

~~CONFIDENTIAL~~

35

MAC

CONTROL NO. 115308

(TITLE UNCLASSIFIED)

GEMINI VII VOICE COMMUNICATIONS

(AIR-TO-GROUND, GROUND-TO-AIR AND ON-BOARD TRANSCRIPTION)

VOLUME I of III

Pages 1 - 337

168
24
1928
24
269
24
24010
24
24411
24
28812

THIS MATERIAL CONTAINS INFORMATION AFFECTING
THE NATIONAL DEFENSE OF THE UNITED STATES
WITHIN THE MEANING OF THE ESPIONAGE LAWS.
TITLE 18, U.S.C. SECTION 793 AND 794, THE TRANS-
MISSION OR REVELATION OF WHICH IN ANY MANNER
TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW.

GROUP 4

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

1

CC 7, 6, 5, 4, 3, 2, 1, 0.
CC Ignition.
00:00:01 CC Lift-off.
00:00:02 CC Lift-off 19:30:03. Lift-off 19:30:03.
00:00:07 P We're on our way, Frank!
00:00:08 C ... Right!
00:00:12 CC Plus 13 Seconds.
00:00:19 CC Looking real good.
00:00:21 C Roll initiate.
00:00:22 C ... Yaw.
00:00:23 CC Roger. Roll.
00:00:24 C Pitch initiate.
00:00:26 CC Roger. Pitch.
00:00:50 CC MARK. 50 seconds.
00:00:53 C ...
00:00:54 CC Roger.
00:00:59 P ...
00:01:02 CC Roger. 5.6 on the cabin.
00:01:24 C ...
00:01:41 CC MARK. One plus 40.
00:01:43 C ...
00:01:44 P Okay.
00:01:45 CC Roger. Mode 2.
00:01:48 C ...

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

00:01:49 P I'm Navy ...
00:01:50 CC Roger. Update.
00:02:02 CC Guidance is looking real good here, Gemini VII.
00:02:05 C Roger. Stage 2 ...
00:02:07 CC Roger. Stage 2 GO.
00:02:12 P Attitudes are looking good, Frank.
00:02:13 C Roger.
00:02:14 P Is flight book out?
00:02:16 C Stage 2 GO?
00:02:21 P Delta-P light is on, and off.
00:02:28
00:02:29 P RKV ... stand by for staging.
00:02:30 CC Roger. Update.
00:02:38 C ... staging.
00:02:39 CC Roger. Staging.
00:02:48 P Going to INITIATE and second Delta-P light on.
00:02:53 CC Roger. Guidance INITIATE, Fuel Cell and Delta-P lights.
00:03:05 C Delta-P light out.
00:03:08 CC Roger. Delta-P light out.
00:03:11 CC Guidance is still looking very good here, Gemini VII.
00:03:14 C Very good.
00:03:29 C ... off.
00:03:31 C Very good, Jim.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

3

00:03:36 C Did you see that staging?
00:03:37 P Right.
00:03:38 C Look at the moon, Jim!
00:03:39 P Right.
00:03:41 P How's it going?
00:03:45 C Good.
00:03:50 P Right on. 20 minutes.
00:03:55 C Fine.
00:04:19 CC Gemini VII, Houston. You're GO from the ground.
00:04:21 P Roger. Gemini VII is GO.
00:04:24 CC Roger.
00:04:31 CC Guidance is right on.
00:04:36 C What did you say?
00:04:36 CC Your guidance is right on, Gemini VII.
00:04:37 C Roger.
00:04:45 P Look at the moon, Frank!
00:04:46 C Yes.
00:04:50 P That's really pretty, isn't it?
00:04:51 P Yes.
00:04:52 P ...
00:04:57 C Roger.
00:05:02 CC Stand by for Point 8.
00:05:04 C ...
00:05:12 CC MARK. Point 8. V/VR.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

