEAL POWER, OFF; FDAI, INERTIAL. Incidentally, the ORDEAL worked pretty good today.
04 08 34 18 LMP  I know, isn't that funny? EMS FUNCTION, OFF; EMS MODE, STANDBY; CMC ATTITUDE, IMU. FDAI, SCALE, 5/1; SELECT, the 1; SOURCE, CMC. ATTITUDE SET,
IMU; 16 RCS, OFF; MANUAL ATTITUDE, three, RATE COMMAND; LIMIT CYCLE, ON; ATTITUDE DEADBAND, MAX; RATE, LOW; THC POWER, OFF; RHC POWER, OFF - all four; SPACECRAFT CONTROL, SCS; CMC, FREE; EMAG's, RATE 2; SCS TVC, RATE COMMAND; EMS ROLL, OFF; verify g, OFF; LV/SPS to Pc/GPI; TVC GIMBAL DRIVES; PITCH and YAW, to 1; EDS POWER, OFF; TVC SERVO POWER, two, OFF; FDI POWER, OFF.

04 08 35 29 LMP LOGIC 2/3, OFF; SCS ELECTRONICS POWER, OFF; SIGNAL CONDITIONER/BIAS POWER, OFF; B - EMAG's, WARM UP.

04 08 35 42 LMP Purge the fuel cells - uh oh - beep, beep, beep. There you go - Okay. ... here.

04 08 36 09 LMP CO₂ - WASTE MANAGEMENT DRAIN - S-BAND; COMM, basic; EMERGENCY CABIN PRESSURE to BOTH; SURGE TANK, ON; PLSS, OFF - I usually put it - tunnel. No, it's not; it should be - it should be. Yes. No, it's not.

04 08 36 47 CMP Go ahead. ...

04 08 36 48 LMP ... 

04 08 37 02 LMP LM TUNNEL VENT, IM PRESS.

04 08 37 14 LMP Okay? We're all powered down according to -

04 08 38 04 LMP Do what?

04 08 39 10 LMP Hey, we're ending up - the deorbit burn with - 55 percent propellant.

04 08 39 18 LMP This profile shows 55 percent RCS when you get to the deorbit burn. What the heck! - If you don't use it - what's it up here for?

04 08 39 33 LMP Here's two sets of bacon bars.

04 08 39 37 LMP I got one of those. I like them.

04 08 40 01 LMP Where's my peaches?

04 08 40 11 LMP Yes, they really are, aren't they?

04 08 40 28 CMP ... the S-band.
DAY 6

05 02 43 30 CC  ... exposure 15. As you come into El Paso, if it looks like it's completely socked over, you can terminate, but we want to keep going up through 15.

05 02 43 48 LMP  Okay, you want to read back? Do we have time?

05 02 43 52 CC  We've got about 30 seconds. Go ahead.

05 02 43 53 LMP  Okay. 180, 327, 50, 000, 123:55:20, N/A, ORB rate: southwest U.S., 124:00:20, 06, 25; Houston, 124:05:15, 06, 03.

05 02 44 23 CDR  Why don't you put 15 in parentheses, there. Or write "at least 15" or something like that so you can -

05 02 44 30 CMP  Hey, Rusty, there's a film pack and a screw up above your head, that might come crashing down.

05 02 44 38 LMP  Yes, that sure would.

05 02 44 41 CDR  It looks like an empty one. Is it?

05 02 44 44 LMP  No, that's the good one.

05 02 44 46 CDR  Why does it say "empty" on it?

05 02 44 48 LMP  Oh, well, I mean, yes. If it's been used and it's not empty, it would say so.

05 02 44 57 CDR  Hey, and I can't find the scissors, Rusty, and that's bothering me.

05 02 45 00 LMP  Well, heck, we'll find them.

05 02 45 02 CDR  I know, but I don't want to find them in somebody's leg with a thing like so.

05 02 45 04 LMP  Hey, Jim, why ... picky with words today. You really ...

05 02 45 08 CDR  Look, I said, "That's an empty one," and you said, "No, that's a good one." How many empty film pack did we carry with us on the flight, Rusty?
05 02 45 14 LMP  It's a used - it's a used one. I'm sorry. Yes, it's empty.
05 02 45 17 CMP  Good. There's a bunch of them ...
05 02 45 21 CDR  The comment was, "It was an empty one, and we ought to put it away."
05 02 45 24 LMP  Okay, I'm sorry.
05 02 45 36 CMP  Hey, Rusty, would you pass me my ...
05 02 45 40 LMP  Yes.
05 02 45 42 CMP  You want some? ... They did say ORB rate?  
05 02 45 49 CDR  Yes.
05 02 45 50 LMP  Yes. I think this is, yes. Okay?
05 02 46 29 LMP  Did you get the update on the next burn? I guess we did, didn't we?
05 02 46 32 CMP  Yes. We got it ...
05 02 46 35 LMP  Yes, I'll get it. It's in here, I believe.
05 02 46 38 CMP  Okay. ... Let's see what ... the DAP.
05 02 46 41 CDR  Yes, load the DAP. Wonder what happened to my checklist.
05 02 46 47 LMP  There was one behind you there, and I can still see it. I don't know if that's yours or not.
05 02 46 51 CMP  ... your big checklist is in R-3.
05 02 46 55 CDR  R-3, okay. I think that one over there is the one from yesterday. It's the rendezvous systems day checklist we were using to power down the spacecraft. Oh, my goodness gracious, sakes alive, where'd that come from?
05 02 48 21 CMP  What's that thing over there?
05 02 48 26 CDR  Got this all figured out, David?
I think so.

We had a card there, don't we?

We had a card, for how to load them, but -

It is 0.68 degrees per second.

Yes, but we want the ones for this altitude.

Yes, I know it. I'm just --

Yes, actually, we want one for the altitude we're going to be at after that burn.

Yes.

Which is kind of - going to be a little variable but, heck, I guess that's within the deadband, isn't it?

Maybe it's on.

... the altitude. ... how we figured the ORB rat and the altitude.

I don't know.

You can tell our period, can't you, Dave, by putting in the same - No, ... put the same ... Can we tell our period anymore?

The period?

Yes. Orbital period. Out of this computer, can we get that?

If we've got the apogee or perigee, we can call the time for perigee for the next one. Give me just 1 minute or so, if you can. Starting the 1 minute ...

Who's going to click the remote camera now?

Oh, we'll let you click it.

Okay, I'll get set up to do that, then. I'm setting the arrow at 6 seconds, 25 exposures.
Apollo 9, this is Houston through Ascension. And, Rusty, I got the readback all the way through the SO 65. I just wanted to make sure that you got my additional comments.

Let's ask him about our orbit rate.

Okay, the additional comment.

I know it, but we don't have the right alignment for the burn.

Apollo 9, Houston. About 30 seconds LOS Ascension we'll see you at Tananarive about 09, if we can talk to you.

Okay, I got a quick question. All these angles that you're going to get us are based on - on the REFSIMAT that we had in there for the previous burn, right?

Affirmative, Apollo 9.

Okay.

On your attitudes for the burn, you'll be about 0.2 off. I didn't bother passing those. It's essentially 000.

Okay. Very good.

Come on. You're falling down on the job. 0.2?

Okay. Sorry about that.

Used to be a ...

(Laughter) 25 and 590, alright.

You saying the alignments for - the preferred alignments for both those burns are the same?

Yes. 0038, 000. Oh, that's funny.

