

CMP Yeah. I'll - I'll put it in this TSB ...  
ACDR ... that burn.  
DMP Yeah. It's suppose to be 22.  
ACDR ...  
CMP Wonder if we can ...  
DMP ...  
ACDR ...  
11 34 47 CMP That's right, ... So that's correct.  
CMP I still think you're wrong ...  
ACDR Okay. ... Ready?  
DMP Yeah.  
11 36 29 CMP Okay. You got it solved.  
ACDR ... problem ...  
DMP ...  
CMP 4 ...  
CMP 4 and ...  
DMP Tom, you got it?  
ACDR Not yet.  
CMP 314.  
DMP Tom.  
11 39 21 ACDR ... .. see that fucking alinement.  
CMP Pardon?  
ACDR Did you see that son-of-a-bitch go to ... See there, I got to go back ...

CMP Okay. ...

ACDR ...

CMP Okay. Look for a ...

ACDR ...

CMP Okay. Here's what we did ... And the other side of the tape recorder's fixed.

ACDR Okay. Where's the Flight Plan? Here it is ...

CMP Yeah.

ACDR We got to go back and pick up that ... there's an option it says here.

DMP Okay.

ACDR ... 05566.

CMP Is that all?

ACDR That's ...

CMP Zero, what?

ACDR ...

DMP Did you read ...?

ACDR ...

CMP ...

ACDR ... Right.

11 41 52 CMP Okay. I thought it was a ...

ACDR Yeah.

DMP Right.

CMP Still got time to do this ...

ACDR ...

11 44 55 CMP Three lights.

11 45 26 CMP Okay. I figured we have dehydrated grape and orange ...

TIME SKIP

12 39 36 CMP You - you got ... Did you get it?

DMP One ... five ...

ACDR You, that should make eight.

CMP That's ...

ACDR It's going to be too hot for ... to ...

USA Okay.

12 42 13 CC-H Apollo, Houston. We're AOS at Guam for 6 minutes.

ACDR Roger.

USA Oh, shit.

ACDR Okay, ...

CMP ...

ACDR ... that's the first ... shave ...

MS (Laughter)

12 45 26 CMP Either that or start a beard.

12 46 08 CC-H Apollo, Houston. I don't know whether you got my last call regarding it, but on the GLYCOL EVAPORATOR WATER FLOW valve - we need to make sure that's in the OFF position. That's center, OFF.

CMP ...

CC-H The reason for that is that we're - our data looks a little bit funny down here now.

ACDR GLYCOL EVAPORATOR.

CMP Page ... 7.

12 46 30 ACDR Okay. We had the switch in the wrong position. Because of the position here, it's hard to tell whether it's center OFF or ON.

CC-H Did you have it in the ON position?

ACDR Yeah. Sorry about that.

CC-H Okay, fine. Thank you.

12 47 07 CC-H Apollo, Houston. We're 1 minute from LOS. Next station contact is Santiago in 32 minutes at 120:57 - 120:57.

ACDR Okay.

ACDR It's almost 11:25[?].

CMP Okay. ...

DMP ...

CMP Yeah.

ACDR ... when you get ...

DMP Yeah, it does kind of start to settle down.

ACDR Yeah, yeah.

ACDR ... DAC.

12 49 51 DMP How was that docking module last night?

DMP Yeah; well, that ... was just right.

12 50 12 ACDR Yeah. ...

12 50 14 DMP (Laughter)

12 50 24 CMP ... I forgot. I remember waking up ...

12 50 35 MS (Laughter)

CMP           Okay. We're there ...  
 DMP           ... check ...  
 DMP           ... in about 25 seconds.  
 CMP           ... I don't like having to rush it.  
 CMP           ... have to change ...  
 CMP           ...  
 ACDR          Yeah.  
 12 53 21    CMP           And VERB 21 ...  
 DMP           Why don't you ...  
 DMP           Boy, this tea looks ...  
 CMP           ... on the ground I like coffee; here I like tea.  
 CMP           ... the flavor ... it's hot ... cold.  
 CMP           Okay, Deke ...  
 USA          (Yawn)  
 12 55 47    ACDR           ...  
 CMP           It's a real ... get a tiny bit more ... gave me a  
               tiny bit less, could manage it all real well.  
 CMP           One thing they can ... interaction.  
 DMP           No. ...  
 CMP           ... woke you up ...  
 DMP           ... floated off ...  
 12 56 54    CMP           Okay, next.  
 DMP           Is the tape recorder ...?  
 DMP           Do you have it on?

CMP I've been looking for a plain ... a plain ...  
 CMP ... Earth obs ...  
 ACDR ... if we have a ...  
 13 00 37 ACDR ... the only place I got hot was in the ...  
 CMP (Laughter) Yeah.  
 CMP Before we go down, we ought to take a ... flash picture ...  
 13 01 11 ACDR We got an interior film for the DAC[?].  
 CMP Flash[?].  
 DMP ... almost ...  
 CMP Okay.  
 ACDR ... around here at one time.  
 13 03 16 DMP Did you look back here? I thought I saw ...  
 ACDR Do you have that cue card for out the window stuff? I wonder if we want to start - start shooting ...  
 13 03 55 CMP Might as well.  
 ACDR I shot a bunch of pictures ...  
 CMP I think ... we are ...  
 13 04 32 ACDR (Laughing) Yeah, yeah. I saw the same thing.  
 13 04 42 DMP ...  
 13 05 53 CMP Strobe light - strobe light's ... I think down here in the -  
 CMP Did you find it?  
 ACDR ... flash?  
 13 07 44 DMP Okay. Shut it down ... I'll get that stuff shut down.

CMP ...  
CMP ... ZFF.  
13 09 30 ACDR We got the ZFF with the other one.  
ACDR What?  
ACDR Yeah.  
ACDR ... last night ...  
13 12 57 CMP Okay; you're going to get the ... off aren't you?  
CMP ... I'll have to turn the ... off ... not quite  
yet ...  
13 13 12 CMP It'll be in about 5 seconds. STOP, REWIND, COMMAND  
RESET.

TIME SKIP

14 15 20 CMP Oh, shit!  
ACDR Crip, how do you read?  
DMP I can't figure out what's going on here. I heard  
him say something.  
ACDR Crip, how do you read?  
DMP He's trying to talk to us.  
CMP What made it go off?  
DMP ... know.  
CMP Are we in PRIMARY or SECONDARY SERVO, now? Do you  
know?  
ACDR I don't know. Everything was okay, I think.  
DMP Right. ... Yeah.  
CMP Try it there.

ACDR No. It's got to be above that. Crip, how do you read?

ACDR It's got to be above it, 50 percent.

CMP Okay. Might make it if we hurry.

ACDR I wish you - -

CMP Oh, yeah.

ACDR Verify ... - -

CMP No, wait. This is going ...

ACDR Oh, yeah.

CMP And they say verify ...

ACDR Hold on.

CMP Okay.

ACDR Take a look at the lights ... tell when ...

14 17 27 CMP Okay. VERB 21 ENTER. Plus 14690, 1226 - -

ACDR ...

DMP ...

ACDR Oh.

CMP Well, you had it.

ACDR Okay.

CMP All you have to do ...

CMP Now.

ACDR 1226.

CMP There you go.

CMP Well, start having the ... running.



ACDR What happened, Vance?

CMP The TV went off.

14 18 35 DMP I just turned it off. It's supposed to be off ...

CMP Okay. The next one ... Verify DSE TAPE MOTION.

ACDR ... TAPE MOTION.

CMP TAPE MOTION's gray.

ACDR Okay. It's working all right.

CMP Okay. VERB 49 ENTER. Plus 1.0[?].

ACDR Plus ...

CMP 1.0[?].

CMP Okay. Think that problem is nominalist. Suppose to be in PRIMARY ...

ACDR Yeah.

CMP Put it - okay, HIGH GAIN, right?

ACDR Yeah.

DMP Well, SECONDARY is - In all that thrashing around, it went to PRIMARY and it dropped a ... out about 30 seconds then came back again. I don't understand that.

ACDR Well, let's see ... set up. Vance, what time have you got? ...

CMP Yeah.

ACDR Okay. We're all set.

CMP We're all set.

ACDR The new high-gain angles for the next time - What's it say?

DMP Well, tell you, that's where I woke up; you see, I didn't realize you guys were running ...

ACDR Why?

DMP ... trying to get ahead for once ...

ACDR Pitch is 14 degrees.

CMP Okay.

DMP And - Yaw?

CMP 308.

CMP Well. That stands to reason. ... pretty rough.

DMP Yeah.

ACDR We have Orroral Valley coming up ...

CMP ...

ACDR We got ... coming up here in 1 hour.

14 20 56 ACDR You've got an exercise period after the P20 option 5 ...

CMP Have to - I don't think ...

ACDR Let's don't - You're the only one that has to do it.

CMP ...

ACDR ... camera. ... shoot out the window. ...

CMP Okay. ...

ACDR ...

DMP See ... Tom's got ... to go.

ACDR ...

CMP Oh, yeah. As I recall ...

DMP ...

ACDR ...

14 22 54 DMP Well, that will be fun.

ACDR Oh, I'm sorry.

ACDR Deke.

DMP Yeah.

ACDR Could you hand me the ... CX14 ...

DMP ..., there.

ACDR ...

CMP Now what happens?

ACDR Ah - ...

CMP ...

14 26 48 ACDR X-ray powerdown. Okay.

ACDR Okay. You want the X-ray powerdown now?

ACDR Got that.

DMP Okay; X-ray's powered down.

ACDR ... would you ...

14 27 10 CMP Okay. HIGH VOLTAGE POWER is off.

ACDR Okay. All kinds of shit on the outside of that window. That's ...

ACDR Okay. 6.

ACDR ... else is ...

14 32 08 ACDR Quite a wobble.

DMP Yeah.

ACDR ...

ACDR Yeah, I ...

ACDR You want to try looking ...

DMP ...

ACDR Yeah, why don't you do that.

ACDR I'm getting 27 ...

DMP ... 32.

ACDR That's okay.

ACDR ...

DMP ...

14 39 40 ACDR Okay; low bit rate.

14 39 53 ACDR ...

CMP Okay. ...

ACDR ... I got a lot of these ... Yeah. ... space-  
craft ... aline. Okay. The next thing to do is  
power down, I guess.

14 40 25 ACDR Okay. Power down. TELESCOPE, OFF; COVER, CLOSED.

CMP ...

14 40 46 ACDR Okay. Yeah.

ACDR Yep. Next thing is ...

CMP ...

14 41 20 ACDR Okay. ..., AUTO.

CMP ...

ACDR Huh?

ACDR He turned it off.

DMP Yeah. I know, ...

14 41 49 ACDR Yeah. You ... Do that first. It has to be powered down.

DMP Oh. Power it down.

ACDR Power it down.

DMP ...

ACDR Yeah.

DMP ...

14 42 10 ACDR Yeah. Power it down. I'll just ... powered down, ... This obs thing is - really super for ... things on.

DMP ...

ACDR Is that ... We have ... box in there. We still have ... Hey, Vance, look at that ... Look out the window. ... got here. See that light ... over the ... horizon. Look at that. See the band ... ... see that band.

14 43 18 ACDR ... We get a ... band and a ... and a yellow band at the same time. Oh, we got a different attitude this time. ... we had last time. You don't ... Are we there yet?

14 44 01 ACDR Yeah. ... we got to have this ... down. Yeah, but not a hell of a lot more.

ACDR Yeah. That will be roll right?

ACDR Yeah. What? Yeah.

ACDR Yeah. Also, let me ... set up the ...

14 46 10 ACDR ... 61101. Let's set the ..., Deke. ... when you finish. I got ...

DMP ...

ACDR Yeah.

ACDR All righty.

DMP ...

ACDR 2030, ... Vance, you know we're upside down?

ACDR If you're upside down, the Nazca Plain, should be on the right. It says to shoot it upside down. They ought to be ... No, I'd rather have it right side up so the spacecraft is ...

14 49 50 ACDR Okay. Starting with the Earth obs, rev - revs 73 to 74. Coming up trying to find ... and trying to look for the Nazca Plain.

ACDR Yeah.

ACDR Put it ...

CMP Okay.

14 52 30 ACDR I don't like this attitude for Earth obs. I'd rather ... heads up and pitch down, like this. See? ... way down in here. See if it fits; don't have enough room. Let me look at this. Can't get down there.

14 54 06 ACDR Okay. On the map, ... rev 74, we're approaching the north coast of South America, Peruvian Desert, trying to find the Nazca Plain. The clouds go all the way up to the north of here ... Yeah. That's just the way a cloud ... We really should. Fire away. No, we're ...

14 56 31 ACDR Man, this attitude is fucked up, did you know it? It's really bad, you got to keep your head straight back like that and left, right, left. I'm going to have to change this whole son-of-a-bitch around. I really need my headset here. The only ... is the heads up. It's, let's see, you're like this trying to look ahead, just right and left. Then reverse this ... first. I think if we look down in here, which we ought - you can look down here, it's all right. You don't have enough room. Good heavens! ... got it down about like that.

ACDR Okay, who ... Yeah. Okay, ...

ACDR Okay. ...

14 58 33 ACDR How do you read, Houston? Okay. Look. Get with Farouk. This attitude for visual obs, ... degrees. There's no room to twist your head and look upside down, and the whole thing ... .. you reverse this thing so they're - we're heads up and pitch down ... everything about twice as easy. Can you hear me? Okay. We want to roll 180 degrees for this - for vis obs. Not the mapping, but the vis obs ... Yeah. Yeah. ...

ACDR We got some clouds over ... It goes west and ... cloud cover. Okay. The cloud cover is ... the west coast of the Pacific Ocean ... of the Nazca Plain, so ... sight of 7B. 7C is also covered over ... And ...

15 03 30 ACDR Okay. UP TELEMETRY to RELAY. You already got that? UP TELEMETRY, RELAY?

ACDR Houston, Apollo. Do you read? Okay. Did you get my last transmission?

CC-H ...

15 04 14 ACDR Okay. Look, I'm sure this was optimized because sometimes you do the vis obs at the mapping attitude. I'm now wings level. There - I've got a lot of cloud cover, of course, so I can't see much, so I'm not losing too much by talking to you. What we want to do is to - to ... for vis obs only to roll to heads up. Because if we could sit down behind the couch, this attitude wouldn't be bad. But the trouble is, there's not enough room to sit down behind the couch and look out where you're going. You can't get in there. You're too high. So we want to roll to heads up, pitch down, looking straight forward for the vis obs attitude when it's not associated with the mapping. Can you get Farouk and his troops tracking on that? Over.

CC-H ...

15 05 04 ACDR Yeah, this heads down; when you look out like that to get the view, you're - you're straining yourself up against the instrument panel, holding your feet in the struts against the tunnel, and everything in the book is left and right. Well, you can overcome

that, but you just can't get the lead-in. I tried sitting upside down on the couch, but the only way you can - -

TIME SKIP

15 45 54 ACDR Orange, okay. ... we had all of our snacks.  
CMP Yeah.  
ACDR Okay. ... the left ...  
CMP Yeah, there's a lot left.  
ACDR Oh, okay.  
CMP But I just - you know, if you start to run out -  
ACDR Oh, okay.  
ACDR Okay. ...  
ACDR ... is it mine?  
CMP Yeah.  
15 47 00 ACDR ... 000. ...  
CMP ...  
15 47 15 ACDR 119, 25, 000. ...  
DMP Okay.  
ACDR ...  
CMP Don't worry about it. There it is.  
ACDR ...  
ACDR Starting to ...  
15 48 20 CMP I think your times are wrong.  
ACDR What?



CMP ... an hour from now.

ACDR No. There's ...

15 49 43 ACDR You know, when I was in the proper attitude ...

ACDR Vance, you got -

CMP Yeah.

15 50 06 ACDR - - Flight Plan is ... keep the same ... suppose to go to ...

15 50 58 CMP Tape recorder, FORWARD, COMMAND RESET.

ACDR Okay.

15 51 30 CMP Okay. NOUN 22.

ACDR ...

15 51 47 CMP Yeah. ... Okay. I've got ...

ACDR Yeah.

CMP I think that's ...

ACDR ...

CMP Now why didn't we ...

15 52 14 ACDR Ah, so. Yeah. That's VERB 49 coming up.

CMP Yeah.

15 53 52 CMP Okay.

15 54 14 CMP God damn, we have packed all these things together again.

ACDR All of them?

CMP ..., Deke.

CMP I think the cheese bags are down in the ... I remember - -

ACDR ...

15 55 03 CMP And they used to be on the ... but they didn't have room. ... stuck them down under that jacket.

15 56 31 CMP Okay, 6:10. ... a VERB 49 ENTER. DSE, STOP, REWIND.

15 56 54 ACDR STOP ...

16 14 48 CMP Okay, I can get that. I can get the DMP stuff, ...

16 14 56 ACDR Has it stopped?

CMP Yeah. Going ... to manage.

ACDR Shoot. Thank you. ...

CMP Kind of sorry I ate your other one, now.

ACDR ... (Laughter)

ACDR Son of a bitch. That's the ... everybody had a wonderful ..., right?

CMP There ain't no sense cutting them now.

ACDR No. ...

16 15 47 CMP ... that's straight, Tom.

16 29 18 CMP Roger, Crip. Quito for 5.

ACDR Everything's going smooth on the - program.

CC-H I'm sorry we dropped out there, Tom, and I didn't catch all your comments.

16 29 40 ACDR Okay.

16 30 26 ACDR Okay, Crip. Everything seems to be going real good on the helium glow.

ACDR We'll just keep checking up on the ...

CMP Got to be ... the pantry.

DMP Yeah.

CMP Well, maybe ...  
 16 32 36 CMP Okay, the DSE's stopped, ... RESET.  
 16 32 41 ACDR ... FORWARD?  
 16 42 33 ACDR FORWARD - then COMMAND RESET. Got it?  
 ACDR ... FORWARD.  
 16 43 33 DMP We're still working the helium glow ... ..  
 CMP You know that DSKY work we did this morning? They  
 caught us - I mean, G.D. ... They caught us right  
 in the middle of our bad time, and it'll probably  
 be interesting because I know I said "shit - -  
 ACDR (Laughter)  
 CMP They'll just get some real "woids" from the old  
 command module.  
 ACDR Oh, we're passing Florida[?].  
 DMP ... up ...  
 CMP Deke, could you use any of these yellow pills? I  
 got one batch of them up with To, and I can give -  
 give you this whole batch if you want it.  
 16 45 08 CMP Hey, Tom.  
 ACDR Yeah.  
 16 45 10 CMP Here's a can of pineapple.  
 ACDR That's crushed[?] pineapple.  
 ACDR I don't want this chicken salad. Anybody want that?  
 CMP No thanks.  
 CMP Otherwise I'll just toss it ... I don't like ...  
 CMP Yeah.

16 45 54 ACDR No, I have one ...

16 46 00 CC-H Apollo, Houston. We're about a minute and a half from LOS through Newfoundland. And we won't have you through the ATS until 124:52. At that time, we'll be talking to you about modifying our attitude, so we can put a little Sun on the - the water port, and we will also - I'm sorry, I was telling you a story. We're going to have Madrid in about 5 minutes, INCO corrects me. But we're going to be deleting activating the primary evaporator, and we're going to leave that off the rest of the day if - if your comfort stays okay, and just kind of let that port sublimate out.

ACDR Okay.

DMP ... I can see two airplanes down there.

ACDR Can you?

DMP Yeah.

DMP Contrails.

ACDR Contrails.

DMP Hey, Dick. Where are we right this minute?

CC-H Oh, you're North Atlantic. You're just off the coast of Newfoundland, probably about - almost 1000 miles.

DMP Must be right on the airways. I see a couple of contrails, and I can almost make out one airplane down there ...

16 47 02 CC-H It's probably a pretty good - Yeah, that should be just about the primary route between the States and Europe.

DMP Yes.

16 47 19 CMP Almost see the airplane itself.

DMP Yeah.

16 47 37 CMP Okay, we need DSE STOP and COMMAND RESET.

16 47 40 DMP Okay.

16 59 54 DMP Yeah.

CMP We won't be seeing Russia again, will we?

CMP Yeah; well, because they - well -

17 00 46 CMP Let's see, ... I was going to say - because when we integrate from now on because of the ... cycle.

17 01 47 CMP I can't think of anything that's going off ...

ACDR ... sure we ...

ACDR ...

17 02 49 CMP Should have.

ACDR Vance, what ...

ACDR ... finish this in about - when?

17 03 33 CMP Oh, about 15 minutes.

17 04 04 CMP Okay, Deke, if you want, DSE STOP, COMMAND RESET.

17 10 03 CMP Yeah, he brought in this great big gyro. ... just demonstrate ... but kind of at the last minute thing ... Sure, that is. We'll see how it came out when we get down, later.

DMP ...

CMP On DSE whe - when - I guess he had a camera running too.

ACDR ... situation ... water and everything. ...

17 11 57 ACDR Mine's 25.

17 12 02 ACDR ... is 177.

19 05 44 CMP Okay. ...

ACDR Yeah. ...

CMP Yeah.

ACDR ...

CMP All right.

ACDR ...

CMP Right. What's the matter with that ...?

DMP ...

ACDR Yeah, that's right.

CMP I think you can get a ... - -

ACDR ...

CMP - - brought it out on this much - attitude. I suspect the ... are changing. Didn't hear about ... on this mission.

19 06 54 CMP Waiting for more ... flights, probably.

ACDR ...

CMP Any two or three at various intensities, that's for sure.

DMP ...

ACDR Well, that's possible. ...

CMP Yeah. That is interesting.

ACDR That's my impression.

19 07 44 CMP Lets you know how - what colorband ...

ACDR 3709.

CMP There it is. You're going to be in a good position.

ACDR Yeah.

19 08 53 CMP Now. Boy, that's beautiful.

DMP God damn! Near missed it, too.

MS (Laughter)

CMP Okay. DSE - one time.

ACDR ...

CMP Okay. ... STOP, ..., COMMAND RESET. Okay.

ACDR Yep.

19 09 32 CMP It's in the STOP position ... COMMAND RESET is all that's needed to make the switch work. COMMAND RESET.

19 26 38 ACDR ...

ACDR ...

DMP Yeah. That's exactly what happened. Must have been ...

ACDR ...

19 27 28 CMP I'll tell you, Tom, I find - I think neither one of us should ... second can keep an interest unless we have some participation.

ACDR Yeah.

CMP If one of us reads, the other one can do the computer work. I still - I think ... it would be better. That way, you have two guys checking.

19 27 52 ACDR ... DSE, STOP.

CMP Okay.

ACDR Okay. ...

ACDR Plus ..., plus 210, ... We only got about ...

19 29 14 CMP Yeah, and X-ray. I can't think of anything we - we could have done to ... backup.

ACDR No.

CMP We were mainly collecting urine and all that kind of stuff, and that probably showed up.

CMP ...

ACDR ...

CMP ...

ACDR No way.

CMP No?

19 31 45 ACDR ...

CMP STOP. COMMAND RESET. Right?

19 31 59 ACDR FORWARD. HIGH BIT RATE, RECORD. FORWARD ...

19 42 44 CMP That makes me think ... I've got to find one that says this is rev 77 now.

DMP I'll tell you what ... power ...

ACDR ...

DMP Fair enough.

CMP Maybe you can see a sign or something. (Laughter)

CMP Well, I'll tell you. I'm completely - I haven't the slightest idea where we are.

19 43 30 ACDR Hey, you don't think this is over the United States, do you?

CMP I'm beginning to think so.

ACDR Shit, we've been ...

CMP ...

ACDR Huh?

CMP ...

ACDR (Laughter)

CMP ... the States.

ACDR No, it's got to be the States.



DMP It looks more like - -

19 43 46 ACDR There's Chicago, down in the south end I'll bet.

CMP ...

ACDR Hell, yes. And here's Detroit up here and - over here's the - -

CMP ...

ACDR - - the big airport. I'm sorry. I'm not ... right over the ...

MS (Laughter)

CMP I wonder where it was - the things we saw. I can't imagine.

ACDR That had to be ... coming across.

MS ...

19 44 09 CMP That was the lower part of Baja. That's what it was, sure as hell.

ACDR Yeah, here's the great ...

CMP Yeah.

ACDR ...

CMP (Laughter)

ACDR ...

CMP (Laughter)

19 44 49 CMP Sure went across a lot of farmland. That must have been the Midwest.

ACDR Yeah, it was, definitely. ...

CMP I got to associate trees and cheese and stuff like that up there - Germans. (Laughter)

ACDR ...

CMP Yeah.

CMP Well, Tom had me talking ...

MS (Laughter)

DMP You live like it.

CMP Okay ... 42.

ACDR ... 24 ... it says here ...

19 45 34 CC-H Apollo, Houston. We're AOS through Goldstone.  
Should have you for about 7 minutes.

ACDR Goldstone?

DMP Okay.

CMP (Laughter) ...

CC-H Sorry. How about Newfoundland?

ACDR/CMP (Laughter)

DMP That's better.

CMP You had us shook up.

19 45 50 DMP We've just been looking at Wisconsin through our  
spotting scope and across Lake Michigan where the  
clouds ...

CC-H ... then.

CMP Okay.

CC-H Any chance I can talk one of you gents that isn't  
too busy into digging out a pad for me? To improve  
our data a little bit on this upcoming rev 80 for  
EUV, we would really like to run the - one of the  
EUV contingency pads - or the EUV contingency pad  
for rev 80, which is buried down there in Alfa 2.  
Any chance somebody could sneak under the couch  
there and get it?

DMP Just ... We'll get it for you.

19 46 28 ACDR Well, I can take care of this, Vance.

DMP ...

CMP Yeah, I can get it. I can get it.

CC-H Regarding that furnace, Deke. Don't we have - this kind of sample we've got in there - it's a little bit different from what we've been running, and we suspect it's just outgassing and it's going to take a little while for that pressure to get down. So what we'd like you to do is just to wait awhile on it and go back and check a little bit later and see if the pressure's dropped.

19 46 52 DMP Okay. We'll do that. And so far as this freezer is concerned, I've had the cover off of that. There is a lot of frost on the plug. But the problem is - in the process of opening that thing, we've accumulated a lot of frost on the remaining samples and the bottom of the plug, and that's where our binding is occurring. ... back in and we're in good shape now. So I propose we don't take the lid out any more often than necessary.

19 47 18 CC-H Okay. Understand the frost was forming on - -

19 53 37 CMP Let's see, we got the high gain ...

ACDR ...

CMP We're not going to have ATS ...

ACDR ...

ACDR Nope. ...

19 55 31 CC-H Apollo, Houston. We're AOS, Madrid. We have you for 6 minutes.

ACDR Roger. Understand there's no ATS voice until 128:57.

CC-H Affirm. In fact, we've even released the satellite such that you couldn't tune it in if you wanted to.

ACDR Oh, really.

CC-H            Yeah. We figured we wouldn't - wasn't going to need it, so we might as well let them - let them relax.

19 56 01    ACDR            Will we have it on and off for the rest of the mission?

CC-H            You bet. Just for this one rev that we've released it.

ACDR            Oh, okay.

CC-H            No, couldn't give up all this good voice and data.

ACDR            Right.

CMP             Oh, the satellite has other duties too, I understand. It divides its attention between us ...

19 56 46    ACDR            DSE, STOP, COMMAND RESET. ...

20 04 08    ACDR            Going to have ... 4420, we have ... obs. ...

CMP             Yeah. That's what he said.

ACDR            ...

CMP             Want me to make you a drink or anything?

ACDR            Yeah. Make out a strawberry drink or something like that.

CMP             Excuse me.

20 07 04    ACDR            Okay, Vance, DSE, STOP, COMMAND RESET.

CMP             Right now?

ACDR            Yeah. I'll hold that. ... I'll hold it. ...

CMP             No, I'll get it.

20 07 27    ACDR            STOP, COMMAND RESET.

ACDR            You got any ...

CMP             This kind?

ACDR No, ...

20 15 21 CMP I don't think they work. ... last one ... other ...

ACDR Oh.

CMP ...

ACDR ... I've got some ...

CMP ...

ACDR ...

20 22 55 CMP No, option 2, P20, ... take the VERB 48. The option  
- the other option ...

20 24 21 CMP Well, it's not the most exciting type of work. Even  
when we're rushed on it it's pretty easy. ...

ACDR ...

CMP ... Like what?

ACDR Like ...

20 26 17 CMP About - that's 29. ... Okay. ...

20 43 00 CMP You got enough?

20 43 51 ACDR ... as you can see the ... has got to break up. No.  
It's not lightning. Did you get it all in the other  
big bag? Get it all in one big bag?

DMP Yeah.

ACDR All stuffed in one bag.

20 44 29 ACDR Well, okay. It's either a 9-day mission or 5 full  
days or a 10-day ... We got 4 days ...

ACDR Hell, Yeah. Yeah, yeah. We're over halfway. That  
one bag ... ground it in?

ACDR ...

20 46 43 ACDR Okay. DSE, STOP, COMMAND RESET.

21 02 07 CMP Oh, Deke? Just float it down. ...  
ACDR ...  
CMP Do you see any - anything over the North Atlantic?  
21 03 00 ACDR No. ...

TIME SKIP

22 32 31 CC-H We've actually - If you've been going for as long as you said now on - on exercise, we've got an adequate amount. And we'll just go ahead and take - take the tape recorder and rewind it and set it up for our next pass. And you can do what you like regarding further exercise.  
ACDR Okay. I'll go ahead for about 4 or 5 more minutes. You want us to rewind it or you want to command it?  
CC-H We'll go - we'll -  
DMP ... nothing there.  
22 33 04 CC-H Rog. You can press on, and we'll go ahead and handle - -

TIME SKIP

23 01 42 CMP Got it. Be over ...  
23 01 47 ACDR Feels like - more like a ...  
CMP Yeah. Seems like there's a lot of power ...  
ACDR ... Oh, I'll get it for you, Deke. ...  
23 02 03 CMP No. They cautioned us today. Don't forget, when the DSE's on - running ... comm. They're getting it better. I don't know why.  
ACDR ... one ... Get this bag out. 16. ...  
ACDR ... put this ... in.

23 03 49 ACDR I don't have it. I've got - I've got some other film but not that one, I don't think. Let me check. I got all the film. Let's see, 5, 9. 3 came out of here. I do have them. The mag here, is 16, 17. I can shoot you one of those. Here's infrared, IF; you can have one of those if you - -

CMP Well, where are we supposed to be now according to their charts. Where should we be on the mags?

23 04 59 ACDR Okay, Deke. Here's 16 - coming at you.

DMP ...

ACDR ... You got a pen?

ACDR Today is ...

23 06 51 ACDR I wonder if some of these things ... put back here.

DMP ... Oh yeah.

ACDR What about these ... that still have about 20 left on them?

DMP Yeah.

ACDR You know, some of these still like ... still have about 30 exposures ...

23 07 37 CMP What is that, mapping?

ACDR Yeah.

CMP What kind is it?

ACDR This one's all out, here.

DMP ...

23 08 23 CMP ... STOP the DSE ... STOP, COMMAND RESET.

23 08 42 CC-H Apollo, Houston. Ascension for 4 minutes.

CMP ...

ACDR ... Yeah, I'm ... having trouble.

ACDR Oh, hell. No wonder. He didn't have his slide[?] up.

DMP ...

ACDR Put the slide[?] up.

23 09 35 CC-H Apollo, Houston. Ascension for about 3-1/2 minutes.

DMP ... reading you Crip [sic].

ACDR Let me try it. I've already got this ...

CMP Yeah.

23 09 43 CC-H And I've got a update to the upcoming P20 for this Earth obs attitude, Deke, if you'd - if you'd like me to update that Flight Plan.

DMP Okay.

CC-H Okay. It's at 131 hours and 15 minutes.

CC-H ... ready to copy?

23 10 10 CC-H Okay. NOUN - there's one change. The NOUN 78, VERB 7 - VERB 25, NOUN 78, I want to change the middle number to read plus 06000. And that'll end up - the three numbers will be plus all balls, plus 06 three balls, plus 18 three balls. Over.

DMP Okay. Copy.

CC-H ... you copied that, due to the data that we see here on the experiment, Vance, from the X-ray, we got a - a change in the pad we want you to do.

ACDR Got it.

CMP Okay. Go ahead.

CC-H Like - Okay. We'd like X-ray H - HIGH VOLTAGE POWER to OFF, now, down on panel 230. And I've got one write-in for you at 29 minutes.

CMP Okay.



23 11 08 CC-H And ... just write in there, "X-RAY HIGH VOLTAGE POWER to number 1 at 29 minutes." The rest of the pad remains exactly as is.

CMP Okay. Part of your "save the wear and tear" program?

23 11 27 CC-H No. Tell you what it is, we don't think we're getting good data on the X-ray. There's a very important target down there at 29 minutes. We're going to turn the HIGH VOLTAGE POWER, OFF now, and turn it back to number 1 at 29 minutes, and the rest of the pad will make it all work. The reason we're not changing any of the interim part of the pad is we're also getting U - EUV data. Over.

CMP Okay. Understand.

ACDR You want to turn your X-ray - -

CC-H Right.

ACDR - - off now?

23 11 52 CMP HIGH VOLTAGE POWER, OFF. Just - just HIGH VOLTAGE POWER, that's all.

23 11 55 ACDR HIGH VOLTAGE POWER, OFF. ...

CMP And at 130 plus 29, we turn it back on again. Okay? No it must be 131.

ACDR ... tape. ...

CMP Yeah. I think we ought to find where we are. And I - I can't - -

23 12 38 CC-H Apollo, Houston. We're about 30 seconds from LOS. Orroral Valley comes up at 131 plus 22. See you there.

CMP Okay. See you there.

ACDR Thank you, Dick.

ACDR Nikon.

ACDR You find it?

23 13 26 CMP It's set up for doing ...  
ACDR Okay.  
CMP ...  
23 13 31 ACDR ... the only thing you got left in here ...  
23 14 40 CMP Okay. DSE, STOP, COMMAND RESET. ... on COMMAND  
RESET.  
ACDR Okay. Okay, then ...  
CMP Okay.  
ACDR ... It's ... on the ... stuff.  
CMP Oh, okay.  
ACDR ... I think it's going to be okay.  
23 16 10 ACDR Where's the - where'd we put that - that quick  
release stuff?  
CMP Pardon?  
ACDR Put all that quick release, 16 millimeters ... Nikon  
down in A-5. And tell them where ... some  
Hasselblads.  
23 16 30 CMP Yeah, there was just two - two Hasa - -  
ACDR Hasselblads.  
CMP - - two Hasselblads down in A-5 also.  
23 16 40 ACDR Two Hasselblads ... Well, we got the ... on them ...  
23 17 05 CMP So for Farouk's stuff, compared to ... how many do  
we have now? ...

# # #

DAY 202

00 29 13 ACDR ... call them on that.

ACDR Houston, Apollo.

CC-H Go ahead, Tom.

ACDR Okay, Dick, down in this - again in this same area - about 32:34 - it says, "Activate primary evaporator." They still want us to leave this one off, ...?

CC-H That's affirmative. Delete that there where it says "Activate primary evaporator." And that's the last one of the day. We're going to leave it off.

ACDR Okay. We're going to leave it off all night, huh?

00 29 39 CC-H That's affirm. We're about - and, Tom, we're about a minute from LOS. Ascension comes up about 10 minutes from now at 132:19. See you there.

ACDR Real good.

ACDR Give Deke a Hasselblad.

CMP There you are.

CC-H And, per the pad, we'll probably get locked up on ATS before we get Ascension.