00:05:14 P Okay.
00:05:17 P Oh, we've got a Delta-P light again.
00:05:20 CC You're right down the slot, Gemini VII.
00:05:26 P Two Delta-P lights.
00:05:33 C We're just pushing up there now.
00:05:34 P What are the g's?
00:05:35 C Seven.
00:05:38 C SECO.
00:05:40 CC Roger. SECO.
00:05:41 C Bingo!
00:05:45 C It's a good one. Stand by for ...
00:05:50 P ... seven.
00:05:53 C Seven and up 17.
00:05:55 C Stand by.
00:05:57 CC Gemini VII, Houston. You are GO.
00:05:59 C Roger. Thank you.
00:06:00 P Okay.
00:06:01 CC That's the best sim we've had.
00:06:02 C Stand by, Jim. 5, 2, -
00:06:07 C MARK. ...
00:06:14 C Okay. Cameras running.
00:06:17 C Okay. Let's see if we can find the son of a gun now.
00:06:19 P Okay. Turn around. 27 ... 804.

~~CONFIDENTIAL~~

CONFIDENTIAL

5

00:06:19 P And ... reads 27, 25804.
00:06:24 C ... this is Gemini VII. 25:08:04.
00:06:29 C Got it.
00:06:33 P Boy, it's going to be - give them a Roger.
00:06:34 CC Gemini VII, Houston. Your 1-Alpha time is 10 plus 29.
00:06:40 C Roger.
00:06:43 C There she is, Jim! There she is!
00:06:48 C We have booster in sight. It looks pretty.
00:06:49 CC Roger. Booster in sight.
00:06:56 C The booster is venting drastically.
00:07:00 C I say, the booster is really venting.
00:07:02 CC Say again, Gemini VII.
00:07:04 C I say the booster is really venting.
00:07:07 CC The booster is slowly venting?
00:07:10 C It's really venting. Really.
00:07:12 CC It is really venting. Roger.
00:07:14 C We're in just the right spot.
00:07:18 CC Understand you're in just the right spot.
00:07:24 P Okay ... Booster looks safe.
00:07:26 P Watch it, Frank!
00:07:29 C That's okay.
00:07:31 P Are you going to - okay. Put the PS FLAT.
00:07:32 C ... 187 by 178. Roger.

CONFIDENTIAL

~~CONFIDENTIAL~~

00:07:35 CC Gemini VII, your orbit is 87 by 178.

00:07:41 C ... orbit is 87 by 178. Roger.

00:07:44 CC Roger.

00:07:45 P Oh, good.

00:07:53 P Now. Booster's third phase.

00:07:55 C Would you get it over here so we could?

00:07:57 C Yes, go ahead. Booster's in third phase.

00:08:03 P Right. Retro rockets 2 4 6.

00:08:04 C Safe.

00:08:05 P Okay. Now it's on vertical, but I can't see it just yet.

00:08:07 C I know it.

00:08:12 C Roger. I have it. We're going to have to go off at the - I'm going to DIRECT and ORB RATE.

00:08:13 P Okay.

00:08:14 C So you can take pictures of the thing, Jim?

00:08:24 P Yes. It's right in the sunlight though.

00:08:25 C I know it is.

00:08:26 P Okay. ... -- Come in.

00:08:31 CC Gemini VII, Houston. They're already cleaning off the pad.

00:08:36 C You got it, Jim?

00:08:37 P I have it, but it's in the sun, Frank.

00:08:40 C Yes.

00:08:41 CC Gemini VII, Houston. How is the stationkeeping going?

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

7

00:08:42 P Just a minute. I'll put the main batteries off first.
00:08:43 C ...
00:08:44 P Okay. I turned the main batteries off.
00:08:45 C ... very well.
00:08:47 CC Roger. Understand. Going very well.
00:08:57 P Okay - going to get the other things.
00:09:00 C ... Oh, there. Now I can see it better. How about you?
00:09:01 P Okay --
00:09:02 C What a fantastic sight, isn't it?
00:09:12 P Fantastic! Great!
00:09:13 C Are you getting pictures of that?
00:09:14 P I'll get the whole thing if I can get it.
00:09:21 P The sun's in the way, though, Frank.
00:09:22 C On my side it's completely black.
00:09:24 P It is?
00:09:25 C Yes.
00:09:26 P Yes. See, the sun's in the way of the camera.
00:09:29 P Okay. Stand by here a second. All ... vertical ...
00:09:33 P Houston, Gemini VII. How do you read?
00:09:35 CC Loud and clear.
00:09:36 P OAMS heaters are going off.
00:09:37 C Houston. Gemini VII. How do you read?
00:09:38 C I tell you the reason if you'd start stationkeeping

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

this thing, there's a lot of Delta-V coming out ...