Rusty, here are the updated figures ...
05 02 59 00 CDR
38.8.
05 02 59 05 CMP
Why don't you tell me what time to take the first picture, and I'll write the GET down ...?
05 02 59 13 LMP
Jim is going to take them.
05 02 59 14 CDR
I'm going to take the pictures, and he's going to take the pictures out the side window.
05 02 59 16 CMP
Okay. You tell me, and I'll write it. Okay?
05 02 59 23 LMP
Well, the GET's already logged.
05 02 59 26 CMP
That the first picture?
05 02 59 27 LMP
Yes, it's in the update.
05 02 59 28 CDR
It's in the update form.
05 02 59 29 CMP
Oh. Okay.
05 02 59 31 CDR
Okay, want to set your clock?
05 02 59 37 LMP
Jim, how many pictures did you just take?
05 02 59 41 CDR
I didn't take any - Oh, I took one.
05 02 59 43 LMP
One?
05 02 59 46 CDR
Out of - out of focal and stop setting and -
05 02 59 51 LMP
Did you wind it? No, okay. That was 109.
05 03 00 02 CDR
(Laughter) You damn well see about the clock, Scott.
05 03 00 08 CMP
I don't ever do it this way, though.
05 03 00 12 CDR
Well, you ain't doing it the way you - Did you leave the picture until you get the clock set?
05 03 00 17 CDR
As a matter of fact, get me over at the right attitude so I can do a star check.
05 03 00 21 CMP
We are - we're going that way free.
05 03 00 24 CDR
I bet it's going to be Regulus.
05 03 00 27 CMP Don't say anything - don't say anything ...
05 03 00 29 CDR (Laughter) Don't blow it.
05 03 00 31 CMP I'm going to concentrate on this ...
05 03 00 33 CDR You know what ... you have over there? (Laughter) Oh, it's going up. Okay.
05 03 00 56 CMP ... That'll be another burn.
05 03 01 06 CDR Oh, you do that, and I'll go check - put the optics up again.
05 03 01 13 CDR You want the pad?
05 03 01 15 CMP No, I don't need it.
05 03 01 23 CDR Hey, we still have the g-meter cover out. Hot dog!
05 03 01 52 LMP Dave, can you drag out the orbital map behind the ...
05 03 01 56 CMP Yes.
05 03 01 57 LMP I want to try and figure out where we're going to be -
05 03 01 59 CMP ... find it?
05 03 02 00 LMP -- at that time. Hey, Jim, where'd you hide that orbit map?
05 03 02 07 CDR It's right behind the ...
05 03 02 19 LMP Boy, they would put the U.S. right at the doggone fold, wouldn't they?
05 03 02 24 CDR Yes, that - There is a nice way that you could make one of those maps, too. And that sure isn't it.
05 03 02 41 CDR Man, I'm telling you. It's really black out there. Did I forget to take something off? Hey, one of our lights is out down here.
05 03 02 55 CMP What light? Really?
Yes, a floodlight.

It just went out. It was on this morning.

Now it works. Works in DIM 2 only.

Actually, DIM 1 with one light isn't bad. Hey, what am I looking at here? Can you look out the window and see what I'm looking at? It's just absolutely black in there.

It's probably the ground. Yes, must be thunderstorms down there.

Gee. I don't see a thing. I don't even see a thunderstorm.

The horizon's up near here, right now.

You got the update book there, Dave?

No, I don't. Hey, that's the spacecraft.

Oh, there's a little speck of light over there.

Gee, it can't be. Oh, maybe it is.

Jim, when you're done with the update book -

Oh, this map has got to be wrong.

Oh, I'm finally starting to see something out there

What in the world is that?

I don't know.

Sounds like somebody's making a telephone call.

We're getting ... another 25 degrees.

Okay.

... DELTA-V_c, Rusty?

DELTA-V_c is 24.0.
CONFIDENTIAL

Day 6

05 03 07 56 CDR Oh, here it comes.
05 03 08 04 CDR We're almost there.
05 03 08 19 CMP We're there. The wide deadband.
05 03 08 40 CDR Dave, you didn't turn the C and D – –
05 03 08 41 CC Apollo 9, Houston through Tananarive. Do you read?
05 03 08 44 CMP Roger. This is Apollo 9.
05 03 08 51 CDR Hey, Dave?
05 03 08 52 CMP Huh?
05 03 08 53 CDR You didn't turn quad C and D on.
05 03 08 56 CMP I know it. I didn't need to.
05 03 08 57 CDR Oh, okay.
05 03 08 58 CMP I was going to ATTITUDE HOLD, here.
05 03 08 59 CDR Alright, fine.
05 03 09 00 CMP The wide deadband ... 
05 03 09 01 CDR I'm going to go – I'm going to – –
05 03 09 03 CMP Okay.
05 03 09 04 CDR – – use the – use – the DSKY, now.
05 03 09 08 CC Apollo 9, Houston through Tananarive. I am not reading you. Your ORB rate is 0.067.
05 03 09 18 CMP Roger. Copy 0.067.
05 03 09 24 CDR Good.
05 03 09 50 CDR Okay, Rusty, what are the gimbal angles – or the sextant and shaft angles – sextant shaft and trunnion angles?
05 03 09 57 IMP 64.6 and 11.09, minus.
05 03 10 13 CDR Shit, what are we reading here? 14 and 19!
Apollo 9, this is Houston. We'll see you over Carnarvon at about 22, just before your burn.

Roger. Carnarvon at 22.

How close are we —

And, Apollo 9, I'm not getting you back. You're busting up. Your ORB rate is 0.067, and we'll have the rest of your angles for you after your burn.

Roger. I understand. Thank you.

Dave?

Huh?

How close you are there?

5 degrees.

Dave, if you can read me, I'll pass this to you now. The checklist there on CMP 315 — Those values are to be used; those are your roll angles. In other words, in this one, where you're at 180-degree roll, you would use that column versus your ORB rate of 0.067 to get those values to look in for the procedures.

Roger. Very good. Thank you.

That's what I sort of suspected, but I really —

Those are your outer-gimbal angles, Dave, and I'll cover this with you again, because I may not be getting through.

Oh, you got through just fine.

Okay, are you looking through there right now, J:

Yes, but would you believe, it's not going around.

Oh, you mean the telescope isn't working?

No. The sextant is not working.
The sextant isn't working?

I mean the - the telescope isn't working, yes.

Here, let me borrow this thing to send a...

Okay. What thing?

The DSKY?

Yes, go ahead.

I'm sending a...

Not over Tananarive, it doesn't.

No, they don't get any data, do they?

Yes. I can't even drive it around zero now, Dave.

Yes, I know. I can't either. Do you want to do it, or you want to figure that we got a good alignment and just check last time and, if we're at 000, we'll be close enough?

Yes, we're close enough. Shoot, let's do the burn.

I'm with you. Then I'll load the DAP.

Oh, my aching back.

Well, I know how to work around it, Jim, so don't don't sweat it.

You're going to have a little trouble working around it if you can't use the shaft at all. You start now at about 14 degrees, it looks like.

Yes, I know, but that's the way it was before.

14 degrees? It's got a multiple of 64 in there.

Oh, really?

Yes.

VERB 48. Okay. Now, now, ...
Okay, B/D is on. B/D seems to be alright. Roll quad at zero is B/D ON. ... B/D quad.

Hey, Dave, let's press on with the reading?

Could always tap the controller. ... at 1/100th of a foot per second, and screw up ...

What would we do if it wouldn't work?

Oh, I don't know. Maybe check with several more things. I don't know what else we could check, but you could probably think of a few more.

Okay. Ready to read?

I'm getting that FUEL CELL 2 light again. It's working its way up again.

Yes, we already have it.

Oh.

You know, I found something else that was different the other day.

What?

In the simulator that we used - The mount on the left armrest. In the simulator, in the ..., you could crank that all the way down. This key here is going to stop about a third of the way down.

(Laughter)

For the EVA, I put this hand controller over there so I could use my good gloves, but the way it works, it was like this. In the mockup, I could set it like this, like this one here. But here, it's set almost like that.

Yes, great. Okay, we're down to 8 minutes. We got off to something else.
05 03 16 41 CMP Did you get your strut locked, Rusty? I guess not, huh? ...

05 03 16 50 LMP No.

05 03 16 54 CMP Okay. Let's do a P4O.

05 03 16 56 CDR Okay.

05 03 16 57 LMP Okay, here we go.

05 03 16 58 CDR Ph7.

05 03 17 00 LMP You got the DAP and the ullage selection TVC roll jet, huh? Okay, BMAG MODE, three, to RATE 2.

05 03 17 08 CMP RATE 2.

05 03 17 13 LMP SPACECRAFT CONTROL to CMC.

05 03 17 15 CMP RATE 2 ... SPS thrust to align in roll.

05 03 17 23 LMP Okay. CMC MODE to AUTO.

05 03 17 27 CDR Just a second. He's not that far yet.

05 03 17 30 LMP Oh, okay, I'm sorry. It's got "align in roll" down here. That's why I thought you meant you were down here.