00 29 59 ACDR Roger.

00 31 44 CMP ... have Ascension?

ACDR 10 minutes.

CMP Well, resolved that one. ...

ACDR ... Oh. Yeah, ...

CMP I think ...

ACDR ...

CMP ...

ACDR Passed the ...

CMP ... you have ... .. there.

ACDR I got one of it.

CMP I got one after that.

00 32 54 ACDR Good.

00 43 29 ACDR On all those great pictures ... I want to ask, you know, if we can shoot that up.

CMP Yeah, that's - that's one for us.

ACDR Deke, here's your ...

CMP That's true - PAO quick-release numbers, right? That ought to give you ...

ACDR Yeah.

CMP Okay; give me more ... couple of ...

00 44 19 CMP Turn it on ...

ACDR Turn it on?

CMP Ah, yeah.

CMP Okay, and the next one will be VERB 49. ...

00 46 08 ACDR Any idea? I guess it's the fact that ... .. 50?

DMP Okay. It hasn't been ...

CMP Yeah.

00 47 01 ACDR Fine. I have a big stack of 16 millimeter on Nikons.

CMP Yeah.

ACDR No, in 85, 85. It hasn't ... store that stuff ...

CMP Okay. Here's the next one.

ACDR Yeah, there should be a - See that big stack there apart from PAO? That's the 16 ...

ACDR Almost got to ... every ...  
CMP VERB 49 ... 02.  
ACDR ... We can kind of shoot it ...  
CMP ...  
ACDR At 180 miles up ... here and staying ... NOUN here  
has got to be ...  
CMP Okay. ... ENTER. And a VERB ... 49 ENTER ... 117140  
plus 075.  
ACDR Pardon me ...  
DMP Hey, Vance, ...  
00 54 16 ACDR Oh, we got the ... on the ... in there ...  
CMP ...  
00 55 19 ACDR Hello, Houston; Apollo.  
00 55 46 CMP All right. MARK.  
00 55 51 ACDR Houston, Apollo.  
CMP ...  
00 56 37 ACDR Houston, Apollo. How do you read?  
CC-H Apollo, Houston. We read you loud and clear.  
ACDR Okay. Are we locked up on the ATS?  
CMP I'm sorry.  
00 56 49 ACDR Okay. I'll go ahead there and go to the STOP,  
REWIND, and ...  
00 56 55 CC-H Okay.

TIME SKIP

02 01 24 ACDR ... again.

02 01 57 CDR Okay. UP TELEMETRY ... DIRECT.

ACDR ...

CML Yeah. ...

02 05 08 CMP EUV ... STOP, COMMAND RESET.

ACDR ..., huh?

02 05 15 CMP Yeah. Right now ...

02 10 46 CMP ... plus 34 ...

DMP Plus ...

CMP Plus 17. Plus 317.

MS ...

02 11 12 CMP Yeah?

DMP It's pretty important.

02 11 17 CMP Oh. Well, that's - yeah, sure.

02 11 30 CMP Not yet. ... hit the control. ...

DMP ...

02 11 39 CMP Yeah. We'll wait ... Yeah, we ...

DMP Yeah, let's go. 33 ...

CMP It's ... go ahead.

02 11 56 DMP That's right.

TIME SKIP

03 07 41 CMP Anyhow, we're going to be just beginning rev 80 -  
... - it'll be about about - 15 minutes. Rev 8 ...

TIME SKIP

11 13 06 CC-H Minus 7 and 323.

ACDR Okay. And we'll check on how our water boiler's doing ...

CC-H Just as we go over the hill, why, everything looks fine. We still have live TV from the Soviet Union - Kazakhstan, where the spacecraft has landed. And we saw it touch down. Cosmonauts got out and everything looks good.

DMP Well, must have been a pretty good landing.

ACDR Vance? Something's wrong. They had the TV live and saw the touchdown. If they had live TV on their touchdown, they must have ... the hell out of their landing.

11 17 38 ACDR We got a 9-minute water dump ... 43:15.

ACDR How's the docking module? Cool up there? How's the ... look?

CMP Not bad.

ACDR Not bad ... For one time, I hope ... Where's the latest? Okay, we got ...

11 18 26 ACDR Deke, while you're there, how about giving the high gain angles? Minus 7 on pitch and 323 in yaw.

ACDR ...

CMP What?

ACDR ...

11 20 52 CMP Go ahead, Deke. Go ahead. Yeah, but ...

CMP Okay. VERB ... CMC Mode. ... Option 5 ... that's 143:04. Okay, option 5 ... Let her rip. ...

ACDR           Okay.

11 23 36    CMP           You got all of these jet monitors ...?

              CMP           Oh. ... first chance to dump that thing, huh?

              CMP           Okay, ... pressed for it. But, hell, ...

11 26 24    CMP           Here, I'll take it, Deke.

              CMP           Okay. Deke, see what you can do.

              CMP           Find it?

              DMP           Hey, this is plus 28 ...

              CMP           Okay, then we can mark that off as okay? Okay.

11 28 20    CMP           Next, there's - HRC, CX15 and IFO2.

              CMP           Okay. Tom - oh, yeah. CX15. And it needs another one, then.

              CMP           Okay. Yeah. All right. IRO1 and IRO2.

              CMP           I'm on SERVO. I -

11 29 59    CMP           Okay. It was IRO1 and IRO2, so - Yeah. Oh, wait a minute - U1, U1.

              CMP           Okay. And I'll check it. ...

              CMP           51? ...? I can follow the -

11 31 36    CMP           Okay. I don't see any, yet. I think they're in the - Okay.

TIME SKIP



12 29 21 CC-H ... big chute. Coming down, you know, it looks kind of like a diving bell. And just before they hit the ground, there was a big cloud of dust. Must have been when the rocket fired. And then the dust blew away, and they settled down quite - looks like quite nicely. When the people got to them, they got out and stood up, and both of them waved. And so they looked like they were in good health and good spirits.

CMP Sounds great.

CC-H And we're just about going LOS here.

12 30 33 CC-H And, Deke, you get to do your thing with the electrophoresis today?

ACDR I didn't copy that, Deke.

DMP Huh? You didn't. I copied the ending. ... I remember thinking - -

ACDR Right over there.

ACDR Right there.

CMP ... C and D ...

ACDR I got to ...

CMP Yeah, 88. Getting up there, man. Wonder where's ... Mission will be over before you know it. Right. That's hard to tell. That's right. But we got to savor the last 3 days here.

ACDR The light is coming on down to ... Okay. Why don't you - Huh?

CMP ... 10 days?

ACDR Yeah.

CMP Hell, if we start leaving the VTR off now, we might last 12 to 15 days.

ACDR Towel.

12 34 06 CMP B-5, I think, Tom. It's not? I'll look it up in the Supplement and see where it is.

ACDR They were supposed to be in 5.

CMP Why don't I look in the Supplement now while - Deke, you looking for a towel?

ACDR And there's none in here now.

CMP Okay. Let me - let me grab the Supplement ...

DMP You putting the Nikon stuff up in F-1?

ACDR Yep.

CMP All tissues that came were in A-1.

ACDR All tissues?

CMP Yeah. Well, except I don't believe that should be. No. Sorry. Oh, A-2, also.

ACDR A-2, huh?

CMP Yeah.

ACDR Oh, okay.

12 35 04 DMP Yeah. A-2 and D-4. There should be some with the docking module. Only thing is, we'll probably have to ration them. Now, towels. What the hell do they call towels? I guess they are called towels. Here they are. Towels are in A-1, A-2, and D-2. So, you got both in A-1, A-2, and D-2.

ACDR Yeah. Huh?

ACDR ... that's ... towels ...

12 37 56 CMP Take that paper from back of the hand controller.

ACDR Would you take down those towels? ... air conditioner ... water.

ACDR I've got to ...

ACDR ... got it. Battery's dead? ... got a dead battery.

CMP Yeah. Dead battery. You about ready to go? Go down and get ...

ACDR How about ...

CMP How much time you got?

ACDR 12 minutes. ...

12 41 00 CC-H Apollo, Houston through Vanguard for just a little over a minute. Santiago at 144:37.

ACDR Roger, Bo.

CMP Let's see - the batteries are in A-5, aren't they?

ACDR Yeah.

CMP What kind of a thing are they in? I've forgotten.

ACDR ... you did? They're - they're right here. ...

CMP The ... are still with ...

ACDR Yeah.

CMP You're sure they're in A-5, huh?

ACDR ...

CMP Could be A-6.

ACDR Could be A-4.

12 42 08 CMP A-4?

ACDR No, I don't think, but we can check. No, I think A-5.

CMP Batteries, A-5?

ACDR Yeah.

CMP Okay. Book says that, huh?

ACDR Yeah.

12 42 28 CMP Oh, hell, I think the batteries are in A-4, too.

DMP Okay; we're going through ...

DMP It says ... jet engine ... being cut off ...

CMP Deke.

DMP Yeah.

CMP Here's the battery.

DMP Oh, okay.

CMP Hey, maybe we ought to replace 2. Well, I guess we shouldn't replace it.

DMP ...

ACDR Okay. We're upside down going forward. Those valves are to your left. Upside down to your left. If you're right side up, valves are to your right. Upside down, valves are to your left.

12 44 46 ACDR I'm going to need some help on this.

CMP ...

ACDR Got a towel ...?

ACDR Is the Hasselblad ... the Nikon camera bag?

CMP ... that way before. ...

ACDR Right.

DMP What we better do is ...

ACDR I don't think so.

DMP Why?

CMP Because we got a couple of ..., and I don't know about ...

DMP I was going to put another ... back in the rear ...  
back there for ...

ACDR You guys ...

12 47 50 CMP You mean one guy kind of handle things?

ACDR ... like I got a ... See?

CMP Yeah.

ACDR ...

CMP You gotta be quick because it'll make you or break  
you.

ACDR Right. ... Good way to get things done.

CMP There's a lot of wording to ... with regards to  
the ... I mean on the job, of course.

ACDR Got a ..., Deke?

DMP I'll see.

CMP Then what do you need, Tom?

ACDR I'd like to wipe that window better ... And a  
napkin isn't ... I was trying to find that ...

CMP How about a Kleenex?

ACDR ... Kleenex ...

DMP ...

CMP It took me five, and I didn't see any problem there.

ACDR ... I had a pack ...

12 49 27 CMP Yeah, I could use one towel out of that, too.

DMP Okay.

CMP Oh, shit.

ACDR What?

CMP I've got to get a P52. Better hurry up.

ACDR Water?

DMP Yeah.

CMP I wonder how much time I got.

ACDR Okay. 27. You got about 5 minutes ... hour ... option 3.

ACDR Let me have one ... Got the ...

CMP Yeah, they left a ...

12 51 13 CMP Oh, okay, Deke. Appreciate it. Thanks.

ACDR You ought to take one of those ... they got ... in the LEB ... towels ...

ACDR Okay. This is rev 88. Starting the Earth obs at 144:30. Sites 8B, C, D, and E ... again?

DMP Yeah.

CMP Aah, Deke, in a minute, I'm going to need CMC, FREE. Well, maybe I can get it.

ACDR I - I'll get it.

12 52 06 CMP Can you get it? Not quite yet, but in a minute.

ACDR ... in the background?

CMP Yeah.

DMP Let's see if the ...

CMP Okay.

ACDR Okay.

CMP All balls.

DMP Okay.

CMP And did you ...?

DMP ...

CMP Okay. Have you got the torquing angles?

DMP 14.8, minus 18.7, minus 12.8.

CMP Okay. I'm going to torque it.

12 53 03 CMP MARK at 144:31:00.

DMP That torque?

CMP Yeah.

DMP ... CMC, AUTO. What were your stars?

CMP 06 and 15.

DMP Sure, huh? ... back up ... Nikon. ...

CMP Okay. Tom, would you leave those free for a second? I'm going to have to get back into a plain old P52. I'm not sure what the Flight Plan says to do. I've ... Okay; I've got to go to 20; that'll do it.

ACDR Okay. I'd better go back to AUTO then.

CMP Not yet - not yet. Just a second. I don't want it to stop in the middle.

CMP Okay. I think we're all right. We'll go 58.

12 54 30 ACDR MODE, FREE.

CMP Okay. Go back to AUTO.

ACDR Okay.

CMP Okay; to 58. ... maneuver.

ACDR Okay.

CMP Got to go down to a pitch 72. Let it - let it fall off.

ACDR Okay ...

CMP Okay. Hold it.

ACDR Vance. Vance, did I ever tell you - -

CMP Okay. So much for the P52.

ACDR Why don't you ...?

CMP ...

ACDR That's what I need to do ...

CMP They got this dune field?

ACDR Here's this dune site at 144:28.

CMP Where - where's the - -

ACDR ... colors.

ACDR Right here ...

12 57 37 DMP You're all set.

ACDR Let's see, ...

DMP ... Check it and see if you see it. ...

ACDR What rev?

CMP What rev? 88. We're just starting 88. We'll have to get the LiOH.

ACDR ... down here.

ACDR ... I'll get it.

12 58 44 ACDR Oh, Vance, flip the HIGH GAIN angle. What they want is a minus 4 and 312. HIGH GAIN angles, minus 4 and 312.

ACDR ... Sure is ...

DMP Yeah, I can. I put it there because ... somebody else.

13 00 16 ACDR Oh, fuck! I wish ... this goddamn machine off.



DMP Do what?

ACDR Fuck the damn ... Sorry that we have to put up with ...

DMP Here's the long river running north to south. It comes up around in here. What direction are we going in?

ACDR There's the river site. Okay. ... 44 and 48.

DMP 44 and 48.

ACDR Yeah.

ACDR No, that isn't ... yet.

13 01 11 DMP 44 and 48 ... Look at that highway down there. All I can see ...

13 04 40 CMP ...

ACDR ... here's one on ...

CMP ...

ACDR ...

CMP No, that is the ...

13 05 40 ACDR Look at that ... down there ...

TIME SKIP

13 40 45 CMP ... other one.

ACDR 5.

CMP ...

ACDR ...

13 41 21 ACDR 66630[?].

CMP ...

ACDR 66630[?]. ...

13 41 37 CMP ... Hey! There's a hell of a river. Wonder... - -

ACDR I think that's ...

CMP Oh, yeah.

ACDR ...

CMP ... from here.

ACDR Look at those ... ..

CMP Yeah, we're going over ... right now. ...

ACDR ... stop.

CMP ...

CMP Yeah, we're right in through them - ... - -

DMP ...

CMP - - ... said we're going over just the start of it.  
Might not be -

ACDR ...

13 43 26 CMP What's the...? ... Going through ... Hell, we're  
going to go right over China. Look at ..., all those  
...

ACDR ...?

13 44 15 CMP Yeah. ... turn it on.

ACDR Yeah, right.

CMP Yeah.

ACDR ...

CMP I just put it down there.

ACDR Okay. ...

ACDR ...

CMP Think it's ...?

ACDR Yeah. ...

13 44 59 CMP Okay.

CMP Ready for you guys, but I haven't been ... down ...

ACDR Yeah. ...

13 45 24 CMP Okay. Stand by - do it.

CMP Well, it's dark.

ACDR Okay.

CMP Okay?

ACDR ...

CMP ... the whole thing. HIGH BIT RATE, RECORD, ... and -

CMP Ah, man. What a tremendous experience.

ACDR ...

CMP It is now?

CMP Okay.

ACDR Okay.

13 47 21 CMP Ready, start.

13 47 23 ACDR RECORD, HIGH BIT RATE, (sneeze). ...

TIME SKIP

14 21 26 CMP Looks like you've got a regular kitchen over there, Deke. You didn't get your breakfast yet?

CMP Let's see. This first one there ...

CMP ... Can I help ...? Do you have ...?

ACDR Okay. ... Can't even touch ...

14 23 05 CMP Okay.

TIME SKIP

15 37 52 ACDR Yep.

CMP Ready?

ACDR Right.

15 37 56 CMP Okay. VERB 49 ENTER - VERB 41 - plus 168.30.  
Maybe we ought to do that ...

CMP She ... like a robot.

ACDR Yeah.

CMP 35. Okay. VERB 21 NOUN 46 ENTER.

15 39 19 CC-H Apollo, Houston, talking at you through Orroral.  
Got you for a little over a minute.

CMP Okay. 61102 ENTER. VERB 46 ENTER. Okay, we're  
going to get out ... 49 ENTER VERB 44 ENTER. Plus  
167.40, plus 278.40, 20 seconds.

CMP Roger. Reading you weak, Crip.

CC-H Okay, fine. I've got you loud and clear right now.

CC-H Apollo, Houston. If you read me well enough - Well,  
we're just about to go over the hill right now.  
We'll see you at - at Quito in 30 minutes.

ACDR Okay. Anything you need real fast?

15 40 35 CC-H I was going to give you the DET time to count it to  
on rev 90, which is over on another - the next page  
here of 148:23:01, if you want it.

ACDR 148:23:01. That was 148:23:01, right?

CC-H That's affirmative.

ACDR Got it.

CC-H Okay.

15 40 56 ACDR That's when we start the next one.

ACDR Deke, there's lots of noise down there. Someone must be working.

CMP Oh, yeah? Okay. I want to stand here until you get a dump. ...

ACDR That's correct.

CMP ...

ACDR Ours ...

CMP Should we renew our ...?

ACDR ...

15 42 47 CMP Yeah. Yeah, this little thing here that you hold at arm's length? One way to design it would be so that ... your eyeball ... back here, not back there.

15 43 42 CMP Okay. ENTER VERB 21. NOUN 46. 61101. NOUN 46. VERB 49 ENTER. VERB 49 ENTER. Plus 170.40.

CMP Okay. Stand by -

15 44 40 CMP Go.

ACDR ... ENTER.

CMP Okay. ENTER. VERB 49 ENTER, VERB 21 ENTER. Plus 173.40. ENTER. ...

15 45 29 CMP I'll be able to work in a minute.

15 46 27 CMP ENTER VERB 21 NOUN 46, plus 61102, 46 ENTER. VERB 49, ... plus 17 - plus 178.20, plus 250.00. ...

CMP Hey, would this be known as the ETE camera bracket?

ACDR ... A-6.

CMP Hey, Deke, the ETE camera bracket's in A-6.

DMP ...

CMP Okay.

ACDR Hold on just a minute ...

CMP Okay. We'll be through in a minute and we can help you.

ACDR ...

15 48 42 CMP Beautiful timing here. VERB 21 NOUN 46 ENTER. 61101. VERB 46 ENTER. Okay. VERB 49 ... plus 181.20. 33:30 ...

ACDR ...

CMP No.

ACDR I thought you were going to check this one out. ... Yeah.

15 50 19 CMP ENTER, VERB 49 ... .. you got to wait for this one.

ACDR ...

CMP ..., right?

ACDR ...

CMP ... GD.

ACDR Find it?

CMP Yeah.

ACDR This - this is another ...

15 52 03 CMP Did you find it? Did you find it, Deke? Yeah.

ACDR Did you find it?

DMP Yeah. ...

CMP Okay.

ACDR HIGH BIT RATE.

CMP No. LOW BIT RATE, RECORD, and FORWARD. ...

ACDR ... LOW BIT RATE?

CMP RECORD, FORWARD, COMMAND RESET - COMMAND RESET, I mean.

15 53 34 ACDR LOW BIT RATE, FORWARD, RECORD - COMMAND RESET.

CMP Right.

ACDR Roger. Let's go back to the last one.

CMP ... It kept going until here, and then apparently it just wanted to change LOW BIT RATE. ...

15 54 01 ACDR Powerdown.

ACDR Okay. Next wonderful thing on today's program is to make ... pictures. Remember that your attitude ...

CMP The time is 47:32. Okay, ... 49 ... 25 ... plus 210.90 - -

ACDR Plus 210.

CMP - - 90. Yeah. Plus 060.00, plus 5000. Yeah. That's fine.

15 55 10 CMP Oh, shoot! Did you know that was 060.5?

ACDR No ...

CMP ... first. Okay, you were the first one - -

CMP Plus 210.90 - -

ACDR (Cough)

CMP Okay. Plus 060.50.

ACDR ...

CMP ...

ACDR 210.90, 060.50.

15 55 39 CMP Yeah. Now, I think, activate the PRIMARY EVAPORATOR.  
... this is where we do the ...

TIME SKIP

17 11 11 CMP All right.  
ACDR I just have to really watch that electrophoresis.  
CMP Yeah, I know.  
DMP ...  
ACDR Yeah.  
CMP Yeah. I think we have. Crip said he'd send you  
... shortly.  
DMP Crip, ...  
CMP I guess he's gone.  
ACDR I've still got them.  
DMP ...  
CMP Verify tape going to gray.  
ACDR ...  
17 12 21 CMP VERB - VERB 21 NOUN 46 ENTER. 61101 ENTER.  
VERB 46.  
ACDR Okay. I need ...  
USA ...  
ACDR Yeah. That's what I said. ... What f-stop?  
CMP ...  
ACDR Yeah.  
CMP ...  
ACDR Yeah. I'm running it FAST FORWARD ...



17 14 03   ACDR     What's ATS doing besides working with us? Working ...?  
          CMP     Yeah. But I don't know if it is during this 10-day  
                  period.  
  
          ACDR     That's what I was wondering. I just can't think  
                  of anyone else ...  
  
          CMP     Birth control education - Man, if they could do  
                  that and help India - it would be worth something.  
  
          ACDR     That's right.  
  
17 14 36   CMP     Okay. ENTER and VERB 49 and VERB 41. Plus 197.30.  
          CMP     ...  
          ACDR     ...  
          CMP     Okay.  
  
17 15 43   CMP     You know, if India doesn't get their own population  
                  under control - that has signs of being one of the  
                  conventional hot spots of 30 years from now.  
  
          ACDR     Yeah. Look at all this desert we fly over.  
  
          CMP     Yeah. Right, right.  
  
          ACDR     That's - there's only so much arable land - and  
                  unless you have a way of really taking all that sea-  
                  water and ... there's just so much the area will  
                  support.  
  
          CMP     Yeah.  
  
          ACDR     Well, you have to be awful thankful for the climate  
                  the way it is in the United States. ...  
  
17 16 33   CMP     There's so damn little really good land in the world,  
                  it's surprising.  
  
          ACDR     We've fucked up.  
  
          CMP     Okay, coming up to 45. And a Jupiter. ENTER 49  
                  VERB 21. 194.30.

CMP ... exercise, a little ashamed ...

ACDR One more ...

CMP Fine. ...

CMP Okay. ENTER. 49 ENTER, VERB 21 ENTER. Okay.  
Plus 191.30. Should turn out 35:20 or 35:25.

17 18 58 ACDR You know one place that's fantastic but hasn't ever  
been touched as far as land ... agriculture ...  
They have great forests.

CMP Yeah. But they're not really too good for agricul-  
ture, are they, Tom?

ACDR Huh? I don't know.

CMP I think the land gets leached.

ACDR The land gets leached, huh?

CMP Yeah.

ACDR ...

17 19 25 CMP That's why they have that policy of slash and burn  
down there. They'll slash out a section of jungle  
and burn it, use it for, as Deke said, 3 or 4 years.  
And then if it's no good, they've got to go slash  
and burn another patch.

ACDR I'll be damned. I didn't know that.

CMP If you put fertilizer on it, it'll wash away after  
the first couple or three weeks.

ACDR ...

CMP Yeah.

17 19 57 CMP See if the other side is better.

ACDR Okay.

ACDR Do I have a one-size ...?

ACDR Yeah, what ...

ACDR Looking at what you've got here. ...

ACDR ... pick up this ...

CMP ... both of them.

17 21 51 CMP Okay. 37 coming up. And we just - all we do is get ENTER and - now. And we get - at 37, LOW BIT RATE, RECORD, FORWARD, COMMAND RESET.

ACDR LOW BIT RATE, RECORD, FORWARD, COMMAND RESET. That right?

17 22 12 CMP Right. And then, in addition, power down EUV.

17 23 08 ACDR Okay, it's set.

CMP Okay.

CMP I wonder what they've done here? CSM ... the book. The bottom ... I don't understand that. ...

ACDR Do you go to the Flight Plan for the rest of it? ...

CMP Okay.

ACDR ...

17 23 45 CMP That's good. ...

ACDR 00000 ... wind up with ...

CMP ... you sure?

ACDR ...

CMP Well, that's good. ...

ACDR ...

CMP Okay. ...

DMP ...

ACDR That's the first set. The timer reads zero.

DMP Okay.

ACDR We also have Doppler. ...

17 26 34 CMP Hey, Deke. We got the tester down in that corner. Verify cabin vent QD on - installed.

17 26 56 CMP Okay. What's this? ... Oh! Okay.

ACDR ...

17 30 14 CMP There's the big ... for you, Deke. I bet you've got a lot of -

DMP ...

CMP Do what?

DMP ...

17 33 58 ACDR Hey, Deke.

CMP Hey, Deke, could you help me?

DMP ...

CMP Yeah, I can try to do it, Deke. You got more important things to do. What's it - what's it supposed to be set up on?

DMP ...

CMP Oh, I see.

DMP ...

CMP Yeah.

17 35 13 CMP Now, what are their recommended settings?

DMP ... settings ... cue card ...

CMP Oh, the cue card, huh?

DMP ...

CMP About - -

DMP ...

CMP Then you're all set up ...

DMP ...

17 36 10 CMP Oh, yeah.

17 36 49 CMP Yeah. Oh that's great; behind you ...

CMP Okay. While Deke is ... that's okay.

DMP Right there.

CMP Yeah. ...

DMP ...

17 37 06 CMP No - Yeah.

CMP Okay. Well, ... Deke.

CMP Oh, yeah. Yeah. Let's see, if we wanted to ...  
that would be ...

CMP Yeah.

CMP That would be ...

17 38 27 CMP I haven't either, but I have ...

17 39 34 CMP Yeah. Sure the hell do. I think that ... Well,  
after ...

DMP ...

CMP If you - get a chance, show me where that Adriatic  
thing is, so that I know ... don't bother. ...  
help out on that.

DMP Okay. ...

CMP And I'll be down ...

CMP Okay, you can start up there.

ACDR That all?

17 40 34 CMP Are you ready? ... What part of it ...?  
part.

CMP Okay. I think - Let me try to ... myself better.

17 40 57 CMP Yeah.

ACDR ... Deke.

CMP Okay. I didn't check ...

17 41 57 CMP ... 149:19 ... 149 ... we're ... we're coming ...

DMP ...

DMP Okay.

17 43 17 CMP Okay ... talking about ...

CMP ... almost made it.

DMP ...

CMP Yeah.

17 44 27 CMP ... Right.

ACDR ...

DMP ...

ACDR ...

17 45 59 CMP ... got it stopped, I think ...

DMP ...

CMP 180 degrees.

ACDR ...

CMP ... got ... upside down.

17 46 32 CMP All right. Hit it. ...

17 46 59 DMP Okay.

17 54 59 DMP ... the primary is concerned.  
CMP ... right below you. It's coming in. It may come  
in for you. I don't know. But it'll pitch it over.  
DMP Okay; thanks.  
CMP Yeah.  
17 55 19 DMP ... little problem here. ...

TIME SKIP

18 41 57 CMP ... star 13 ... I just had it there.  
ACDR ...  
CMP Yeah.  
CMP Tom.  
DMP This one?  
CMP Yeah. I just got to wash off this one. ...  
ACDR ...  
DMP Say - they didn't have any ...  
CMP Guess it's cooled off.  
DMP ...  
CMP Well, I don't know. I wrote in, to ... Was this  
the same as - -  
DMP I don't know. That's - -  
ACDR ...  
18 45 18 ACDR Okay. ...

19 00 31 CC-H - second bag, the one that has the eggs in it.  
DMP Yeah. Got it. ...  
CC-H Okay. Have you noticed any - any hatchings yet?  
DMP Well, ... yesterday, but I haven't looked at it today.

19 00 50 CC-H Okay. We're about ready to go over the hill here  
and we'll see you at Goldstone in 15 - 15 minutes.  
And we'd certainly be interested in hearing it when  
you take a look at it - whether we get any.  
DMP All right.

19 02 35 DMP I've got them ...  
DMP Okay. We're in A ...  
DMP Okay. It's probably ... down there ...  
CMP Yeah, that one.  
DMP ...  
ACDR ...  
CMP Right there across from you.  
ACDR ...  
DMP Yeah, that's where it - ...  
ACDR The problem is ...  
CMP ...  
ACDR ...  
ACDR How about this ... here?  
DMP I don't think that ...

19 07 24 ACDR Yeah. I hope you're right ...  
CMP Well, I tell you what ...  
DMP ...



ACDR Is that better?

CMP I'll say this, then I'll ...

ACDR ...

DMP Go ahead.

19 09 18 ACDR Do we have to lock up this -

DMP ...

CMP ...

ACDR That ... instead of popping around.

USA ...

19 11 19 ACDR That was just your ...

CMP ...?

DMP No.

19 14 09 ACDR I'm wondering ...

ACDR ..., Deke, you got all that ...?

ACDR Yeah.

ACDR I didn't hear it. Through here?

19 16 40 CC-H Apollo, Houston. We're AOS through Goldstone. We have you for about 2-1/2 minutes.

ACDR Okay, Crip. And another master alarm came on as far as the light on it ... configure my headset. The whole panel is clear.

19 16 55 CC-H Okay, copy. You got an MC&W -

19 18 42 CC-H - at 150:25, we need you to go ahead and get that in, so we'll be set up for the next helium glow. Also, we'll get you on ATS.

ACDR ...

19 19 08 CC-H Recommend you increase your DAP to 1/2 degree per second for this maneuver.

ACDR 1/2 degree per second, what's the ...? ... DAP by  
1/2 degree.

DMP ...

ACDR About 30 minutes ... go. ...

DMP Okay, Houston. ... make it ... Hold it.

ACDR ...

ACDR Okay. We got ...

ACDR Okay. Now what angles do we have to lock up?

19 20 39 DMP Okay. Minus 35 and ...

ACDR ... We're going across the Midwest.

CMP ... we've gone to far ...

ACDR ... we're on the Midwest ... interstate highway.  
See that interstate highway right down below?

CMP It may even be Oklahoma.

19 21 50 ACDR Yeah, that's Oklahoma City.

CMP I think it is. See that's the lake ...

ACDR ...

CMP It looks like Okalahoma City. I think it is. ...  
(Laughter)

ACDR ... just put it right there, Deke.

DMP ...

ACDR Yeah, that's too bad. Man, that'd be - that'd be ...

DMP ...

ACDR ...

CMP ...

CMP ... that's right.

ACDR ...

CMP Yeah.

19 26 18 ACDR Deke, the high-gain angles for the ATS.

DMP You want them?

ACDR ...

DMP ... 35.

CC-H ...

19 26 28 CC-H Apollo, Houston. We are AOS through Newfoundland. Should get you with the ATS about 51 minutes.

ACDR ...

CC-H Okay. I heard you call back down, but it wasn't very clear. If the comm's not going to be too hot here through Newfoundland, we'll - we'll wait until we get ATS lockup.

CMP Heard you loud and clear ...

CC-H Okay. Reading you the same, now, Vance. One item I would like to go ahead and pick up and get out of the road is for the upcoming helium glow pass; I need to give you the times and a couple of deletions on that. That's rev 92/93 in your Supplement.

CMP Rog.

ACDR ...

CC-H Okay. If you're looking at it, for - we want to set the DET counting up to 151:36:36.

CMP Okay. Helium glow pad ...

CC-H Okay. That's a good readback. We would like to delete X-ray from - from this pad entirely. And we would like to use, on our EUV ops, detector 2, vice detector 1.

CMP ...

CC-H I'm sorry, I said that backwards. We want to use detector 1, vice detector 2.

19 28 22 CMP Okay. ...

TIME SKIP

19 58 59 CMP Okay. That's the fast ... do it.

ACDR ...

CMP Okay.

ACDR That's why ...

19 59 38 CMP How we doing on the old Flight Plan? Got the WASTE STOWAGE VENT valve CLOSED?

ACDR Yeah.

19 59 46 CMP ... Experiment Checklist ETE freeze. ..., Deke?

DMP Yeah. ...

CMP Okay.

CMP Furnace, MA ... How about that?

20 00 17 CMP Yeah, okay. Unstow pulser and MA ... samples from A-6. And DM Checklist furnace shutdown. Coming up. Get that? Coming up.

CMP And we're waiting for 6 minutes. That little timer is being used down below, right?

20 00 56 ACDR That timer is somewhere in the spacecraft.

CMP Oh.

ACDR ... I heard it go off. ... right time. ...

20 01 14 CMP Amazing how you can ... zero-g. It was ... DET.

ACDR What was that?

DMP ...?

ACDR No.

CMP No.

20 01 59 CMP That's because we just loaded in the - -

ACDR Oh.

CMP Want it in 4 or 6?

ACDR 6 ... says here. ... can you hand me back the pads? ...

CMP ... we get to the next thing after this ...

20 02 57 ACDR 12.1 ... Start the ... ops. ... about 154:30. Look in the Flight Plan at 154:30. ... got anything else ... He's got his SAM installation and calibration.

20 03 30 CMP Thing is I could probably correct ... will be attitude ... It's going down into 2 minutes.

ACDR Okay. Well, it's got to ... before that. Have to shut it off, close the - you ... on open.

20 03 48 CMP First half of that pad ... over here ... The last part ... the one attitude. ... switch ...

ACDR ... You got a bunch of SAMs coming up ...

DMP ...

20 04 24 ACDR Oh, it's reading about 64 minutes.

DMP 64. ...

ACDR Yup.

ACDR ... came up ...

20 04 47 CMP ... up here so I can check ... Load VERB 25 ENTER, 148.00. STOP, COMMAND RESET.

ACDR Yeah. ...

20 05 10 CMP Yeah.

(Music)

20 09 15 CMP ... Oh, yeah. ... Okay, 49 from this pad ... pad.  
Oh, okay. I'll just put this away and I'll get out ...

ACDR Those are big log books, huh?

DMP Yeah.

20 10 01 ACDR Okay. I'll back you up on it.

CMP When do we pick up Crip? Vanguard?

20 11 25 CC-H Apollo, ... Orroral ... Vanguard. ...

CMP Roger. How long did he say?

ACDR ... minutes.

CMP Okay.

20 12 23 ACDR DSE, STOP ...

20 29 00 CC-H Apollo, Houston. If we could, we'd like to get an  
update on the furnace. According to our Flight  
Plan, it should have been shut down, and we show  
it still powered up. Are we running a little bit  
behind here?

20 29 12 CMP Do you know what the status is?

ACDR Deke's up there working on it now.

CC-H Okay; fine.

20 30 56 ACDR You got some ... the checklist?

CMP Yeah, I guess there's really not much for you to  
do here.

ACDR Why don't you go check on ...?

20 31 13 CMP Hey, Deke?

DMP Yeah.

20 31 15 CMP The ground said they still saw the furnace powered  
up. They just wanted the status.

20 31 24 DMP POWER to OFF.

20 31 59 CMP Deke, and should I tell them you're finished up?

DMP Yeah. ...

CMP Okay. Very good.

20 32 18 CC-H Apollo, Houston. We are 1 minute from LOS. Next station contact will be through Goldstone. That's about 15 minutes away, and it'll be at 152:25. 152:25.

ACDR Okay. Real good. Thank you, Crip.

CMP Hey, Crip. Deke says the furnace is off now, and he's doing prep for MAO60.

CC-H Rog. In looking at how we got here, I guess we look like we were just dominoing down from the fact that we had that problem on the ETE with the temperature, and I think everything's just running a few minutes late. We understand it.