00:09:41 P Now I have it. I've got it good.
00:09:43 C Okay.
00:09:44 CC Roger.
00:09:48 P Stand by.
00:09:51 CC Understand it's requiring a lot of Delta-V because of the venting.
00:09:55 P Roger. The booster is venting tremendously.
00:10:03 CC Roger, Gemini VII.
00:10:07 P Houston, the ... check list is complete.
00:10:10 CC I did not copy that last, Gemini VII.
00:10:13 P Gemini VII, the post-insertion checklist is complete.
00:10:17 C This is VII. The Surgeon checklist is complete.
00:10:18 CC Roger. Post-insertion checklist complete.
00:10:26 CC We're about 30 seconds from LOS, Gemini VII.
00:10:31 C Roger, Elliot. Thank you very much.
00:10:34 CC Verify your OAMS cutoff is 88 percent.
00:10:36 C Roger ... out there now.
00:10:41 P Look at that thing!
00:10:43 C Yes.
00:10:45 P I have the old camera on her.
00:10:50 C Have you?
00:10:51 P She's clicking away.
00:10:53 C That's for getting a - we have a roll in here for

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

9

some reason and I'm wondering if we got ...

00:10:54 P ... probably, maybe.
00:10:55 C That shouldn't cause it to roll.
00:11:02 C Can you see the horizon?
00:11:03 P Okay ... what are you in, Frank?
00:11:09 C I'm in DIRECT.
00:11:12 P You're in DIRECT. Affirm?
00:11:13 C Yes.
00:11:14 P Okay. You want to get the reticle out now?
00:11:16 C You got it. Right?
00:11:17 P I got it.
00:11:18 C Okay. Why don't you - we go to the pulse now, Jim?
00:11:19 P Okay. Go to pulse.
00:11:36 P Look at her spread out the gas.
00:11:37 C Yes.
00:11:38 C How's everything over in those fuel cells and everything?
00:11:55 P Everything is looking good.
00:11:56 C Okay. Good.
00:12:04 C Boy, I'll be glad when that sun goes down.
00:12:07 P I've lost the horizon. Doggone!
00:12:08 C You've got the ... don't you?
00:12:09 P ... I don't know for sure.
00:12:10 C How close are we?

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

00:12:11 P Oh, I don't know. About 100 feet.
00:12:16 C Are you having to put much Delta-V on?
00:12:19 P What?
00:12:21 C Are you having to pulse it much?
00:12:22 P Not too much.
00:12:23 C Okay. We're down to about 89 percent. You want to take her? You have her?
00:12:24 P I have her.
00:12:25 C That's fine.
00:12:26 P Okay.
00:12:28 C I can't see ...
00:12:31 P I hate to lose the horizon.
00:12:32 C I have the horizon, Jim.
00:12:33 P Oh, you have?
00:12:34 C Yes.
00:12:35 P Okay.
00:12:36 C Okay. I've got it.
00:12:37 P Okay.
00:12:44 P Wish we could get out of that sun.
00:12:45 C So do I. Are you getting pictures?
00:12:46 P I hope to tell!
00:12:47 C Listen, I have to get out the flight plan, though. You got it?
00:12:48 P Okay, I have it.
00:12:55 C We need the flight plan, don't we?

~~CONFIDENTIAL~~

CONFIDENTIAL

11

00:13:00 P Yes.

00:13:01 C Oh, darn! I undid my safety belt and they really blow up to the top, Jim.

00:13:07 P You did?

00:13:08 C Yes.

00:13:16 C There you go, Ace.

00:13:17 P Okay. He's over on this side a little bit, Frank.

00:13:26 C I have her.

00:13:27 P You have the booster?

00:13:28 C I have the booster. Go into BEF.

00:13:33 P Okay.

00:13:34 C Oh no! I think we'll lose it if I BEF.

00:13:36 P Yes, you're a little close on it. Can you swing over - nose a little bit to the right?