05 03 17 37 CMP I'd like to get P4O ... before ...

05 03 17 39 LMP I know, but ...

05 03 17 44 LMP Okay.

05 03 17 46 CDR We got 07:22, Rusty, so we got plenty of time.

05 03 18 01 CMP Oh, ...

05 03 18 56 CMP That's better.

05 03 19 00 CDR Okay. 6 minutes, I hope.

05 03 19 03 CMP Be right up.

05 03 19 07 LMP Okay, SPACECRAFT CONTROL, CMC; CMC MODE to AUTO.
They're going to pick us up at 22, so they'll be able to get the --

No, they won't. You'll have to turn on the circuit breaker.

Okay, CMC in AUTO. Go ahead.

I got the SPS HELIUM valve; BMAG Mode, three, to RATE 2.

RATE 2.

Align spacecraft in roll.

Aligned. PRO or continue. Okay, I want to continue; check panel 8.

Set up your AUTO RCS, ROLL.

Okay, set.

Set the DELTA-V indicator, 24.0.

Okay, it's set.

Verify EMS FUNCTION, DELTA-V.

DELTA-V.

MANUAL ATTITUDE, three, to RATE COMMAND.

RATE COMMAND.

ATTITUDE DEADBAND, MIN; RATE, LOW.

LOW.

TRANSLATION CONTROL POWER, ON.

ON.

SCS TVC's, two, to RATE COMMAND.

RATE COMMAND.

DELTA-V<sub>cg</sub> to CSM.
05 03 20 08 CMP  
05 03 20 09 LMP  
05 03 20 11 CMP  
05 03 20 12 LMP

CSM.  
TVC GIMBAL DRIVE, PITCH and YAW, to AUTO.  
AUTO.  
MAIN BUS TIES are coming ON. MAIN 2, B and C. Okay, TVC SERVO POWER 1, AC 1/MMAIN A.  

05 03 20 25 CMP  
05 03 20 26 LMP  
05 03 20 27 CMP  
05 03 20 28 LMP

AC 1/MMAIN A.  
TVC 2, AC 2/MMAIN B.  
2, AC 2/MMAIN B.  
ROTATIONAL CONTROL POWER, NORMAL, two, to AC.  

05 03 20 31 CMP  
05 03 20 32 LMP  
05 03 20 33 CMP  
05 03 20 35 LMP

DIRECT, two, to OFF.  
Two to OFF.  
BMAG MODE, three, to ATT 1/RATE 2.  

05 03 20 37 CMP  
05 03 20 38 LMP  
05 03 20 40 CMP  
05 03 20 41 LMP

ATT 1/RATE 2.  
SPACECRAFT CONTROL to SCS.  
SCS.  

05 03 20 43 CMP  
05 03 20 44 LMP  
05 03 20 46 CMP  
05 03 20 48 LMP

RHC 2, unlocked.  
Unlocked.  
PITCH and YAW 1, START, ON.  

05 03 20 49 CMP  
05 03 20 50 LMP  
05 03 20 51 CMP  
05 03 20 52 LMP

Okay, PITCH 1, START, ON.  
Verify.  
YAW 1, START, ON.  
Verify.  
Okay.  

Verify trim control and set.
05 03 20 53 CDR 0.9 and 1.1.
05 03 20 57 CMP 0.9 and 1.1, okay.
05 03 21 00 LMP Verify MTVC; THC, clockwise.
05 03 21 02 CMP Clockwise.
05 03 21 03 LMP Verify no MTVC.
05 03 21 04 CMP Okay.
05 03 21 06 LMP PITCH 2 and YAW 2, START, ON.
05 03 21 08 CMP PITCH 2, START, ON; YAW 2, START, ON.
05 03 21 11 LMP Verified. Verify MTVC; confirm and set GPI TRIM.
05 03 21 16 CMP Okay, set.
05 03 21 17 LMP SPACECRAFT CONTROL to CMC.
05 03 21 19 CMP CMC.
05 03 21 20 LMP THC, NEUTRAL.
05 03 21 21 CMP NEUTRAL.
05 03 21 22 LMP Verify no MTVC.
05 03 21 24 CMP No MTVC.
05 03 21 25 LMP Proceed.
05 03 21 26 CMP Okay.
05 03 21 28 LMP ROTATIONAL CONTROL POWER, NORMAL, two, to AC/DC.
05 03 21 31 CMP AC/DC.
05 03 21 32 LMP DIRECT, two, to MAIN A/MAIN B.
05 03 21 35 CMP MAIN A/MAIN B.
05 03 21 36 LMP ENTER.
05 03 21 39 LMP Well, alright, Jimmy, I guess we're ready.
Okay, let me ENTER.
Okay.
Ready for the ...?
Sure. Ohh!
(Laughter)
I looked at it all day yesterday, and it still surprises me.
-- get a camera out. ...
Yes.
Yes, it only happens that ... it hit on the MAG, and I put that down a little bit, so that the bottom came out a little bit.
Does that magazine still work?
Yes, ...
Yes, you're right.
Yes, and let's make sure we get those things put away.
Hey, that was really great!
Quite a kick, huh!
Yes, that was great! You know, you guys have been doing all those big-kick burns --
No, we really haven't --
-- compared to ours --
No, you know the biggest engine we have is only 10 000 pounds.
... about 10 000 pounds.
... What's your ascent engine?
20 to 3500 pounds.

Oh!

That's like about half of the P38. Did that knock you on your can? (Laughter)

Hey, that was really great!

Okay - Well - Hey, just as a matter of interest. P30 said that we were going to get 120.4 perigee and we actually got, at least out of this thing here - It says 120.6. ... P30 said we were going to get 110.7 and we got 111.9. Not bad, huh?

Okay, let's hunch along on that SO 65. That's about right in here.

Gee, I'd like to come rescue you now.

(Laughter) You fink!

Listen, all the time I knew you wanted to come rescue me.

Huh?

All the time I knew you wanted to come and rescue me.

That's alright. ... give him a flyby.

Sorry to disappoint you there.

Well, that's alright. I didn't want to ...

My nerves couldn't stand it; I'm getting too old for that kind of stuff.

I could tell you were fretting when your light went out.

Yes, by then everything was going off pretty smoothly.

Yes, it sure was.
As a matter of fact, when - all the TPI solutions converged, I figured, well, at least we're going to get a chance to see you again, even if I lost the radar right then, and lost all the COMM, (laughter); we had a - we had a solution we could burn on something.

Even if you can't dock.

The three of them converging like that, ...

Okay, David - okay, let's you and I talk this thing over here, while Rusty sets up the camera.

Okay, I'm going to line this thing up ... --

Did you - did you get those new attitudes?

Yes, I've got them.

Okay.

What time is this supposed to start?

We're supposed to be there at 123:55:20.

Right, ...

That's when we want to go into ORBIT RATE.

Right.

Let me get this setup. 55:20 and we're 22 minutes ... 

... goes 10 minutes.

Yes.

Try to get it - Why don't you start on an even 20? (Laughter) And then just go from there?

55:20.

My gosh!