ACDR Okay.

DMP ...

CMP No, they just wondered.

CMP What kind of a sample is that?

DMP That's a - -

CMP Oh, yeah.

20 33 18 ACDR ... STOP, COMMAND RESET.

CMP No, you still need - Okay. I thought you didn't - -

ACDR I'm sorry. ... STOP ...

20 33 30 CMP Okay.

20 45 33 CMP Okay. On the camera stuff.

DMP Okay.

20 47 19 CC-H Apollo, Houston. We're AOS Goldstone for 6 minutes.

ACDR Roger. ...

ACDR Okay, Deke. You've got a little more than than 30 minutes. Okay?

DMP What?

20 47 51 ACDR I got you coming up on 30 minutes.

DMP Right.

CMP Did you need the cable? Shall I disconnect the cable here? Good. That'll save room, probably.

20 48 22 ACDR Why don't you stick a piece of tape on each ...  
... and tell them which one was bad.

CMP Okay. I'll put a piece of tape on this saying "bad."

20 49 18 ACDR While you're here, you want to set DSE, STOP,  
COMMAND RESET?

20 49 24 CMP Okay.

20 59 09 CC-H Apollo, Houston. We're AOS Newfoundland for  
7 minutes.

ACDR Roger. I understand we don't have ATS ...

CC-H That's correct.

21 00 06 ACDR Yeah. Yeah. Right.

DMP ...

ACDR Yeah. ...

ACDR Houston, Apollo.

CC-H Apollo, go ahead.

ACDR ... data looking good on us?



21 01 06 CC-H We're looking at you through Newfoundland right now and - which means we're only talking and not looking, VHF only, ... have data. Up until this time, it had been looking good.

ACDR Okay. ...

CC-H Rog. It looks like you're really having fun sitting there punching the DSKY.

ACDR ... new fingertips ...

21 01 26 CC-H Roger that. Take care of all fingerprints.

ACDR Right.

ACDR Vance, ... tell them ...

CMP Yeah.

ACDR This ...

21 02 09 ACDR Hello, Crip, Apollo.

CC-H Go ahead.

ACDR ... if I had a penny for every DSKY stroke, we could have a hell of a splashdown party, couldn't we?

CC-H Well, that's (laughter) that's certainly a good idea. I think we should have one anyhow.

ACDR Oh, we will.

21 02 25 CC-H A little - little side information. After I give this mike here to Dick Truly, I'm going to go over - We're having a little touchdown party for the - for the Soyuz tonight.

ACDR Oh. Real good. Sorry we can't join you.

CC-H Oh, you can have a little orange juice or whatever you got onboard there.

21 02 47 ACDR ...

21 10 47 ACDR ... what the hell was that?

21 10 49 ACDR Something shook ...

21 12 58 CC-H If you want to look at Systems Checklist 1-33, you might run through a C&W check.

ACDR Say again.

CC-H ... Checklist 1-33.

ACDR Roger.

CC-H ... allow you to check it out, if you'd like.

ACDR Systems Checklist 1-33; check for caution and warning ...

DMP ...

21 13 26 ACDR Systems Checklist ...

CMP That's just a standard C&W check, I think.

ACDR We've got to get on the ...

21 13 58 CMP ... Yeah. All that is, is a very short - check. ... let me do it now, cause you're just going ... Crip, I'm going to go through the C&W operational check for you.

21 14 46 ACDR Give me a STOP, COMMAND RESET.

21 26 53 CMP Okay. At 153, ... the TV camera set up for the fish experiment.

ACDR Okay.

CMP Okay.

21 27 18 CMP Okay. Fine. Okay. On the Flight Plan - let's see, this is for fish experiment right? Okay. TV installed at 873, X equals 80. How about Z, first? You want that first? 60.

21 27 48 CMP Yeah. And Y is 170, Z is 60. F, zoom, and focus are - they should be standard: 3.5 - Yeah. When you track, you can tell. Okay? It says here from 606 is where to get that camera. Huh? Yeah. And there there's this TV prep switch list when you get it set up. I'll come on up.

21 28 47 CMP It's DML. Yeah. DML, definitely.

21 41 57 ACDR I did. I didn't know. I just ... now for about 40 minutes - about 30 minutes. Yes. Got a little bit of that helium glow, but ...

ACDR Yeah. ... nothing to do. ... look forward to something to ...

CMP I don't know ...

ACDR Okay; ... Okay; ...

CMP Yeah.

ACDR ... get your headset off? ... (Laughter) ... exercise ...

DMP ...

ACDR Just might be ...

CMP ...

ACDR Yeah. ... retrofire. ... in the Flight Plan. ...

ACDR No. Go ahead.

ACDR ... go off ...

CMP Right, Tom?

ACDR No, ...

ACDR Vance, you've got to move your ...

CMP ...

ACDR Yeah.

USA ...

ACDR You ought to ... time. Man, this ... You have it on, Deke?

DMP ...

21 46 51 ACDR Okay. ...

ACDR ... down here. ...

CMP ...

ACDR ...

CMP ...

ACDR Yeah.

21 48 15 ACDR ...

CMP Tom.

ACDR Yeah.

CMP ...

21 50 23 ACDR Yeah, I wanted to turn that to zero.

CMP What for?

ACDR ... zero ...

CMP ...

ACDR Yeah, I wanted ... to take a look ...

CMP ...

21 50 42 CC-H Apollo, Houston. Hello at Orroral Valley on VHF. How do you read?

ACDR Roger, Dick. How do you read? Hello, Houston, Apollo.

CC-H Apollo, Houston. Tom, I read you. Go ahead.

ACDR Okay. Loud and clear. Deke is doing the fish experiment. I'm still working the helium glow scan, rev 92/93.

CC-H Okay. Fine.

ACDR And Vance is working in between on both things.

CC-H Roger.

21 51 17 ACDR We're all set to go to that con - new contingency pad for the X-ray. Then we'll start that - in fact, we'll get busy on that starting about 154:00. One thing, we did check the caution and warning. Everything checks okay. The only thing is that the warning tone in our headset - we can barely hear it when it's turned up, but it's real low - it's dropped considerably compared to when we first - first couple days in the spacecraft when that O<sub>2</sub> warning used to keep us wide awake - you know, all the time. As your warning goes on, the red light goes on. But you can barely hear it. That's the only difference. And we haven't had any more funnies where the light would go on with no other warning. Over.

CC-H Okay; fine, Tom. Let us talk about that just a minute. We'll be back to you. Thanks for letting us know, though.

ACDR Okay.

21 53 46 CC-H Apollo, Houston. We're 1 minute from LOS. Hawaii comes up at 153:48.

ACDR Roger.

CC-H And, Tom, one of the things that we also want to check about the loudness of the tone on the caution and warning is how loud it is with the speaker box turned on, because that's the sleep configuration.

ACDR Okay. We can check that. And we'll have an answer for you by the time you get to Hawaii.

21 55 56 CC-H Okay. Real fine. Thanks.

21 58 26 ACDR Hey, Vance.

CMP Yeah.

ACDR I'm watching the ... here on the caution and warning on the squawk box. See how it goes.

22 02 07 ACDR Hey, Vance?

CMP Yeah.

ACDR ... caution and warning on the squawk box?

CMP Okay.

ACDR I think ... we had a hole in it. ... squawk box?

USA (Loud buzz)

ACDR Oh, shit! Yeah.

CMP ...

ACDR That's pretty loud.

CMP Yeah. ...

ACDR ... go over and get me another one.

22 03 21 ACDR All right. Give me that. That's okay. Oh, ... anyway.

DMP ...

ACDR Yeah. Deke, you put your ... back. ... back.

22 06 04 ACDR Yes.

USA ...

ACDR A what?

USA ... circuit breaker.

ACDR Oh? Well, that solves that.

22 07 08 ACDR Do the circuit breakers ... there?

USA What?

ACDR Circuit breakers that are in the docking module?  
USA ...

22 07 20 ACDR Okay; I'll call up Dick. I'm in the docking module.  
...

22 14 06 ACDR And ... Ain't that ... now?  
CMP Yeah.  
ACDR ... starting about now. ...  
ACDR ... over here from ... Thought you had these two ...  
warnings ... Yeah, right over there.

22 15 07 CC-H Apollo, Houston. One comment on your jet selects.  
ACDR Go ahead.  
CC-H Well, stand by. Sounds like we may be going in a  
keyhole. Hang on a second. Okay, you read me loud  
and clear, Tom?  
ACDR Loud and clear.  
CC-H Okay. You know yesterday we turned off one of the  
roll jets, Bravo 2, and turned on Delta 2. That  
balance worked well and the quads are more balanced  
than they were. The next time you come to a jet  
select - It's in the Flight Plan about an hour from  
now, and it's printed there and we want you to go  
back to the nominal configuration there at 155 plus  
07 and then just follow the Flight Plan after that.  
ACDR Roger. Nominal jet select on auto RCS at 155:07.  
CC-H That's right. And then after that just do what the  
Flight Plan tells you whenever you come up on it.

22 16 02 ACDR Okay, Dick. From 155 on, we do just exactly the way  
it's in the Flight Plan.

CC-H        That's affirm.  And we're about a minute from LOS  
             Hawaii.  Newfoundland comes up at 154 plus 10.  I'll  
             see you then.

22 16 17    ACDR        Roger, Dick.

###



DAY 203

00 06 51 CMP Standing by for ENTER ...  
ACDR All right.  
00 07 16 ACDR MARK. ENTER.  
CMP Got it.  
ACDR Next mark 1 minute. ...  
CMP Okay.  
00 07 36 ACDR MARK it. INTERVALOMETER, ON. Okay; that shows 2:30.

TIME SKIP

01 37 26 CMP Okay; 30 seconds to go.  
ACDR Call them off.  
CMP 3, 2, 1 -  
01 37 56 CMP MARK. INTERVALOMETER - INTERVALOMETER, OFF.  
CC-H Okay.  
CMP Steps - step 2 and 3 to get us off.  
01 38 02 ACDR Okay.

TIME SKIP

03 08 43 CMP Do a count. Do a countdown. Countdown: 5, 4 ...  
03 09 25 CMP No. ... later.

TIME SKIP

03 38 17 ACDR 7:20 in the morning?  
CMP Yeah.

ACDR Yeah. What time ...

CMP ...

03 38 54 ACDR Yeah. Well - well, I had a huge bowel movement. The first part was just like it was normal. The last part of it was kind of mushy. That's why it took the whole ...

DMP You've got that big box of wipes.

ACDR I cleaned up. We'll have water when ... gets picked up. Circuit's turned ... batteries. There's water already. We'll do an SPS burn that ...

ACDR Huh?

CMP ...

ACDR Oh, yeah. ... worried about short-circuiting some wires.

03 40 06 CMP Here's the Experiments Checklist.

ACDR It's not on the checklist.

ACDR You want this damn bag back?

USA ...

ACDR That's close enough for the ...

ACDR ... see if we can get your ... here.

03 41 47 ACDR Got the speaker box set up, Vance?

CMP ...

03 41 52 ACDR That got there.

TIME SKIP

04 13 50 ACDR Where is that headblock[?]?

04 18 00 ACDR Yeah.

ACDR Huh?

ACDR Let's get these ... lights out because then -  
because light from those things is fantastic.

ACDR You've got a little bit of ...

DMP ...

04 19 40 ACDR ...

DMP ... It's upside down here.

04 21 44 ACDR Hold it. Hold it. It's got to ...

04 25 08 CMP ...

ACDR 32.

04 26 57 ACDR Okay. If that ...

04 30 50 ACDR 30, 32.

CMP ...

04 33 47 DMP ...?

04 33 53 ACDR Yep.

TIME SKIP

12 23 42 ACDR Hey, Vance, for Earth obs, the whole thing is to  
pitch increase on that NOUN 78, hadn't we? 60600 for  
the Earth obs? Yeah, we're supposed to go to that.  
We got 20 minutes to make ... Yeah, the setting's  
on zero. Pitch, 6060 ... Okay; put in another zero.  
The ... is 180 ...

ACDR Got 60604. ... got that.

ACDR ...

12 27 24 CMP Do you have the ... set up, Tom? ...

ACDR Probably.

CMP Okay. If you don't mind, I'd kind of like to change it.

ACDR Yeah. Yeah.

CMP You know, it occurs to me we have that press conference in the morning - whatever morning it is - morning whatever.

ACDR You going to get up and shave?

CMP We're going to have to be up plenty early.

ACDR Yeah. Tomorrow morning.

CMP We'll have to have all the damn cameras set up - -

ACDR/CMP - - the night before.

ACDR Yeah. Okay ...

CMP Yeah.

ACDR ...

CMP ...

12 29 02 ACDR How about going and getting me the high-gain angles ready?

CMP Yeah.

ACDR Minus 4 and 311.

CMP Morning, Deke.

DMP Yeah. (Yawn) Oh, not much. I got an O<sub>2</sub> fuel cell purge ... Just got through the waste water dump, and it's awful hot. It's hotter than hell in there.

CMP Is it? Pardon? What?

DMP ... I'm too tired now. This O<sub>2</sub> fuel cell purge ...

ACDR Vance is down there now. Vance, give me the ... to the urine dump system. Not much to it.

CMP No. Not much. Are there any bags that need dumping?

ACDR I don't think - Wait, yes, there's bags from last night.

CMP Okay.

12 30 16 ACDR I got an Earth obs at 169:40.

ACDR ... got a ... You got a bag?

CMP You want to use Myrtle here, Deke?

DMP ... He hasn't got everything in there yet. ... I think all that stuff got put up there; got that out of your way. ...

DMP Put this down on the ... the electrophoresis.

CMP Okay.

DMP Huh?

12 32 37 ACDR Think in 128. ... You ought to look through that - all that stuff today and see what we got left in here that we can shoot.

CMP Yeah. But - -

ACDR As far as - -

CMP - - we ought to be in good shape on that, shouldn't we?

ACDR No, I'm talking about as far as the DAC.

CMP Oh, yes. Yeah.

ACDR They want to take ... pictures of ... all through that ...

ACDR Okay. I think I may have put - He handed me that - We were in a hurry yesterday, when he handed me that stuff up there. That whole thing. I think that had the other one in it.

CMP In your - in your assessment the other day, did you include DAC film, Deke?

DMP Yeah. Let's see - yeah. Okay. What's coming up next? What would you like, grumpy?

12 33 42 ACDR Deke has to get up and do a helium injection. I've got an Earth obs coming up.

CMP Okay.

ACDR Yeah. Get the ... thing over it.

CMP Okay. I'll go down and get some chow.

ACDR Okay.

CMP Put on a headset.

ACDR Yeah. It's hotter than a son of a bitch.

ACDR Hey, Vance, do you think we have a postsleep period of 1 hour ...?

CMP Yeah.

ACDR Hasn't that postsleep period got a TV camera set up for the press conference in the ... TV pictures? Why the hell do you want TV set up? We can do that the night before.

CMP Yeah. ...

ACDR Right. I'm going to put it in here right now, "Set up TV."

CMP ...

ACDR That's right.

12 35 41 ACDR I'm going to have them wake us up a little bit early to ...

ACDR Well, we have ATS.

DMP We have ATS.

ACDR Wakeup at 7:20, retrofire at ..., and splashdown at 4:20 in the afternoon.

DMP That isn't bad.

ACDR We really - After we get past today, hell, we have ...  
DMP Okay.  
12 36 53 ACDR Let's see what I've got for Earth obs here. 7A, 7D,  
7E.  
12 38 37 DMP Got light again.  
DMP I got a feeling that you ...  
12 39 34 ACDR Yeah, we're not not bad.

TIME SKIP

13 41 06 CMP Yeah. Ready? Am I in your way?  
CMP Yeah. I am. Did you get ...?  
ACDR Yeah.  
CMP Well, I think we've got a lot of time before we ...  
ACDR Yeah, we're ...  
13 42 12 CMP Yeah, you know, we've got a couple of days. That's  
the last big day of the experiment.  
ACDR Yeah, ...  
CMP Got Earth obs? It's daylight outside ...  
ACDR Yeah. I'm trying to find ... Yeah. ... data.  
13 43 19 ACDR How's that battery pack ...?  
CMP I don't know. I haven't really ... But I don't think  
you'll have a problem.  
ACDR How about getting ...  
DMP Gee, I'm up in the DM right now.  
ACDR Oh. Oh, I'll just get it then.  
13 43 38 ACDR Is that right? Well, I wouldn't - I wouldn't dare ...

CMP ...

ACDR Okay.

DMP I'll tell you what. ... supposed to do ...

CMP ...

13 45 25 ACDR Earth obs pass - revs 103-104; sites 7A, D, and F[sic].

13 49 25 CC-H Apollo, Houston. We are about 45 seconds from LOS. Our next station contact will be Quito in about 28 minutes, 169:55. See you there.

ACDR Okay, Crip.

CC-H If you guys get a chance, we'd also like you to CLOSE the POTABLE TANK INLET valve, save a little water for us.

13 49 50 CMP Can do.

CC-H Thank you.

ACDR You ... about the tank. Okay, Deke?

DMP Yeah; okay.

13 51 55 CMP As you look at that ...

ACDR Yeah. Yeah. ... .. Earth obs?

CMP I don't know. Yeah, if I can.

ACDR Okay. It'll be on the left side. ... left side. ...

CMP ...

ACDR ...

13 55 21 CMP Okay; I'll give it to you later ... Got ATS, I think, coming up a little later. It'll be minus 4 and 311.

CMP Minus 4 and 311.

13 56 37 ACDR I made a fairly close ...



CMP Okay.

ACDR If ... can help.

DMP Is ... power on?

ACDR Power to ...

13 56 56 DMP ... on.

13 58 43 DMP We have a mixture of ...

CMP I'm going put this high capacity urine filter in the loop. We sure don't want that urine vent to plug up.

DMP ...

CMP Huh? Yeah. Yeah, I think I'll just plug it in now.

CMP I don't think that that would give me a vacuum. ...

DMP ...

13 59 56 CMP That's true. But we never think to put it on when we do the special dump, you know? I think I'll just stick it on on this next one.

14 01 06 ACDR I sure wish we would have Earth observations stuff back in ... ..

ACDR Huh?

ACDR Yeah, but - well, yeah, but I mean that - that right now. We have ...

CMP ...

DMP Yeah.

14 03 50 CMP From the beginning, ... take some very unique pictures of everything. Currently, ... be kind of a likely target for then, I would think. Don't you?

ACDR Yeah.

CMP Well, hell! I just found out you can't plug Myrtle and that high capacity filter in at the same time.

ACDR Really? ...

CMP ...

ACDR ... high capacity filter ...

CMP ...

14 04 04 ACDR Oh, yeah. ... has to be ...

CMP Okay. Now. I seem to remember, you said something about battery pack. Get those?

ACDR No.

CMP Okay.

14 05 05 ACDR What locker are those in?

CMP A-4. Yeah, A-4.

ACDR ...

CMP Yeah.

DMP Well, we got the battery ...

ACDR We've got to get ...

CMP Yeah.

ACDR ...

14 05 58 CMP Yeah. Well, not - not a problem. ...

ACDR ...

DMP ... plate.

CMP ...

DMP Pardon me?

ACDR Mix with ... and water.

14 07 54 ACDR Oh, one thing while you got ... help you ...

CMP True. We're ...

ACDR We're ...

ACDR ...

DMP ...

14 09 09 CMP Pardon? Okay. How you doing?

CMP ... kind of worried for a little bit.

ACDR Why, because ...?

CMP I never heard that ... any more. Huh?

ACDR ... need it ...

14 09 41 CMP Yeah. Well, it works okay ...

ACDR Yeah, ...

CMP What? Yeah. Yeah.

CMP I think you've got to be real careful when you've got the high capacity filter. Seems like they ...

ACDR Yeah. ...

CMP ... ...

ACDR ...

ACDR ...

DMP Okay. ....

14 11 42 ACDR To the left.

CMP To the left of 1, right?

ACDR Yeah. To the left of the valve. Just like that.

CMP You're right; left of the valve. ...

ACDR No, it didn't. Didn't have a ... ..

14 12 35 ACDR If you hadn't ...

CMP Yeah. You passed it. ...

ACDR ... just because ...  
CMP I would put - Yeah, you're ...  
ACDR ... filter ...  
14 14 16 ACDR ... we're going to get ...  
CMP ...  
DMP ...  
CMP What are you ...  
14 15 04 CMP I see land up there, but it's ...  
14 16 52 ACDR ... back to the ... right through ...

TIME SKIP

14 57 05 ACDR ... there, Vance.  
14 57 09 CMP Okay.  
14 58 07 ACDR POWER, ON; POWER, OFF.  
CMP Yeah. ... Got the ...?  
ACDR Yeah.  
CMP All right. ...  
14 59 33 CMP Okay. We're coming up on X-ray obs, check ...  
seconds. ...  
ACDR Is there any modification to the procedures?  
CMP No. All you have to do is turn the - turn it on,  
and it's standard X-ray obs. Get it right now.  
14 59 57 ACDR All right. ... the checklist. X-RAY COVER, OPEN,  
barberpole. You want HIGH VOLTAGE POWER 2, right?  
CMP Yeah. That's standard.  
15 00 15 ACDR All right; it's ON. Mark the time?

CMP Okay. ...

ACDR ...

CMP Where do we have to go to ...?

CMP What all did you have to do?

CMP Shoot!

CMP We're supposed to be at this attitude. We got a slow maneuver rate.

ACDR Maneuver's too slow.

CMP What?

ACDR Maneuver's too slow.

15 01 35 CMP Yeah. We never got there by 3:19. We should have had a faster maneuver rate.

ACDR ... faster.

CMP ... faster ... our rate. ...

CMP You want it now? Stars ... Be sure and make ...

ACDR ...

CMP Yeah.

ACDR ...

CMP 334 ...

ACDR ...

CMP ... Oh, shoot!

ACDR ...

CMP Okay. We're ready now. 3 - -

ACDR ...

15 03 17 ACDR POWER, OFF?

CMP Well, I guess we can get that when we get to the last one. Oh, shoot!

ACDR HIGH VOLTAGE POWER is ON, right? Oh, hell ...

ACDR You want us to turn it off - off for 5 minutes?

CMP Yeah. But we're supposed to be in an attitude. We're not going to have ... You might as well turn it off, I guess.

ACDR Well, I got to purge this.

CMP Yeah. Okay.

15 04 29 CMP Okay; let's see. The next point we can pick up at - is 8:47.

ACDR Do you want the covers closed or just the doors closed?

15 04 56 CMP Oh, no. Just POWER, OFF. Oh, hey, turn - close the - -

ACDR All of them?

CMP - - doors. Yeah.

CMP Turn the whole thing off.

15 05 13 ACDR I'll leave the LOW VOLTAGE POWER, ON.

CMP Okay. ... going down now ...

15 06 08 CMP Okay. That's the first attitude. ...

ACDR Got the ...

CMP ... coming up that way.

ACDR They want the doors left open for this.

CMP Hey, what we do is ...

ACDR ...

CMP Well, that's right. Okay.

ACDR I'll turn it back on as you - Tell me when you're there?

CMP Okay. You can turn it back on. ... for 14 minutes.

15 06 53 ACDR Power's coming back on.

15 07 37 CMP Okay. I'm sure hoping we can make that. Why don't you make it HIGH VOLTAGE POWER 2.

ACDR 2?

CMP Yeah.

15 08 11 CMP Okay. We've got her up and ...

ACDR Okay. Did you get the ... on the tape ...? Have you got that done?

CMP Yeah. I got that done. I'm just trying ...

ACDR I think something popped out of here. Okay. Your new film ... just popped out. Just popped out.

15 10 10 CMP Turn HIGH VOLTAGE POWER, OFF. ...

CMP 6 seconds.

15 11 13 ACDR Off?

CMP Yeah.

15 11 15 ACDR It's OFF.

DMP How long does it take to punch this?

ACDR Punch, you fucking thing! We got such a God damn screwup!

ACDR It's powerdown, and just off and on. Turn it on again?

CMP Well, you know, you have the - What you did was you powered down, ... and then you powered up again.

ACDR Yep. It says power ... for X-ray obs ... You want the HIGH VOLTAGE POWER, OFF?

CMP Yeah.

ACDR But that's not - but I powered down.

CMP And then you powered up again.

ACDR Yeah, I know.

15 12 05 CMP Okay. ... HIGH POWER - HIGH VOLTAGE POWER to 2, just now ON. But to do the powerdown, the purge ...

CMP ... 20:03.

15 14 12 CMP Do that next. The purge ...

CMP Okay.

15 15 42 ACDR ...

15 17 15 CMP ... VERB 49 ENTER. Okay; plus ...

ACDR ... huh?

15 18 05 CMP Yes.

CMP I crossed it out surer than heck.

15 18 56 CC-H Apollo, Houston. We're AOS VHF only through Orroral, currently. I got you for a couple of minutes.

CMP Okay.

ACDR Crip, we can barely read you.

15 19 54 ACDR We were holding when he started ... I had that attitude ...

CMP ... Give it to them ...

ACDR Do you want to take the ...?

CMP Okay.

ACDR Huh? Let me know when.

CMP Okay.

ACDR Ready?

CMP Ready -



15 20 35 CMP MARK it.

ACDR ... I'm watching it.

15 20 52 CC-H Apollo, Houston. About 30 seconds left here at  
Orroral. Next station contact at Quito at 171:28 -  
171:28.

CMP Okay, Crip.

CC-H That's about 30 minutes from now.

CMP Okay. Just for your info, we had maneuvering problem  
and lost the data from after 2 minutes up to 8:47  
on. How do you read, Crip?

ACDR ...

15 21 51 CMP Got it.

ACDR So if I can't drive this, I'm going ...

CMP Yeah. The question is, should we go the full 5  
minutes or should we cut it off at 26:20?

ACDR It's still maintained.

CMP Yeah, I know, but the question is ... drifted out of  
attitude.

ACDR I know it. Well, we don't have this ...

CMP I guess if you've got to stop someplace ...

ACDR Right.

CMP Someplace that ... tape recorders, a lot of ...  
Get an off nominal ... do a data take later downstream.

ACDR Yeah. ...

CMP Okay. Which - Have we started - -

15 23 02 ACDR Okay. You've got 2 minutes to go again. 26 to 28;  
assuming right after 28, it's right about 29. So,  
we've got 2-1/2 minutes to get to the attitude.  
We'll get that real fast and ...

CMP Yeah.  
 ACDR ... call again. ... this target ... Okay. ...  
 start again new. ... to go back and forth.  
 15 24 30 ACDR Go.  
 CMP Okay.  
 ACDR Then, we've got - -  
 CMP Okay.  
 ACDR - - 4 minutes to get things started.  
 CMP ...?  
 ACDR Yeah. Next start at 24 - -  
 CMP ...  
 ACDR - - 24:29 - I mean, 24:25. ... Power down.  
 15 25 17 CMP That's right. You should power down. The first  
 thing is at 29. Then we want to STOP, REWIND, and  
 COMMAND RESET.  
 ACDR STOP, REWIND - -  
 CMP Yeah. At ... STOP, REWIND, and COMMAND RESET.  
 ACDR Go.  
 15 25 38 CMP MARK it.

TIME SKIP

18 01 48 ACDR All right. Change the ... temperature.  
 ACDR Oh, it's minus. ...  
 CMP Hey, Tom.  
 ACDR Yeah.

CMP Would you turn the HIGH VOLTAGE POWER, OFF, for a second? Oh, I'll get it.

18 02 20 ACDR HIGH VOLTAGE POWER, OFF.

CMP Good. And we'll turn it back on now in about 2-1/2 minutes.

ACDR Check.

CMP Okay.

DMP Huh? ... What? That looks like a ...

ACDR Yeah.

CMP ... it's 44.

ACDR Yeah.

DMP 30. ... on. 30 degrees. ...

ACDR I don't know.

DMP ...

18 03 19 ACDR Yeah.

DMP Okay.

CMP ...

ACDR Yeah.

ACDR ... flash attachment?

CMP No.

ACDR Where's mine?

18 04 11 ACDR Where's your flash attachment?

CMP Going to have to ask him, I guess.

ACDR Deke.

DMP What?

ACDR Where did you put the flash attachment for the Hasselblad? Yeah. Which one? By your seat?

CMP Okay; I got HIGH VOLTAGE POWER, and ... starting to go down straight.

ACDR That's automatic then?

CMP Yeah. ...

CMP ...

ACDR ...

18 06 14 CMP Okay. There's a super big raster. Yeah. ... Okay. ... for you too, okay?

ACDR Okay.

CMP ... Good. Okay; which way should I get? This way? Okay; brighten it.

CMP That thing's ...

ACDR Except one of ... Yeah. ... Hasselblad.

18 08 06 CMP I've got HIGH VOLTAGE POWER 2 to OFF now.

ACDR All right.

CMP ...

ACDR OFF, barberpole.

CMP Okay.

ACDR You got that picture? You mustn't miss it.

18 08 59 ACDR Okay. I just ...

ACDR Let me know if you need anything, Vance.

18 11 34 CMP Okay, Tom. Not just now. I think it's working pretty good.

18 16 06 ACDR Good. She checks out well. Huh?

18 17 24 DMP Got a Flight Plan down there?

ACDR Yeah.

DMP Okay.

ACDR ... Right here, Deke. MA044. Yeah. Got the furnace shutdown, the furnace prep. Furnace prep. MA044.

CMP Need the HIGH VOLTAGE POWER 2, OFF, down there.

18 18 05 ACDR It's OFF.

CMP Okay.

ACDR You counting those ...

18 18 59 CMP Yeah. Real weird. Could've done a raster - or rather, fast raster going along ...

18 35 03 CC-H \*\*\* on the ETE?

ACDR Yeah; okay. We went back, and we're checking - -

18 39 36 CC-H Okay. Going over the hill. See you at Goldstone in 16 minutes.

DMP Okay. ...

18 39 44 ACDR Okay. INTERVALOMETER, ON. ETE MODE SELECT, see table 1. Electro.

DMP ...

ACDR ...

CMP ... the Earth Obs Book ...

ACDR I'll tell you what, I'll try to ...

DMP ...

ACDR ...

DMP ...

ACDR Okay. I'll ...

18 41 38 ACDR Say, we can call down and ask about the DAC ... be on that ... I think it's in the Photo Ops ... All right. ...

ACDR That's what I thought. ...

CMP I'll be ... I won't be in the window when you ...

ACDR Yeah, ...

18 43 55 ACDR You going over ... take that DAC ...

18 46 15 ACDR Okay; I'm going to ... put the DAC on.

DMP ...

ACDR ...

18 48 39 ACDR Okay. It's 174:26. ...

ACDR ... right before the ...

18 50 35 ACDR I'll take that tape ... Hell, they ...

CMP Yeah.

ACDR ...

CMP Right.

ACDR ...?

CMP Yeah. I just saw a ...

18 52 04 ACDR Well, hell, if they were any ... nobody ...

CMP Well, ...

ACDR Let's see ...

CMP ... I'm not sure ...

ACDR ...

CMP ... Okay. Let's get ... Got a ...

ACDR That's about right, I guess.

18 55 43 CMP Yeah. ... I don't know.

18 56 06 CC-H Apollo, Houston. We're AOS through Goldstone. We have you for about 3 minutes.

ACDR Roger. And we're right over the Rio Grande River now. Yeah, I wish the girls could see this site up here that we're seeing, Crip.

18 58 15 CC-H Yeah. Right now we got the TV playing for them of Vance doing those science demo things over in Soyuz.

ACDR We're right over El Paso. You can look down and see Dick's Air Force Base and the International Airport.

CC-H Roger.

ACDR ...

CMP Guadalajara ...

ACDR ...

19 00 00 ACDR Okay, Crip. We're - looks like we're ...

19 01 31 CMP We're ... Earth attitude ... attitude ...

ACDR ...

CMP ...

19 06 13 CC-H Apollo, Houston. We are AOS through Newfoundland. And with the ATS, we should have you about 50 minutes.

ACDR Roger.

CC-H Okay. And we got it rigged up where the girls are listening to you again. Incidentally, if - to help this problem we've been having with some of our interference, one of the things that - about the only thing we can come up with doing on VHF is to go ahead and select SIMPLEX Alfa now, instead of staying in Bravo, and that'll change the freq and might - might get rid of some of it.

CC-H That's affirm, Deke, if you would, please. You can go ahead and go Alfa, and Bravo off.

19 07 08 CC-H Rog. Was it pretty clear?

CMP Unfortunately, it was covered with clouds over Sudbury nickel and certain sights that I was to get. But it is very impressive. No doubt about that.

CC-H           Incidentally, Vance, while I've got you there, that last pass we had you guys run - end - ended up leaving you in 1/2 degree for your rate on your DAP. And you can go back and change that to 0.2 whenever you'd like.

19 07 48    CMP           Incidentally, we did get to see the Adriatic. Got quite a few pictures of the lower half of Italy, from the boot up to - oh, I think it's - oh, I'd say about halfway up. But it - it was a cloud cover over Venice.

CC-H           Copy that. Thank you very much.

ACDR           Hey, Crip, tell the girls I wish they could ...

19 09 25    ACDR           ... See there, right there?

CMP            ...

ACDR           That looks like it came from a ...

CMP            Oh, that little spot?

ACDR           Yeah. That white thing.

CMP            It looks sort of like ...

ACDR           Yeah. Look at the - look at the trailing wake behind it.

CMP            ...

19 10 05    ACDR           Hey, Crip, we just had a big iceberg out here in the North Atlantic, and it had a trailing wake behind it.

CC-H           Copied. A large iceberg with a - a trailing wake, is that correct?

ACDR           You see, it's like a, you know, like a - a bow wave on it.

CC-H           Rog. Tom, we ended up dropping out there on VHF when we were trying to switch over and get ATS. And I'm back with you now on VHF. Don't think we got ATS voice locked up good yet. But I think you were just about to make a comment to the girls, and I don't believe they heard it.



19 10 34 ACDR I said I wish they could enjoy this view we're having up here today, looking down at the Earth.

CC-H Rog. I imagine that's quite a sight.

CMP ... Chicago a couple times ...

CC-H Very good. Bring them back, and we'll all be able to have a chance to take a - take a look at that beautiful view you guys got.

ACDR ...

CMP ...

ACDR Yeah. ... bow wave ...

CMP ...

ACDR ...

19 11 44 CC-H Incidentally, the Flight Plan calls for me to give you an update to the mapping pass you got on mapping pass number 10 - you've got on the next - next rev. And that time is nominal. We do not need to change that. Any time that it might be convenient for you guys, I have a rev 138 block data pad that we can go ahead and update to you.

ACDR Rev 138 block data pad.

CC-H ... need to - need the Updates Book. But need to make sure I'm locked up good on the ATS before I give that to you. And apparently we're not yet.

CMP Okay. Before we go into that, Crip, we haven't seen ... been very hard to see the Antarctic area due to cloud cover. ... stray icebergs down there. ... first iceberg we've seen. Might just mention that, up here in the north, it was traveling through a - looked like a fog layer - and leaving a wake. ... stationary, ... No evidence of rotation, which is one of the questions they've asked about icebergs in general.

CC-H Okay. Sure that Farouk will be happy to get that data.

ACDR Okay. I got the echo again.  
19 13 12 ACDR Updates Book.