00:13:37 C Yes.

00:13:44 P I'm still taking pictures ...

00:13:50 C I don't even - I wonder if I ...

00:13:51 P The pulse is ...

00:14:12 P How are you doing?

00:14:13 C I'm trying to get this seat belt back down. Can you see it?

00:14:14 C I can't even see it. Well, you ought to be able to get good shots. Are you in the dark now over there?

00:14:15 P Yes, I'm in the dark.

00:14:16 C All right. Now I think we can go BEF.

CONFIDENTIAL

~~CONFIDENTIAL~~

00:14:28 P Okay.

00:14:29 C ...

00:14:33 P Okay. You're going to pitch down a little bit, right?

00:14:38 C Can you see it? I'm in ... now.

00:14:39 P Yes. Okay. Translate down a little bit.

00:14:40 C Oh, translate down? All right. I was trying not to use any more translation fuel but --

00:14:48 P Well, we've got her to where she's going down on the horizon.

00:14:49 C Okay.

00:14:50 P And we can see stars. We're going into darkness now. At 14, our --

00:14:57 C Okay. What's on this flight plan?

00:15:00 P I'm going to get it ready now. You gave me this synthesis, Frank.

00:15:01 C I did?

00:15:02 P Yes.

00:15:04 C What a terrible thing!

00:15:07 P I can't get back down on this.

00:15:09 C I hope that's the flight plan.

00:15:10 P Okay. No, that's the Apollo Landmark.

00:15:16 C Then we don't have a flight plan book.

00:15:17 P Oh, come on now!

00:15:18 C Honest to goodness! That's all that's in here!

00:15:19 P What's that - look out!

~~CONFIDENTIAL~~

CONFIDENTIAL

13

00:15:20 C What?
00:15:31 P Okay. You have the booster?
00:15:32 C Yes, I have it, very good.
00:15:33 P Something's flying - that's why I was wondering - oh, it's - -
00:15:34 C Affirm.
00:15:35 P Okay.
00:15:36 P You think you can put a few of these away?
00:15:37 P I've got it - 13 minutes. I wonder if I got 15 and 5.
00:15:48 P I've got to change films.
00:15:57 C Have you got the booster over there now?
00:15:58 P Yes, it's moving closer.
00:16:00 C All right. How we doing?
00:16:01 P Oh, we're not doing too bad. I'm going to change film next.

CANARY ISLANDS

00:16:06 CC Gemini VII, Canary CAP COM. How do you read? Over.
00:16:09 C You're loud and clear. Carnarvon, how do you read us?
00:16:10 C Good. How do you read us?
00:16:11 CC Roger. Read you loud and clear.
00:16:14 P Tell them to hold five, until they give the summary, now because I'm going to - -
00:16:15 C Man, we're too close to that thing! You getting pictures?

CONFIDENTIAL

~~CONFIDENTIAL~~

00:16:16 P Yes.

00:16:17 C We're too close to that thing now, aren't we?

00:16:18 P Yes.

00:16:19 C What?

00:16:20 P Yes.

00:16:23 CC The latest on Bermuda data indicates your orbit as 87 by 177.

00:16:40 CC We'd like to change the time when you put your radiators to FLOW.

00:16:45 C Go ahead.

00:16:46 CC At 37 minutes.

00:16:48 C Go ahead. Right 37.

00:16:49 C Roger. 37.

00:16:50 CC Roger.

00:16:51 P Hey, we're right where ... it's continually venting. That's why stationkeeping is costing more fuel than anticipated. We're within fifty feet of it though. The aft nozzle is venting slightly, but not bad.

00:16:52 CC Do you happen to have your IVI's at cutoff?

00:16:54 C ... more fuel flow is indicated.

00:16:59 CC Roger.

00:17:00 C We're within 50 feet on the ball. The aft console is settled slowly, but not much.

00:17:07 CC Roger.

00:17:14 C All right, Jim.

00:17:19 P Okay. Stand by. I have flight plan update - -

00:17:21 C I have 18 minutes.