Hey, as a matter of fact, let's get a new magazine. We're already up to 110 photos, aren't we?
05 03 33 30  CDR  Yes.
05 03 33 31  LMP  Where - where are they stowed?
05 03 33 32  CDR  There are a couple right down over here underneath your seat. I'm not sure whether they are used or not; as soon as we finish this burn, I want to go down and inventory all the film.
05 03 33 39  LMP  We've only used two 70's.
05 03 33 40  CDR  Okay.
05 03 33 42  LMP  This is the second one, so let me just put it away here. In fact, why don't I mark "used" on it, huh?
05 03 33 47  CDR  Okay.
05 03 33 50  LMP  You got any better ideas? How about writing on here "used"? Huh?
05 03 33 56  CDR  Okay. You might say "put away" or something like that at 123:34. We've got to find out how many pictures are on those -
05 03 34 09  CMP  Hey, what was our - We - Who wrote down what the quads were this morning? A/B? - Or did you write them down?
05 03 34 16  CDR  Yes, he said, "Use A/B."
05 03 34 18  CDR  Post-return to NORMAL, two-jet authority.
05 03 34 21  CMP  Yes, I got that. How about the ... pad?
05 03 34 22  CDR  See what it says up on the top.
05 03 34 28  CDR  Use B/D ullage, B/D roll, and SCS systems. B and D, AUTO.
05 03 34 36  CMP  Well, that may be the updated command module control ...
05 03 34 37  CDR  Okay. Yes, I think with - That's - Let's see, A is 55, and B is really high; it's -
05 03 34 45  CMP  How about B, though ... -
... different from B and A.
And C is - C is 60; D -
I think it was A and --
Oh, hey, do we have a - You have got the procedures book, Dave?
I have it.
Hey, Jim, how about letting me look at it, and see if there's anything - any one of those magazines in particular that's scheduled for - ground photographs?
Well, it doesn't make any difference anymore, because from now on that's all we're going to take are ground photographs, so -
I don't want that up there. Put it back over here.
Hey, get your ...; I want to check out the 80 65, using that book.
Okay.
I think anyway - Well, from now on, all --
Yes, they are.
-- we're going to take are ground pictures.
Whoop!
That's okay.
I hope.
Okay, we've worked down to the point where we're going to remove the dark slides from all the magazines.
...
05 03 36 15 CMP  
Can you hear the intercom on?

05 03 36 18 LMP  
He can't listen.

05 03 36 19 CDR  
Yes, do you have trouble walking and chewing gum, too?

05 03 36 30 LMP  
Your hand controller's still hot, Dave.

05 03 36 39 CC  
Apollo 9, Houston through Guam. Do you read?

05 03 36 43 CMP  
Roger, Houston. And I read you 5 by. How me?

05 03 36 47 CC  
Okay, I'm reading you a little weak, but Dave, I don't know if I've confused you on this page 315 or not ...

05 03 36 53 CMP  
Yes, you did.

05 03 37 09 LMP  
Actuate system one cycle, and verify for observation ...

05 03 39 02 CC  
Apollo 9, Houston. If you read me, the roll on our SO 65 pad where we gave you 180 should be zero.

05 03 39 11 CMP  
Oh, okay; the roll on the SO 65 pad should be zero. Okay.

05 03 39 16 CC  
Roger.

05 03 39 18 LMP  
S'all right!

05 03 39 19 CDR  
S'all right!

05 03 39 26 CDR  
Okay, got to get down there where I can see all those mothers move.

05 03 39 29 LMP  
Well, let's get to the attitude, early, just so we can, maybe roll 180, in case it's all dicked up.

05 03 39 41 CDR  
I can see three of them moving.

05 03 39 42 LMP  
Dark slides move with all ... at one cycle.

05 03 39 44 CDR  
Okay, here we go. 3, 2, 1 -

05 03 39 47 CDR  
MARK.

CONFIDENTIAL
Three of them moved.

Four of them moved. Man, that was pretty. See it?

That was very breathtaking (laughter).

Perfect!

Hey, they don't say what to do with the paddles, but all the paddles are there, and locked. I think they're all out there; those are all alright - they're all on, and they're locked. They didn't have any covers on them, so we don't have to worry about them.

You got a picture of the horizon in four colors.

(Laughter) Did it?

Yes.

And the window looks like it's going to get it just as clear as it's ever going to get.

Oops, Davey, we have a problem: we have to disable jet A-3.

Say again?

We're going to have to disable jet A-3.

Yes, you're right. Here we go again ... Shoot.

I wonder why? C is our low tank, too.

It fires out here.

Shoot! And that's going to interfere with anything! In the daytime, looking at the ground?

Oh, Christ.

Let's disable - Let's use B - ... hell, the only other one we can use is C; B and C.

We got to use A or B - ...

Yes, that's what I say: use B and C.
05 03 40 59 CMP B is in low, here.
05 03 41 00 CDR Yes.
05 03 41 05 LMP Houston, Apollo 9.
05 03 41 11 LMP We've lost him.
05 03 41 15 CDR Yes, it's a little low on that quad; boy, I - Let's see ... off our redline.
05 03 41 18 LMP ... you know, the chance that you're going to have to be taking pictures just at the moment that's firing a jet is nil.
05 03 41 24 CMP It's nothing.
05 03 41 25 LMP And even if it did fire accidentally --
05 03 41 27 CMP Yes, I think you're right.
05 03 41 29 CDR That did it! Have you got the update book?
05 03 41 32 CMP No, that's the log.
05 03 41 34 CDR Where's the update book? Here it is, I have it. I believe you're right. We're now in MAG C.
05 03 41 58 CDR My goodness, the hybrid DAP redline for quad C is 49 percent. Oh, no, hybrid DAP's aren't quite that high. What's PU mean?
05 03 42 13 CMP Propellant used, utilized, usable.
05 03 42 18 LMP What's that expression, Jim?
05 03 42 36 CDR Are we all ready for this now?
05 03 42 39 CMP No.
05 03 42 41 LMP Yes. Yes, we are?
05 03 42 48 CDR Shoot, there's not that much difference between C and A. What have we got loaded in there?
05 03 43 01 CMP I've got A and B loaded in there. We'll have to reload it before ...
05 03 43 22 CDR  Why don't you leave A in there? It says DAP redline for A is 7 percent more than it is for C. Shoot, B has the highest redline and the lowest fuel.

05 03 43 32 CMP  Yes, let's don't use it --

05 03 43 33 CDR  Yes, that's a good idea.

05 03 43 35 CMP  -- I don't think it's worth it.

05 03 43 49 CMP  You ... something, Rusty?

05 03 43 54 CDR  Okay, at GET 5 minutes prior to the first site, disable jet A-3, orient the spacecraft for update, set up orbit rate ... ATT HOLD.

05 03 44 03 CMP  Set up ORB RATE. Somebody's been ... I can do that.

05 03 44 14 CDR  I want to have somebody ...

05 03 44 16 LMP  Oh, hey, I want to resume BAT A charge. There's nothing like a real-time flight plan, I always say.

05 03 44 24 CDR  Don't you wish a real-time flight plan in this thing ... never bat an eyelash, because you didn't have time (laughter). ... over there and did that ... after the DPS burn, starting an hour and some late, so that sucker was still pretty stiff. But he missed a couple.

05 03 44 56 CMP  A couple of ...

05 03 44 57 CDR  Okay, we'll be at the attitude in about 10 minutes --

05 03 44 59 LMP  Okay.

05 03 45 01 CDR  And then we have --

05 03 45 08 CDR  I'm going to scoot over here and use your clock, if you don't mind.

05 03 45 13 CMP  That's right. Why don't you check it to be sure I get it right?

05 03 45 20 LMP  What's it counting down to?

05 03 45 24 CMP  5:20. It should be 55:20.
Okay, that's what it's counting down to.

And we take the pictures 5 minutes after that. Is that right?

Well, let's look at our checklist. Yes, we take pictures 5 minutes after that. You start at 5 and stop at 7:30, or when the clouds hit you.

Okay, the north is coming into view.

I tried to set up ORB RATE and get a few - Get there and hold it and we'll get a GDC align, and I'll try and set up ORB RATE. ... doesn't work ... GDC ... GDC ...

We still have ORB RATE in there, don't we?

Yes, but ...

Looking through here, it looks pretty good.

Yes, but we'd hate to miss the pictures if the DAP doesn't work right.

Yes.

Listen, we come back with SO 65 pictures, and we're going to be great.

That's really a big deal, isn't it?

Okay, we're there and we're holding.

Okay.

On the wide deadband and I'll tighten it up ...

Zero, I think ...

Okay, ORB RATE ...

Okay, real good. That was our report according to aircraft from Los Angeles. Tucson was supposed to be clear, and I think with the scattered deck, it should still be good was the word I had, so I'm glad you took them.
Yes, better to take them today than to not take them tomorrow.

That's - that's right, and we're going to lose you in about 20 seconds here, and we'll see you at Ascension at 26.

Okay.

Jim, how about you running through the program - -

Go to it, yes. You - Why don't you not bother answering anybody, and figure out how to landmark track? Maybe I ought to figure out how to help you.

I - I - I can show you - I can show you how to -

Rusty, you answer the phone.

I will.

I was looking to see where you are. What's in the procedures book?

The only trouble with SO 65 is the 35-pound ...