TIME SKIP

20 27 39 CMP There yet?  
ACDR Yeah. Here's the California coast. There's San Francisco, the Golden Gate, ...  
CMP Very good.  
ACDR Yep. ... Nice ...  
20 28 19 CMP And the color I can get from the Pacific Ocean is 47-B just offshore from San Francisco. No evidence of current boundaries yet. Little bit of cloud cover up to 2 miles offshore.  
CMP Okay. Yeah - I'm tracking it.  
CC-H \*\*\* after you finish your mapping pass. Also, if Deke can, I'd like to get an estimate as to whether he wants to try to go ahead and get that OBS exercise in early, or is he going to go ahead as called out in the Flight Plan?  
CMP Oh, well, we got the photos. He'll get the end of it anyway.  
20 30 34 CMP Okay; the Bingham copper mine - looks to me like there's definitely an area of gray over there, or has a grayish cast. Now it could have been a false fault. Now that - Part of the - All I can say is the area around the Bingham copper mine was once quite pronounced and very gray.  
ACDR ...  
CMP Okay.  
20 31 10 CMP Well, - -

TIME SKIP

21 29 18 CMP You heard Crip say that ...

21 31 13 DMP Yeah. I wonder ...

CMP Been 5 minutes since they've gone over the hill. Let's see, next pass is at ...

CMP ... vis obs ...

ACDR Have you got the Earth Obs Book?

CMP Yeah.

21 32 02 CC-H Apollo, Houston. We're AOS through Orroal for 3-1/2 minutes.

DMP Okay.

CC-H Hey, Deke, all the - our medic folks would - really appreciated that - all the efforts you went through to get that data. It all came out nice and clean here. It looked real good.

CC-H Yes, sir. Everything was super.

21 32 32 CC-H Okay; fine.

CC-H \*\*\* line entries but not nearly as long as some of the ones we've already made. If somebody is available at Hawaii, which comes up in about 15 minutes, I would certainly appreciate being able to read the modifications to you there. Incidentally, your recovery ship is also going to be active on - on your - VHF, and you might be hearing them when you come across there this time.

21 34 45 CMP Okay; real good. ... And we'll go ahead and maneuver, okay?

CC-H Okay; fine. Press on. And the PI'd really appreciate it. He's pretty excited about this new target.

CMP Okay. ...

ACDR ... huh?

21 37 36 CMP Yeah. Power's off. I powered down. ...?

ACDR Yeah. ... yet.

CMP ...

ACDR Oh. ...

DMP ...?

21 41 11 CMP Yeah. Yeah, you drew in. ...

ACDR ...

CMP Yeah.

CMP ... I've never noticed ...

ACDR ... 30 minutes?

21 43 30 ACDR 35 minutes.

DMP Well, let's see here. Got the DAC.

21 43 50 ACDR ... We have the - the light flash setup after this  
... The light flash is stowed up there with the ...

21 55 27 CC-H Okay. We're about 1 minute from LOS Hawaii. That  
was kind of a busy first pass. We'll be seeing you  
coming up here at Bermuda in about another 15 minutes,  
and I'll call you there.

ACDR All right. And real good. Are the ATS angles the  
same, ... to lock on, the book was wrong. Over.

21 55 53 CC-H Stand by just a second. Tom, these ATS angles are  
correct.

ACDR Real good. Thank you.

CC-H Okay. See you later.

21 56 07 ACDR Say. One thing. Is the nominal time counting up  
at 177:58:36? Over.

CC-H That's affirmative. It was less than 1 second off,  
Tom, and we've decided not to change it.

ACDR Real good. Thank you.

21 56 15 CC-H See you later.

TIME SKIP

22 52 25 CC-H And this was the - the last of the - complicated experiment pads, and I don't see how it could have gone more perfectly. Looks like a real good show.

ACDR Ah, thank you very much. We'll also thank you guys on the ground, because you really helped to pull us through here on an occasional mistake on a DSKY punch or something else. It was all very efficient. Thank you.

22 52 49 CC-H Well, I was looking hard to catch a mistake that time, but I sure didn't see one. Also like to pass - -

22 57 00 CC-H \*\*\* that last maneuver, Tom, I'd like to talk to you a bit about the ... on the secondary evaporator.

ACDR Go ahead, Dick.

22 57 11 CC-H Okay. It turns out that we've got a choice, Tom, and we've done a ... in the last 10 minutes. If you activate the secondary evaporator, which is in the Flight Plan coming up here right after this pass at 178 plus 50, and can leave it on just about all the way to bedtime and then - -

23 01 15 CC-H Apollo, Houston. We're coming up on 2 minutes to ATS LOS. Bermuda comes up at 179:21.

ACDR Roger, Dick. Glad it went real good for them.

CC-H Boy, that was super, Tom. I assume Vance and Deke didn't go EVA or something. I haven't talked to anybody but you since I got here. They didn't abandon ship, did they?

ACDR No. What we're doing is trying to get ahead of it, and we're already setting up the light flash experiment. Those two been working on it full time.

CC-H Roger. Sounds good.

CMP It's Tom's day to talk.

CC-H Okay.

CC-H Well, we'll see you at Bermuda.

23 01 57 ACDR Okay.

ACDR Okay. In about 40 seconds, I've got a couple of switches over there.

CMP All right.

ACDR I'll call them out to you.

ACDR Okay. I want - DSE, LOW BIT RATE, COMMAND RESET.

23 02 45 CMP DSE, LOW BIT RATE, COMMAND RESET.

23 02 49 ACDR EUV on the helium glow powerdown.

TIME SKIP

23 52 32 DMP Where's ...?

CMP It's on the ... here, Deke.

23 52 37 DMP Okay.

# # #

DAY 204

00 04 08 CMP Okay. Tell me when you ... program ... ..

00 04 44 CC-H Okay, Deke. And we're about 30 seconds to LOS. Guam comes up about 40 minutes from now, at 181 - 180 plus 21, in case we don't get these readups in.

DMP Okay. We're standing by - 183.

CC-H Okay. Down in the DP column at 183 plus 20, I want you to delete "X-ray" from that ops there. And down below that, also delete - "Remove the cabin vent QD and stow it." We're going to need it tomorrow. We are going to do another purge, and we'll be seeing you on the ATS.

CMP Okay. You say you will not do a purge tomorrow? Purging today, right?

CC-H We - we are going to do it tonight, but we do not want you to remove that vent QD and stow it. We want you to keep it out because we're going to use it tomorrow.

CMP Okay. Understand.

CC-H And, also, delete the X-ray ops.

CMP Got it.

CC-H And, we'll see you when we get locked up on the ATS.

00 05 48 CMP Okay.

00 06 03 DMP I got ZFF photos, Tom.

DMP Say, I got the bag ... delete ... the purge tank set.

DMP You got some place you're putting partial bags and ...?

ACDR Not me. Vance ...

DMP Okay.

ACDR ...

DMP Okay. Well, here's one that's got about 3 degrees  
... management ... what we had. But by the time we  
do that we've already done it anyway.

00 07 31 CMP Hey, where are you headed, Deke? Right - right there?

DMP ... down there.

DMP You about ready to pitch 2?

CMP ...

DMP Okay.

00 13 30 CMP 38 minutes.

DMP ... The Flight Plan ...

CMP ...

DMP Vance was fooling around ...

CMP I thought we were ... bag ...

DMP ... whole bag is gone for ...

DMP ...

CMP I think it's this one.

DMP ...

CMP I don't know.

DMP ... after ...

DMP So, ...

ACDR Well, I don't know, think ...

00 16 55 CMP I guess we're going to have to fake it. I know  
what happen, I bet you. ...

ACDR ...

CMP ... try another bag if it's ...



DMP Yeah. ... Okay; CMC, FREE.  
DMP Yeah. I've been going to ... those batteries.  
CMP Yeah. We better watch that too. ...  
CMP ...  
DMP Okay. ...  
CMP Well, let's see ...  
CMP What happen, Tom? ...  
ACDR ...  
00 19 55 CMP Yeah, I'll be ... You already ... Well, the ...  
Now, probably ... through. It's all right. ...  
we're already there. ... POWER, ON; POWER, ...  
running ...  
ACDR Yeah.  
00 20 40 CMP ... Yeah. ...

TIME SKIP

01 21 30 DMP How about that?  
CMP Okay. I saw long streaks over in the right corner.  
DMP ...  
CMP Not very exciting for you, I don't think ... not very  
exciting for you right now.  
DMP No. ...  
ACDR ...  
01 23 20 CMP ...  
01 24 20 ACDR Yeah. That's why I stay ...

01 28 14 CMP ... my eyes are watering.

01 29 38 CMP How long before we ...?

01 35 25 ACDR I've got a long streak ...  
DMP ...

01 36 27 CMP Okay.  
DMP ...

01 38 34 ACDR ... saw a star in the ...

01 40 09 CMP Very right ... .. upper right ...

01 42 22 CMP Okay; I got a star, ... Star ...

01 44 19 ACDR I see a long streak, upper right ...  
DMP ...  
ACDR ...

01 45 28 CMP I sure am ... ..  
CMP Okay.  
CMP ... There's a star ...  
CMP Star, left side. ...

01 47 45 ACDR Star ... left side, ... I don't know, it's prob-  
ably ...

01 48 33 ACDR Star, I'm sure ...

01 48 45 CMP Star. Well, that's to the left.  
ACDR ... right side to left side, I'm sure ...

01 49 46 CMP Star ...  
CMP 3, 2 ...

01 50 58 DMP I'm going to follow the ... here ... ..  
DMP ... That's enough.

01 52 11 CMP Okay. Streak, right side to left side.  
ACDR I saw a star ...  
CMP ... right side to left side.

01 52 39 ACDR ... right ... right ... It's real strange.

01 54 47 CMP Okay. Streak, upper right ... Saw a bright star,  
upper left ...

01 56 50 CMP ... I saw a real strange thing. ...

01 58 35 ACDR ... star ... left ... Short streak ...  
CMP ... star ... lower left ...

01 59 41 CMP ... right.  
ACDR Right ...  
CMP ... right of the right eye. ...

02 01 26 DMP Okay. On the very ...  
CMP Saw a star ...

02 03 12 ACDR ... star ... right eye.  
CMP ...

02 03 34 ACDR Yeah. Yeah.

02 18 41 ACDR Yeah.

02 18 47 CMP ... Deke. Yeah, ...

02 28 18 CMP That's a ...  
CMP Okay. I got a long streak.  
ACDR In this kind of thing, you know, when the lights  
are bad, the short streaks - the short streaks ...  
DMP My angle is right eyeball.  
CMP Okay. Got a star, right eye, center.

02 29 53 CMP Okay; a long streak ... of my right eye, and it was vertically orientated.

02 31 50 CMP Seem to be having flurries quite often.

ACDR Yeah, ...

02 32 28 ACDR Okay. Got a very bright star in the lower right quadrant of the left eye.

DMP ...

02 33 42 CMP Okay. Got a diagonal long streak. I think it was a - either a long streak or ... streaks in the left eye, center.

02 52 19 ACDR Okay. I've got ...

CMP ...

02 53 15 DMP Do it now.

02 53 27 ACDR Okay; now. The pitch ... centered.

TIME SKIP

03 55 33 ACDR Okay. ... - everybody make a ... Who's got the ...?

CMP ...

ACDR DM Checklist, helium injection, page ...5. Yeah. MA044[?] ... .. verify. ... light on.

CMP Okay. Right.

ACDR Wonder if that's verified?

CMP ...

ACDR Yeah. Verified on ... I'll get the ... All you got to do is ... I'll - I'll get the ...

03 57 23 CMP Yeah. Where did the fucking procedure go?

ACDR You say it's different?

CMP ... get the procedure out, take the apron off, and open the doors, and get the canister out ...

CMP Huh?

CMP Yeah. ...

CMP Huh?

03 59 00 CMP ..., please. I'll get rid of the other stuff.

CMP I'll - I'll still give that a hack down here. I'll still give that a hack, I guess. Oh, okay.

03 59 28 CMP Thank you.

04 03 55 CMP Deke, would you hold that thing? Oh. Damned thing disappeared. Well, fine. (Laughter)

CMP Yeah.

04 04 10 CMP Well, ... on the - on the screen ... I don't know. Oh, yeah. ... interior.

04 05 54 CMP ... ... we haven't got.

04 06 46 CMP I said ... the valve. Guess that's about it. The water's good.

CMP May be cool enough to ... with the fan on tonight.

DMP There you go.

CMP Say again, Tom.

04 07 25 CMP Go ahead. I'm going to go with you.

DMP ...

04 08 07 CMP I'm going to turn on the speaker box here while we're working. Then if anybody calls, get it that way.

04 16 19 CC-H - - morning. We'll wake you up early, and we do not see that the SIM bays are activated yet. Just be sure and don't forget to activate them and use detector 1 on the EUV.

04 16 31 CMP Okay. Understand. We're still venting.

04 16 35 CC-H Okay. Understand. So we'll see y'all in the morning.  
04 16 37 CMP Good night.

TIME SKIP

10 49 18 ACDR Good morning, Bo. How are you?  
ACDR ...  
ACDR All right. Real good. Thank you, Bo.  
10 50 08 ACDR Houston, Apollo. Houston, Apollo.  
11 02 55 CC-H Apollo, Houston through Ascension for about a minute  
and a half.

TIME SKIP

13 18 55 ACDR Yeah, that ...  
CMP Okay; let's go ...  
USA (Music)  
13 25 45 ACDR That's my favorite music. ... What?  
13 28 33 DMP Granolies.  
CC-H Granolies! Very good. We're about a minute from  
LOS, and next station contact will be through Quito  
in 28 minutes. See you there.  
ACDR Okay.  
13 28 54 CC-H Have a long rest period for both of us to get some  
breakfast.  
ACDR I never got up early except ... during Apollo 6. ...  
CMP I could probably ... this way.  
ACDR Yeah.

CMP ... get us busy on those ...

USA (Music)

13 32 29 ACDR Yeah.

DMP Oh, shit!

ACDR What happened?

DMP I spilled some ...

DMP Yeah, ...

13 33 05 ACDR Yeah. Yeah. ...

CMP I got a ...

DMP Well, maybe ... out of there.

ACDR Right up here, Deke.

13 36 04 ACDR You better go for ... that's all there is to it.

CMP I don't know, I think we can leave it up there. ...

DMP ..., Tom.

ACDR You got ... garbage bags over here?

DMP No. Throw away ... I'm going to have to ...

13 36 37 ACDR ... throw that towel back there, right? ... throw that towel away.

DMP All right, here it is here. ... we have two or three other - well we have to have ...

ACDR Okay.

USA (Music)

DMP Tom, I think there's a ...

ACDR What?

DMP Where's that place that says ... Where's my ...

ACDR Okay.

DMP You got it ...? It's a little high.

CMP Hey, Deke.

13 41 47 DMP Yeah.

CMP I think I can ... this one. That's to your right, I think, Tom.

ACDR No. ...

13 42 53 CMP I don't know. Let's - -

ACDR ...

CMP Yeah, I don't know why.

CMP Oh. No, ... don't worry about ... I can ...

ACDR Yeah, go ahead.

CMP ... we get the ...

13 44 04 CMP Hey, Tom, when do they want that ...?

ACDR Want to do it now?

CMP Might as well wait, I guess. I was going to do it but - ... I can do that now.

ACDR ... Yeah.

CMP Yeah. Urine's dumped, and we've already done all that ...

ACDR What about ...

13 44 49 CMP Oh, there it is. That's - I'll start the water dump ... It's only been on a short time.

CMP (Laughter) ... right here, Tom. You got ATS set up?

CMP Hey, Tom?



ACDR Yeah.

13 45 54 CMP I'll show you where I want to - to get those canisters changed.

ACDR I've got a ...

CMP Yeah.

CMP 18. Yeah. That's right. And you stow 16.

ACDR Okay.

CMP Funny thing. The very last canister I picked up there was the right one. ...

CMP You know, I have to ... this thing. Never ... the LiOH canister ...

13 47 30 CMP Okay. The canister's changed, Tom. Here's your tool E back.

13 48 23 ACDR Waste water dump in progress?

CMP No. I was wondering if it's been 20 minutes yet on the heater?

ACDR Yeah.

CMP Yeah? We did 20 minutes on the purge heater?

ACDR Well, the waste water dump ...

CMP Yeah. That's all ... been cleaned out before we start that. Oh, yeah. Oh, yeah, you're right.

ACDR ...

CMP The ... Okay. You ready to go?

13 49 05 ACDR ... We've got - we're down to 6 ... Wait till we talk to the ground.

CMP All right. ... water's ... on time anyway. When you check it off, ... they'll bring it up ...

ACDR Okay.

CMP Okay. What else we got?

ACDR Yeah.

CMP Yeah. Okay. ...

CMP ... I think we have one more.

13 51 05 ACDR Do you have it straight on the pitch?

DMP Yeah.

CMP ... up here.

ACDR Deke, ...

DMP Yeah.

CMP ...

ACDR Better wait for the ATS. We got the uplinking set up ...?

CMP Oh, ...

13 51 44 ACDR What - Deke, what camera ... the pictures? Is it still up there?

DMP ... number 20.

ACDR 20.

DMP Yeah.

ACDR Okay; ...

DMP ...

ACDR Yeah.

CMP Oh, Tom.

ACDR Yeah.

CMP ... it said right here to ...

ACDR ...

13 52 44 CMP Say again?

ACDR What's the ...?

CMP 22.

ACDR You got that ...?

CMP ... 58, 59.

CMP Okay. ...

13 53 44 ACDR Take the portable light and ... off.

CMP Oh, yeah.

ACDR \*\*\* Did you hear what Crip said, ... the light ... follow the light. Well, maybe we better wait until we get station contact. I tell you what you can do, Vance - or I'll start doing it. Are all those - that dim light - are all those ... up here. ...

CMP Yeah. Yeah. ... get height measurements - get that real fast.

ACDR The height measurements, somebody stay on the ... You do ... height measurements there.

CMP Okay. ... I was wondering if you could ... a count.

CMP Yeah. I got it.

DMP ...

ACDR ...

13 55 00 DMP Yeah. ...

ACDR ... Oh, Vance let go of his ...

CMP Yeah.

ACDR We got a ... that we like better.

CMP Yeah.

ACDR ...

DMP All right.

CMP Okay.

13 55 39 DMP Okay; set clocks. Get ready to ... when clock is set.

ACDR No, we don't need them.

CMP Oh, yeah. That's right.

14 56 06 CMP Well, we can stash it in here but ...

ACDR Let's try this one.

CMP ... on there.

ACDR All we need is one.

CMP Yeah. Let me have the ...

DMP ...

ACDR It's got about ... left on it.

14 56 22 CMP Star is Atria, 34, Tom.

ACDR Which one?

CMP 34.

ACDR Okay.

14 56 35 CMP All balls; plus 112, minus 104, minus 32.

ACDR All right.

CMP 3 ...

ACDR Okay. Got it ...

CMP ... Except for ...

ACDR Is it back to AUTO?

CMP I'll see. ...

ACDR Yeah. Get that squared away. You have your option ...

CMP Okay. ...

ACDR Squared away on it, Vance?

CMP Yeah.

ACDR You don't have any ... do you?

CMP Not to my knowledge.

ACDR I'll get down here ...

CMP There's that ...

CMP You got it?

DMP Okay. Just a second.

CMP Okay. ...

DMP Okay. Take it.

13 57 29 CMP Okay. ... get that last - that last - Well, it was pretty questionable.

CMP Okay, Crip. Got you loud and clear.

13 57 46 ACDR ... camera

TIME SKIP

ACDR ... Yeah.

CMP ...

ACDR All right.

14 58 01 CC-H Apollo, Houston. We're with you on VHF for about 5 minutes here.

ACDR ... inside that ... control?

DMP Oh, I don't know.

CMP Okay, Crip.

CMP I've got a fine ... pen.

ACDR Still don't know.

CC-H And, Vance, you know - no need to acknowledge if you're working on 52 there. We did not see detector 2 selected on that EUV when we went over the hill. Just a reminder, Vance.

CMP All right. I couldn't hear you, Crip. You're too weak. Please repeat\*\*\*

CC-H Roger. We're saying, did not see detector 2 on the EUV. If you get a chance, you might reselect that for us.

ACDR Okay.

14 58 49 CMP Okay. Now we're reselecting detector 2.

CC-H Thank you.

CMP Okay. Did you see her?

CC-H We're VHF and don't have data right now.

CMP Okay. Well, we can try it again.

DMP Hey, Tom, did ...? Do you know?

ACDR Yeah.

DMP ... five.

ACDR Well, we ... 5 or 10 ...

DMP You're going to end up with a whole cockpit full of -

ACDR Yeah. That's what it is.

DMP ...

CMP Yeah. Okay. I think ... you got the checklist?

DMP Yeah, I do, but I ... down here is the problem. ...

14 59 38 CMP All right.

DMP ...

CMP Okay.

DMP Yeah. Tom?

ACDR ...

14 59 53 CC-H Apollo, Houston. We're 1 minute from LOS; going to see you in about 30 minutes at Quito.

CMP See you at Quito.

ACDR ... another five ...

DMP Okay. Now ...

CMP Okay. I'll be down here in this cockpit ...

15 00 19 DMP Okay.

TIME SKIP

15 33 05 CMP Okay.

15 33 09 ACDR Okay, Crip. I got the DOPPLER RECEIVER OPERATE on, exactly on time, at 195:03:00.

15 33 17 CC-H We're going to go over the hill here shortly. Pick you up again at MILA in about ...

ACDR I've got to check the bags.

DMP Let's see, I wonder if somebody could hand me some Velcro straps ... or tape. I got to - -

CMP Which would you prefer?

DMP Well, may need more than one ... the straps ...

CMP Okay.

DMP I got the coiled up hose ... stash it here. ...

15 33 48 CMP Okay. I'll help you.

DMP ... disconnect it here. ... separately.

CMP Yeah.

DMP ... all together. All together ...

CMP You still got the wrong one.

DMP Okay. This one here ... separate bag ...

CMP Okay. You got one of those rascals there.

DMP Yeah. Got one right here. They're holding much better.

15 34 35 CMP Okay. And we're going to do - just a ...

DMP That's almost right ... That ...

CMP Okay. Unless you want another one there.

DMP No. That's ... one ... Stuff her in a bag here. That one. In fact, we ought to ...

CMP Right.

DMP Down here ...

CMP There's another one. Bag ...

DMP Right. ... in here.

CMP You must have - got you one above your head.



DMP Uh! Let's see what's next on the list over here.  
Okay; 61. I was under the impression ... camera  
cable.

15 35 50 CMP Yeah. We got that out this morning, and I'll toss  
it up to you. Okay? Where's that Russian [?] cable  
there, Tom?

ACDR Up behind me.

CMP Okay.

CMP ... somewhere else.

15 36 08 CC-H Apollo, Houston.

TIME SKIP

16 30 50 ACDR Okay; it's done.

16 30 55 ACDR Check it in 15 minutes. Roger.

ACDR Yeah, we're still working.

DMP ...

ACDR That - that ... going to come up, Vance? That ...

CMP Yeah. Finally. It's up to 4.7 - 4.6.

ACDR Okay; that's - -

16 31 57 CMP Is that ...

DMP Okay.

CMP ...

16 32 14 DMP (...)

ACDR (...)

DMP ... it's going nowhere.

16 33 25 DMP ... Let's see; it's not there.  
DMP ...

16 33 51 DMP ... There. Now we got it.  
CMP In just a little more.  
DMP The ... thing is ... going back - oh, a little more.  
CMP ... be climbing around.  
DMP Yeah. ... get it into the bag. ...

16 35 31 ACDR That Doppler thing working yet?  
DMP Yeah.  
CMP Yeah. I just ...  
ACDR Okay. ...  
DMP ... this jettison bag.  
CMP Where do you tie it up at?

16 35 49 DMP Against the furnace valve box and tie it down with  
the rope ... rings ... wall.  
CMP Furnace box.  
DMP ... let's see. ... ..

16 36 23 CMP Where is it down here? Oh, I - I've got it. There  
you go.  
DMP Okay. ...  
ACDR ... up here ...  
CMP Yeah.  
DMP ... rings is what I'm looking for. ... there.  
CMP Tom, what do you want me to do with those ...  
ACDR ... yeah, ...

DMP' ... for this bag ... here.

CMP ...

16 37 52 ACDR ... hold this one for you? I've got ahold - Yeah, ...

DMP Okay. ...

ACDR That'll hold.

DMP ... tie it up in here.

ACDR ... D-rings?

DMP Yeah.

16 38 19 ACDR Vance?

CMP Yeah.

ACDR ...

CMP Not yet. We have to wait - -

ACDR ... attitude.

DMP Okay. There we go.

16 38 59 DMP Okay. There. ... down ... I think we're better off to keep ... like this. That way we avoid ... We want it ... right attitude.

16 39 32 DMP ... over here. That's right.

DMP Yeah.

ACDR There. I've got it.

DMP Oh yeah? ...

16 39 57 ACDR ... think they're blocked ...

CMP ... your head ... here's one more ...  
 ACDR ... I got ...  
 DMP Now they're ... coming around ...  
 ACDR Yeah. Okay.  
 16 40 23 DMP ... stow it ... put it ... back up in ...  
 ACDR No, no. Now they're ... again.  
 DMP They are?  
 ACDR Yeah. Get me another rope.  
 16 40 37 CMP What? More rope?  
 ACDR Yeah.  
 DMP ...  
 ACDR Tie it back ... Let's go ahead and ... those ...  
 DMP Okay, let's tie that one off. ... We're better  
 off tying that from over there ...  
 CMP ...  
 DMP ...  
 16 40 54 ACDR How's that ...?  
 DMP ... another one over here ...  
 DMP ... tight. There. That ...  
 CMP Now there, ...  
 DMP ...  
 CMP ...  
 16 41 54 ACDR ... don't get it, ...  
 DMP Yeah. Try and get her up and move her back ... back  
 in the ... bag. ... cable's down in here - -

CMP There's the cable you sent back; another extension cable, right?

DMP Oh - -

16 42 19 CMP I just found a ... cable ...

DMP Yeah, okay. I got ... here.

CMP Okay.

DMP ...

16 42 52 CMP Can I help you pull on that?

DMP Yeah. In a minute. ... I have to go ...

DMP There. ... That ... not going anywhere ...

ACDR ...

DMP ...

16 44 51 ACDR ... Where's your checklist?

CMP Right here. ...

DMP ...

CMP Okay. We're right at the time when we're supposed to be.

DMP We are?

CMP Yeah.

16 45 10 ACDR Okay. ... You got the Docking Module Checklist?

CMP No, I don't think - -

ACDR You got it, Deke?

DMP No, I'm not supposed to have it. ...

ACDR ...

DMP Okay. ...

16 45 41 ACDR Okay. Let's get this - DOPPLER TRANSMITTER,  
OPERATE ...

DMP ...

ACDR Okay ...

DMP ...

16 45 52 ACDR ... about the attitude. ... verify the following  
items - it says, "All items are secured." The O<sub>2</sub>  
REGULATORS ... they OFF?

DMP You got them. REGULATORS A and B are OFF.

16 46 15 ACDR Perform hatch 2 closure. Decal, step 1 to 4.

DMP ... we can close the hatch.

ACDR ... the latch ...

DMP ... I suppose. Better get the hatch ...

ACDR ... better close that from the inside ...

DMP Yeah. ...

16 46 38 CMP Don't - don't pull ... the umbilical.

DMP That's below ...

CMP Okay.

DMP ...

CMP Yeah.

DMP Supposed to be on panel 900.

ACDR ... close that vent valve ...

DMP Oh, the vent valve should be closed.

ACDR Yeah. Yeah.

16 47 02 DMP Yeah. I thought you were talking about ... Yeah,  
I ... There, got it closed. ... got a problem.

CMP Yeah. ... got a problem.

16 47 31 DMP ... Okay. Now we close the hatch.

ACDR Number 1, ... valve ...

CMP I'll tell you one thing, if they don't tell us to pull those umbilicals, we're going to pull them anyway.

ACDR Yeah. Here. Even though the ... up here.

CMP Yeah, I know. You never know what ...

16 48 02 DMP Okay, old DM, goodbye. Okay; closed.

CMP Good.

ACDR ... hatch ... cable bag on top of A-1.

DMP Huh?

ACDR Yeah, bring that bag here.

DMP Okay. Got it.

ACDR On panel 900 - -

DMP ... as soon as I get the ... here. Okay. I'm on panel 900. Panel 900.

16 49 04 ACDR DM VENT ISOLATION, OPEN.

16 49 07 DMP ... OPEN.

ACDR DM VENT to VENT.

16 49 09 DMP DM VENT to VENT. Okay. ...

ACDR On panel 274, circuit breaker DM POWER, OPEN.

16 49 27 DMP DM POWER A and B, OPEN.

CMP Is that all?

ACDR Yeah.

ACDR Okay. Install, unstow hatch 1.

CMP Yeah. I'll do that. Okay.

DMP Right, ...

CMP Yeah. ...

DMP Okay. Boy, I'm really sorry that's gone. ...

CMP Yeah.

16 50 13 DMP They don't say disconnect umbilical.

CMP No.

DMP ...

CMP No. It's really - The only thing is you have to go back ... I'd ...

CMP Want ...?

DMP Disconnect ...

CMP ...

DMP Yeah. ...

CMP ... before we ...

16 50 53 ACDR ... Hey, Deke?

DMP Yeah.

ACDR ... not going down right away, is it?

DMP Well, not before ...

CMP It's going down, though.

DMP Yeah. A little ...

CMP Yeah, Tom, ...

DMP ... wouldn't make a difference ...



ACDR ...

CMP We're going to turn all that off ..., though.

DMP Oh, I see. ... - -

16 51 32 CMP Turn it off at 197:20. But I'll tell you, I'm going to ... turn it off ...

ACDR Going through with the checklist? I'll see. Yeah. Hatch 1 pressure integrity check. ...

DMP Okay. ...

CMP ...

ACDR Yeah. ...

DMP ...

CMP Verify - Yeah, it's coming.

DMP Okay. ... we've lost all of our ... (laughter) ... all over ...

16 52 38 CMP As a matter of fact, Tom, was wondering if ... checked ...

CMP ...

CMP Yeah.

ACDR Let's see, we got 3 hours ...

DMP All right. ...

DMP ...

ACDR Set the HIGH GAIN on ...

DMP Okay.

16 53 54 ACDR Pitch, minus 44; yaw, 193.

DMP Pitch ... Now let's see ... .. 15 minutes?

CMP Yeah. ...

DMP How you doing?

CMP Oh, I'm ... I got one of them, though. ... we just take one of them, okay?

16 55 41 DMP Okay.

ACDR What we got, 7?

CMP We got 4. I just ...

ACDR All ...?

CMP Pretty ... for the ...

DMP ... interesting.

DMP ...

16 56 27 ACDR That ain't going to hack it, Vance.

CMP Huh?

ACDR Here, look at the ...

CMP Okay.

DMP ...

CMP We got two more. You want them?

ACDR Yeah, bring them here.

16 57 05 DMP Okay, here's your ...

CMP Thank you.

ACDR What is that? ...

DMP ...

CMP Wonder if ...?

ACDR ... down here?

DMP ...

CMP Think I already did it.

ACDR Got it? Okay ...

CMP Tom?

ACDR Yeah.

16 58 06 CMP Give me the scissors. I've got to cut a wire here that's ... just a little.

CMP Go ahead.

DMP ...

CMP Hey, there's a wire in here that I have to cut.

ACDR Cut it.

CMP That's a good one.

ACDR Got all fof them?

CMP Yeah. Now let's get the hatch.

ACDR ... help ... that, Vance?

16 58 57 CMP Oh, don't think so. Well, we'll wait and see here.

ACDR ... all around in that hatch. Push. Yeah, let me help you with it. Okay. ...

CMP Yeah, I know. Got a Kleenex? ...

DMP ... Let's see ... Here's one coming up.

CMP Okay.

16 59 35 ACDR ... checklist?

DMP ... we had it ...

DMP ... the right page.

CMP Yeah, it is the page that ... hatches ... first part ...

DMP ... really works ...

17 01 01 ACDR That's good.

CMP Yeah.

ACDR Finished?

CMP Not quite.

ACDR Can I help you any?

CMP ...

17 01 20 CMP Okay; the PRESSURE EQUALIZATION valve is CLOSED. The ... locked and all the valves look good. ... we're in good shape.

DMP Let's see, verify pressure integrity ...

CMP Yeah.

DMP Supposed to verify pressure integrity ... - -

CMP I know. You said ... decal.

DMP ... the checklist. It's in the ... here. ... Is that it? Huh? Which checklist ...

CMP Uh huh. How about - I know how to do it, but how about checking the pressure.

DMP Pressure.

17 02 05 CMP Yeah. And also DM VENTILATION.

DMP ... VENT valve?

ACDR Huh? We got it.

DMP ...

CMP Okay. How about over in - -

DMP Yeah. That's probably where it it. ... the last thing we really want. ... had it last ...

CMP And I put it ...

DMP The thing is ...

17 03 22 ACDR ... put it up here ... had to get up ...

DMP Okay. ...

CMP Well, while you're looking, why don't I proceed ahead, and ... check it ... down ... down ...

DMP Well, ... get up there, you know. ...

CMP Oh! Here it is. Never mind. I think we still have to find that thing but - here's, "Verify cabin pressure ... 4.7 to 5.3."

ACDR Got it. ...

17 04 42 CMP Okay. TUNNEL VENT for 30 seconds.

DMP ... Over here, Tom.

ACDR What?

17 05 47 DMP Yeah. I wonder what ... ..

CMP That ... cabin pressure ... Well, I guess, the O<sub>2</sub> FLOW HIGH ...

17 06 05 ACDR Try her anyway. ...

17 13 53 ACDR Hey, Crip. ... He's off.

CMP He's off?

ACDR ...

CMP No.

DMP ... make sure it retracts.

ACDR ... .. Wait, wait, wait, wait. ...

DMP ...

17 14 49 DMP It's not on yet.

TIME SKIP

18 02 59 ACDR Right. Good. Very good. ... Yeah. Yeah.  
 CMP ... rack.  
 ACDR What?  
 18 03 28 CMP ... here. ...  
 18 05 46 ACDR Right here.  
 CMP Okay.  
 DMP Okay.  
 18 08 06 CMP Maybe it was. Is that ...  
 DMP You ...  
 CMP Okay. That's fine.  
 ACDR All right.  
 18 10 11 CMP Okay. That's good. ...  
 18 16 26 CC-H - - tact in 19 minutes, through Goldstone, at 198:13.  
 198:13.  
 18 16 34 CMP Okay, Crip. See you there.  
 DMP ...  
 CMP ... ... down to 6.  
 DMP ...  
 CMP 6.  
 DMP ...  
 18 19 53 CMP Oh, it's - it's on their plane, I guess. Pitch and  
 yaw's ... Yeah, here it is. Minus 53 pitch, and  
 yaw's 162.  
 ACDR How do you read, Vance?  
 18 20 11 CMP Fine. Yeah.  
 18 22 18 ACDR Testing. Testing ...

CMP ...  
 ACDR Yeah. I've got to get ...  
 CMP Okay.  
 CMP ...  
 18 24 14 ACDR ... Yeah. ...  
 CMP ...  
 ACDR Okay. ... ..  
 CMP Well, yeah. ...  
 18 24 48 ACDR Let's see, ...  
 ACDR ... Let's see, ... Let's see, which ...  
 18 26 44 CMP ...  
 ACDR ...  
 CMP ... reverse ...  
 ACDR ... We're ready.  
 CMP ...  
 ACDR All right.  
 18 27 38 ACDR Are you trying to get down?  
 CMP Huh?  
 ACDR You trying to get down?  
 CMP What?  
 ACDR Pitching down?  
 CMP Yeah.  
 ACDR Got your verb?  
 CMP Yeah. I got it.