~~CONFIDENTIAL~~

CONFIDENTIAL

15

00:17:24 P Okay.
00:17:28 C Everything look good?
00:17:32 P Everything - let me put up the camera, a second.
00:17:33 C All right.
00:17:48 P Let's continue. Oh, oh, we've got the Delta-P light on!
00:17:49 C Go ahead, Canaries.
00:17:50 CC Gemini VII, Canary.
00:17:51 C Come in, Canary.
00:17:53 CC Roger. We'd also like you to put your C adapter at 37 minutes.
00:17:57 C Roger. We have picked up a Delta-P light on fuel cell.
00:18:02 CC Roger. We're getting a light on H₂ right now. Stand by.
00:18:04 P That's 37? What do they want to do with 37?
00:18:09 C ... radiator to FLOW.
00:18:14 P Okay.
00:18:28 C Got a Delta-P light. Right, Jim?
00:18:29 P Yes.
00:18:36 C What's it doing? Anything? How's it acting?
00:18:38 P Everything looks okay.
00:18:39 P I've got the main batteries off.
00:18:45 C What are we running?
00:18:48 P 22 amps each.
00:18:49 C Okay.

CONFIDENTIAL

CONFIDENTIAL

00:18:57 P And they want the Adapter Beacon to REENTRY to COMMAND right at 37?

00:19:02 C I don't know. I didn't hear that. Did they say that?

00:19:07 P After ... let's erect this experiment. What do you say? It's dark now; I don't want to use any more fuel.

00:19:14 P Okay. I'll do it. Okay. We're going to get a long read now. RCS experiment - experiment. Group 4 ON ... safe. Stand by.

00:19:31 C Still got a Delta-P light?

00:19:36 P Yes. ... Gage 1, ... experiment, RAD-1, pull IR on, IR on, power on, transformer on. Verify recorder is off.

00:20:04 CC Gemini VII, Canary. May I have a fuel cell O₂ reading from you, please?

00:20:07 C Roger. Fuel cell O₂ is 90 percent. Pressure is now 150 with the heater on.

00:20:15 CC Roger. Copy.

00:20:19 P Okay. Put them in a STANDBY. Sunset, dark light ... come on.

00:20:24 P Dark light is on, Frank.

00:20:25 C Okay. I can't see that darn thing, can you?

00:20:26 P No.

00:20:27 P There it is - no.

00:20:36 C I have the light, but I can't see the booster.

00:20:37 P No.

00:20:38 C Okay. We're 20 minutes.

00:20:39 P Okay. Dark light is off.

CONFIDENTIAL

CONFIDENTIAL

17

00:20:45 P Okay. You go to RATE COMMAND and OVERRATE.

00:20:46 C Okay.

00:20:48 P ... pitch down? Be sure you're far enough away from it.

00:20:49 C I am.

00:20:50 P I don't have it in sight at all.

00:20:51 C I do.

00:21:00 C You got her now?

00:21:01 P Yes, yes. She's moving fast, though.

00:21:02 C Well, let's go ahead and start this burn early.

00:21:03 P Okay.

00:21:04 C All right.

00:21:07 P Put down 25 points on it, 9 degrees.

00:21:08 C All right. I'm down there.

00:21:09 P Okay.

00:21:10 C Ready?

00:21:11 P Any Mark. Go ahead.

00:21:12 C All right. On my Mark -

00:21:13 C MARK.

00:21:14 P Okay. 26 seconds.

00:21:33 P 16 seconds have gone by.

00:21:34 C Okay. Let's just make it 20 seconds to save some of this gas.

00:21:35 C All right.

00:21:36 P Stand by.

CONFIDENTIAL

CONFIDENTIAL

00:21:40 P ... 20 seconds.
00:21:41 C All right. Pitching up.
00:21:48 P Okay.
00:21:49 P Experiment.
00:22:00 P There goes the cover.
00:22:01 C We still have a Delta-P light?
00:22:02 P Yes. Okay. We have ...
00:22:03 C Okay.
00:22:04 P Okay. Aline the platform, or aline it on the booster.
00:22:05 P ...
00:22:21 C Stand by.
00:22:22 C Okay. It's on the booster.
00:22:23 P Right.
00:22:28 P When do we burn? At 23?
00:22:29 C Yes.
00:22:30 P Okay.
00:22:31 C No. At 22.
00:22:32 P 22.
00:22:33 C All right. How are we doing?
00:22:34 P Okay. In RED. Okay.
00:22:35 P She's coming down.