Yes.

What the hell happened to my UCDA? Gee, it floats all over.

There was a UCD down here that I thought was yours.

A UCDA that was right there - Yes, that's where I hung it.

Oh. You're talking about the other one.

Oh, I see it. It's up at the head chow chest.

Dave, what page is that in the checklist? - When we do P22? Where's P22 in the checklist?

Well, I have a checklist like yours. I'm supposed to have everything you have in yours. Maybe it's in G&N ...; let me look in the front.
Okay? Yes. I've got it.

Hey, how in the hell are you going to do landmark tracking if you can't operate the shaft? Oh, we use the sextant though, don't we? No, we don't; we use the telescope.

I have the optics in zero and CMC, I'm quite sure. Yes, I am. I'm well trained. I don't really like to do that, but I...

You don't like to do what?

Put it in zero and CMC. Hey, as a matter of fact, you ought to go down there and see if you could even drive the optics. There's no sense in... all this fuel away -

I could do it alright this morning.

Well, I couldn't drive it at all at 14 degrees.

Okay, well, why don't you - Are you all through with that stuff?

Yes.

... command module then.

Okay.

... the program...

Let's swap COMM hoses again, please. We'll have to unswap them.

Yes, I think so. Sure looks like it. What spot? Oh, I didn't notice. I didn't hear you. I was too busy rubbernecking. You don't have to inventory the Hasselblad, because I can tell you exactly what we've got there.

We've used magazines A and B, and I'm 30 pictures into C. And all the rest are left, and I'll tell you how many that is in a minute - if I can find the damn thing. Where's the procedure book?
You got the procedures book, Dave? Can I see it for just a second? Haiti — that's the place I was trying to think of. Can I use this procedures book for just a second, Dave?

Okay, we've got D and E, so that's 240, I guess — plus 30 left in here — I mean plus 90 left in there, so that's 330. Oh, hey, look at this. Yes. A through E, 150, so we've got some left on A and B, too.

Well, B we stopped at about 110, and A we stopped about — somewhere around 100, 90 or so. We'll just write it down in pencil, and — and we'll just write it in this and scratch it out when we finish it up. Dave, you've got to do your alignment first, don't you?

Hey, we brought back some LM film, too. Where did— where did we stow that? Okay, we've got — a film pack there, too, and this doesn't say how many's in that, but it's about — what? 60?

It's working, Jim. I'm going to go right across in front of you here, Dave.

Okay.

Make a film survey. Hello, Davey.

Yes, it's working.

It is working now?

Yes. They give you a time for a nominal alignment?

Yes, 125:03:00.

I'm supposed to do it now?

You're supposed to do a nominal alignment when we get into dark for that time.

120 — I'm sorry.

That's okay. 125:03:00.

Okay, 03 —
Am I in your way, Dave?

No. And all zips.

And I assume, Rusty, that that's what that time - that's next to nominal P52 means.

Yes. Right.

Okay, Jim, a - Roll, pitch, and yaw, and that looks - Roll? 11, pitch - Yes, that'll be fine.

Apollo 9, Houston through Ascension.

Roger, Houston; Apollo 9 here.

Roger; good evening.

Hi, how are you?

Good shape, good shape. About ready for our evening fireside chats again, it looks like.

Yes, when you said good evening, I was absolutely amazed. I looked at my watch, and it says 3:30 down at the Cape.

That's right.

How are you there, young Mr. Ron?

Good shape, good shape.

Good.

We're working on our landmark-tracking pad. We should have that before we finish up here, I hope.

Okay, and I want you people to be - to realize that we're having this trouble with the shaft on the telescope, and we may not be too successful with this thing.

Roger. We understand that.

Alright.

Alright, Jim, I guess I don't have any stars.
Day 6

05 04 28 30 CDR  You don't, huh?
05 04 28 31 LMP  No.
05 04 28 32 CMP  I've got a program alarm.
05 04 28 33 CDR  I'll be darned. Well, you ought to have some stars. Let me do a little --
05 04 28 35 CMP  Do a little roll --
05 04 28 36 CDR  -- do a little check, here.
05 04 28 37 CMP  Wait, let me see which way to go.
05 04 28 38 CDR  I want to go - Roll left.
05 04 28 40 CMP  Yes.
05 04 28 42 CDR  Okay, I'll do a little trick. Yes. Okay, and then we just put the B roll on, won't we?
05 04 28 48 CMP  I said I think ...
05 04 28 51 CDR  And SCS is --
05 04 28 52 CMP  ...
05 04 28 53 CDR  MINIMUM IMPULSE. Check the ... Gee, it really looks like you ought to be able to see stars.
05 04 29 11 CMP  Well, ...
05 04 29 16 CDR  I'm all dicked up ... Well, the earth is that way. That's the sky out this way. I'll be a son of a gun. Okay.
05 04 29 35 CDR  Is it too bright up here, Dave? You want me to turn those other lights?
05 04 29 37 CMP  ...
05 04 29 38 CC  Apollo 9, Houston. Have your landmark update.
05 04 29 43 CDR  Roger; just a minute.
05 04 29 44 CMP  Give me the book, and I'll get it for you.
05 04 29 46 CDR  You want me to get it or you want to get it?
05 04 29 48 CMP  I'll get it. I've got to wait for you to roll around anyway.
05 04 29 49 CDR  Okay.
05 04 29 52 CC  Apollo 9, Houston.
05 04 29 55 CMP  Roger, Houston; stand by.
05 04 29 59 CC  Okay, you're really weak there. I'll go ahead and read. Your landmark ID 011: your GET 125:32:1600, and you'll be 60 miles north of track. We have about 30 seconds to LOS; probably Carnarvon at 57.
05 04 30 35 CMP  Roger; say again the roll, pitch, yaw, shaft, and trunnion.
05 04 30 41 CC  Roger. We don't have that now; it's N/A.
05 04 30 45 CMP  Okay, and I missed the number. Was it 011?
05 04 30 48 CC  Affirmative, your landmark ID is 11.
05 04 30 52 CMP  Okay, thank you, and 125:32:1600.
05 04 30 55 CC  Roger.
05 04 31 02 CMP  Where's your procedures book? Oh, I don't need that yet, I guess.
05 04 31 09 CDR  Forget it. I see you're doing alignment, ... right now.
05 04 31 14 CMP  Yes.
05 04 31 15 CDR  One thing at a time. I'll try to get your tracking data out for you if you'd like.
05 04 31 21 CMP  Yes. You mean the landmark track?
05 04 31 22 CDR  Yes.
05 04 31 23 CMP  The landmark?
05 04 31 24 CDR  Yes. Okay, you're going to be doing it on Baja California, and I'll - a -
Okay, you can stop the rates. I got a good...
Okay, ...
Better not.
Hey, you want to put these magazines back where they started out?
Well, yes; you know, it might not be a bad idea.
I think it would be a good idea.
Yes.
Okay, I - I'll segregate them here.
Okay. And then, Rusty, if you...
... as a matter of fact, it isn't down where it's supposed to be. Maybe Dave knows where it is.
Okay, well - I'll tell you what, when you're going around the spacecraft, there's some up here in F-1, and you might get that film out of the IOS, too - the ISA. Try to get it all in a pile someplace.
And if you don't find the film - Well, we'll wait until after landmark tracking's over.
Well, as a matter of fact, we've got to stow the LM film somewhere.
Uh oh! MASTER ALARM.
Got it. I'll be there; just a minute, let me look. FUEL CELL 2 and CRYO PRESS. Yes, tank 1 is down. ... hydrogen tank ...
Now, don't be so serious, now. How could you do that?
(Laughter) You didn't! You ought to be ashamed of yourself. You're as bad as me. I'm going to throw you in the wastebasket.
(Singing)
05 04 34 51 CMP  ... that 64 again. Is it A or B?
05 04 35 08 CDR  Oh, I gave you the wrong scoop. You targeted
Baja - northern Baja California. It's right across the Gulf of California. Mexico proper.
05 04 35 59 CMP  You got some light on out there, Jim?
05 04 36 02 CDR  Outside?
05 04 36 03 CMP  Yes.
05 04 36 05 CDR  No. The moon is out there, but that's on the other
side of the spacecraft, Dave. Well, no - On second
thought, we're - we're looking --
05 04 36 14 CMP  Something's reflecting; maybe it's the moon.
05 04 36 16 CDR  The moon might just be getting into the optics.
It's not quite on the Z - X-axis. It's just about -
oh, maybe 20 ...  
05 04 36 27 CMP  Yes.
05 04 36 31 CDR  The moon is about 10 degrees above the X-axis.
05 04 36 46 CMP  Well, shoot.  ...
05 04 37 24 CMP  125:03:00, right?
05 04 37 26 CDR  Verified.
05 04 37 33 CMP  That okay?
05 04 37 34 CDR  Roll, pitch, and yaw. Yes, that's what we're on now.
05 04 38 47 CMP  25, Acrux ...
05 04 38 50 CDR  What'd you do, get Canopus and Acrux?
05 04 38 52 CMP  Yes.
05 04 38 54 CDR  That's almost as good as my Sirius.
05 04 39 04 CMP  There's Acrux, way down there.
05 04 39 24 CMP  Acrux is weak, because it's got a buddy.