18 28 46 DMP ... install these things.

ACDR You've got all - -

CMP You've got ...

18 28 56 ACDR You've got all these things ...

18 29 45 ACDR There ain't much more left, is there?

ACDR Have we switched to high gain yet?

18 30 58 CMP I pulled it up; ...

18 32 04 CMP Okay. Pitch up?

ACDR Yeah, ...

DMP Okay.

18 33 55 ACDR No, you sure ... a lot of ... steady. That it?

DMP Oh, boy. ...

18 34 56 ACDR You don't have to do that.

18 37 21 CC-H Be advised I'm reading you pretty weak. I guess your mouth is a little bit away from the mike there. Probably kind of hard to do it. We're about a minute from LOS, and - -

ACDR Yeah.

CC-H - - see you at Rosman here - correction, see you at Newfoundland in about 8 minutes.

18 37 37 CC-H Somewhere along in there, it'd probably be better to wait - -

CMP ... do that.

CC-H - - until you get to Madrid, I'll give you an update on your - your DML - well, I'll give you the DML pad.

CMP Okay. Well, pitch is down.



18 37 54 CMP Yeah, if we could get that before we get buttoned up in suits - -

CC-H Well, I - I've got it whenever you want to - got a convenient time to copy it.

18 39 06 CMP Okay; ready to copy the - DMI pad.

CC-H Why don't we - we'd better - we're going over the hill here. We'd better wait until we get to Newfoundland, Vance, I'm afraid. It's 6 minutes from now.

18 39 17 CMP Okay.

18 41 38 DMP Okay. ... check.

18 43 41 CMP He should have ... off. Tom, if you can get the ... off temporarily.

18 43 53 CMP Off. Uh-huh. Change the other one. See? You get a - -

ACDR Let me know when you're ready.

CMP Okay. Just a second. Deke's got a little problem. It's caught in the trunk. You've got to pull it all the way off.

CMP Okay. You've got to pull that thing off to start with.

DMP ... twisted or something.

ACDR Got it in? Finally got it off, huh?

ACDR ...

DMP ...

18 44 32 CMP There you go.

DMP Okay. ... lift up. You can't see that God damned thing in there.

CMP Maybe I can get it off ...

18 44 56 DMP Hold it, ...

ACDR What?

DMP Tom, your suit's ...

CMP Yeah, ...

18 45 06 ACDR Here it is if you want it off. ... the helmet ...

18 45 20 CC-H -- Houston. We're AOS through Newfoundland. Should be with you ... of about ... with the ATS.

ACDR ... O<sub>2</sub> is off. How do I ...

CMP I don't know.

18 45 54 CC-H Apollo, Houston we're with you through Newfoundland, and if you're reading good enough, we can go ahead and try to get this pad up.

CMP Okay. Stand by.

CC-H Okay. No rush.

ACDR What pad's he on?

DMP Let's see. I think it's ... I don't know for sure. ...

DMP Okay.

18 47 15 ACDR Hey, Vance, push on it ... I think that's ...

ACDR It ... off.

CMP Yep.

DMP ...

CMP Okay. Let's go on and ...

CMP Yeah.

ACDR Okay. Why don't you ... off?

18 47 39 CMP Wait a minute. Let's get this set up first.

TIME SKIP

19 46 08 ACDR Wait 15 seconds. You want CMC, HOLD, 5 and 1.  
CMP Understand.  
ACDR All right. ...  
CMP Okay; and we're going to 210 on the 180 - 180 to go.  
ACDR All right. ...  
CMP I'm going to have to read that.  
ACDR Read that. At 180, coming in about right. Looking good. Okay. 30 seconds.  
CMP Yeah.  
ACDR Okay.  
CMP I'll give you a countdown.  
ACDR ...  
CMP 20 to go.  
ACDR 20 to go. Continue looking good ...  
CMP 10 seconds to go.  
ACDR Yeah.  
CMP I'm going to give you a mark.  
ACDR All right. Stand by.  
CMP Okay. Just about ready. 4, 3, 2, 1 -  
19 47 03 CMP MARK. Beautiful.  
DMP There she goes.  
ACDR Okay. That thing ...  
CMP ...  
ACDR Okay. Attitude ...  
CMP Right.

ACDR CMC, HOLD.

CMP Now.

ACDR Okay. 5 and 1.

CMP ... You see it?

DMP It went out to the left there.

CMP Okay. Need a hack in 1 minute, Tom.

ACDR Okay. I'll get a hack in 1 minute. FDAI 5 and 1.

CMP 5/1?

ACDR Yeah.

CMP Okay; we're waiting for it.

ACDR Okay. Okay, at 1 minute. It's 37, 38 seconds. Flip those PYROs, OFF, real fast ...

CMP ... okay.

DMP I'll be a ...

CMP Okay. And got to search for it, I guess.

ACDR Okay. At 1 minute, Deke, CAMERA, on.

CMP ...

ACDR Stand by.

19 48 06 ACDR MARK it, 1 minute.

CMP Okay. She went off real good, Crip. We don't see her in the window yet. We went to HOLD at 15 seconds.

CMP I - we want to get those pictures though, too.

CMP I think I'm going to have to go right. You can't see it out of any window, huh?

DMP No, I don't see - -

ACDR Nope, I don't see a fucking thing here.

CMP Well, let's see. I think it's to your left.

ACDR Okay. Our pressure's good. Want to pop off these suits and look for it.

CMP Our pressure's good.

DMP Well, I don't know where to look.

ACDR ... better look out ...

CMP I'd rather kind of look for it - Well, that's right, we should pop off here.

19 48 42 ACDR Okay, Crip. Pressure's looking beautiful here. ... pop these suits and helmets and try to look for the bear.

CC-H Okeydoke.

DMP It might be to your left, but I don't know.

CMP Okay.

CMP Okay.

DMP That's where it was the last time - -

ACDR Yeah, on the left. Along with ...

CMP Yeah. Okay; I see it.

ACDR Okay.

CMP Go get a - -

DMP Okay. Master alarm; it's O<sub>2</sub> HIGH FLOW. We'd better watch ...

CMP Yeah. That - that looks like ... circuit breaker.

DMP Yeah, circuit breaker.

ACDR ...

CMP Huh?

CMP Okay, Tom, would you ...

19 49 37 CC-H Okay; we're a minute from LOS. Our next station contact will be Goldstone in 18 minutes. That's at 199:46. Good luck on spotting it.

DMP Okay. We got it now, Crip.

CC-H Very good.

ACDR He has trouble seeing them.

DMP How's it going there?

CMP No, I see them ...

ACDR Oh, I'm sorry. Now you see them ... The reflected sunlight in this son of a bitch looks like an earth-shine.

CMP Not in the right direction.

19 50 08 CC-H A little reminder, when you get to it, to get the SUIT CIRCUIT RETURN, OPEN, but no - no rush.

DMP Turn on the which?

CMP All the way?

ACDR Suit valve?

CMP No.

CC-H ... RETURN valve. We monitor it CLOSED now. That was the reason for the O<sub>2</sub> FLOW.

DMP Okay.

CMP Okay. I hope we can ... I got it.

DMP Yeah. Camera's running.

CMP Okay. And I'll get that SUIT CIRCUIT RETURN valve.

ACDR Okay.

CMP ...

ACDR I should have ...

CMP ... try it. Yeah. Okay; I don't have any ... I don't have any at all.

ACDR No.

CMP ... wants - -

ACDR Looking down on Earth, to check on my pitch just like that - -

CMP Not even a hint of a - -

ACDR That's right. ... make sure I got the right one ...

CMP No.

19 51 13 ACDR That's right, man. It wipes you out completely.

CMP Yeah. I don't have any.

ACDR (Laughter)

ACDR See, what I was - what went on on that first ... docking ...

DMP And the second one.

CMP Hey, Tom, how long did you keep it heads up?

ACDR Okay. For 8 minutes.

CMP Okay. Now it's holding very steady. We got it.

DMP ...

CMP That worked real good. ...

ACDR All righty. ... Go ahead and get your SECS LOGIC, OFF.

19 52 04 CMP Okay; understand. SECS LOGIC, OFF ...

ACDR ...

CMP God damn. That was fun.

ACDR Circuit breaker CSM/DM FINAL SEP, OPEN.

19 52 24    CMP        That COAS is just ... camera.  
              ACDR        ...  
              DMP        Changing film here. I got - got the long lens.  
              CMP        I'll have to remember that, ... not that it matters.  
              ACDR        ... nobody ever had this problem before. ...  
              CMP        Haven't had the - -  
              ACDR        Haven't had the problem all the time, but ...  
              CMP        Well, but they gave him a filter. Would - would that  
                  help?  
              ACDR        No. Won't help ...  
              DMP        ...  
              CMP        Yeah. ...  
              ACDR        ... suppose to have ...  
              CMP        I think it looked like it was going to have ...  
              ACDR        Yeah.  
              CMP        ... right direction ...  
19 53 40    ACDR        I guess the Hasselblad is ...  
              DMP        No, I got it over here where - -  
              ACDR        Let me help.  
              DMP        (Laughter) I'll - I can get it.  
              ACDR        ...  
              CMP        Look at that.  
              DMP        Should be set ...  
              CMP        Okay. I've got that on vertical now. Now I've got  
                  to ...



CMP Shoot one out your window?

DMP Well, no. I can try it, but I'll have to turn these lights ...

ACDR No, I don't want you to do that.

ACDR ... your hand away.

CMP ...

ACDR Hold it to the left a little.

CMP Yeah.

CMP Deke, there goes your burn.

DMP (Laughter) Yeah. ...

CMP Sure, Deke?

DMP Okay. Well, ...

CMP Okay. ... DAC.

19 55 20 ACDR DAC. Okay. Configure DSE LOW BIT RATE, FORWARD - -

19 55 29 CMP DAC off? DAC off, Deke?

19 55 35 DMP Yeah.

CMP Hey, you know, it's kind of - -

19 56 35 ACDR ... Why don't you put all of it in that.

CMP - - got to push it down. I don't know, but I think you should push it down. That's probably ...

ACDR ... ... that's beautiful.

19 57 12 CMP ... the right gimbal lock.

ACDR Looks good.

CMP Okay; look ahead ...

ACDR ... further down and get that DAC off before we get the SECS PYRO at 8:30 ...

19 57 56 ACDR Okay; VERB 48: 11102 [sic] ... 11102, ... Oh, hold it, hold it, hold it. 11002.

CMP Yeah. ...

19 58 17 ACDR Let's see, ... CMC, AUTO and VERB 49 maneuver to the DMI pad attitude ... Okay; this is it. Okay. Roll plus 358, ... 351, ... 003.

DMP ...

CMP PYRO ...

DMP ...

ACDR ...

DMP ...

ACDR Yeah.

CMP Verify ... - -

DMP ...

CMP Oh, yeah.

DMP Oh, okay.

CMP ... put it.

19 59 45 ACDR ... CABIN PRESSURE INDICATOR, verify greater than 4.7 ... EMERGENCY CABIN PRESSURE on BOTH. SUIT CIRCUIT RETURN valve ...

CMP Okay.

20 00 08 ACDR Okay. 99:35, G&N OPTICS, ON. P30, verify DMI T<sub>ig</sub> and delta-V.

CMP ...

ACDR ... the DM ... Yeah, that's it. 200, 00, 00.

CMP ... 38 - 39.

20 01 41 ACDR All right. Let's see. Why don't ...  
CMP ...  
ACDR ...  
DMP ... have to ...  
20 02 31 CMP Yeah. ... we'd have to be ...  
ACDR ...  
CMP I'm not ... I still ... I think if I turn up  
that ...  
ACDR Yeah. That ...  
20 03 01 CMP ... make it easier.  
20 03 06 ACDR It really looks good up here.  
CMP ...  
ACDR ...  
CMP ...  
DMP ...  
20 04 10 CMP I've got to ...  
ACDR ...  
CMP ...  
20 04 24 ACDR You there?  
CMP Yeah.  
ACDR ...  
DMP ...  
CMP ...  
ACDR ...  
20 06 02 ACDR Hello, Houston; Apollo.

ACDR ... locked up on ATS.

CMP ...

20 06 27 ACDR ... pitch is minus 58.

CMP Yaw.

ACDR Yaw is 334.

CMP ...

20 07 51 ACDR Yeah, that's good pitch we got. We got 300 ...

CMP ...

20 11 19 ACDR You got a map over there, Deke? ...

DMP ...

ACDR I don't have one. ... Vance, you have a ...

20 11 34 CMP Hell, I guess ...

ACDR ...

CMP I think it's over in ...

ACDR I guess - Why don't you - -

20 11 47 CC-H Apollo, Houston. We're looking at some data down here that shows circuit breakers on panel 274, for the DM FURNACE/CRYSTAL GROWTH are closed. We would like to get those opened, if we could, please. If you can reach them. We're about to go LOS, and then we'll have you again at Newfoundland in 5 minutes.

DMP ...

CMP ... Tom?

ACDR Yeah.

CMP ...

DMP ...

20 12 01 ACDR Yeah. We'll get a bigger bag ...

ACDR ... 18:10 ... should not be too long.

CMP Oh, we got about 19.

ACDR Where do you see that?

CMP ...

ACDR ...

DMP ...

ACDR ... Okay.

ACDR ...

20 14 14 ACDR ... all over ...

CMP ...

CMP ...

ACDR Yeah.

20 15 23 ACDR Shit! Do you know what ...?

CMP ...

ACDR ... that panel ...

CMP Okay, Deke, ... Flight Plan ...

DMP Yeah.

20 16 52 ACDR ... GET.

CMP ...

ACDR ...

CMP ...

20 18 04 CC-H Apollo, Houston. AOS Newfoundland, 7 minutes.

CMP ...

20 18 17 CC-H And if you gents find a chance to get those ATS angles, a pitch of minus 58 and yaw of 334, we'll be able to get you on the ATS and watch you burn.

DMP Yeah. I had them in there. I hope you got it.

CC-H Okay, fine. Well, we're not quite there, yet. Thank you, Deke.

DMP Okay. That 274 breaker I can't get at.

20 18 37 CC-H Understand.

TIME SKIP

20 54 20 CMP Okay. Pacific Ocean - Ocean's just ...

20 56 07 DMP Yeah. ...

CMP All right, Deke.

DMP ... I don't think ... work ... ..

CMP ...

20 57 13 DMP Well, if you got to ...

CMP ...

DMP ...

DMP ...

20 59 38 CMP What? Yeah. Two. Morning ...; morning and ... Got to have - Do the ... power on.

DMP ...

CMP ...

DMP ...

21 01 22 ACDR You got the power on? ...

DMP Okay.

ACDR Hey, ... down in here. ...

DMP There it is. ... ..

CMP ...

21 03 06 DMP Look ...

21 03 26 DMP Let's see, ...

21 04 23 ACDR Hey, Deke?

DMP Yeah.

ACDR Where's that stuff for the electrophoresis ...

DMP I think I put them all up in ...

ACDR Yeah.

21 04 37 ACDR ... electrophoresis.

DMP ...

ACDR ...

DMP ...

21 10 34 CC-H Apollo, Houston. We are AOS through Orroral for 4 minutes.

DMP Okay, Crip. And we got the TV camera up and running.

CC-H Okay, great. We're talking at you on VHF now. As soon as we lock on with S-band, we're going to go ahead and command that camera on.

DMP Okay.

DMP ...

21 14 31 DMP Well, okay, Crip. We're over where we think we ought to be, about Sydney, and we're in solid cloud cover here right now.

CC-H Yeah. Kind of hard to pick a cumulus cloud out amongst all the clouds then, huh?

DMP Right.

CC-H Okay. Copy that.

21 14 54 CC-H Like to give you this quick blurb regarding the eddies I mentioned earlier south of Hawaii. It's known to have a series of eddies southwest of the Islands due to the current flow being broken by the Islands. And the size, and the number, and the extent of them are unknown. We'd like you to attempt to observe the orientation, the sizes, and how many you can see. You should have a chance to look at them on this upcoming pass across there at about 201:09. And we think it should be visible out of window 1.

DMP ...

21 15 28 CC-H We're also going to be, again, not beaming down this TV to Hawaii when we - when we come across there. So we can look at it later. We are 1 minute from LOS, and our next station contact will be at Hawaii in 14 minutes.

DMP ...

CMP ...

DMP ...

21 20 37 ACDR ...

21 23 02 ACDR ... The ballpark on it's approximately 1500 feet.  
... ... 250 ... too far off.

CMP ...

ACDR ...

CMP ...

21 24 35 ACDR Yeah.

21 25 03 DMP Hey, you know, we could ...

CMP ...

ACDR ...



21 25 21    CMP    I did?

          ACDR    ...

          DMP    ...

          ACDR    ...

          CMP    ...

          ACDR    ...

          CMP    ...

          CMP    ...

          ACDR    ...

21 26 44    CMP    It might have been. I don't know. ...

          DMP    ...

          CMP    ... are really ...

          ACDR    ... Have I got it on?

21 27 12    CMP    Yeah.

          ACDR    Oh, yeah. Yeah, here's ...

          CMP    Yeah.

          ACDR    ... ..

21 27 37    DMP    Okay, ...

          CMP    ...

21 28 11    ACDR    ... up here, look at the - -

          DMP    ...

21 28 55    CC-H    Apollo, Houston. Hello at Hawaii for 6 minutes.  
How you doing?

          DMP    Okay, Dick.

21 29 01    CC-H    Hi, Deke.

21 35 17 CC-H Yeah. The ball is okay now.

CMP Right.

21 35 19 CC-H We just don't want to change that. (Laughter)

CMP Okay. ...

DMP No kidding, Tom. We've got on a ... Vance ... coming up here ...

21 35 39 CMP Tape recorder. ...

DMP ...

CMP ...

21 37 38 ACDR ... 35 ...

DMP ...

CMP Got to find ... I think.

DMP ...

CMP I just ...

DMP ...

CMP ...

21 39 11 ACDR It's darker at times. Like over there, it's darker to me than over here.

ACDR Yeah. Like I get about a 38 here.

ACDR Yeah. And over here I would get more towards a - 35 or 36. What do you get?

DMP ...

ACDR 48 is closer here, but over here 47 is closer.

ACDR Okay. Let's get this cockpit cleaned up here.

DMP Okay. Let me get this magazine shot.

21 40 07 CMP Yeah. We've got to reconfigure. We've got a lot to do in the next hour or so.

ACDR ... .. Yeah.

CMP ...

DMP ...

21 40 54 ACDR I tell you, ... got one big bag big enough to ...  
I hope ...

DMP Yeah. I agree with you. ...

CMP Okay.

DMP ... get a new mag on ...

21 41 19 CMP Okay, sure.

DMP ...

CMP ...

21 42 27 CMP I got to have gyres and stuff. ...

ACDR ...

CMP ...

21 43 24 ACDR Let's see. I'll tell you what, ...

CMP ... tape recorder ...

DMP ... Seattle ... ..

21 45 41 ACDR Yeah.

21 46 23 DMP ... That's the bag[?] right there, isn't it? ...  
bag[?] ... Know that? I don't understand that  
fucker. ... .. That's exactly what we needed,  
though. ...

CMP Yeah.

21 47 59 DMP Okay.

21 49 09 DMP ... some of that stuff ...

DMP That'll get there ...

21 50 45 DMP Well, ...  
21 52 48 CC-H Apollo, Houston.  
21 53 13 CMP ... Well, I guess ...

TIME SKIP

22 29 13 CMP Tom, it's good ... Did ... that?  
ACDR Get the ...?  
CMP Umm. ...  
22 34 35 ACDR Do you have one of these ..., Deke? ...  
22 38 12 CMP The other one.  
22 38 34 ACDR You want us to put it back, ..., all this?  
DMP Try to get ... in a bag. You all fixing to ... and  
all that?  
ACDR Yeah. Get the ...  
22 39 36 CMP The best thing would be ...  
ACDR ... Hey, this is a bag full of garbage.  
CMP ...  
ACDR We can get it ... all the fucking bags.  
CMP I wish you'd look at this ... here. ... first.  
ACDR Let's see, why - why don't you go back and ... that  
job that hasn't been ...  
22 40 16 CMP I don't know, but I think it's still around some-  
where. ... make sure. Right here. That's the only  
reason I hate to take it out.  
CMP Coming ...? Okay. I took 12 ...  
22 42 20 CMP Okay.

22 44 00 CMP Shit. ... Okay. We've got three shots of Australia ...  
and ... 12 in the checklist ... They were approxi-  
mately ... of Australia and they ...

DMP ... God! Look at those ...

22 48 59 CMP Deke, did you ...? There's no evidence that that ...  
get out and ...

CMP But - I'm forced out of ... stereopair of ... and  
they ended up ...

CMP Would you take this?

ACDR ...?

CMP Yeah. This is a ...

ACDR ...

22 50 43 ACDR ... anyway it would be possible. ...

CMP Go ahead, Tom.

CMP What's that island? Okay. Do a ... Got ... of an  
island. Got water ... off the island.

ACDR ... the black one.

ACDR Why don't you just toss me the black one. ...

CMP ... let you know. We're over the Seattle area, ...  
photographs ... snowcapped ... stereo frames ...  
glaciers and firn lines and sediments - describe  
sediments in the waters of Puget Sound. ... gyres  
there? ... give you an idea of all the things ...

CMP I've looked at it, and I've decided that if ..., I  
can't describe them too well. And I've just got to  
take more pictures in the right ...

ACDR Ready to ...?

CMP ...

22 54 15 ACDR ... off.

CMP Stereopair of thunderstorms over the mid-Pacific at 202 ...

CMP Got another big thunderstorm ... .. what rev ...

DMP 123-24.

CMP Well, that should get it.

ACDR ...?

CMP Yeah. ...

CMP You know, I think we've made several passes ...

ACDR ... you're right.

ACDR I better get ...

22 58 05 CMP Well, let's see; if we were going right side up, let's look down here, right? ..., Tom.

ACDR Yeah. If you look ... south ...

22 58 59 CMP This pass ... There's a big one up in the ...

DMP Let's go down to the south.

ACDR One thing that caused the urine dump to go ... was ... while we're eating.

CMP Is that right.

ACDR The outside....

22 59 46 CMP I noticed that thunder clouds come out of ... I mean out of eddies - or cumulus-type clouds. Okay; just got a - an eddy. Should read at 202:38:00. Right there, I got it in front ... it's right there. Sort of a ... of it. I see a slight extra ... of it. So light I can't hardly describe it. The - one other thing I noticed is out of the sky I just took a picture of there were cumulus clouds emanating out of the sides or the interior of it. You'll find that with several - I - I said sky, it ought to have been eddy - several eddies interior.

23 01 03    CMP        There's another big - Hey, look at that. That looks like a hurricane. Good Lord! Great big storm in the middle of the Pacific here, coming up at 202:38:10. Look at that swell. Okay; I got the center of this tremendously large thunderstorm. I don't know, it might be 100 kilometers across. Virtually, I can't even see the extent of it; more than that, I got a stereo ... the center.

              ACDR        Yeah.

23 02 54    CMP        Okay; the time on that was ... 40:55. Oh, I thought you were just ... Got a picture of an island ... 202:41:10. ... sunglint around it. ... beautiful island with sunglint around it.

23 05 04    CMP        Looks to me like ... fixing to ...

23 05 47    CMP        Okay. That's 32 and 33. Typical, rather linear cloud pattern ... west. I see this quite a bit. ... water current. ...

23 08 34    CMP        ... I can sit here and ...

              ACDR        ... Vance.

              CMP        Oh, yeah.

              ACDR        Yeah. I can see the whole thing from here. ...

              CMP        Yeah, that worries me. It helps to see them right side up. ... Good.

              CMP        Looks like ... here.

              DMP        ...

              CMP        ... looks like ... I think it indicates that ... That looks like a ... itself. It's got a ...

              ACDR        Yeah. ...

              CMP        Hey, Deke.

              DMP        Yeah.

23 10 29   CMP       We got to identify ...

          CMP       Looks like it may be a "mega-eddy," huh?

          DMP       Yeah.

          CMP       Deke's picture was taken ... 48:45 ...

          ACDR      Huh? ... work better?

          CMP       ... turn it ... And could somebody ... get a ...  
                  place for ...?

          DMP       I don't know.

          CMP       ...

          ACDR      I really don't think so. ...

          CMP       ...

          DMP       Okay. ... get it.

          CMP       Okay. Here comes ...

          ACDR      You've got the ... You've got the ... all over ...

          CMP       Okay.

          ACDR      ... right now. ...

          CMP       How about way down south?

          ACDR      Way down there?

          CMP       Well, we can ...

          ACDR      Yeah.

          DMP       ...

          CMP       Well -

          DMP       ...

          CMP       Right here.



ACDR I still don't - don't think the camera's taking good pictures.

CMP ...

ACDR ... all that water down there.

23 15 08 CMP Took a picture ...5 of the Canadian Rockies. Snowy-area stereopair ... looking for glaciers ... Canadian Rockies ... glacier.

ACDR I was looking for one.

23 15 54 CMP Okay. I see a glacier.

DMP ... There's the firn line.

DMP Yeah. There it is.

CMP Okay, Deke, set the ...

DMP Huh?

DMP ...

CMP ... first is at 202:40 ... .. a big farming area. Suppose that's a dam?

ACDR No, that's Calgary right there.

DMP Is that Calgary?

CMP ... shot a glacier ... just west of Calgary.

CMP ... apart.

ACDR Yeah. Okay.

DMP Well, ...

ACDR ... You've got to get ...

DMP ... go through that ...

CMP Hey -

23 18 49 ACDR ... go to the right ... that.

DMP ...

DMP Okay. We're ahead of the ..., I think.

DMP ... the spacecraft.

CMP ... got it.

DMP ... Yeah, we're supposed ... that one.

23 20 13 CMP Look at that cloud down there - that dark cloud. ...

ACDR ... Yeah.

CMP You know, Deke has a ...

ACDR Yeah. I doubt that you ... changing ...

CMP Yeah.

23 21 54 CMP You got to move that - got to ...

DMP Get a chance to go down there?

23 23 27 CC-H Apollo, Houston. Hello at Bermuda. How are you doing?

23 23 33 ACDR Just super, Dick.

# # #

DAY 205

00 28 50 CC-H Apollo, Houston. We're about a minute and a half from LOS. I'll call you at Rosman at 204 plus 32. You got four good gimbal motors, trims are okay. Everything is looking fine. We'll see you after the burn.

CMP Okay. Glad to hear it's looking good.

CMP Thank you.

CC-H Okay.

CMP ... Okay. I got ... Check the ...

CMP ...

ACDR ...

00 29 38 CMP Right.

CMP ...

CMP ...

ACDR ...

00 31 07 CMP ... it up.

ACDR ... up.

CMP ...

ACDR That's ...

ACDR ...

CMP Huh?

ACDR ...

00 31 57 CMP ... second burn.

00 32 43 CMP Okay. Normal.

ACDR ...

CMP ...

CMP Jesus Christ! (Laughter)  
00 33 49 CMP God. Where did all the water come from? Okay.  
...  
00 34 24 CMP Okay. Got it. Yeah. Okay. Deke, you ready? ...

TIME SKIP

01 58 01 CC-H Apollo, Houston. We're 2 minutes from ATS LOS.  
DMP What - what's ...  
CC-H We'll see you at Goldstone in about 20 minutes.  
See you there.  
CMP Okay, Dick. Incidentally, we were just commenting -  
this is not - this is a sure good attitude for the  
Doppler experiment, but we kind of need a periscope  
for Earth obs.  
01 58 18 CC-H Roger. FAO was sitting here thinking the same thing,  
probably.  
CMP Kawhia Island administrated by - administered by  
New Zealand and claimed by the U.S.  
DMP Is that right?  
CMP Yeah. Because it's small.  
CMP Wonder if I'll get a chance to see New Zealand again.  
DMP Probably not.  
DMP ...  
CMP No. ...  
DMP I got some apricots this morning. ...  
ACDR Okay. ...  
DMP ... call that ... because that's the ... that  
valve ...

ACDR Let it sit here - -  
CMP I can only ...  
ACDR - - until it's better.  
CMP Yeah, but it's not right.  
DMP Tom.  
ACDR Huh?  
DMP ...  
02 00 53 CMP Okay. I'm going to start ... here. ...  
CMP ... Start the ...  
CMP Start the ...  
ACDR ... 125 - 126.  
CMP Okay, on rev 126.  
02 02 28 ACDR We're right over Albuquerque, Vance. South of ...  
ACDR Was there a ...? Was there? ...  
CMP Well, there's ... looks super.  
DMP Yeah, let me take a picture of it.  
DMP ... uncorrelated.  
ACDR Well, there's one.  
DMP ...  
ACDR You got a rev 134, 35 ... area here.  
CMP ...  
ACDR Right. ...  
CMP Let's - Let's ...

ACDR I don't know.

CMP I don't know ...

DMP Okay. ...

DMP ... got through that. ...

ACDR ... set them up.

CMP Camera - the mapping camera's all yours.

ACDR ...

DMP ...

ACDR ... You got this volcano. ...

CMP Can I get that to move?

ACDR ... Maybe this one.

CMP Never have seen the Faulkland Current, have we?

02 06 05 ACDR Always been cloud cover.

DMP Anybody got a record they want to ...?

CMP No.

ACDR The other side of that country and western, that's ...

DMP ... got a better one instead of that country and western.

ACDR No. That's one of those - ... start out with a country ...

DMP ...

USA (Music)

DMP ...

CMP ... country and western ...

ACDR I don't like it.

02 07 42 CMP I don't either.

ACDR Yeah. Got some good country and western.

DMP ...

ACDR Yeah.

DMP ...

CMP That's the first one out of there.

DMP Okay. Well, well, let's see here ... one I haven't heard. ... here, that one yesterday. Let's go for rock and roll, and country western ...

CMP ...

ACDR ... rock and roll.

DMP Try that one.

CMP ...

DMP We heard that one.

ACDR ...

DMP Well there's - ... No, on the other one I ... Conway Twitty, right?

ACDR Yeah. Let me get one on. ...

DMP Vance, you know where it is?

CMP Huh?

DMP ...

CMP Yeah. It's ... down in the other one.

DMP Well, I've got ... Okay, here's ...

02 10 34   ACDR    Oh! Vance, I want you to check something before we  
                  ... tonight. I got ... clock ... - -

          CMP    All right.

          ACDR    Right. The clock's in the bottom of the ...

          CMP    Yeah. But you got to make sure.

          ACDR    ... looks like a couple ... backed off. ... backed  
                  off.

          CMP    Where - where'd you put ...?

          ACDR    Huh?

          CMP    Think it was the ... in the bottom of the ... Is  
                  it down here?

          ACDR    Yeah. You know, those twist off ...?

          CMP    Yeah.

          USA    (Whistling)

          CMP    What did your - what did you hand him?

          ACDR    Oh, what was it? Conway?

          CMP    Yeah.

          ACDR    No. Go ahead and play yours. ... put it ...

          CMP    Tom.

          USA    (Music)

          ACDR    Huh?

          CMP    It's okay. I wondered if - -

          ACDR    Oh, no. I'm in this one down here. It's back this  
                  way.

          CMP    ... coming in? See ...?



ACDR Yeah.

02 12 27 CMP Hey, you're right, by golly. See I'm giving - -

ACDR Look, one of them's backed off. That's probably ...  
... - -

CMP ...

DMP Vance, you got a ...

ACDR I think it's fully backed off.

DMP ...

ACDR ... looks like it.

CMP Yeah. Yeah. ...

ACDR ...

CMP We better tape them again tomorrow too.

02 13 14 ACDR Yeah. ... In fact, why don't you just put a piece  
of tape on each one of them.

CMP Yeah.

ACDR I think ... is fully backed off.

CMP ...

ACDR Either a ... - -

CMP ...

ACDR - - the whole thing just comes ... ... the whole  
thing just comes out.

CMP Yeah. This one is ...

DMP ...

ACDR Like what I said, if you don't bag them.

CMP Yeah. Here are ...

ACDR With this crazy arrangement ... can take a rest.  
They might want ... themselves ... all fixed ...  
Think we might get a rest after this ...?

CMP No. We didn't ... it any.

ACDR ...

CMP I don't think we'd better ... My wife wants to  
take ...

USA (Music: In the Mood by Glen Miller)

02 14 55 CMP Is that Conway Twitty?

ACDR No. No, that's not Conway Twitty. No way. I  
heard that music before you were born here, Vance.

CMP (Laughter) Oh, I remember that music very well.  
That was the music when I was in high school.

USA (Music: Sentimental Journey by Les Brown)

ACDR I remember that one.

DMP How do you like that one? Isn't that great?

ACDR Yeah.

DMP Les Brown.

ACDR Yep. Sounds of renown.

02 15 47 DMP We get anything for Farouk over Egypt down in  
there ...?

CMP Yeah.

ACDR We had two.

CMP Yeah, we had good - two good passes over Cairo.

ACDR Yeah.

DMP ... Ain't he great?

CMP Is that the book?

DMP Yeah. ...

ACDR ...

CMP Oh, I think most people like the music that - that they - you know, when they were - that they heard when they were about 16 to 25, something like that.

DMP Yeah. ...

CMP I felt that way particularly. I - I kind of like - like it all, most of it.

DMP ...

CMP I - I like modern music.

DMP I don't like that real hard rock.

ACDR No. I don't care for that, not at all.

02 16 14 DMP I like John Denver ..., Gordon Lightfoot.

CMP Only thing I don't really like - a few things, I don't like real classical things like opera, and all that kind of hog crap and - because I don't understand it; Brahms, things like that. And the other thing I don't don't like is the kind of country that you get in Nashville.

DMP Oh, yeah. That's - that's kind of - although some of that - that Nashville grass ... that we have ... you know some of that Nashville grass ... Couple of the ... that I ... Oh, you got a ... That looks like the - -

DMP Oh, yeah. That's - that's kind of - although some of that - that Nashville grass ... that we have ... you know some of that Nashville grass ... Couple of the ... that I ... Oh, you got a ... That looks like the - -

02 18 20 ACDR You suspect that's a cyclone?

CMP Yeah. I'll bet from - real up high it looks just like a cyclone, kind of a - could be a - I'll bet it's that same thing we saw earlier. It looks like a possible hurricane.

ACDR Yes. Particularly ... Take a look.

CMP We ought to find out. ... this point, 205:56.

ACDR All right, Vance. Take a couple of it - about 100 miles across, I think ...

CMP Time it. ...

ACDR It's building up on the outer edges. The whole thing narrows - weather satellite in the ... Pacific.

CMP ...

CMP I don't know, it appears to be a - typhoon area?

ACDR Well, yeah. ...

02 19 07 CMP Well, I think one thing about modern music is, that up till 10 years ago they only played about 10 percent of the classical sound. They only played all that modern guitars and stuff. All over - Well, I guess it was such a vibrating sounds of ... I think that really gives it a ...

ACDR Here, I'll put this in the ...

DMP ...

DMP Which way is ...?

CMP I don't know.

ACDR ... Fault.

CMP ...

ACDR ... and cotton.

CMP Oh, yeah.

02 20 06   ACDR    There's the Delta.

          CMP     Right.

          ACDR    ...

          CMP     ... headed towards the Fault?

          ACDR    Nope. Not yet. ... coming up.

          DMP     ... passed the ...

          ACDR    Yeah.

          ACDR    Ah, here's the coast.

          CMP     I got photographs.

          ACDR    Where is it ...?