CONFIDENTIAL

CONFIDENTIAL

19

KANO

00:22:54 CC Gemini VII, Houston. Remoting through Kano.
How do you read?

00:22:55 C I wonder about that Delta-P light.

00:22:58 C Read you loud and clear, Houston. How do you read us?

00:23:00 CC Roger. Loud and clear. We're standing by for your burn.

00:23:03 C Roger. We completed the burn early here. We've already separated and we're performing D-4/D-7.

00:23:09 CC Roger, Gemini VII.

00:23:12 C And we still have a Fuel Cell Delta-P light.

00:23:14 CC Roger. Still have the Fuel Cell Delta-P light.

00:23:17 C Right.

00:23:19 CC Is the oxygen pressure coming up at all yet?

00:23:22 C Negative. It's still going down. It's 100 pounds now.

00:23:26 CC Roger.

00:23:31 C Okay, Jim. Everything under control?

00:23:33 CC Gemini VII, Houston. Would you give us the time of your burn?

00:23:36 P Everything looks good. Let me see.

00:23:38 C Roger. At the time of the burn we had 22:17.

00:23:42 CC 23:07?

00:23:45 C 22:17.

00:23:47 CC Right.

CONFIDENTIAL

~~CONFIDENTIAL~~

00:23:48 CC Roger. 23 plus 17.

00:23:50 P And tell him that it was a 20-second burn.

00:23:51 C Roger. We burned for 20 seconds. 20 seconds.

00:23:55 CC Roger. 20-second burn.

00:23:57 C I'm right on the booster now.

00:24:04 P Okay. You're max - max up there. Looks like you're pretty good. Yaw left and right a little.

00:24:12 C I am.

00:24:13 P Okay. You're coming off of it.

00:24:14 C Off of it?

00:24:15 P Yes. Now yaw right ... the other way.

00:24:16 CC Gemini VII, Houston. We'd like you to use the crossfeed valve to bring the O₂ pressure up.

00:24:19 C Roger. Understand. Using crossfeed. Okay, Jim.

00:24:22 CC Roger.

00:24:26 P Okay. Stand by. Let's go through this thing carefully here.

00:24:30 C It's starting to come back up now, Houston. Gemini VII. The O₂ pressure is now starting to come back up.

00:24:31 C Houston, Gemini VII. The O₂ pressure is now starting to come back up.

00:24:36 CC Roger, VII.

00:24:38 P Ask if they still want us to use the crossfeed.

00:24:40 C Still have to use the crossfeed. We've a reading of 125 now.

00:24:44 CC Roger. 125 pounds.

~~CONFIDENTIAL~~

CONFIDENTIAL

21

00:24:45 C You still want us to use the crossfeed? We're reading 125 now. Which is it? Just on one section, Jim?

00:24:52 P Yes. Section 2. ...

00:24:53 CC Gemini VII, Houston. Would you bring the O₂, fuel cell O₂ pressure up to 250 pounds and then you can turn the crossfeed off?

00:25:02 C Okay. Jim.

00:25:03 P Okay. Go ahead ...

00:25:09 C We want this on PRIMARY - PRIMARY.

00:25:10 CC Gemini VII, Houston. Did you copy?

00:25:13 C Roger.

00:25:14 CC Did you copy the 250-pound pressure?

00:25:15 C Roger. 250 pounds - -

00:25:16 C I'll get it.

00:25:18 P This is VII. Roger. We're closing the crossfeed now and we'll go to 250 pounds.

00:25:19 P I'll get it. This is VII. Roger. We're in the ... crossfeed is on feed now, and we're both at 250 pounds. Is it on 250?

00:25:25 CC Roger.

00:25:26 C Yes, yes; you got it. Turn it off.

00:25:28 P Okay.

00:25:31 P This is VII, Houston. We're already up there. Crossfeed is now off.

00:25:35 CC Roger. Understand. You have 250 pounds and crossfeed is off.

00:25:36 P This is VII, Houston. We're already up there. Crossfeed is now off.