CONFIDENTIAL
Right next to it, huh?

... in - I don't know whether it's pitch or something - It's some rate.

Some rate. Okay, it looks like it's probably pitch, Dave. Pitch - That's not a B, that's a sequence, so we use A for that.

Okay, can't hold it for much longer.

Okay.

I'm looking at the rates. ... pitch going ... okay?

Okay, that's good. I'm ...

... help?

... Will I hurt your arm? That's not my tracking arm; ...

(Laughter)

I knew we were going to have high angles, because we were too far off.

What were they? Oh, the first numbers?

Have you got the flight plan, Jim?

I have it right here. What do you need?

Those angles - Like those -

Oh, oh, yes. Right, coming up.

I can't even figure out what they do with this data. This doesn't sound ... tell them ... two people can do.

Okay, very good. ... Yes.

... is 30.

Okay.
Reading from right to left: 12:41:30.

Hey, troops, we're more than halfway through the flight.

Gees, that's good.

... this is okay.

Yes, it sure is.

Hey, that's right. We'll still have a little eating, won't we? ... find that stuff in the flight plan that ... Oh, that's another couple of hours yet.

Hey, that's the end of your day (laughter). Can you believe that?

... 

Hey, I tell you one thing, we got lots of it left, though - movie film.

Movie film?

How's that look, Jim?

200 - 106; that's good.

... torquing angles ...

I'll be darned.

Let me slide over there and turn Rusty's light - Rusty, do you need your lights up that bright? Yes, I guess you do, as a matter of fact. Hey, I just got a view out the window better. Fix your window or you can't do it.

Where the hell is B-8?

B-8's down there in the bottom. Should be in the lower equipment --

Way, way over here, Rusty.

-- in the lower equipment bay.
By my left foot. And we've got to get alignment.
Boy, there's Regor and he's got a little buddy, too.
Okay. And it seems to be working, Jim.

Good. And I'll tell you, it's hung right about
14 degrees, and I couldn't drive it manually at all.

You've just got to have the right touch, Jim.

I know it. I figure as long as you know how to do
it, I don't have to have the right touch. If you
don't know how to do it, then I'll do it. Then
I'll get the right touch.

Necessity is the mother of invention.

Right.

What's her father?

They weren't able to find him.

Are you saying necessity is a bastard?

Egads.

Need the procedures list.

Here's the procedures book.

Hey, I need the landmark-track book, too.

Landmark ...

Oh, the map, Jim.

Yes, I tried to get those out, but I was just
going to get in the way.

I'll get them ...
... I wanted to find out if I had analyzed it right. If it worked for landmark tracking - if it doesn't work --

Where did you find that piece of gunk?

(Laughter)

I'll put you in gimbal lock, and you won't even track.

You know that mechanical screw-in on that?

Yes.

It came floating out of there, and that shaft screw ... go as far as the trunnion. We still have to unlock ... I'm not sure because maybe what this extra one of these things is - See, it's got to have one of these things ... --

Looks like it's been cut in half, too.

...  

Yes. ... a zipper pocket. Why don't you put it in your zipper pocket down there?

Oh, do you? I don't have much in my zipper pocket. Give it to me.

...  

Here, I'll take that, and let me show you where the landmark is; right there, number 11; right there. In Mexico, right across the Gulf ...

Can you pick it up on the next REV?

No.

I just copied ...

I tell you what, I'll get a piece of tape and tape that to my chain ... the tape. I'll just tape it on my chain, here.
Good, maybe you can help it; it may stop working completely (laughter). Throw me the tape, and I’ll tape it up for you. Get out your landmark-track map.

I don’t know where the tape — —

Hey, Jim.

Yes.

Can you ... a second?

Can I do what?

Jim, you work your foot loose?

Yes.

Let’s see: 125:32:16 ... 47 — —

Hey, you do the landmark tracking — — ...., 32 and 45 — —

You start the landmark tracking about 125:40, Dave.

Okay. You start it at 40, you said?

Yes, just about that time.

Landmark number 11.

Hey, Rusty, if you’re fooling around down there (laughter) or whatever you’re doing, would you break out the other standard Hasselblad, please?

Where is it?

I don’t have any idea. Oh, that should be in the LM, did we?

No, we brought it over.

Okay, then it’s in the ISA, and the ISA is at the hatch cover - the tunnel hatch bag. It should be
bound underneath my seat, strapped on the bottom of my seat.

Boy, this damned ... is an impossible container! It sure is --

That - that little one down there?

-- Damn!

It has to go in there exactly the way it says: front and then the right side up and everything, or you will really get screwed up. You'll get it in, and you won't be able to get it out again.

Boy! McDivitt, does your corner stink!

(Laughter)

Man, oh man!

Must be from your suit, huh?

Hey, where's the ... thing, in the L-shaped bag?

Yes.

The bottom or top, do you know?

Oh, no. I'm sorry now. I - I wasn't thinking. I - It's - it should be - Not in the L-shaped bag, it's in the tunnel hatch bag, which is strapped on the bottom of my seat.

Hey, ...

Yes, ...

Give me a minute, and I'll have some calculating, here.

How are we going to do this? I guess I'll just --

Oh, I'll tell you.

-- point the nose down the track, and --

No, no.
-- pitch down a little bit?
No.
No? Alright. You tell me then.
We've got all that worked out.
Who -- who's this "we" jazz?
Come on now. ...
Oh, hell. Would you get me the piece of tape in here, and I'm quite sure that it is. ...
Okay, the -- I'll brief you.
Dave, would you give me the tape while you're briefing me?
The tape? I just looked in here and couldn't find it.
Oh, really?
Yes.
I thought sure we put it back in there this morning; I had looked in there once ... But I only went through --
Here's another little piece; here, I'll give it to you.
Okay, I don't need much of a piece.
Jim?
Thank you.
Do you have one?
What?
Tape?
No, no --
05 04 51 33  CMP  ... that's okay. Here, Jim.

05 04 51 39  CDR  Thank you.

05 04 51 45  CDR  Did you check the optics to see if they weren't around 64.2?

05 04 51 50  CMP  Yes, it goes all the way.

05 04 51 55  CDR  I'd like to have a reliable set of optics. It's really no computer ... and I'd like to have the whole thing working.

05 04 52 04  CMP  Hey - I'll tell you - I'll give you the thing to read that we - that we put together here. But anyway, what you do - We're - we're going to track with the roll-yaw thing. So you get out of plane, below the bull's-eye, and you point - you cock the thing up until you -

05 04 52 18  CDR  I thought we were tracking on the in-plane.

05 04 52 20  CMP  No, no, no, no. We're going to do the roll-yaw.

05 04 52 22  CDR  Oh, shoot.

05 04 52 23  CMP  Which is really only roll. It's real easy. You get out of plane - Actually, you end up pitch down below the bull's-eye out of plane - You cock the optics up -

05 04 52 33  CDR  Yes, and then we just roll over.

05 04 52 35  CMP  You just roll. You put in an ORB RATE roll. We could do this with - I'd like to, if, you know, if we get good at it later on, use the ORB RATE thing to see if one guy could do this by himself, when on the moon. You get the spacecraft going in ORB RATE automatically -

05 04 52 52  CDR  The yaw - yaw-roll or the - the pitch.