          CMP     Oh, no. No, ... Italy, the Adriatic ...

          DMP     ...

          CMP     Yeah.

          ACDR    It's the West Coast ...

          CMP     Oh, is it?

          ACDR    ...

          CMP     Yeah. ... Must be southern California.

          ACDR    ...

02 21 33   CC-H    Apollo, Houston. AOS at Goldstone for about 4  
                  minutes, and about 2 minutes - -

02 25 04   CC-H    Apollo, Houston. I'm back up. We're about  
                  30 seconds from LOS. Give you a call at Quito in  
                  8 minutes.

02 25 10   ACDR    Okay.

ACDR Get up there. Somebody else take this light for me.  
But don't ... hook it up ...

CMP ... some more if you want it.

02 26 26 ACDR No. It's all ready ... About wrapped up in the ...

CMP Okay. ...

ACDR I'll put this black one over here. ... that book  
... on it.

DMP Really got a ... on 35. ...

ACDR ...

02 27 16 ACDR Well, let's see, what's next on the regular Flight  
Plan? ... 5, ... CMC MODE, FREE; P52 ...

DMP Did you ever watch - notice the ones that come up  
the side?

ACDR ...

DMP We just haven't been in a good attitude to see.

CMP Oh.

DMP ... just look out there. All the - -

CMP How about lightning? ... - -

DMP Oh, there's a lightning ... out there, see it? It's  
going all the time.

ACDR Yeah. I haven't seen it ... Put it - put it right  
up there ...

DMP All together the ... time was - I'll tell you what,  
...

ACDR Go ahead.

CMP Together.

DMP Together?

CMP Yeah. We may as well eat.

DMP Okay.

DMP/CMP 9:30.

ACDR Well, it's been about 5 hours since we had lunch.

CMP If we messed around much later, it - -

ACDR Deke, why don't you get over in this ... the Sun comes up, you'll be over here, okay? Get over here. Okay, ... .. get up here.

02 31 17 CMP What? Yeah. Oh yeah. Where would you like it? You too? ...

CMP Damn, somebody's getting a ... here.

DMP ... right here. ... - -

CMP Hey, Tom, while you're there could you grab the tray?

DMP - - something for this.

02 33 16 CMP Oh, you're going this way, that's right.

02 39 47 CMP I guess the first thing ... If I have a - trying to get a lot of things ...

TIME SKIP

03 39 06 CMP Yeah. That's ...

DMP ... (Laughter)

03 41 30 CMP That - that's something ...

ACDR Okay. It was ... 07:19:28 [?].

CMP I think ... 07 ...

03 54 00 CC-H Apollo, Houston. Goldstone for 2-1/2 minutes.

CC-H Roger.

DMP Hey, Dick. You with us?

CC-H Yes, sir. Go ahead.

DMP Okay. We just saw what we think is a possible volcano. I don't know ... down there or not. ... 207:19:20 - a very large - kind of a mushroom-type thunderstorm-looking thing with a large stream of gray-brown smoke going downstream, mixed with white. ... volcano. ... horrendous oil fire. ... track that one for us?

CC-H Okay. We'll - we'll correlate that time and see if we can check it out.

03 55 26 CC-H Apollo, Houston. We're 1 minute from LOS. We're going to make this the last call of the - of the evening, so it's - we've certainly enjoyed working with you here on ASTP, and we'll see you guys when you get back to Houston. So everybody say, "Good night, Dick."

ACDR Good night, Dick.

DMP Good night, Dick.

CMP Good night, Dick.

CMP Good night, silver team.

ACDR Yeah. Thanks a lot for all your help. It was just tremendous.

CC-H We really enjoyed it. We'll see you guys when you get home. Have a nice splashdown.

03 55 55 ACDR All righty. It's been a real ball.

03 58 30 ACDR All right.

03 59 06 CMP Yeah.

03 59 24 CMP That's right.

ACDR ...



CMP Yeah.

ACDR Good. ... Looks like we got wakeup at about 8:30, then we have ... splashdown at 4:30. Then it's another 30 minutes to get onboard ... That's about an hour after splashdown; so that's 5:30. ... to 5:30. That's 4 hours ...

04 00 56 ACDR Yeah. ...

04 01 06 CMP Yeah. Oh, I'm - I've been thinking about that.

04 02 12 ACDR Yeah. Those ...

ACDR That's the only thing ...

04 04 02 ACDR You know, we ...

04 08 33 CMP Yeah. I think ...

ACDR Yeah.

04 11 42 CMP Anybody - got a screen [?] cap in their pocket? We're - This one's got a hole in here.

CMP Oh, no. That's fine. You can get it out.

CMP Yeah, I guess you'd better. Whatever you think; it's yours too, I guess.

04 12 15 CMP No. All I did was pull the loose ends in. But ...

TIME SKIP

12 42 25 DMP Yeah, you can give me another one of those ... black ones, over there in the other one. Yeah, that's for - silver one, that's what matters ... black one. We need to dig one out of the bag over there. ... Huh? Yeah, I just brought up another bag for this stuff ... find it - -

CMP ... in the bag?

DMP Yeah. ... stick that up here, Vance.

CMP All right.

DMP That must have been strapped on. Oh, that goes in the IF... ..., yeah. Why don't you just ... big one up there ...

CMP ...

DMP But I think it's straight up there.

CMP Okay, yeah. ...

ACDR Well, of course, ...

DMP I got to - I'll give you one in a second, Tom. ...

12 44 19 DMP What time does it say that IF ..., Tom? Yeah.

DMP ...

DMP Yeah. Say, you strap that one over here.

CMP Most of that ...

CMP Wos.

DMP ... 03?

CMP Yeah. Should be. Let's see - -

DMP ... A-9 ... A-9. We're in D-105 aren't we? ...

CMP ...

DMP D-10's ...

CMP That's right.

DMP ...

12 47 17 CMP You got one over - far side there, Tom.

ACDR Yeah.

DMP ... back on top over there.

CMP You are?

DMP ...

CMP Oh, okay. See it in the corner there?

DMP ... Yeah. You got that bag full, Vance?

CMP Not yet. You got it ...

DMP I don't ...

CMP Well, wait. Why don't we have them over there?

DMP I don't know. ...

12 48 41 CMP Hey, how about a VERB 30?

DMP ...

CMP That's this thing coming up.

DMP ...

CMP Option 5.

DMP ...

CMP Yeah. But it ... where you locate it ... the first two. Tricky ... - you're on that 10-degree deadband.  
...

DMP ...

12 49 55 CMP That's right. You're going to be ahead of the doctors.

DMP ...

CMP Okay. ... Guess - -

DMP Well, ... says that - -

CMP Yeah, we'll get there. Except that, well, look at this thing logically, it's much faster ...

DMP ...

12 51 30 CMP Oh yeah. Attitude, I think.

DMP Okay. Got to do everything ... this morning. Right.

ACDR ...

CMP Final ... says you have to have a ... prescription for that ...

DMP Okay. Tom, ...

ACDR ...

DMP Okay. ...

DMP ... medication up there ..., water and ...

CMP They - I - I had everything for supper and I had some ... Oh, well, ...

DMP ... he was using that one.

12 55 21 CMP Probably. Okay. On the - PRD ... done ... 48314. And tell them that the purpose of PRD onboard ... my hair.

DMP ...

CMP Whatever everybody else has got, I guess I got the same amount.

ACDR ...

CMP Yeah. I guess about 86 or something like that. I have a ... medium ...

DMP ... very much.

CMP Drinking a lot. ... Never heard that - ...

12 56 33 CMP Odd attitude, whatever - it's not ...

CMP Yeah, yeah. Are we - ... Yeah. Of all the ... Gosh. It sure takes its time, but I guess it's going to get there. That's - we're supposed to do 125. That looks like ...

ACDR ...

CMP ...

CMP Got a long way to go.

13 00 38 CMP Well, Deke, like Crip said, "The party's over."

DMP Yeah.

CMP Tom's had a lot of these parties. We're on our first one.

ACDR ...

CMP Yeah. (Laughter) Yeah. ... There it goes.

ACDR Well, ...

CMP Guess that's the wrong computer. Kind of - Guess it's the attitude of - ... off of another attitude.

ACDR ...

CMP Yeah. Getting ready for ... Always thinking about that and, I guess, set out to do it.

CMP Okay. ...

13 03 10 CMP ... Now VERB 30.

ACDR ...

CMP Are we?

ACDR Well, ...

13 04 30 CC-H Apollo, Houston. We're AOS at Orroral. Have you for about 4 minutes.

CC-H Okay. If we could - down on panel 230 - get the UP TELEMETRY switch to DIRECT, please. And also, if we could have ACCEPT, we'll give you a state vector and also change our time over for PET.

13 04 49 CMP Okay. Got all those.

CC-H Could - did you get a time hack on when you started battery Bravo on CHARGE?

CMP Half hour ago.

ACDR Well, - -

CC-H At least approximate.

13 05 03 DMP - - ... stand by a sec.

13 08 46 CC-H - - your NOUN 78's for this P20 option 5. It doesn't look quite right for us here on this attitude.

CMP Okay. 78 minus ... 5.

DMP ...

CMP All right, Crip.

CC-H Those look good.

CMP Yeah, it does. Kind of looks funny to us. We can't figure it out, either.

13 09 26 CC-H No problem. We'll talk to you about it at Quito.

13 14 55 DMP Damn, things are going fast in this thing.

13 15 33 ACDR ... doctor tell you this morning.

CMP Oh, yeah.

13 32 25 ACDR Let me trade places with you, Vance, get you squared away.

CMP The message you got from ...

ACDR ...

13 36 01 ACDR I'll give you a mark. Put it on 92:59, Vance.

CMP ...

ACDR 92:59 ...

13 36 19 ACDR MARK it.

13 37 45 CC-H Apollo, Houston. We're AOS Quito for 3 minutes.  
 CMP Loud and clear.  
 DMP Okay.  
 ACDR Waste water's up, we don't have to do that. ...  
 don't have to do that. Vance, are you going to  
 shave? No, this is a good time for you to do it.  
 I'll tell you what, you better go ahead and get that  
 out of the way. ... vent. Okay, let's just wait  
 until nighttime.

13 38 15 ACDR ... Earth obs ... they have to get done today. But  
 we're a ... damn weird attitude, ... recording - ...  
 recording for Earth obs?

TIME SKIP

14 12 49 CMP - - and - and ... 9 reads 87 ...  
 ACDR ...  
 CMP Okay. I got a fix on that ... - -

14 13 09 ACDR ... don't know the angle?  
 CMP - - stereo on that. Four shots.  
 ACDR ...  
 CMP ... 91.  
 ACDR ...  
 DMP ... recorder ...  
 ACDR Tape recorder's on.  
 CMP Should be.  
 DMP ... on here. ...

14 13 52 CMP No, no. ... another couple of minutes ...

14 14 00 CMP 0.0 ... 0.0.

14 14 24    CMP        No, that's ...  
            ACDR        ...  
            CC-H        ...  
            ACDR        Roger.  
            ACDR        Okay. ...  
14 14 54    CMP        I got an ... - I got a - -

TIME SKIP

14 36 06    CMP        The pass gets an update here.  
            ACDR        Yeah.  
14 36 11    CMP        Houston, Apollo.  
            CC-H        Okay. We're getting ready ... and going to have you  
                      at ... Orroral ... go ahead.  
            CMP        Crip. Do you have any updates on the times for the  
                      mapping pass 135, 136?  
            CC-H        Don't believe 135 is a mapping. And ... 136 ... no  
                      update for them.  
            CMP        Okay.  
            ACDR        Do you have a ball point ...?  
14 36 49    CC-H        We're going to lose you briefly here, ... go straight  
                      through. I'm going to get VHF through Orroral.  
            ACDR        Okay. ...  
            CMP        No, I haven't got one. You want - -  
            ACDR        No, ...  
            CMP        Pardon? What can I do for you?



ACDR I'll get it.

CMP I - I suspect that it's in R-3.

14 37 29 ACDR ... R-3? Oh, ... Oh, here it is - -

CMP No, wait; here it is.

CMP Okay. Here you go.

ACDR ...

14 38 01 CC-H Okay. We've handed over and we're back with you through Orroral Valley.

CMP Okay.

ACDR Yeah. ... 16.

CMP Zero. ...

CMP Roger.

ACDR And the ZFF is stowed ... per Flight Plan.

CMP Starting maneuvers to the - vis obs pass.

CC-H I'm sorry, you were - you were unreadable. Say again.

14 38 33 CMP Roger. We're starting - we are starting the maneuver to the Earth observation attitude.

DMP Yeah. ... ZFF ...

CC-H Copy.

CMP Yeah. Why don't you give me your ...?

ACDR 46.

CMP ...

ACDR ...

CMP Good. ...

ACDR Okay.

14 39 48 ACDR Houston, Apollo.

CC-H Go ahead.

ACDR Okay. On the Doppler shutdown coming up. Do you want to give us a call on that on a specific time, or do I do it just at 94 and say 12?

CMP ...

CC-H You've already started this maneuver, and that is cutting us off all our data, so you may go ahead and perform it now.

ACDR Okay. Call that out to me.

CMP Doppler?

ACDR Yeah.

CMP Panel 230. DOPPLER RECEIVER, OFF.

14 40 22 ACDR Okay. DOPPLER RECEIVER, OFF. Go.

CMP Panel 274. CB UV/DOPPLER MAIN A, OPEN.

14 40 31 ACDR OPEN. Disconnect the cables?

CMP Disconnect recorder cable; stow recorder and cable in A-6.

ACDR A-6, huh?

CMP And you're supposed to stow the tapes and reels parallel to Y-Z plane.

ACDR Okay. ...

CMP Now, I wonder why that is?

14 41 10 CC-H Apollo, Houston. We're about - about a minute from LOS and we'll see you again at Quito in 28 minutes at 94:32.

CMP Cheerio.

CMP ... the reels in this damn little bag. ...

ACDR Okay. ...

CMP We're all through with that?

ACDR We are through with the Doppler.

CMP I hope.

ACDR A and B works good. ... I think it is ... Doppler ...

14 42 12 CMP Okay.

ACDR Reel A, 13 plus. Reel B, 7 plus.

CMP Okay.

ACDR Reel C is 11. Reel D is 12.

14 42 46 ACDR Deke, how you doing?

CMP Yeah, I don't suppose you have to get back in ...

ACDR No.

ACDR Okay. Which way now? The axes - the rotation of the reels. The reels rotate around ...

CMP ... What, Y-Z plane?

14 43 20 ACDR Well, where do you get that?

CMP Don't know.

CMP The axes ... rotates ... That could be ... It could be handled ... way, or it could be done like that. Right? Which way ... - -

14 43 32 ACDR Y - - ...

CMP - - like this?

ACDR No, like - like this.

CMP Towards this plane. ...

ACDR       Okay. Y - no, this plane is up.

CMP        Oh ...

ACDR       You got a ...

ACDR       Here's - here's Z.

CMP        Z.

14 43 48   ACDR       Here's Y.

CMP        Okay.

ACDR       So they have to stay parallel to that plane. So  
we - -

CMP        No, not - -

ACDR       Here you go.

CMP        Yeah? Okay.

ACDR       It's got to be like that.

CMP        Okay.

14 44 08   DMP        Okay. Junk. ...

ACDR       No, we don't have to stow it.

DMP        Think I ought to put my Velcro strap around ...?

CMP        I don't know.

DMP        Got some tape, though.

CMP        Got some tape. ... anyone find the tape?

DMP        ...

14 44 36   ACDR       (Laughter) We got to put this in A-6. The Doppler  
is shut down. ...

ACDR       Huh?

DMP        ...

ACDR Yeah. I was wondering what happened to it.

ACDR Yeah. Got to go on its side ...

CMP And here's the - cable 30.

DMP Okay. ...

14 45 30 ACDR Okay. Let me show you how it has to go - it has to go - Okay. I'll do that ... Got to go like this. Goes like this.

CMP Everybody else get the tape? I'll ... out of the ...

ACDR First ... Huh?

ACDR That's - that's ... the cable. ... for the cable. Cable is ...

ACDR ...

CMP Yeah?

DMP Oh, the cable doesn't matter.

CMP Let's go.

14 46 48 CMP Maybe we only should carry one of them down there.

ACDR Yeah.

CMP ...

ACDR Okay. Let's ... the Flight Plan?

ACDR ... I think I can ...

14 47 23 ACDR Vance, I think we ...

CMP Yeah.

ACDR Nearly in.

CMP Okay. Now.

ACDR Same thing as you did for the Doppler ... ..

CMP Oh - well, but - Yeah. I don't have - a - Yeah. I got to find a home for it, somewhere.

14 47 48 ACDR Yeah.

CMP ...

CMP Hey, you're getting pretty close to your vis obs pass. They have pitch 15 and yaw 322.

ACDR Okay. Pitch 15 and yaw ...

ACDR plus 15?

CMP Yeah.

14 48 30 CMP Deke?

DMP Yeah?

CMP Did you stow that - Doppler recorder - -

DMP Yeah. Yeah.

CMP - - right place? Okay.

ACDR 3 what? 22?

CMP Yeah.

CMP Yeah.

14 49 09 CMP Visual obs, next thing.

ACDR Yeah, that's ... The next thing, CM height measurements. That's it. ... sunlight. I'm going to get another roll of film; this film is about out ... We got ... Let's see, ... 15's ... Oh hell, we got the whole thing for Earth obs all through.

CMP Yeah. ...?

ACDR ... 8.

14 50 04 CMP Yeah. Right here.

ACDR ... 5, 7.

CMP        Yeah.

ACDR        ...

CMP        Yeah.

ACDR        ... have one of these.

CMP        Yeah.

ACDR        ... get filled out?

14 51 02    CMP        Deke, you want your picture taken now?

ACDR        I about fixed him. (Laughter)

CMP        He didn't do it to me. I won't do it to you.

ACDR        (Laughter)

14 51 15    ACDR        Nikon film out of here. ... that Nikon real fast ...  
the whole role back on. In fact, we got color  
exterior. ... we have one roll of color exterior.  
Put that ASA 64 in, will you?

CMP        ...

ACDR        ... it right up.

CMP        ... move over.

ACDR        ... We aren't going to come back through here.

14 51 52    ACDR        You know, ... we had that thing ...

CMP        Yeah.

14 53 03    CMP        Yeah. Hey, why don't you get that cue card. Grab  
that cue card, Tom, I got my ...

ACDR        Okay.

CMP        ... 250 ... f/8 ... About one and a stop - stop  
and a half ...

14 53 33    ACDR        Now - now, now wait. You've got the same lens, the  
same 50-millimeter lens ... The only thing to do  
is ...

CMP Yeah. But - but all our Earth obs book stuff, it was 250.

ACDR Yeah. But 50 ...

14 53 52 CMP Okay; well, what've we been using with the black camera anyway?

ACDR ... same thing ... 50 ...

CMP ...

ACDR Yeah. But there is a difference. The 50 ...

CMP 50 ...

14 54 07 ACDR Yeah. Right.

CMP Yeah. And that's a stop and a half?

ACDR Yeah.

CMP Okay. ... ready ... to go?

ACDR Yeah. ...

14 54 50 CMP And it's daylight. Oh, boy.

ACDR ... I don't either. ...

CMP ...

ACDR Okay. ...

14 56 24 CMP Okay. We got ... set up. First one is 7-F.

ACDR ...

ACDR ... Nikon ...

CMP ... I'll take it over here ...

14 56 59 ACDR Okay, get - get the Nikon all set for ...

CMP The Nikon's ready to go.

ACDR Got to reset that ASA on the ...



CMP 64 ...

ACDR ... Yeah. Okay. We're all set for the attitude.

14 57 13 CMP Okay; would you like the ... or the black? You can have either one.

ACDR ...

CMP Okay.

ACDR First thing we're going to come across is the Galapagos. ... That whole - that whole thing ...

ACDR ... time line? ... We go from 94:20 to 95:10. We got about ... The whole thing ...

CMP ... Boy, they sure crammed it.

ACDR Yeah.

CMP ...

14 57 52 CMP You know, a thought too - might be to take - take a little Nikon shot out the window, exterior color ...

ACDR Yeah. That's a great idea. What we could do is take that ... down in the bottom of the ... it out.

CMP This color film? Is that - -

ACDR Yeah. Color - color of the water.

14 58 21 ACDR Okay. Recorder's all set.

ACDR I'm trying to pick up the ...

CMP Okay. ...

14 58 45 ACDR Started at 7F at 94:30. ... the Galapagos Islands. ... water.

CMP ...?

ACDR Huh?

DMP Hey, look. ... those clouds ...

DMP ... to figure out what it is.

14 59 27 CMP Hey, look at the ocean ... quite awhile here.

CMP Okay. I just put my pen down.

14 59 54 ACDR Yeah. We don't really get started till about ...  
30. ...

CMP Okay.

ACDR ...

CMP Yeah.

DMP ... camera, here ...

CMP ...

DMP ...

15 00 37 CMP Well, also, you got to start getting rid of those  
films ... .. A-6 ...

ACDR All that stuff - -

CMP Oh, A-6, you said, is full.

ACDR Yeah. What we got to do; we got to take ...

15 00 52 CMP Maybe we ought to just put it in ... right?

ACDR Okay. I asked ...

CMP Yeah, we're ... I think, Deke.

DMP ...

15 01 07 CMP I - well, yesterday we came on a Flight Plan place  
that said, basically, stow the film. And they had  
us putting it in ... 3 - -

ACDR Yeah.

CMP - - and A-5 ... there's no way ...

ACDR ...

CMP Thing is, we can't have'em fall down on us during flight.

15 01 30 ACDR Yeah. I think, Vance, ... stow a bunch of that film in those ... and that's about it.

CMP I think it's - -

ACDR ... TSB bags.

CMP That's the way to do it.

ACDR ... you're worried about those cables popping open - -

CMP Well - -

15 01 43 ACDR ... stuck way back there in the ... 15 minutes. ...

15 01 53 CMP Okay, I'm going to try to - ...

CMP What about ... Is that full?

ACDR No, A-3 ... put it all ... A-3 ... Let's stick it all in A-3. Everything ... in A-3.

CMP All right.

15 02 23 ACDR ... stowed in A-3, and then after you get all that stuff in there and ... the rest ...

ACDR Speaker box 164, 165.

15 03 00 DMP Kind of like Soyuz; can't stow nothing to start with ...

ACDR You know, there's a ... on the ... on the outside area, out of plane ...

DMP Yeah, I know. ... looks at the angles here.

15 03 32 CMP Okay. The - Hasselblad already's in A-3.

ACDR ... everything. Everything in A-3 ...

CMP Okay.

ACDR Put all the rest of that stuff up against ... down there. ...

CMP Yeah. ... one ... over there.

ACDR Yeah. ...

15 04 04 DMP Okay.

DMP Okay, I'm supposed to put - Hey, I'm going to put this God damn light thing back here with the - -

CMP Okay.

DMP - - 35-millimeter ...

CMP Be nice to put it all together.

15 04 53 CMP ... Maybe I can take a couple ...

DMP ... here. ...

15 06 00 CMP Okay. Can I hold that till we ... - have to ...

DMP ... all we got.

CMP Is that it?

DMP Yeah.

CMP ... because that wasn't any problem.

15 06 10 DMP Well, just one little ... but that's ... I'll give you this bag ... That's ... Okay. ... stuff.

CMP I get real surprised how we fit this stuff - -

DMP ...

CMP - - ... space ...

ACDR There's really no difference ... In fact, that's ...

CMP Okay.

DMP Okay. The ... angles ...

ACDR Yeah. ...

DMP Can have what?

ACDR ... about ...

15 07 08 DMP Oh, okay. Okay. Then we got ... put them away.

ACDR That's all.

DMP That's it. ...

ACDR Yeah.

DMP ... the DAP.

ACDR Yeah.

DMP ...

ACDR I think we got her locked.

CMP All right.

DMP Yeah. We're okay.

15 07 26 ACDR We could really go ahead and tie down those ... Why don't you come on up - start this DAP - Yeah, why don't you come on up, Vance. Let's get - -

DMP ... we already - we got this thing ...

ACDR What we got to do now is ... attitude. Have to see if we're ready to come home.

CMP Okay.

15 07 51 ACDR ... must be 5-1/2 hours to retrofire ...

CMP Yeah.

ACDR ... got an ASA in 6 to go on that?

CMP Yeah. ...

ACDR ... got to ...

CMP ... No, that's about right.

ACDR ... okay?

CMP Yeah.

15 08 10 DMP ... got the ...  
ACDR Yeah. I'll ...  
DMP ... big cloud pattern down there.  
ACDR Yeah. ...  
DMP ... around the ... Big cloud here, down to the left.  
ACDR Down here on the left?  
DMP Yeah. You can see it to your left.  
ACDR Oh.  
CMP My left.  
ACDR Right.  
DMP See that ... around that island? ... Look, there's another big ... another ...  
15 08 47 ACDR Oh, hell! That's the Galapagos. That's what I'm supposed to be shooting! (Laughter)  
CMP ...  
MS ...  
CMP Look at that, down there.  
CMP Better with the wide angle.  
ACDR Oh, hell; look at those things. ...  
15 09 43 ACDR Okay. We've got the Galapagos Islands. Got stereos. ... clouds around ... the volcano ... through the cloud cover - -

TIME SKIP

16 04 37     ACDR     Okay, Crip. Thank you. We're progressing normally here, I think.

              CC-H     Very good. Somewhere during the next ATS pass ...

16 05 31     DMP     Here it is. B-6.

              ACDR     What?

              DMP     B-6.

              ACDR     Yeah.

              DMP     ...

16 07 28     DMP     Yep. Has anybody seen the filter for the data pass, Tom? The orange filter? I don't have it.

              ACDR     The orange filter for the ... data pass?

              DMP     Yeah.

              ACDR     Have you seen the orange filter for the ... data pass?

              CMP     I haven't seen it.

              DMP     Son of a bitch!

              CMP     Is that the orange filter for ...?

              DMP     Yeah. ... pass.

              ACDR     Oh, Vance has ...

              CMP     Could be. Maybe I forgot, and I stowed it.

              DMP     It's not there, Vance, so somebody has stowed it.

              CMP     Maybe I did stow it. What the hell did I stow, that I thought I stowed that? (Laughter) The only thing that I can think of is ... What did I stow? I stowed something there this morning that I thought was ... Maybe that was it. Probably put it in 6. I stowed the ... I don't know where. I think in B-6. Okay; the ... in B-6. ...

16 10 04     DMP     ...

DMP Okay; thank you.

CMP Okay; 11:33.

DMP Okay; we've got 2, 3 ...

CMP That's it, huh? All she wrote?

ACDR Yeah.

CMP ... filter?

ACDR Yeah, the filter is ...

16 12 32 ACDR ... camera there. Silver camera ...

ACDR Well, we counted five on the other one.

ACDR Yeah. That's all - that's all we got left. You going to bag that too? ... filter.

CMP Which do you want me to do?

ACDR ... Try another one.

CMP Yeah.

ACDR ... get them all out here and get some ...

ACDR ... Okay; let's put this filter over here. Okay; let's get them in order.

16 13 51 DMP Let me get to the filter bag.

DMP I'm going to get the orange filter for that lens. I've got the wrong filter. Let me get the right one. Wrong lens ...

CMP Here's the ...

DMP Thank you.

CMP All right.

DMP ... That's it. That's it in the ...

CMP Is that the box?



DMP It's inside one of these other boxes. ... on the side of the box.

CMP ...?

16 15 48 DMP Hey, I know what happened to that lens. I - I put the filter down here in that bag with the - the lens too. And I put a filter - put it down in the bungee bag, and when the lens that came with it ... somebody else in A-6. That where .. put it. Somebody saw it and put it back up here. That's what happened. (Laughter)

CMP ... bag?

DMP I don't have any idea. All I remember is ...

DMP Yeah. ... A-6. ...

16 17 39 ACDR Any time you're ready, ...

CMP Yeah. We got to get the ILH - LiOH.

CMP ...

16 19 15 CMP Now, that - other bag. Still looking for it, I guess.

ACDR What bag?

CMP And where will it be?

DMP ... up.

CMP Okay.

ACDR ...

CMP Yeah. ...

ACDR ...

CMP Yup.

ACDR ...

16 20 13 DMP Okay. Stick tape on it, Tom. ... corner of A-6, there. Was anything taken out of A-6?

DMP Okay, that ... ..

16 21 14 CMP I'll go, Deke. Want to hand me - -

DMP Put it right in the front corner there.

CMP ...

DMP ...

16 21 25 CMP Very good. ... I don't know ... ..

16 21 41 CMP I don't know ... Well, ... get in position here ... Okay.

DMP Okay. ...

CMP Okay.

ACDR ...

16 23 24 DMP We got 42 left on the Nikon, Tom.

16 23 32 CMP Well - I don't know. Maybe ...

DMP 09 is black.

16 24 07 DMP Okay. ... Okay, ...

16 25 17 CMP Okay. All right. First, the top of the head, right?

16 28 30 CMP Yeah, it helps.

CMP Did you find it?

ACDR Okay. ... for the ...

CMP ... haven't tried ...

16 32 52 CMP Yeah. Yeah, the bag is ...

CMP Yeah. ... That's all.

CMP Oh, did you? No, all I did was - I should have, I guess.

DMP ...

CMP Here it is.

DMP ... tape recorder ...

CMP Well, next one ... mapping pass.

16 34 59 DMP Okay; coming up with ... revolutions 135 and 136.  
...

CMP Okay.

DMP ... orange filter ...

CMP Yeah.

DMP It could be that ...

16 37 33 CMP Okay, Deke. Thank you.

DMP ...

DMP Hey, we've got an attitude in here now.

CMP Yeah.

DMP Where is it?

CMP ...

16 38 12 DMP Oh, I know what's going on. ... we go down from that. I'm looking at ...

16 42 21 ACDR ... over.

16 42 47 CMP Yeah. ...

ACDR ... the Gulf.

DMP Okay. ... .. water.

16 45 10 CMP See those clouds there? They almost follow the coastline. That's why the clouds come out in front ...

DMP ...

CMP ... clouds line up on the ...

16 45 32 CC-H Apollo, Houston. We're AOS through MILA. I've got you for 6 minutes.

16 45 35 ACDR Okay.

16 53 13 DMP And we just crossed good ole Boothbay again, and, as usual, it's under clouds here from our angle. Got some beautiful pictures, however, of the Cape Cod area.

CC-H Very good.

DMP And we did get some color prints, or measurements, between the - New Orleans and Mobile there.

16 53 32 CC-H Great.

16 53 33 DMP Get ... bit.

TIME SKIP

18 17 07 CC-H Good deal. We're all - we're all squared away now. One item, I guess, we need for - for entry - post-flight photos is verification that we did get our ZFF taken on time - that last one.

18 17 22 CMP Verification of what?

ACDR Say again?

CC-H - - get the ZFF photos, our favorite fungi, taken back there at about - oh, 93:50 on the PET.

18 17 32 ACDR It was on time.

CC-H Okay, fine. Thank you.

ACDR As usual, Crip, as usual.

CC-H Oh, Roger. Didn't expect any difference. We're going over the hill; we'll see you at Newfoundland in about 7 minutes.

18 17 44     ACDR     Okay. And I got the pyro battery check at Madrid.  
Thank you.

              CC-H     Roger.

              ACDR     Okay. ...

              CMP     Hey, Deke. The yellow ... K-cable [?] bag. Did we  
get rid of that?

18 18 19     ACDR     He stuck it up in the docking module for a while. I  
think it's in the big cable bag, isn't it? K-cable  
610?

              CMP     Okay. Well, we were supposed to disable the DAC.  
Okay. Never mind. I was just wondering if - -

18 18 39     ACDR     But the cable came back.

              CMP     Yeah. Okay. It's the bag I was wondering about.  
Okay. No sweat.

              CMP     That was a good one.

18 19 07     CMP     ... .. attitude ... off nominal ... .. to turn  
of the radiator ...

              DMP     Well, we got stars to ... .. pyro batteries check  
coming up.

18 20 15     ACDR     Always try to remember the Skylab Flight Plan is  
time loaded for individual ... pitch and roll ...

              CMP     During entry, or what?

              ACDR     Well, no, I just ...

18 20 30     CMP     Oh. I think they - they got everything packed and  
ready to go before they ever undocked from Skylab.

              ACDR     Yeah.

              CMP     They - ...

18 21 24     CMP     Okay. We've packed.

              ACDR     Okay.

CMP Little baby, where are you?  
 18 21 53 ACDR Huh? Yeah. ...  
 18 23 06 CMP Is there a box of Kleenex still around up there  
 someplace?  
 ACDR Yeah.  
 ACDR ...  
 18 24 19 ACDR What? ...  
 CMP When you were talking about putting on the ... tape  
 ...  
 ACDR Yeah.  
 CMP I just - I did not ... I don't know - maybe it was  
 ...  
 18 24 51 CMP No.  
 CMP Got your ...?  
 CMP There are a lot of them in that ...  
 18 25 23 CMP Oh, here they are. Just came flying by.  
 CMP This rubber cushion. Got it in backwards here.  
 ACDR Yeah. ...  
 CMP Okay.  
 18 26 16 CC-H Apollo, Houston. We're AOS Newfoundland, and with  
 the ATS, we should have you about 50 minutes.  
 ACDR Roger. Okay. ...  
 CMP Oh. How about a VERB 30?  
 ACDR I ... got it right here.  
 18 26 32 CMP Oh. Oh, I see. You want it put in. Okay.  
 ACDR Minus 25 and yaw 4.

CMP Okay.  
 18 27 10 CMP Okay. ... .. see, yaw 4.  
 ACDR Pitch 5, yaw ...  
 CMP How do you read on that, ...?  
 ACDR They don't ...  
 CMP No. It's time to lock up.  
 ACDR ...  
 18 28 25 ACDR Hello, Houston, Apollo. How do you read? Flight  
 Plan says ...  
 18 28 36 CMP All right. ...

TIME SKIP

19 14 14 DMP Houston's ... right down the ...  
 19 14 18 CC-H ... we're going to have - -  
 19 14 19 ACDR MARK.  
 19 14 20 CC-H - - have Orroral in about 3 minutes - -  
 19 14 23 ACDR You look out, and you'll see a retrofire pattern  
 right now. Vance? You look out and you'll see  
 a retrofire pattern right now. Is it on?  
 19 14 35 CMP Yeah. ...?  
 19 14 45 ACDR One ... and one ...  
 19 14 47 CMP Okay.  
 19 14 49 ACDR That's right, if you have a down time of - -  
 19 14 52 CMP Yeah.  
 19 14 57 CMP I suppose you can take this ... book ...  
 19 15 01 ACDR Put it - I'll get it squared away later on.  
 19 15 06 CMP Okay.

19 15 08 ACDR The only thing left is - -

19 15 10 CMP Is this yours, Deke?

19 15 18 ACDR I don't know. Hell, I don't know; we'll get it later.  
No, I've got one, that's yours, Deke.

19 15 34 CMP Okay, ready for the EMS check.

19 15 36 ACDR We'll dress and we'll get our boots on later.

19 15 42 ACDR ... down in good shape?

19 15 49 CMP Well, I guess we might as well have ... out.

19 15 51 ACDR All right. We'll do it.

19 15 53 CMP ... Okay.

19 15 56 ACDR Okay. EMS FUNCTION, OFF.

19 15 58 CMP OFF.

19 15 59 ACDR Circuit breakers, two, EMS, CLOSE; panel 8.

19 16 01 CMP CLOSED.

19 16 03 ACDR EMS moni - MODE, STANDBY.

19 16 06 CMP STANDBY.

19 16 07 ACDR EMS FUNCTION, EMS TEST 1; wait 5 seconds.

19 16 11 CMP Okay.

19 16 20 ACDR Okay. Okay, EMS MODE, NORMAL; wait 10 seconds.

19 16 44 CMP Okay.

19 16 45 ACDR Got it?

19 16 46 CMP Yeah.

19 16 47 ACDR Okay. Slew hairline over notch in self-test pattern.

19 16 51 CMP Okay.



19 16 59 ACDR EMS TEST 2. .05 G light on, all others out.

19 17 06 CMP Okay. Verified.

19 17 13 ACDR Okay. Wait 10 seconds.

19 17 24 ACDR EMS FUNCTION, EMS 3.

19 17 27 CMP Okay, I'm in mode 3.

19 17 29 ACDR .05 G light on; RSI light lower on, 10 seconds later.  
Stand by to PRO -

19 17 34 ACDR MARK it. Okay. RSI lower light on, 10 seconds later.

19 17 44 CMP MARK.

19 17 45 ACDR Okay. Okay, is the RSI light on? Okay, then set  
range counter to 58.0.

19 18 07 ACDR Plus or minus ..., okay? EMS FUNCTION, TEST 4.

19 18 11 CMP Okay. Go ahead.

19 18 12 ACDR .05 G light on; G-V trace's in the lower right-hand  
corner. Range counts down.

19 18 18 CMP Counts down.

19 18 19 CC-H Apollo, Houston. We're with you on VHF through  
Orroral.

19 18 25 CMP Roger. Understand.

19 18 28 CC-H Rog. Don't anticipate too good a comm this time,  
and we'll have you at Vanguard in about 3 minutes.

19 18 34 CMP Okay.

19 18 35 ACDR Okay.

19 18 36 CMP Okay. ...

19 18 49 ACDR ...

19 19 00 ACDR RSI upper light on, 10 seconds later.

19 19 04 CMP Okay, and it's supposed to come to 9 g's, right?

19 19 06 ACDR That's right.

19 19 09 CMP MARK. Okay.

19 19 16 ACDR RSI upper light on, 10 seconds later, and I've got ...  
on. Got it? Range indicator 0.0. Scribe traces  
vertical line 9 g ... 0.28 plus or minus - -

19 19 29 CMP Wait.

19 19 33 ACDR Got it?

19 19 34 CMP Okay.

19 19 35 ACDR Set EMS scroll to 37K.

19 19 39 CMP Stand by for just a second. Houston, Apollo.

19 19 45 CC-H Go ahead, Vance.

19 19 47 CMP EMS checks out good for entry.

19 19 50 CC-H Very good.

19 19 51 CMP Except we haven't checked it for burn ...

19 20 11 CMP Okay. And what is it, 38?

TIME SKIP

19 28 48 ACDR Why don't you give me the equipment checks?

19 28 50 CMP ...

19 28 52 ACDR Well, we got a - you're going to have to - you've  
got 9 or 10 minutes to retrofire, so you'd probably  
better - start that. What you got next on it?

19 29 19 CMP Not much, but you're going to - I'll read you some-  
thing down the line.

19 29 23 ACDR All right. Let's see - -

19 29 25 DMP ...

19 29 26 CMP Huh?

19 29 27 DMP ...?

19 29 28 ACDR Yeah.

19 29 29 CMP Yeah.

19 29 30 ACDR Yeah.

19 29 32 CMP One more.

19 29 44 DMP ...

19 29 45 ACDR ... want a - projectile up there. Now. Here it is.  
Yeah.

19 30 20 ACDR Vance, you want to - you ready for your stuff, your  
heel things?

19 30 23 CMP Yeah.

19 30 24 ACDR I'll put - I'll put them on for you while you're  
getting that other checklist.

19 30 28 CMP Okay. Let me just check again. I'd like to check  
them over.

19 31 01 CMP Okay. Your DAC's all set up.

19 31 02 ACDR ... turn on the cabin fan.

19 31 06 DMP It's on.

19 31 18 ACDR Let's get this mother as soon as possible.

19 31 28 CMP Okay. Final stowage list. Have you got ORDEAL?

19 31 31 ACDR That's stowed, locked away, and turned off; and both  
balls are INERTIAL.

19 31 34 CMP Now's when I have to get down - GLYCOL TO RAD SEC  
valve, BYPASS. On panel 377. Yeah.

19 31 51 ACDR It's stowed right - it's stowed right there on the -  
down by the ...

19 31 54 CMP Okay.

19 35 05 CMP Okay.

19 35 26 CMP Verified except for one that I have to go.

19 35 49 CMP It's very quiet - been 20 minutes.

19 36 09 CMP Okay. R - CM RCS HEATERS are OFF. CM RCS LOGIC is OFF. CM RCS HEATERS, secured. RCS activation in 20 minutes.

19 36 27 ACDR Do you know what we forgot to do?

19 36 29 CMP What?

19 36 30 ACDR Sign the Goddard book.

19 36 31 CMP (Laughing) We'd better do that, huh?

19 36 38 ACDR Yeah, there's something in the middle of the Flight Plan ...

19 36 54 CMP Okay. Get that bag and tie that down.

19 38 27 ACDR ...? ...

19 39 10 CMP Boy, that's a really a nominal entry. When they gave us that last burn, they really - gave us a good - good burn.

19 39 20 ACDR Yep. You got a ballpoint, Deke? It's right on the left. I guess just the title page will do, huh? ... these - -

19 39 42 CMP Hell, I've signed it, haven't I?

19 39 43 ACDR - - we've all signed it but you.

19 40 52 ACDR How're you doing?

19 40 53 CMP Good.

19 41 16 DMP Let me look around in this hatch and make sure we don't have something floating loose. Toothpaste!

19 41 22 ACDR The tunnel is clear. Yeah, I may or might - may not get my teeth brushed. (Laughing)

19 41 32 CMP Might be on TV.

19 41 33 ACDR I know I'm not, because I lost my toothbrush. ...  
decision.

19 41 44 DMP Okay. I'm going to reel the tape recorder back in  
here.

19 41 48 CMP That should be a good spot, Tom.

19 41 50 DMP Did you take the tape out of that thing? We didn't.

19 42 00 ACDR No.

19 42 01 DMP Well - -

19 42 02 ACDR No, no.

19 42 03 DMP We'll get it. Okay, this God damn gift bag is  
pretty much floating but I don't guess it'll - -

19 42 18 ACDR ...

19 42 19 DMP - - hurt anything.

19 42 20 ACDR Maybe I can take it and stick it under the - the ...

19 42 24 DMP Well, the problem is to get down your little strut,  
as a matter of fact.

19 42 27 ACDR Yeah.

19 42 28 DMP Hold on to this, and I'll do it.

19 42 30 ACDR Here's another projectile. Got it.

19 42 42 DMP ...

19 42 59 DMP ...

19 43 02 ACDR ...

19 43 12 ACDR ...

19 43 16 DMP Yeah, ... going to do with this box.

19 43 21 ACDR Where is our gift bag at? Oh, there she is ...

19 43 25 DMP ...

19 43 26 ACDR Okay. Got any other ...?

19 43 32 DMP ... I'm going to shitcan this watch now.

19 44 07 ACDR Okay. 29:06.

19 44 11 CMP Yep. ... ..

19 44 35 ACDR Do you got ... on it yet?

19 44 54 CMP Okay, try it over here.

19 45 04 ACDR This is our entry pad? The preliminary - the final?

19 45 06 CMP Yeah.

19 45 07 ACDR Okay; we'll copy that stuff down on it. Did you check P- P30 this morning? P30?

19 45 19 CMP Too early. There's no point in doing it ... The next thing is activate the CM RCS.

19 45 48 ACDR You going to get us the updates, the final updates?

19 45 54 CMP Did that.

19 45 56 ACDR I mean as far as the STDN update?

19 45 58 CMP Yeah. Yeah, they'll update.

19 46 08 CMP They've got a chance to change their mind on that final pad Crip read up, Crip said.

19 46 37 DMP Listen.

19 46 38 ACDR Yeah, sure, Deke.

19 46 45 DMP Okay, coming up the California coastline here.

19 46 49 CMP One more rev. Okay, what part of California?

19 46 54 DMP Don't know. I'm not sure.

19 46 58 CMP San - what do you call it - Valley.

19 47 07 ACDR Stick it in the bottom.

19 47 09 CMP Throw it away. Anybody else want some?

19 47 12 ACDR No, thanks.

19 47 13 CMP That goes for the toothbrush, too.

19 47 23 DMP Oh, there's the Salton Sea down there. We're right up above San Francisco, must be.

19 47 28 CMP Yeah. San Joaquin, that's what - -

19 47 31 DMP Yeah.

19 47 32 CC-H Apollo, Houston. We're AOS Goldstone - 4 minutes.

19 47 35 CMP Roger, Crip. Coming right up over the San Joaquin Valley. Loud and clear.

19 47 41 ACDR Simulator.

19 47 43 CMP Yep.

19 47 44 ACDR RET 0.2 g, 27:51.

19 51 02 ACDR Down range error, minus 444.7.

19 51 35 ACDR We don't have the cross range yet.

19 51 43 CMP Good.

19 51 51 ACDR The basic bank angle is 307/051.

19 52 01 CMP Our splashdown point, I thought, would be 200 west of Oahu. Now it's 400.

19 52 14 ACDR 307/051. RET reverse bank is 33:42. RET DROG, 36:27. RET MAIN is 37:14. Okay, it's all written down in big letters.

19 52 38 CMP Okay, thanks.

19 52 41 ACDR Got that? Okay, we - did you set the angles, Deke, for the satellite?

19 52 49 DMP Yeah.

19 52 51 ACDR They're in there.

19 52 57 CMP Got about 10 minutes here - 5 - do anything - Make a last phone call.

19 53 03 ACDR Myrtle call? That's a good idea. ...?

19 53 12 CMP Yeah. ...

19 53 18 ACDR I guess we turn Myrtle off, don't we?

19 53 20 CMP Yeah.

19 53 22 DMP ... tricky. I left it vent in there.

19 53 24 CMP Waste stowage vent, might as well close that, too. Make sure it's closed. It is now.

19 54 37 ACDR Let me use it as soon as you're finished with it, Vance.

19 54 39 CMP Okay.

19 54 40 ACDR Got to ... around here for one last go.

19 54 42 CMP You got it.

19 54 47 ACDR Final check around. Vance, I think I'm around your -

19 55 00 CMP Sorry about that. You have to come down, no, go over it. ...

19 55 06 ACDR ...

19 55 21 ACDR You want to use Myrtle one last time, Deke?

19 55 23 DMP Might as well, whenever you're through. Then I'll flush it.

19 55 26 ACDR Okay, and then - Oh, we don't need to flush it, we just - -

19 55 29 DMP Well, ... - -

19 55 30 ACDR - - just turn the - the - the dump off. You know, ... off.



19 55 35 DMP ...

19 56 28 ACDR Okay, all we got to do is this - battery's in VENT.  
Let's repeat: all we got to do is - Deke, after you  
use it, is go to - -

19 56 36 DMP Go to VENT.

19 56 38 ACDR - - to VENT.

19 56 39 CMP Let's see, on - -

19 56 40 ACDR I'll get it.

19 56 42 CMP - - I wonder if we're supposed to have - I guess it  
doesn't much matter if we have the battery vent when  
we land - never thought about it.

19 56 48 ACDR Well, we could shut the battery vent, too - shut  
both the ... - -

19 56 51 CMP Yeah. Why not.

19 56 52 ACDR - - ... screw up the telescope. ...

19 56 53 CMP Expect we do.

19 56 54 DMP Okay, we're in position, we want to shoot six frames  
here, right?

19 56 59 ACDR Yeah, that'll - that'll give - six frames will get  
you a pretty damn good picture. ...

19 57 10 DMP That'll do her.

19 57 11 CMP Going to have to probably kind of keep an eye on  
her, huh?

19 57 15 DMP Yeah. No, here's what I'll do. Whenever I see  
anything that looks like it ... is turn it off. And  
then I'll wait until late in the game to ...

19 57 25 ACDR Yep.

19 57 27 CMP Okay, I'm going to read over some of these rules  
here, Tom.

19 57 29 ACDR All right, let's do it. ...

19 57 31 CMP Take over during the burn. 5 degrees - 5 degrees a second. Cutoff burn time, plus 1 second. If you don't make the time, we burn 90 seconds late or 11 feet per second underburn - -

19 57 41 ACDR Don't ...

19 57 42 CMP - - ... overburn and still make the target. Down range error check should be valid - if trim residuals are greater than 0.2 - ...

19 58 04 ACDR It's 40 minutes.

19 58 06 CMP Okay, this is what we should have had them change.

19 58 27 CMP Okay. Tom, let me show you this completion chart.

19 58 29 ACDR All right.

19 58 38 CMP It says - 191.

19 58 42 ACDR Okay.

19 58 43 CMP RCS capability.

19 58 44 ACDR All right.

19 58 46 CMP Let's check it. If no ignition - ignition or T-to-go is greater than 169, go around - -

19 58 49 ACDR Yeah.

19 58 50 CMP - - if less than - -

19 58 51 ACDR 169, complete.

19 58 54 CMP - - complete. Here's the line. In other words, if it's on this side, we go around, on this side, we -

19 59 04 ACDR Here?

19 59 05 CMP Yeah. Back here.

TIME SKIP

20 32 02 ACDR - - 0.2 in pitch, 8 in yaw.

20 32 04 CMP Okay.

20 32 05 ACDR Check the MTVC.

20 32 07 CMP Okay, clockwise?

20 32 08 ACDR Clockwise, no MTVC. PITCH 2 on and YAW 2 on.

20 32 14 CMP PITCH 2 on -

20 32 15 CMP MARK.

20 32 16 ACDR That's good.

20 32 18 CMP YAW 2 on -

20 32 19 CMP MARK.

20 32 20 ACDR Set trim.

20 32 21 DMP ... predictable.

20 32 22 CMP Good.

20 32 24 ACDR SPACECRAFT CONTROL, CMC. Check MTVC, we got it.  
Neutral. No MTVC.

20 32 33 CMP No MTVC.

20 32 34 ACDR GPI returns to zero.

20 32 36 CMP Rog. Go ahead. AC/DC?

20 32 41 ACDR Hold it. Well - Well, wait. Oh, I'm sorry. Okay,  
you're - you're way ahead of me; that's good. Okay.

20 32 45 CMP I'm sorry.

20 32 46 ACDR No problem. Okay, AC/DC. You got BMAGs, three to  
RATE 2.

20 32 50 CMP Rog.

20 32 53 ACDR Okay, you ready?

20 32 54 CMP Trim.

20 32 55 ACDR PRO. That put the ERROR light on.

20 33 01 CMP Get that circuit off ...

20 33 04 ACDR Right there, where you're pointing it; 204.

20 33 07 CMP ATT 1, RATE 2.

20 33 09 ACDR Sounds good.

20 33 12 CMP ... there. Okay. Let her - let her rip.

20 33 15 ACDR Proceed. ... checking around back there.

20 33 26 CMP Okay, it looks good.

20 33 29 ACDR Yep. Yep. Did you -

20 33 32 CMP RATE HIGH - ARMED.

20 33 36 ACDR RATE HIGH.

20 33 38 CMP EMS is DELTA-V - DET ... seconds.

20 33 46 DMP I only got a 35 on the 5 mark over here, Vance. I got 15 on the other one.

20 33 52 CMP 15 at minus 2 minutes.

20 33 54 DMP Oh, okay. 4 minutes to go on that.

20 33 56 CMP SPS N<sub>2</sub> and He.

20 33 59 DMP Okay. Stand by to ... 14, 15, 16 ...

20 34 06 CMP/DMP Yeah.

20 34 07 ACDR We pitch down after this ...

20 34 13 DMP Okay. 7 seconds - the secondary comes on at what, 2 seconds?

20 34 17 CMP About 3. Just long enough so you can see them separate, yet not so long that you interrupt the program because of your ... temperature. Okay, we're down to 18 degrees. Coming right in there.

20 34 35 CC-H Apollo, Houston. We're all GO here for your deorbit burn.

20 34 38 CMP Okay, Crip. Very good. So are we.

20 34 52 DMP Standing by for 59, huh?

20 34 54 CMP Yep.

20 35 21 DMP This will be different - doing SPS burn strapped in this way.

20 35 24 CMP (Chuckling)

20 35 25 DMP I've never done that before.

20 35 27 CMP It will be a longer jolt.

20 35 29 ACDR Yeah.

20 35 58 DMP ...

20 36 01 ACDR Pardon me.

20 36 03 DMP I said, we'll take ...

20 36 05 CMP Yeah, they're on.

20 36 09 DMP However, ... you need to remember where - ... pitch and yaw ...

20 36 47 ACDR Okay; 59.

20 36 48 CMP NORMAL.

20 36 50 ACDR NORMAL and THC POWER on.

20 36 51 CMP POWER on.

20 36 53 ACDR Okay. Do you have on - A/C ROLL on, too?

20 36 57 DMP Not now.

20 36 58 CMP No.

20 37 00 ACDR We've got four-jet ullage.

20 37 02 CMP We've got no requirement for A/C, since our roll jets are B/D.

20 37 07 ACDR Yep. We'll get them after the trim.

20 37 09 CMP ... 011.

20 37 11 ACDR Okay. Minus 25, DSKY lights.

20 37 13 CMP ... B.

20 37 19 ACDR Bank A, ARMED.

20 37 21 CMP She's ARMED.

20 37 23 ACDR Okay.

20 37 28 CMP ... 15 ...

20 37 32 ACDR Ullage. Delta-V's counting down. Both banks are looking good.

20 37 36 CMP Okay, you'll count her down to ...?

20 37 37 ACDR 10, 9, 8, 7, 6, 5, flashing 99, 4 - -

20 37 44 CMP PRO.

20 37 45 ACDR - - PROCEED, 2, 1 -

20 37 47 ACDR BURN, baby.

20 37 48 DMP Okay, you got BANK A - BANK B - -

20 37 52 ACDR Count her, and that's 6, 7 ... - Beautiful!

20 37 57 CMP ... is right on the nose.

20 37 59 ACDR Okay. Proceed.

20 38 01 CMP Okay. Let's trim it. Overburned a tad.

20 38 03 ACDR You did? Okay, pull her back. A/C ROLL on, ... - -

20 38 06 CMP As a matter of fact, I wondered if I didn't cut it off -

20 38 13 DMP I tried to give you a little lead time there on  
that - ... seconds.

20 38 17 CMP Right. (Laughter)

20 38 18 ACDR A/C ROLL.

20 38 20 CMP That's quite a buck you get, isn't it?

20 38 22 ACDR Yeah, I agree with that.

20 38 26 CMP Yeah.

20 38 27 ACDR ... trash. Using all the time - these God damn  
bread crumbs floating around.

20 38 34 CMP (Laughter)

20 38 36 DMP Yeah, he needs a cherry nutcake.

20 38 39 ACDR Okay -

20 38 40 CMP Okay, a little minus - -

20 38 43 ACDR A little minus and to the right. ... off. No, I  
don't either ...

20 38 48 DMP Kind of wish one of you guys could ...

20 38 51 ACDR You've got four jet.

20 38 53 CMP Okay.

20 38 55 ACDR Okay, 0, minus - minus 1, there we are - plus 2 - -

20 39 01 CMP/ACDR 0, 1 - -

20 39 02 ACDR And 0. PROCEED.

20 39 03 CMP Okay. PRO. Okay, go through the rest of the cue  
card ...

20 39 04 ACDR Okay, go ...

20 39 05 CMP Okay.

20 39 08 ACDR All locked up.  
20 39 09 CMP VERB 82 ENTER.  
20 39 10 CC-H Copied that.  
20 39 11 DMP Okay, 0, 0, VERB 82 ENTER.  
20 39 16 CMP Okay, GIMBAL MOTORS coming off.  
20 39 18 ACDR Looks like a real nice little perigee.  
20 39 20 CMP ... -  
20 39 19 CMP MARK. YAW 1 -  
20 39 21 CMP MARK.  
20 39 22 ACDR That looks good.  
20 39 23 CMP PITCH 2 -  
20 39 24 CMP MARK. YAW 2 -  
20 39 25 CMP MARK.  
20 39 26 ACDR Okay, they're off.  
20 39 28 CMP TVC SERVO POWER's - -  
20 39 32 ACDR Good.  
20 39 33 CMP Minus 18.4, Tom.  
20 39 34 ACDR Okay.  
20 39 35 DMP Okay, now we stay right here - -  
20 39 38 ACDR Minus 18. On the EMS.  
20 39 39 CMP Yeah.  
20 39 40 ACDR Okay, record the burn status.  
20 39 42 DMP Okay, and we stay with that ...



20 39 45 ACDR Yep. We sure do; all the way. Okay. VERB 66 ENTER.  
CM RCS check.

20 39 51 CMP Okay. Did you get the VERB 66 - -

20 39 53 ACDR I already got the VERB 66 ENTER.

20 39 56 CMP Okay. Okay, go ahead.

20 39 57 ACDR CM RCS check. AUTO RCS A/C ROLL, four, OFF.

20 40 00 CMP OFF.

20 40 01 ACDR Circuit breaker, RCS LOGIC, two, CLOSED.

20 40 04 CMP CLOSED.

20 40 05 ACDR SPACECRAFT CONTROL. SCS, MIN IMPULSE.

20 40 09 CMP Okay.

20 40 11 ACDR RATE 2, SCS.

20 40 12 CMP SCS.

20 40 13 ACDR MIN IMPULSE.

20 40 14 CMP MIN IMPULSE.

20 40 15 ACDR Okay. RS - CONTROL to CM - TRANSFER to CM. Okay. CM.

20 40 22 CMP Okay.

20 40 24 ACDR Okay, AUTO RCS, 1, OFF. We'll hear these little  
rascals fine.

20 40 31 CMP ... - -

20 40 32 ACDR Test ring 2.

20 40 35 CMP - - ...

20 40 36 ACDR Oh!

20 40 37 CMP ...

20 40 39 ACDR Don't hear anything. Go ahead, test ring 2. You got any firing?

20 40 43 CMP Yeah, I can hear it. Hear that?

20 40 46 DMP I can hear solenoids. I'm not sure I hear - -

20 40 49 CMP Yeah, I - I can see - -

20 40 50 ACDR Give it some roll.

20 40 51 CMP I can see the rates.

20 40 52 ACDR Yeah.

20 40 53 CMP That's all right.

20 40 54 ACDR Okay.

20 40 55 DMP Yeah, I can hear something going - bumpety-bump.

20 40 56 ACDR Okay. Ring 1, ON; ring 2, OFF.

20 41 03 CMP ... Okay. Now watch this. I can see the flashing of the lights.

20 41 12 ACDR Okay. Good show.

20 41 14 CMP Okay.

20 41 16 ACDR Okay. AUTO RCS ring 2, MNB. Okay, RCS TRANSFER, SERVICE MODULE. Okay, check that you got good thrust, using SCS. What was that? Should be MIN IMPULSE. Just check that you got SERVICE MODULE. Okay, you got it?

20 41 41 CMP Yeah.

20 41 42 ACDR Okay. Okay. BMAG MODE, three, ATT 1/RATE 2.

20 41 48 CMP ATT 1/RATE 2.

20 41 50 ACDR Okay. RATE COMMAND. You got all three RATE COMMAND?

20 41 53 CMP RATE COMMAND.

20 41 54 ACDR All right, you're in good shape. Okay. Ready to go?

20 42 00 CMP Yeah.

20 42 01 ACDR SM [sic]/service module SM sep checklist. PRIM -  
MAIN BUS TIES on, verify; they're on. LIM -  
PRIMARY GLYCOL TO RADIATOR, BYPASS, pull.

20 42 09 CMP Pull.

20 42 11 ACDR GLYCOL TEMP IN, MANUAL. GLYCOL EVAP TEMP IN, MANUAL.

20 42 16 DMP TEMP IN.

20 42 17 ACDR Okay. That's all right, you don't do it.

20 42 19 DMP You don't?

20 42 20 ACDR Because that's a primary loop. Circuit breakers,  
four, PITCH and YAW, OPEN.

20 42 26 CMP You mean the SPS?

20 42 27 ACDR SPS.

20 42 30 CMP OPEN.

20 42 31 ACDR Got those OPEN. Circuit breakers, ELS/SM SEP, two,  
CLOSED. Bottom row.

20 42 38 CMP Two CLOSED.

20 42 40 ACDR Okay. VHF AM A and B, off, center.

20 42 45 CMP Okay, A's off - B's off.

20 42 47 ACDR Okay, Crip, we're GO for your shutdown on the ATS.  
Over.

20 42 52 CC-H And you're GO to go ahead and do that, and we'll  
have you in about 7 minutes at ARIA - correction,  
Orroral.

20 43 00 ACDR Sounds good.

20 43 02 MS See you later.

20 43 03 CMP (To meet you soon on Earth.)

20 43 06 ACDR ATS-F POWER AMPLIFIER, off.

20 43 08 CMP Good.

20 43 09 ACDR ATS-F TRANSPONDER, off, and HIGH GAIN POWER, OFF.  
All three off; good. RHC POWER DIRECT 2, MNA and B.

20 43 16 CMP Okay. DIRECT, MAIN A/MAIN B.

20 43 20 ACDR COMMAND MODULE RCS LOGIC, on and up.

20 43 22 CMP CM RCS LOGIC; on, up.

20 43 24 ACDR STDN for contact, we don't have them. Just lost  
them. We're under the ATS. PYRO ARM.

20 43 30 CMP Okay. PYRO ARM.

20 43 31 ACDR Okay. Verify correct sep attitude. Okay, let me  
call this.

20 43 35 CMP We're there.

20 43 36 ACDR VERB 37 ENTER. 62 ENTER. Let's get average g  
up. Okay.

20 43 53 ACDR Okay, it says sep this - the command module. We  
got average g on. You ready to go? Okay, CSM/DM  
sep; here we go.

20 44 01 CMP Yeah.

20 44 02 ACDR Ready?

20 44 03 CMP Okay. Let her rip.

20 44 04 ACDR You check everything?

20 44 05 CMP Yep.

20 44 06 ACDR Okay - here we go.

20 44 08 DMP ... 16 W.

20 44 09 [SEPARATION]

20 44 10 DMP Okay.

20 44 11 CMP Pow. (Laugh)

20 44 12 ACDR Watch - Yawing back?

20 44 15 CMP Okay, we got control.

20 44 16 ACDR Okay, we got control. Whoof!

20 44 19 DMP Okay. You got bus voltage, batteries all look good.

20 44 23 CMP Gee, this ... spreads the dust.

20 44 25 ACDR Yeah, then you go MANUAL ATTITUDE, three, MIN IMPULSE.

20 44 28 CMP MIN IMPULSE.

20 44 29 ACDR RHC DIRECT 2, OFF.

20 44 32 CMP DIRECT 2, OFF.

20 44 35 ACDR BMAG MODE, three, to RATE 2.

20 44 37 CMP Okay. BMAG, three to - -

20 44 38 ACDR CAUTION AND WARNING to COMMAND MODULE, which Deke has already got.

20 44 41 DMP Got that.

20 44 43 ACDR CM RCS manifold pressure check, 1 and 2. 2 is norm, we'll stay there. Looks beautiful. SECS - -

20 44 50 CMP ... seeing the firing out your window, Deke.

20 44 52 ACDR SECS PYRO ARM, two, SAFE.

20 44 53 DMP Do what, Vance?

20 44 54 CMP Two, SAFE. Look out ... - -

20 44 57 ACDR AUTO RCS SELECT, 12, MNA/B; you've already done that.

20 45 00 CMP Yeah.

20 45 01 DMP You mean the thrusters?

20 45 02 CMP Yeah.

20 45 03 DMP Oh, yeah - -

20 45 04 ACDR CM RCS LOGIC, OFF.

20 45 05 CMP CM RCS LOGIC, OFF.

20 45 08 ACDR Okay. We got the CSM sep. Monitor delta-V ... - -

20 45 11 DMP You need a little more light here so you can see what you're doing.

20 45 13 ACDR Okay, voltage is good, Deke?

20 45 15 DMP Yeah, bus voltages are good.

20 45 16 ACDR Okay. Now let's recheck that.

20 45 18 DMP Batteries are good, pyro batteries are - -

20 45 20 ACDR Plus 22.0, minus 160. Okay. VERB 23 ENTER for the lift vector up.

20 45 29 DMP There's something weird going on on this one - -

20 45 30 ACDR Okay. You add minus 1 for lift vector down, minus - what?

20 45 35 CMP Lift vector up, yeah. That's right.

20 45 36 ACDR Minus 1. Now recheck just for sure.

20 45 38 CMP What'd you say, Deke?

20 49 40 ACDR Plus 022.00 - -

20 45 41 DMP Go ahead, Tom.

20 45 45 ACDR - - minus 163.00, and minus 1. Lift vector is up.

20 45 48 CMP Yeah, but - Deke, what did you say?

20 45 50 DMP I said we're getting an oscillation on the frigging amperage. There shouldn't be any on the pyro bats. I don't understand that.

20 45 56 ACDR What have you got for voltage?

20 45 58 DMP My voltage up there is 37, but we're just getting a -

20 46 01 ACDR But you don't read out amps on the pyro volts.

20 46 03 DMP Well -

20 46 04 ACDR Do you?

20 46 05 DMP Not unless you're drawing power on them. That's what's worrying me about them.

20 46 07 ACDR Okay, why don't you just monitor the pyro?

20 46 10 DMP Well, everything else is looking okay, so -

20 46 12 CMP Okay. We don't have the pyros tied. Is it on both of them?

20 46 16 DMP Yeah. Just sitting there bouncing. It may be an instrumentation problem.

20 46 20 CMP Okay. Just one thing to remember. We can always cut into the entry batteries for py - pyro power - -

20 46 24 DMP Yeah, that's right. Yeah.

20 46 25 CMP - - if we ever have to. It's down to 50.

20 46 27 ACDR Okay. We go a PROCEED. Again to recheck that finally.

20 46 30 DMP I'm going to ... one thing.

20 46 31 ACDR Plus 22.0, 16, minus 1, ... PROCEED. All right?

20 46 35 CMP Okay.

20 46 37 ACDR Okay. STDN for final target pad, EMS intialization, and pitch to pad .05g. Start your pitch. Got her?

20 46 49 CMP Okay, and - -

20 46 50 ACDR You can take this down; we don't need this bear any longer.

20 46 53 CMP Yeah. Let's see. Up to 5. Okay, give me initiation stuff.

20 47 04 ACDR Okay, EMS initialization. EMS FUNCTION, TEST 5.

20 47 10 CMP 5.

20 47 11 ACDR Verify scroll, 37K.

20 47 14 CMP Verified.

20 47 15 ACDR EMS FUNCTION, RANGE SET.

20 47 17 CMP RANGE SET. Plus range.

20 47 23 ACDR Okay. Set range to pad range-to-go. Pad range-to-go: 1637.1.

20 47 41 CMP It's at 1637.1.

20 47 43 ACDR Yep. Okay, 1637.1.

20 47 46 CMP Okay.

20 47 47 ACDR EMS to Vo SET; Vo SET is 25752. And we got at least 15 minutes before .05 G. We're in Fat City.

20 48 00 DMP Yeah.

20 48 03 DMP I just checked the mal procedures, and they don't even have anything for pyro bat failure for entry, but - -

20 48 10 ACDR Might go back and check - check the voltage.

20 48 11 DMP - - ... the switch. No, the voltage is great, there's no problem with voltage. You're right. There shouldn't be any amperage reading on the damn things, but it's just that they're oscillating.

20 48 20 CMP Okay, 25572; right?

20 48 23 ACDR 25752.

20 48 25 CMP Okay.

20 48 26 ACDR All right?

20 48 27 CMP Got it.

20 48 28 ACDR EMS MODE to STANDBY.

20 48 30 CMP Okay. STANDBY. Verified.

20 48 31 ACDR Verified. EMS FUNCTION, ENTRY.

20 48 34 CMP ENTRY.



20 48 37 ACDR Verify .05 G filter light is down.

20 48 39 CMP Down ...

20 48 40 ACDR Which it is. All right. Go to entry page E/2-1.  
Let's do that. Fucking bunch of shit.

20 48 50 DMP True.

20 48 51 CMP Well, there's the old Earth.

20 48 53 ACDR Got her out there, huh?

20 48 54 CMP Yeah.

20 48 55 DMP I'm glad to know it's still there.

20 48 56 CMP (Laughter) We're coming down to - -

20 48 58 ACDR Yeah. Would you believe we're going retrograde with  
heads down, which got to be lift vector up?

20 49 02 DMP How about that.

20 49 04 CMP Oh, boy.

20 49 05 ACDR All righty.

20 49 06 CMP Right.

20 49 08 DMP Well, I hate to come down; been a nice son of a  
bitch!

20 49 11 CMP (Laughter) Yeah. God damn, it's been a lot of fun,  
hasn't it?

20 49 14 ACDR It's been a ball.

DMP It sure has.

20 49 15 ACDR It's been 9 - -

20 49 16 CMP Really enjoyed it.

20 49 17 ACDR - - great days. Couldn't have been better, you  
know. I think we did about everything that was  
required.

20 49 25 DMP Hey, and there's the old Southern Cross, I do believe.

20 49 28 CMP Good.

20 49 29 DMP It's sitting right out the window.

20 49 30 ACDR Oh, yeah. That's a beauty, isn't it, Deke?

20 49 31 DMP Yeah.

20 49 33 CMP You don't get to see that very often.

20 49 34 ACDR Not very often.

20 49 36 DMP In fact, I haven't seen any stars at all this flight. Seems like we're in the cockpit all the nighttime, and -

20 49 40 CMP Yeah.

20 49 41 ACDR That's right. We haven't looked at them very often. And those stars should be moving from right to left.

20 49 48 CMP We got some sparklers out there.

20 49 50 ACDR Yeah, a lot of sparklers.

20 49 52 CMP They must be off the thrusters.

20 49 53 ACDR Those are off the thrusters. They're ablative thrusters, yeah, they ... that stuff.

20 49 56 DMP Yeah.

20 49 57 CMP Look at them! Look at them!

20 49 58 ACDR Isn't that something?

20 49 59 CMP Uh-huh. (Laughter)

20 50 00 ACDR I don't remember those before.

20 50 01 CMP Hey, it's coming out - that's because - -

20 50 02 ACDR Oh, that's the Sun.

20 50 03 CMP - - the Sun's coming up.

20 50 04 ACDR We're in the frigging Sun - -  
20 50 05 CMP God! Isn't that something!  
]0 50 06 DMP God dam. I wonder - Shit!  
20 50 08 CMP Think I'll try it!  
20 50 09 ACDR Try it.  
20 50 10 DMP Try it.  
CMP (Laughter)

20 50 11 ACDR Full open. Go to f/2 and - -  
20 50 12 DMP f/2, wide open. We'll see what happens.  
20 50 14 CMP Yeah, I bet you'll get something.  
20 50 15 DMP We've got nothing to lose. And go to about f/2,  
about half a second; put it in - -  
20 50 20 CMP Yeah, give it - -  
20 50 21 DMP - - wide open.  
20 50 22 CMP - - fast enough so they won't be all streamers.  
20 50 23 DMP Yeah.  
20 50 24 ACDR Yeah.  
20 50 25 DMP Okay, well, I'll just ... a couple when the - if I  
could do it when the fucking thrusters aren't firing.  
20 50 29 CMP (Laughter)  
20 50 31 DMP Shit! I moved it too fast. Sometimes you can't  
really tell it from stars.  
20 50 35 ACDR Just tell - just tell Vance to open thrust.  
20 50 38 CMP Yeah. Tell me when to thrust, I'll give you a  
flashbulb.