05 04 52 58  CMP  Why, you could do - you could do - X Y Z ...  

05 04 53 03  CDR  I think it would be easier if one guy were doing it and could use the procedure we just used except for pitch.
Good point. Good point.

Yes, but it'd cost more here, too, ...

Well, anyway -

Okay. But that's an out-of-plane one; I thought we did anyway with the out-of-plane one when ... and we were only going to do the in-plane one.

No, we're doing the out-of-plane one, because that was for the LM on.

Yes.

Anyway, you get out there, and you just set up a roll rate, and I'll do AUTO OPTICS. And then when I get locked on, you try and reach me in ORB RATE roll, as we come out.

If I pitch down, I'd ... see the horizon.

Yes. I -

Deke and I worked it out once where you just yawed out of plane and pitched down and stayed right below the bull's-eye. And Frank Hughes said that Lovell and Borman had worked one out which you did a little different, which you roll and then pitch out of plane; and, that way, you've got your optics cocked up already which might be a little cheaper.

You - you roll - You're charging along in plane, heads up; you roll 90 degrees, then you pitch 55 degrees. Then you roll again, you get the optics - zero optics near the horizon. That's all there is to it.

Oh, you roll -

I've never done that, but that sounds like - Why don't you think about it, and do whichever way you think is best? There's - there are two ways. One way, we're applying in plane -

Yes.
-- with an in-plane alignment. One way is to
yaw out and pitch down and stay below gimbal lock.
The other way is to roll while you're in plane and
pitch up 55 degrees, which is not - That keeps you
out of gimbal lock, too. Then your optics are
cocked, and you have to roll to get the optics line
of sight sort of perpendicular to the ground.

Yes, that's no - You end up with you not really
being - not having your axis perpendicular to the
plane.

Yes, I know it.

You got the plane, like this, in the orbit here,
like this. See, the optics really would rotate
this way with respect to the plane, if you had a
zero trunnion. And, you know --

Yes, you want to have it - you want to start it
as near zero as you can.

Yes.

So you have as much articulation on --

Yes.

-- this as you go by.

Seems like you don't want to be pitched down.

I - I - That's what I thought, too, until --

There's 55 degrees.

It seems to me like when you get over the target -
you want to be - The target's right down here -

Yes, and we're going this way.

You'd like to be - like this? As you - as you com-
in to it, you'd sort of like to be like this, so
that the optics has a full run. If the target's
here, and you're coming around the world like that
you know, and then you start your ORB RATE as you
get over it. But you do your tracking out here.
You only get about 40, 45 seconds, in earth. It
really goes quick. Once you get the target, man, you really got to get on it. Anyway, think about it; do whichever way --

It almost seems like it's the best way is if the plane were this way - You would bet you ought to be yaw down 90 degrees, pitch down about 30.

Yes.

In other words, you go like this; you're going to have a little more time on your -

Yes, I think that's better, too, but I don't know; it's six of one and half dozen of the other.

Well, listen, if you're through screwing around here, I'll start --

No, I want to run through the program once more.

(Laughter)

A little detail.

Yes, a minor detail.

Okay, I think I'll go ahead and align the GDC here while we're waiting.

Yes, just go to RATE while we're waiting.

Did you find all that stuff, Rusty?

Yes, I'm gradually finding it.

(Laughter) You're running it down. How many cameras --

Apollo 9, Houston through Carnarvon. Standing by.

Roger, Houston; Apollo 9 here.

Roger. I just wanted to make sure that you got the word that that landmark is 60 miles north of your track.

Roger; 60 miles north. Thank you.
So that means you're going to have to yaw - yaw left.

Yaw to the left, that's right.

Jim?

Yes.

Can you do something here for me?

That ... little ... go up and go right through that ... found a place I might want to put the camera.

Hey, where do you want to stow this LM data? Why don't we leave it in the ISA? I'd sort of like to sort it out and start thinking about where we're going to put it, so why don't we just leave it there for right now?

Okay.

We've got some other books, and some other LM data books up there, too, that we want to get ...

Apollo 9, Houston. 30 seconds LOS; Guam at 07.

Alright, Houston. Okay.

Ow!

Yes, that ought to do it ...

Well, I came up with a conclusion that we've got all the movie film we could possibly use.

Yes. We didn't really get as much stuff done as I had hoped.

Well, I don't think we used as much film getting it done as we hoped - I mean, as we thought.

Yes.

Well, I think we took pictures of everything we planned to.
Day 6

05 05 02 02 LMP  Wow, that fuel cell 2 is really up there now!
05 05 02 05 CDR  How high is it?
05 05 02 13 LMP  It's up at 186.
05 05 02 20 CDR  What's the limit? 220, isn't it? 225?
05 05 02 22 LMP  I don't know. 200, I guess, or 250; I don't know. They changed it everytime they went up to wherever they had the limit. (Laughter) Oh, goodness.
05 05 02 51 LMP  Hey, we never did chlorinate the water.
05 05 02 53 CMP  Oh, that's right.
05 05 03 00 LMP  I think we'll probably live.
05 05 03 02 CMP  Do you really think so?
05 05 03 04 LMP  I'm not sure.
05 05 03 29 CDR  Oh, shoot! Look, I brought another map along just so we'd have another map to look at to tell where we were. It's down in my suit, and I haven't got it out ...
05 05 03 44 CMP  Okay, I think I got it squared away.
05 05 03 48 CDR  Okay.
05 05 03 50 CMP  I think I got it squared away. Oh, look, there's that landmark tracking, landmark ID, control our time required to acquire and identify, comment, coordination of optics and spacecraft motion, n
05 05 04 10 CDR  Okay. Well, I'll put it in there and hope that AUTO optics drives.
05 05 04 15 CMP  Hey, does the ... and the mechanical drive ..., does it move now? Is it --
05 05 04 25 CMP  No, it's still stuck ...
05 05 04 31 CMP  Oh! Would you believe I just looked in there, I looked right into the sun.
05 05 04 31 CDR  (Laughter) Yes, I'd believe that because the sun just now coming up.
05 05 04 37 CMP  Oh, yes.
05 05 04 42 CDR  Is there a standard down there, too, Rusty? In the ISA?
05 05 04 51 LMP  Yes, I passed it up!
05 05 04 52 CDR  Pass me the wide.
05 05 04 58 LMP  Hey, where in the hell did I put the standard? I got it out.
05 05 05 01 CDR  You gave me it. Wait a minute now; maybe you didn't. You have a standard over there? Alright, I have a standard over here.
05 05 05 05 LMP  Yes.
05 05 05 06 CDR  Okay, I thought you passed me - Okay, then --
05 05 05 08 LMP  No, I passed you two of them.
05 05 05 10 CDR  Alright.
05 05 05 15 CMP  Okay, we got 27 minutes. I think I know - I know what I'm going to do. I want to make five marks, maybe.
05 05 05 35 CDR  I guess I might as well take sunrise photo for the flight.
05 05 05 52 CDR  (Singing) ... Oh, it looks ... 15.
05 05 06 10 CMP  Hey, maybe you guys want to take a - No, you won't be able to see it. Oh, I bet you will after -
05 05 06 15 CDR  The what?
05 05 06 16 CMP  Pictures of this place.
05 05 06 18 CDR  No, we won't be able to see it.
05 05 06 20 CMP  Hey, listen. I guess - What you want to do - is - What are you going to do now? You're going to -
05 05 06 26 CDR  I'm going to pitch around, and I'm going to try and get down below the ball.
Okay, now the thing that - the thing that's going to be tough is to be able to tell exactly where I am in roll.

Yes, I know it. How are you going to do that?

I'm going to be pitch down, I'm going to try to look out the window, and I'm going to try to get -

You ought to be able to shoot a horizon.

Yes. That's why I'm going to - that's why I want to go on over there and pitch down.

You want to be cocked up so that your Z-axis - -

Look out the window right now.

Yes.

Okay, you want to be something like that.

... but you're in plane now.

Yes, I know, but I want to be out of plane - -

Out of plane.

-- pitch down, and roll --

Just like that; yes, that looks like that would be good. Yes, and then you're going to start - When we get there, you start a roll right.