20 50 41 DMP Okay, well - but I don't want that much light - -

20 50 42 CMP I know it. (Laughter)

20 50 44 DMP I don't know, it might - Ah, I bet that one did.

20 50 49 CMP (Laughter) Sorry.

20 50 50 DMP That son of a bitch!

20 50 53 CMP (Laughter) Well, maybe you'll get the flash.

20 50 54 DMP Hey, that's - that's beautiful.

20 50 56 CMP I won't thrust this time. It's instinctive to thrust when I have to.

20 50 59 DMP Well, let me play - Oh, hell, yeah; go ahead. I'm going to play a Ralph Morris here, and try some different settings since we got so much film. Maybe something will work.

20 51 08 CMP Okay. Good burn, good sep, and we're coasting down to .05g. How do you read, Crip?

20 51 22 ACDR Hello, Houston; Apollo. How do you read?

20 51 24 CC-H And, Apollo, be advised that we have ...

20 51 28 CMP Okay, that's good.

20 51 31 DMP How are you reading us, Crip?

20 51 32 CC-H Loud and clear, how me?

20 51 34 DMP Okay. You guys got data down there now?

20 51 36 CC-H That's affirm. We've got ... Orroral.

20 51 39 DMP Okay. How about telling them to take a look at our pyro batteries? I'm showing a amp oscillation. About a minus 2 to plus 2. I don't think it's anything, but I never noticed it before, so they might want to look at them.

20 52 04 CMP Hey, look at behind you, Tom.

20 52 05 ACDR Yeah.

20 52 06 CMP That's the Sun coming up.

20 52 07 ACDR Yeah, isn't that beautiful? Fantastic. You're about there. Coming up .05g; pitch .05g.

20 52 15 CMP Yeah, I guess I better get some lights - on top of this ... Go ahead.

20 52 18 ACDR Yeah, we got plenty of time.

20 52 21 DMP 20 - Yeah, we still got 12 minutes, haven't we?

20 52 23 CMP Yeah.

20 52 25 ACDR Yeah. Well, leave them down. It'll be sunlight in a couple of minutes.

20 52 29 CMP Get those sparklers while you can.

20 52 31 DMP Yeah. Yeah, let me try a couple more here.

20 52 34 ACDR Look how they're turning red right up here in the top.

20 52 36 CMP Some of them are, yeah. Must be that - just the propellant, huh?

20 52 46 DMP Well, it'll be interesting to see if I can get that or not.

20 52 53 CMP Yeah.

20 52 55 CC-H ...

20 52 59 DMP That's affirm - pyro. And they should nominally be reading zero, and they're just oscillating there, and I'm assuming that's that instrumentation thing, but -

20 53 09 CC-H That - that's affirmative. ...

20 53 13 DMP Okay.

20 53 15 CC-H Okay, we're about to go ... here at Orroral, ... blackout through ARIA.

20 53 22 DMP Roger.

20 53 28 CMP 46 degrees, right? And I'll trade with you.

20 53 33 ACDR Yeah, okay. B.

20 53 50 DMP Well, now let's see here. Maybe I'll shoot some of that mag anyway. Well, I think I'll try to get some stills of entry if it looks like we're seeing anything.

20 54 00 ACDR It's going to be pretty - -

20 54 02 DMP Pretty bright.

20 54 03 ACDR Yeah, so you better set it up to about - -

20 54 04 DMP Probably 1000.

20 54 05 ACDR - - Well, 500 is good.

20 54 08 DMP Good.

20 54 09 ACDR I'd say shoot it about f/16 - -

20 54 12 DMP I'll see what the - -

20 54 13 ACDR - - 18.

20 54 14 DMP - - light meter might give us a good reading on it.

20 54 15 ACDR 16, 8, 22.

20 54 16 DMP ... Okay.

20 54 19 ACDR Okay. Vance, don't have much to do.

20 54 22 CMP Okay, verify the MAIN BUS TIES are still on - -

20 54 24 ACDR Okay.

20 54 25 CMP - - and we wouldn't have power if they weren't.

20 54 27 ACDR It's 46 degrees and you're right there.

20 54 30 DMP Both bus voltages are up - A is 28.2, B is about the same.

20 54 33 ACDR GDC's right on the IMU. Ring 1 and ring 2 looks like we've hardly used any propellant.

20 54 43 DMP 16 ... 29.

20 54 45 CMP I'd like to see for a minute if the DAP controls like - it does in the simulator.

20 54 50 ACDR Oops! Watch it.

20 54 52 DMP 54. What was that? Guess it ... Go back to work in there.

20 54 58 CMP (Chuckling) It does.

20 54 59 ACDR It takes - yeah.

20 55 00 CMP That son of a bitch.

20 55 01 ACDR It takes you right back.

20 55 02 CMP Yeah.

20 55 03 ACDR That's just logic to take you right back to track.

20 55 05 CMP Yeah. That son of a bitch really goes.

20 55 15 ACDR ... knows yet that that's a - -

20 55 16 CMP A lot more - yeah, it's a lot more crisp than in the CMS, I'll say that.

20 55 19 DMP Pulling a lot more amperage than I thought we would.  
...

20 55 29 ACDR Okay. Okay, the time of .05g just to recheck - -

20 55 38 DMP 26:25.

20 55 39 ACDR 26:25. And at 5 minutes, minus .05g, you can go to 5 and 5; hell, that's your choice; do what you want to. I'd stay right there and keep those rates going.

20 55 46 CMP What time have you got?

20 55 48 ACDR I'll give you time on that. That would be 21:25.

20 55 54 CMP Okay. Let's see if - right in here, you want to check the IMU versus the GDC, too, don't you?

Day 205

20 56 04 ACDR 2 minutes, so we got to - Ooh, 23 - we got 5 minutes to go until that. It's looking damn good. GDC is off a little bit in yaw, not much. What do you got - what do you read for pitch?

20 56 19 CMP What do I need - read?

20 56 20 ACDR What do you read?

20 56 21 CMP About 46.

20 56 24 ACDR Yeah, I'm reading 47-1/2. Roll's right on. Yaw is maybe 1 degree left. That's probably from hysteresis, I mean left parallax.

20 56 47 ACDR Here's your horizon coming in, and we're going - -

20 56 49 CMP The sky's getting just a teeny bit blue, not much.

20 56 53 DMP (Yawn)

20 56 54 ACDR No, you don't get much yet.

20 56 56 DMP No, we're still up there pretty high.

20 57 02 DMP If you guys see anything out your windows you want to shoot, why I'll pass you the camera; I'm just sitting here. Well, I'll see what kind - -

20 57 08 CMP Well -

20 57 09 DMP - - of light reading - reading I get out there.

20 57 11 CMP Man, are we moving. (Laughter)

20 57 13 ACDR Yeah, you can - as we drop lower, you can see we're going to be moving like a son of a gun there.

20 57 18 DMP Like a scalded-ass ape, huh?

20 57 20 ACDR Okay, the initial bank angle -

20 57 25 DMP I think I'm going to shoot a reentry photo here or so - -

20 57 28 CMP Hey, get one or two out the side there.



20 57 30 DMP That's what I'm doing, just holding her out the window there where I can't see - -

20 57 33 CMP Beautiful!

20 57 34 DMP - - and shoot them a couple. So I think we got a nice angle on it. Looks to me like we're - we're still pretty flat, I guess.

20 57 42 ACDR Yeah, it - it drops in pretty steep at the last.

20 57 46 ACDR (Humming) Okay, 20 minutes.

20 57 53 DMP Oops!

20 57 54 CMP 26:25 is .05g.

20 57 56 DMP There's a big old ... out there. (Laughter) Look at that fucker.

20 58 02 ACDR Okay. Okay, minus 2 minutes would be - 23 plus 25.

20 58 44 DMP 5 minutes yet before we ... Man, it sure rides smooth, doesn't it?

20 58 48 ACDR We're yawing down a little bit and pitching. We're starting to pick up some atmosphere.

20 58 52 DMP Yeah.

20 58 55 ACDR That's why I like to stay 5 and 1 longer than what they call for in the checklist. You want me to fly it for you where you can - -

20 59 11 DMP It almost - -

20 59 12 CMP Nah, it'll be okay.

20 59 13 DMP - - feels like you can feel this son of a bitch accelerating.

20 59 15 ACDR You can look down and you see we're getting low - look at that cloud go by, Vance.

20 59 18 CMP Yeah.

20 59 20 ACDR Okay.

20 59 25 CDR Okay. 21:25, .05g minus 5 minutes. FDAI SCALE 5 and 5. I'd - I'd say that's your option.

20 59 33 CMP Yeah, a little more. Doesn't like that trim, does it?

20 59 40 ACDR Getting some aero. Oh, look at that stuff go by.

20 59 43 CMP Now you know you're moving. (Laughter)

20 59 45 DMP Jesus, we're really hauling the fucking mail.

20 59 47 ACDR (Laughter)

20 59 48 DMP Of course, we've been doing this right along.

20 59 52 CMP We're just closer, we don't - -

20 59 53 ACDR We're just getting a hell of a lot closer. You're getting it - we'll soon be about half as close as we were.

20 59 57 DMP Yeah.

20 59 58 ACDR Okay, you squared away?

20 59 59 CMP Yeah, just about.

21 00 04 DMP It sure would be nice to have a movie camera to shoot out that window to pick that up.

21 00 14 ACDR Okay. At 23 plus 25, it's .05g minus -

21 00 23 DMP Okay, we still got about 800 in the PS - in the surge tank.

21 00 27 ACDR Okay, in good shape.

21 00 29 DMP Our rings are beautiful.

21 00 32 CMP Lost comm.

21 00 33 ACDR Huh? You lost comm?

21 00 37 ACDR That's okay.

21 00 39 DMP We can hear you.

21 00 40 ACDR We can hear you.

21 00 41 CMP ... hear ...

21 00 42 ACDR Did you get that closed?

21 00 43 DMP Well, I can - I can hear you talking. I don't - but not on intercom.

21 00 48 ACDR That's okay, Vance.

21 00 49 CMP ...

21 00 53 DMP You can hear us so -

21 00 55 ACDR Well, he can hear me, Deke.

21 00 56 DMP Yeah.

21 00 57 ACDR Why don't we get our mou - mikes up close? Get your mike up - -

21 00 59 DMP No, he's lost his intercom there somewhere, but what the hell, he's talking.

21 01 02 CMP Yeah, I can hear you talking.

21 01 04 ACDR You can hear me.

21 01 05 DMP Okay.

21 01 07 ACDR All right, Vance.

21 01 08 CMP You can hear me?

21 01 09 ACDR Yeah. No.

21 01 10 DMP No, we can hear you but not through the comm. It doesn't matter, we can hear you.

21 01 15 ACDR Okay, why don't we just strap - tighten these things - tighten these straps down a little bit.

21 01 22 DMP Yeah, I cinched mine there before we ever started.

21 01 26 ACDR Really pop them in now.

21 01 45 ACDR Back with us?

21 01 46 CMP Yeah.

21 01 48 ACDR Rotate it towards you.

21 01 49 DMP What happened?

21 01 50 CMP The darn thing must not have been locked, it came off.

21 01 52 DMP Yeah.

21 01 56 CMP/ACDR Okay.

21 01 57 DMP We can hear you talking.

21 01 58 ACDR 24:10.

21 02 01 DMP By golly, I think I'm beginning to pick up a little color out this window.

21 02 04 ACDR I don't know, the sky's still pretty - -

21 02 05 DMP Oh, yeah! Shit, man, we're - -

21 02 07 ACDR Look at the - Hey, turn on your camera, Deke.

21 02 09 CMP Hey, yeah; it's getting red.

21 02 10 ACDR That's the fireball. Get her going.

21 02 12 DMP I got it running.

21 02 13 ACDR Okay, a hundredth of a g. Okay.

21 02 18 DMP Okay, wait a minute. You want it on 6? I didn't have it on 6.

21 02 20 ACDR Yeah. I'll be watching how much we're using. Okay, now there's the fireball - -

21 02 27 DMP Okay, let's save some for the - -

21 02 28 ACDR - - like a big copper cloud.

21 02 29 DMP Yeah, that's what it looks like.

21 02 30 ACDR Okay.

21 02 31 ACDR We got lift up - -

21 02 32 DMP Now, see if there is any way to - -  
21 02 33 ACDR - - you'd better believe it.  
21 02 34 CMP Look at the sparklers coming off.  
21 02 35 ACDR Okay, stand by at .05g for EMS MODE BACKUP/RANGING.  
21 02 38 CMP Right; 26:25.  
21 02 40 ACDR 26:25.  
21 02 41 DMP Shit!  
21 02 48 CMP GDC and IMU agree good.  
21 02 51 ACDR We're in good shape. 26:25. There's 100.  
21 02 56 DMP Oh, man! Look at that out there.  
21 02 57 ACDR Come on, baby. Dig in some more. Pick up a little  
more g's up there, baby.  
21 03 02 CMP She wants to go where she wants to go.  
21 03 04 ACDR 016, should we have - -  
21 03 07 CMP Okay. Looks like we're going to have good agree-  
ment. ...  
21 03 12 ACDR Should have more - should be a 16 64.  
21 03 16 CMP Okay, we got a minute until .05g.  
21 03 18 ACDR Okay. Yeah, you're right.  
21 03 21 DMP Jesus Christ, we got a minute to go yet?  
21 03 22 ACDR Yeah.  
21 03 23 CMP Yeah, that's - -  
21 03 24 ACDR That's where most of your fireball is; out there.  
21 03 27 CMP Boy, it's funny how that - -  
21 03 28 DMP Yeah, but I'm worried about running out of film.

21 03 30 ACDR Okay, good. Deke, why don't you go back to this - -

21 03 35 DMP Let me go back to 2, because we started a minute and a half early there. Hell, there's noway that God damned film is going to last -

21 03 42 CMP Yeah.

21 03 43 ACDR There's two-tenths of a - two-hundredths of a g.

21 03 47 CMP Okay, it's 26 - we got 25 seconds.

21 03 49 DMP Hmm.

21 03 50 ACDR Three-tenths.

21 03 53 DMP Tell you, as soon as I see something - -

21 03 54 ACDR There goes some shit flying by.

21 03 56 DMP - - that looks different, Tom, I'll ... - -

21 03 57 ACDR Four-tenths. Okay.

21 03 59 CMP There you are.

21 04 00 ACDR Back to 3, back to 4. 26:25 - 18, 19, 20, 21, 22 - 3, 24, 25 -

21 04 14 CMP It's running.

21 04 15 ACDR 26. Okay. EMS ROLL, on. EMS ROLL.

21 04 18 CMP EMS, on.

21 04 19 ACDR .05g.

21 04 20 CMP .05g and we're waiting for - two-tenths.

21 04 22 ACDR That was about 26 - 26.

21 04 23 DMP Damn it.

21 04 26 CMP Yeah, that's very good.

21 04 28 ACDR Beautiful agreement.

21 04 29 CMP Tom! Look at it out the side there.

21 04 30 ACDR Okay, look at the Beta; Beta at 06 74. Now you're starting to feel something. .05g is on, and we're coming down good.

21 04 38 CMP We're up to seven-tenths g; eight-tenths.

21 04 41 ACDR No, we're not. That's seven-hundredths - seven-tenths - -

21 04 44 CMP Seven-hundredths, I mean.

21 04 45 ACDR (Laughter)

21 04 47 CMP I mean on the way to two-tenths.

21 04 48 DMP Oh, shit.

21 04 49 CMP Look at that up ahead.

21 04 51 DMP Isn't that beautiful!

21 04 52 CMP Or - behind rather.

21 04 53 DMP That doesn't change enough though, Tom, I don't think, to matter whether you're shooting - 2 or 6.

21 04 57 ACDR Probably not.

21 04 58 DMP Even though there's a - -

21 04 59 ACDR There's a tenth of a g.

21 05 01 DMP Not much difference between frames.

21 05 03 ACDR Oh, man -

21 05 04 CMP Man, look at that!

21 05 05 ACDR Yeah, okay, let's - down range error check at two - -

21 05 08 CMP Now, got that - got her going on that one? Good. Okay, 11.

21 05 14 ACDR 11.

21 05 17 CMP Beautiful; God damn.

21 05 19 ACDR Isn't that something?

21 05 20 CMP Beautiful.

21 05 21 ACDR See that stuff flowing past?

21 05 24 CMP Okay, get me in a VERB -

21 05 26 ACDR Want to hit a VERB? Okay, 15. Next one occurs at 27:51. Just watch your correlation. 16-17. 18.

21 05 43 CMP We're going to get there ahead of them.

21 05 44 DMP Yeah, we - -

21 05 45 ACDR 19.

21 05 47 DMP - - get through .05g earlier.

21 05 51 ACDR 20. There it is - 66. Okay, hit it. Right?

21 05 56 CMP 66 7, calling for a polarity negative -

21 06 00 ACDR Yeah.

21 06 01 CMP 391 and what - -

21 06 02 ACDR 391 - -

21 06 03 CMP - - was the number they gave me on the pad?

21 06 04 ACDR 391 is 447.

21 06 05 CMP Okay, that's close.

21 06 07 ACDR 39 - -

21 06 08 CMP I'm giving it to the G&N.

21 06 09 ACDR 391 point - -

21 06 11 CMP When it thrusts, you see how it affects the - the pattern out there?

21 06 14 ACDR Okay, go to 5 and 5 on your scale, Vance.

21 06 15 CMP Yeah.

21 06 16 DMP Man, that's beautiful.



21 06 17 ACDR Okay, KEY RELEASE.

21 06 20 CMP That's something. Look at that out at the left. Beautiful, god, beautiful!

21 06 24 ACDR Got a beautiful capture.

21 06 25 CMP Something - piece out there is flying wing on us.

21 06 27 ACDR We got a cross range of 23.5 - I mean, cross range of 55 and a down range of 2 - 21 - 210 and coming in.

21 06 39 CMP Okay, we're just doing great.

21 06 42 DMP We're captured.

21 06 44 ACDR Okay, the next time we want it in is the - 27:51.

21 06 57 CMP This - this lasts a hell of a long time. Makes kind of a curlycue out there.

21 07 01 ACDR Yeah, it's the vortex. Last for 5 minutes. About 27 - we have about 27:49.

21 07 07 CMP Okay.

21 07 08 ACDR Record DAP data.

21 07 09 CMP We got a proper direction and roll.

21 07 14 ACDR Okay, 29:17, minus 15 2. Next thing is going to be the reverse bank angle, which is 33:42. And the film mag is looking pretty good, check - Deke.

21 07 27 DMP Yeah, I went back to 2, Tom, because I wasn't - -

21 07 28 ACDR Okay.

21 07 29 DMP - - seeing enough change in the ... - -

21 07 30 ACDR Yeah.

21 07 32 DMP - - to warrant - -

21 07 33 ACDR Okay.

21 07 34 DMP - - you rolling.

21 07 36 CMP Okay, it's going over to 52 degrees.

21 07 39 ACDR Okay.

21 07 40 CMP Start taking out our cross range.

21 07 41 ACDR Yep.

21 07 43 DMP Man, that is beautiful.

21 07 45 CMP Wow, look out the top window there.

21 07 47 DMP Whoo, look at that!

21 07 48 ACDR Yep.

21 07 49 DMP It's beautiful.

21 07 50 CMP Man, are we skittering.

21 07 54 CMP Minus 84.

21 07 55 DMP I can't believe I'm getting it with this camera, but maybe I am.

21 08 00 CMP Oh, god, that's beautiful; I hope you got a good picture there, Deke.

21 08 03 DMP I'm trying. I'm shooting the hell out this window.

21 08 06 ACDR What's your ... - -

21 08 07 CMP 33:42.

21 08 08 DMP I just hope the hell we got the right settings.

21 08 10 ACDR He's really trying to - -

21 08 11 CMP Minus 106.

21 08 13 ACDR He's really trying to - pull off ... a few g's here.

21 08 15 CMP Yeah, man.

21 08 16 ACDR See, we - we're only up to about a third of a g.

21 08 17 CMP Yeah.

21 08 19 ACDR See, we -

21 08 22 CMP Yeah, look at that. He's still - 1100 miles out and he's got to get down in about 600 -

21 08 27 ACDR We're going to - Here come - here come the g's Okay, just keep - -

21 08 30 DMP Oh, man.

21 08 31 CMP Man, we're overshooting one hell of a lot.

21 08 32 DMP Are we?

21 08 33 ACDR Yeah.

21 08 34 CMP Yeah.

21 08 35 ACDR It's got 114 - -

21 08 36 CMP 114 miles.

21 08 37 ACDR He can pull it out; no shit. That's -

21 08 38 CMP Oh, yeah. Look at that! Look at that thing out there now.

21 08 40 DMP Oh, yeah.

21 08 41 ACDR Here we go! We're coming up eight-tenths of a g.

21 08 42 CMP Yeah.

21 08 43 ACDR 86. Look how he's pulling that out; 77 miles.

21 08 46 DMP That's only eight-tenths of a g?

21 08 47 ACDR Yep. Like - -

21 08 48 DMP Shit!

21 08 49 ACDR - - like I told you, we're only - we're not even up to one g yet (laughter).

21 08 52 DMP Christ!

21 08 53 ACDR Okay, here we go! 60 miles to go; 41 cross range. The cross range is down to 41.

21 08 57 DMP Hard to believe.

21 08 59 CMP He's going to get that cross range all the way out.

21 09 01 ACDR You better believe it. 60 miles on it -

21 09 03 CMP God! We're looking low. (Laughter)

21 09 05 ACDR Yep! We sure are.

21 09 06 DMP Okay, I'm watching for steam pressures.

21 09 08 CMP Yep.

21 09 09 ACDR Okay.

21 09 10 CMP Well, I know we're not.

21 09 11 ACDR 38. Okay, we're up to - to 1-1/2 g's. (Laughter)

21 09 14 DMP Oh, man! Feels like - -

21 09 15 ACDR Okay. 36 cross range, 45 down range. Okay.

21 09 21 CMP 2 g's.

21 09 22 ACDR 2 g's.

21 09 23 DMP Shit. Man, it feels - -

21 09 24 ACDR Feels like you're really pulling the old thing.  
(Laughter)

21 09 25 DMP - - like 6 g's.

21 09 26 CMP It's doing it just right on the EMS.

21 09 27 ACDR Yeah. Okay.

21 09 30 DMP Okay, I'm going to keep shooting away here and do  
this ... again.

21 09 31 ACDR Returning to Earth, okay.

21 09 32 CMP (Laughter)

21 09 34 ACDR 31 cross range, 7 down range. He'll put it out  
some more. 30 cross range -

21 09 41 DMP As long as I can get the camera - -

21 09 42 ACDR 28 cross range -

21 09 44 DMP - - up there, we'll get pictures.

21 09 45 ACDR Okay. 10, down range. Now we're pulling some, up to 3 g's. And 9.5, 25 cross - 3 g's.

21 09 58 CMP 42. It's doing just right.

21 09 59 ACDR Yep. 22 cross range, we're going to beat it.

21 10 03 DMP ...

21 10 05 CMP 3.2 g's.

21 10 07 DMP Okay.

21 10 09 ACDR Down to 17 000 feet per second, and we're 19 miles cross range, 10 down range.

21 10 16 CMP (Coughing)

21 10 18 ACDR Okay, 17.

21 10 20 CMP That fireball lasts a long time.

21 10 21 ACDR Yeah.

21 10 22 DMP It sure does.

21 10 23 CMP Minus 15.

21 10 24 DMP Gosh, I'm getting stills of it.

21 10 26 CMP (Coughing)

21 10 28 ACDR 210 to go, 206. 13. It looks good. 11. 14 500 velocity.

21 10 37 CMP 8 miles. Or, no, 11 miles.

21 10 42 ACDR 10 miles.

21 10 43 CMP I was thinking of something else.

21 10 44 ACDR 9 miles.

21 10 45 CMP (Coughing) Cross - (coughing) cross range is 8.

21 10 48 ACDR Okay, reverse bank time is 33:42.

21 10 50 CMP Okay.

21 10 51 ACDR Okay, we're pulling 3 g's. He'll overshoot and then reverse it. 6 miles cross range. There we go, baby.

21 11 00 CMP Yeah.

21 11 01 ACDR Don't worry about it.

21 11 02 DMP Okay, we got rid of most of the fireball.

21 11 03 ACDR Still minus. Looks - 38. (Chuckling) Look at that smart little computer.

21 11 09 CMP There, it reversed signs.

21 11 10 ACDR Yeah.

21 11 11 CMP Okay, reverse.

21 11 13 ACDR It'll do it.

21 11 15 CMP No, it - -

21 11 16 ACDR It - it will.

21 11 17 CMP - - didn't - didn't reverse in register 1.

21 11 19 CC-H Apollo, Houston. Talking at you through ARIA.

21 11 21 ACDR Roger.

21 11 22 CMP Loud and que - clear, Crip. Doing fine.

21 11 24 ACDR 309.

21 11 26 CC-H ...

21 11 27 DMP Yeah, we're doing - doing just great.

21 11 29 ACDR That computer is steering it right out, Crip. 33:42.

21 11 38 CMP Okay, got a minus 610.

21 11 39 ACDR There's minus - -

21 11 40 CC-H Roger, Tom. You're ...  
 21 11 41 ACDR - - minus - minus. That son of a bitch!  
 21 11 44 CMP He's got us - steering just right.  
 21 11 47 ACDR There! There we go.  
 21 11 48 DMP We're ... in good shape, Crip.  
 21 11 49 ACDR There we go.  
 21 11 51 CMP (Chuckling) That's one heck of a maneuver, isn't it?  
 21 11 55 ACDR ... See that yaw?  
 21 11 56 CMP Yeah.  
 21 11 57 ACDR Okay, we're down to 7000 feet per second.  
 21 12 01 DMP How many g's we pulling now?  
 21 12 03 ACDR The g's backed off to 2-1/2 g's, and she - that little baby's steering it right out.  
 21 12 07 CMP It holds 2-1/2 a lot longer than I thought it would.  
 21 12 11 ACDR Yep. 1.2 in the ...  
 21 12 13 DMP I don't see any fireball anymore; I'm going to turn the camera off.  
 21 12 15 ACDR Turn it off, Deke. Might set it up for 6, 8, and a sec later on.  
 21 12 20 DMP Yeah, ...  
 21 12 22 ACDR Two to go on steam pressure.  
 21 12 23 CMP Still got some film left there, Deke?  
 21 12 25 DMP Oh, yeah.  
 21 12 26 ACDR Don't move your head - -  
 21 12 27 DMP I want to save some for - -  
 21 12 28 ACDR - - ... it's reversing.

21 12 29 DMP - - for the drogues and the mains. Oh, shit! We're on SECONDARY.

21 12 35 ACDR ... reverse - ... it missed that. Okay.

21 12 40 CMP Okay, how - should be getting steam pressure, huh? About now?

21 12 42 DMP Yeah, shit. We've been on - we been in PRIMARY. I don't know when - we should be 90K, huh?

21 12 46 CMP Yeah. We had SECONDARY on for a while.

21 12 50 ACDR Okay, let's look at the time for - the next time is - drogues is 36:27. Okay, stand by for this thing off the peg.

21 13 00 CMP Okay.

21 13 01 ACDR It's trying to steer it out.

21 13 04 CMP ... got 8 - Damn.

21 13 09 ACDR Okay.

21 13 11 DMP There we are.

21 13 14 ACDR Okay. Drogues at 36:27 - -

21 13 16 DMP They want that at 12 frames?

21 13 19 ACDR 1 minute to drogues.

21 13 21 DMP Okay, give me a 30K mark, will you, Tom?

21 13 23 ACDR Okay.

21 13 24 CMP I will. One of us will.

21 13 28 ACDR Okay, 36:27.

21 13 31 DMP We at 50K?

21 13 32 ACDR Not yet.

21 13 33 DMP Okay.

21 13 34 CMP Okay, here comes 50K - -



21 13 38 ACDR Okay, altimeter's coming off the peg.

21 13 40 CMP 50K.

21 13 41 ACDR Nine-tenths of a mile miss distance. Key in VERB. No, pardon me - seven-tenths; this baby is right on.

21 13 48 ACDR 45K. Okay, at 30K - -

21 13 52 CC-H ... looking good here; we got data and we got - we got you in radar contact at the ship.

21 13 55 ACDR Okay, we got her hook down. Okay, 30K - -

21 13 56 CMP Okay, what comes - -

21 13 58 ACDR - - for the pyros.

21 14 01 CMP You got the pyros coming on.

21 14 03 ACDR Okay, 30K for the pyros.

21 14 04 CMP BOOST/ENTRY.

21 14 05 ACDR BOOST/ENTRY.

21 14 06 CMP What else is on your checklist?

21 04 07 DMP That's it. BOOST/ENTRY - -

21 14 08 CMP Okay.

21 14 09 DMP - - and SECS PYRO at 50.

21 14 11 CMP All right.

21 14 12 DMP At 30, give me a hack and I'll - it's ELS, LOGIC, AUTO, and I'll start the DAC.

21 14 16 ACDR Okay. Stand by, it's -

21 14 17 ACDR 30 - 27K. Start your DAC.

21 14 18 DMP Okay, she's running.

21 14 19 ACDR Okay, 26K.

21 14 20 CMP Okay, stand by for drogues.

21 14 22 DMP Okay.  
 21 14 23 ACDR 24K.  
 21 14 28 ACDR Did she come out? Any drogues?  
 21 14 30 DMP Don't see them.  
 21 14 31 CMP Don't see any.  
 21 14 34 DMP Did you hit your button - there?  
 21 14 37 DMP There's the apex cover.  
 21 14 40 ACDR There they are.  
 21 14 41 CMP I hit a ...  
 21 14 42 ACDR ...  
 21 14 46 DMP Got them.  
 21 14 49 DMP And we're on the drogues.  
 21 14 50 ACDR Yep.  
 21 14 51 CMP Yes, sir.  
 21 14 54 ACDR I got the PROPELLANTS, OFF.  
 21 14 56 DMP How are you running on altitude?  
 21 14 57 CMP Quite a ride, you know? (Cough)  
 21 14 59 DMP O<sub>2</sub> FLOW HIGH.  
 21 15 00 ACDR Okay, coming down at 11 000.  
 21 15 02 CMP (Coughing)  
 21 15 03 DMP Wouldn't worry about that.  
 21 15 04 CMP (Coughing)  
 21 15 06 ACDR Stand by for the main; ELS, LOG - LOGIC -  
 21 15 08 ACDR AUTO! AUTO!  
 21 15 09 ACDR Oh, hell. LOGIC and AUTO!

21 15 11 CMP (Coughing)

21 15 14 DMP Boy, there's a lot of - gas in here.

21 15 17 ACDR Push the MAINS!

21 15 18 ACDR/DMP (Coughing)

21 15 21 ACDR I'll bet that fucking barostat's completely iced.

21 15 23 CMP/DMP (Coughing)

21 15 24 ACDR I'll bet that barostat was frozen.

21 15 26 CMP/DMP (Coughing)

21 15 30 ACDR Goddamn, I got the -

21 15 33 CMP (Coughing)

21 15 34 ACDR Okay, we're on the mains.

21 15 37 CMP Purge.

21 15 38 ACDR No, no, no, no.

21 15 39 DMP Don't - don't touch.

21 15 40 CMP No, no.

21 15 42 DMP What's the matter?

21 15 43 DMP I don't know what the hell we got here.

21 15 46 CMP (Coughing)

21 15 47 ACDR How's the cabin pressure?

21 15 48 DMP It's coming up (coughing). It's okay, it's (cough) 2.

21 15 52 CMP/DMP (Coughing)

21 15 54 CMP Hey, we forgot these -

21 15 58 CMP (Coughing)

21 15 59 ACDR I called them off - ELS, LO - LOGIC, didn't I?

21 16 03 REC \*\*\* my position is 025 degrees. I am on the New Orleans 169 degree radial, 7.5 nautical miles.

21 16 14 NEW New Orleans; roger. Out.

21 16 15 DMP ...

21 16 16 ACDR Huh?

21 16 17 CMP Strut locked?

21 16 19 REC Apollo, Recovery. Over.

21 16 22 DMP I did.

21 16 23 ACDR I've got those propellants off, I don't know why the hell it got that shit in here.

21 16 25 DMP Oh, man!

21 16 26 REC Apollo, this is Recovery broadcasting in the blind. Switching to Astro voice, secondary.

21 16 34 CMP What the hell's - -

21 16 35 ACDR Okay, 10K - VHF ANTENNA, RECOVERY, and SIMPLEX.

21 16 37 CMP (Coughing)

21 16 38 DMP Yeah, I got that.

21 16 39 CMP (Coughing)

21 16 40 ACDR Okay.

21 16 43 DMP FLIGHT POSTLANDING (cough) -

21 16 45 DMP Here it goes.

21 16 47 CMP (Coughing)

21 16 49 ACDR Okay, E - EMS, OFF/STANDBY if you get a chance; it doesn't matter.

21 16 52 ACDR Coming through 2800 feet.

21 16 53 DMP That ...

21 16 56 ACDR God damn; boy!

21 16 59 REC Apollo, this is Recovery broadcasting in the blind - -

21 17 02 CMP Okay, what next?

21 17 03 REC - - no reception on Astro voice, secondary. We have you in sight visually; you have three good chutes at this time.

21 17 11 ACDR Roger.

21 17 12 DMP What's the altitude?

21 17 13 ACDR Okay. We're at 2000 feet, Deke.

21 17 15 DMP Okay.

21 17 17 REC New Orleans, Recovery.

21 17 18 ACDR ... circuit breaker - -

21 17 19 REC The latest bearing is 025 degrees; I am on New Orleans 150 degree radial - -

21 17 27 ACDR ... what the hell's the - -

21 17 28 REC - - 5.5 nautical miles.

21 17 29 ACDR ...

21 17 30 NEW New Orleans; roger. Out. And we have a good picture. Over.

21 17 31 DMP You got everything?

21 17 32 ACDR Yeah.

21 17 33 DMP Okay.

21 17 34 REC This is Recovery. Roger.

21 17 35 CMP Just give me a hack - -

21 17 36 ACDR - - four PITCH and YAW, OPEN.

21 17 37 DMP Got them.

21 17 38 ACDR Okay. Okay. Reverified AUTO and LOGIC, up. Okay.

21 17 41 DMP/CMP (Coughing)

21 17 43 SWIM New Orleans, this is Swim. I have a beacon - -

21 17 45 DMP Anybody check those sea lights?

21 17 47 CMP Okay. Let's get it on right now.

21 17 48 SWIM - - bearing 200; I'm on 020 at 13.

21 17 50 CMP Got it.

21 17 51 ACDR Okay, come up on - -

21 17 52 NEW New Orleans; roger. Out.

21 17 53 CMP Okay, 800 feet.

21 17 54 DMP 800 feet? Okay.

21 17 55 ACDR Hey, guys. Stand by for splashdown.

21 17 57 ACDR CABIN PRESSURE RELIEF valve, CLOSED, latch; DIRECT O<sub>2</sub> valve - -

21 18 01 REC And Swim has a tally on the command module - -

21 18 03 ACDR - - MAIN BUS TIES are coming off, ready? MAIN - -

END OF TRANSCRIPTION