Left. Right - -

Roll right, but don't start to roll right - -

-- until you get the - -

-- until I say - -

-- say to roll right.

-- that we're getting there.
That ought to be exciting! ...  
(Laughter) 
Do you feel like you're a guinea pig to a - You know, here we practice for all this stuff, that we're really going to do, and we've done it all; and now we've got to stumble through this other stuff like a bunch of stumblebums.

Apollo 9, Houston through Guam.
Go ahead, Houston. This is Apollo 9.
9, Houston. We'd like to verify that you are in PRIMARY and not NORMAL when you went through block 4.
Oops, I beg your pardon; I was in NORMAL.
I'll go to - I'll go PRIMARY for you, and do it.
Roger.
... MASTER ALARM ...
9, Houston. If you can hold off there, we're about LOS. We'll catch you first time in Hawaii on that.
Roger. I've got the data now, if you'd like it.
Are you eating again?
Now I know why you go down there into the lower equipment bay. All the time, I thought you were down there taking ...; you're down there eating.
Man, I get hungry.
You're really a nice guy. Sneak out on your buddies and eat.
It's the only way I ever get to eat in this outfit.
I hope it isn't cloudy.
No, it was nice and clear down there, Dave.
They kind of like the sun-glint pictures, don't they?

Yes, as a matter of fact, they do.

No, you guys, don't use them all up. Wait until we get to a higher orbit. That's prettier up there.

How many pictures did we decide we had, Rusty?

I can't tell because Dave has the procedures book.

You done with the procedures book, Dave?

No, I'm just getting ready to start using it now.

Listen, without this crutch over here - Why, landmark tracking would be a zero; it probably will be a zero anyway.

Let's see; those quads we were supposed to use were A and D, weren't they? A and D. B OFF, C OFF, D OFF, A ON.

Got to hurry. I'm making myself nervous.

Making me nervous.

I don't mind your ... I know how to do that.

(Laughter)

How about that? Actually, the son of a gun is really smart!

Don't do that; I was - I was moving towards gimbal lock, and all of a sudden, bang, there it is; you know, and I - Oh, shoot!

Where are we? Over the Pacific, aren't we?

Right.

Have you rolled up yet to clock yourself?

No, I haven't, Dave. I'm still horizontal.
Okay. Got 12 minutes. If you do that, I can --
12 minutes for what?
Until we start - mark it.
No, we don't.
Yes. We sure do.
What time do we start marking? I thought it was at about 40. 125 --
No, 32. The pad was at 32.
Oh, okay. (Yawn) You have ...
Yes, that's out of the field of view.
Oh.
Several times. Steady, steady according to R-3.
It's cloudy again.
Yes, so far. Hey, which way do we go? We're going to the right, huh? I mean I hate to tell you what we're coming up with. Lots of more clouds.
Yes. It was clear over Baja this morning, so - As a matter of fact, it was clear over on the other side, too.
Do you remember what time that last pass was over the - What time did we start that other thing?
12h:00:20 - Something - It was 12h:03:48 that they wanted me to ... my update.
We got a long way to go, Jim, in roll.
Right.
I'd really like to be seeing the horizon.
Okay, can we get them over there --
We're coming up on that right now.

Okay.

Yes, it doesn't make any difference whether you can hear it or not.

Quarter of 4 ... which way is the land here?

It's ... back that way.

You see the Panama Canal?

(Laughter)

We must be close to it; I think we might have passed it.

Do you know - do you know - Did we go across Venezuela or something?

... you want to get it locked to target, Dave?

Yes. No, actually, when you were doing that, I didn't - didn't know what to do, so I was just looking out the window here, and pretty soon - out here - pretty soon I saw the - coastline come up and ... the distance from Baja and the Gulf ... are really quite low, but I couldn't see - I couldn't see the Gulf so we could ... past it.

By then you were - I might have -

... would have had the marks long before this -

I needed you to tell me whether to roll fast or not, because - we - When we're cocked up like this. I can't see down through that way.

Well, did you hear me marking?

Yes.

... just perfect. I was right on it. But then, it disappeared; I took about one ...

Okay, well, by then, see, I had - I had started about a half-a-degree-per-second roll, because it didn't ...
That was fine; that was just right.

But I should have started a little earlier --

Yes, probably a little -- because, as we came across -- See, I thought you were looking instead of being right there. You were still over like this. And that's when I started rolling.

Yes.

I couldn't even tell you how far ... whether it was the optics or the spacecraft, because I was having trouble getting on to target.

Yes.

... the optics or the ...

Are we pointed down at the ground now?

Yes, just about.

... my side is.

And I tracked - two sets of ...

You tracked what?

Two sets of ... as you were coming across it. That's the ... track I've seen ... --

I know, --

-- which is the ...

-- but it worked fine on the clouds.

It's way off on the state vector ... Quite a ways off from the target.

Oh, yes.

AUTO OPTICS, yes. ... This big island, really ... and ... the target ... It's as far from the target...
over here as that island. It seems to me, I got to give you a state vector up there.

Ohh, let's see. Is there a scale on here anyplace?

No. ...

89.

What?

Pretty far off.

Pretty far off. Oh, shit, I'm going to have to waste some fuel here or go into gimbal lock.

... 

Oh, we don't go to drifting flight until 127 ... Power down spacecraft at 127. And a filter change.

Oh, look at that funny-looking planet. My God! ...

... hold up, Dave. Hmm. I'll be darned.

It's like a great big round cloud with a peak in the middle. Looks like a mountain.

Well, shoot, I hate to waste that gas, ...

You don't use much though.

... Matter of fact, I did all of that in B - B roll - or B roll. I only had 6 seconds and I had B-1 and B - two B-roll thrusters on, and two A-pitch thrusters on, and two yaw-B thrusters on.

I think B is so hard to ...

Where is that update book that has the consumable redlines here?

It's in the update pad; I don't know where that is. ...

look at the map, Jim.

Do what?
05 05 46 40 CMP ... map?

05 05 46 43 CDR Get out the other map, too, so ... map ...

05 05 46 52 CMP Probably too far off now. Oh, I see, I was going down the south of coast - coast of South America, that's what I was doing.

05 05 47 00 CDR I think we're in the other orbit there.

05 05 47 03 CMP Oh, okay. I was going across the middle of South America.

05 05 47 08 CDR Oh, did you get that far, David?

05 05 47 10 CMP Oh, shoot, I guess I better go ahead and ... Oh, I got a - a thought. Maybe we ought not to power the IMU down.

05 05 47 22 CDR Why?

05 05 47 28 CMP I'm not sure I can do a P51 with ...

05 05 47 33 CDR Well, I'm pretty sure you can't. I guess we could always maneuver the spacecraft. ... the shaft and the ...

05 05 47 46 CMP No, you go to - to zero.

05 05 47 49 CDR Yes, that's a good idea.

05 05 47 50 CMP Just go to zero.

05 05 47 51 CDR Yes, okay. We got a couple or three REV's before that.

05 05 48 13 CDR (Singing)

05 05 48 18 CMP Rusty.

05 05 48 19 IMP Yes. Yes, what?

05 05 48 24 CMP Nothing. ... those clouds.

05 05 48 30 IMP Yes, they're broken clouds.

05 05 48 31 CDR You got some more on landmark tracking tomorrow, Dave.
Yes. I was just ...

Matter of fact, you have all the time. Holy Christmas, you do the landmark tracking all day long tomorrow!

Yes?

Yes!

Yes, I thought they said today's was for ...
Look, we're right down on top of a thunderstorm down there.

Man, we really do it tomorrow: P51, ... the update, P52, landmark tracking, ..., landmark tracking, P52, landmark tracking, P52, landmark tracking -- ...

... -- landmark tracking, P52, landmark tracking --

(Laughter)

Shoot, all we're doing now is going around here trying to - Shit, I want to look for a while.

Yes. Let's just do that. Let's just take an hour out for looking.

Where is that big map?

Right here.

Let's see if we can get a map update. Dave, drive the boat - drive the boat for a while just to see if we get a gimbal lock. Let me go down and get the other map - I was going to throw out the weather map. I said, "No, don't do that; put it in my pocket." We've still got the SO 65 ...

... No, we determine the landmarks, yet.

Do we?

Yes, we got a great big world map.