CONFIDENTIAL

CONFIDENTIAL

00:25:41 P That's Roger.

00:25:43 CC Is the Delta-P light still off, or still on, or has it gone off?

00:25:48 P This is VII. Delta-P light in Section 2 is still on.

00:25:52 CC Roger.

00:25:55 C Houston, will you give us an update on the time again to go to FLOW on the radiator ...?

00:26:01 CC That was 37 minutes.

00:26:04 C Roger. 37. Thank you.

00:26:12 P Okay.

00:26:34 CC Gemini VII, Houston.

00:26:36 C Come in, Houston.

00:26:38 CC Would you say again the time of your burn?

00:26:42 C 22 plus 17.

00:26:44 CC Roger. Understand. 22 plus 17.

00:26:48 C That's for 20 seconds.

00:26:50 CC Roger. 20-second burn.

00:27:04 P Okay. It's still up on 27, right?

00:27:05 C Right. I can't see star one, can you?

00:27:09 P I can when I turn off - turn on the lights.

00:27:16 P Oh, shoot!

00:27:17 C What's wrong?

00:27:19 CC Gemini VII, Houston. Is the D-4/D-7 going satisfactorily?

00:27:21 P Recorder.

CONFIDENTIAL

CONFIDENTIAL

23

00:27:22 C What?
00:27:25 P Roger.
00:27:26 CC Roger.
00:27:52 C Wish that fuel cell Delta-P light would go off.
00:27:55 P Yes.
00:28:28 C Okay. We're at 20. Let's pick up the flight plan and get a little organized now.
00:28:29 P Right.
00:28:31 P Okay. We're organizing at 28. We've got to turn off the computers.
00:28:36 C All right.
00:28:40 P Computers on PRELAUNCH.
00:28:45 P Right. Wait 48 seconds.
00:28:46 C Right. How are all the other things doing?
00:28:52 P Good, good; it all looks good.
00:28:53 C Okay. Computer ...
00:29:14 P Okay. The next thing coming up is the --
00:29:26 C Boy, this thing is really boresighted great, Jim!
00:29:28 C What's the next thing?
00:29:37 P Okay. At 37:35. I'm taking 2 minutes off your line and go for half a minute.
00:29:50 C What? Take it off for 2 minutes.
00:29:55 C Say again.
00:29:57 P Okay. I'll repeat. Aline spacecraft so that the booster is 2 degrees outside of the field-of-view for half a minute.

CONFIDENTIAL

CONFIDENTIAL

00:30:02 C Roger. Going off.

00:30:04 C It's now 2 degrees outside.

00:30:05 P D-4/D-7: We're outside the field of view for half a minute at 30:13. At 371:00: radiator went to low. At 38 plus 00: D-4/D-7 going outside the booster field of view for 1/2 minute; D-4/D-7: at 38 plus 30, going back on booster; at 42:40, correction - 43:00 - D-4/D-7: booster alinement is in line with the moon at this time, and I think that D-4/D-7 might be compromised by picking up ... The moon now, is about 2 degrees right of the booster and 43:20 for D-4/D-7.

TANANARIVE

00:36:52 CC Gemini VII, Houston CAP COM. Remoting through Tananarive. Do you read?

00:37:07 CC Gemini VII, Houston CAP COM. Do you read through Tananarive?

00:37:38 CC Gemini VII, Gemini VII, Houston. How do you read?

00:37:56 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

00:38:23 CC Gemini VII, Houston CAP COM. Broadcasting in the blind. We would like you to turn the fuel cell O₂ heater off if you are maintaining at least 250 pounds.

00:43:23 C Thank you.

CARNARVON

00:49:38 CC Gemini VII, Carnarvon CAP COM.

00:49:40 C Read you loud and clear, Carnarvon. Go ahead.

00:49:43 CC Roger. If your ECS O₂ tank pressure reads 200 psi would you turn your heater off?

CONFIDENTIAL

CONFIDENTIAL

25

00:49:51 C Roger.

00:49:55 P VII, fuel cell ...

00:49:56 C Heater is off. It's reading 700.

00:50:04 CC Would you say again, please?

00:50:05 C Heater on, Carnarvon.

00:50:11 CC That's the fuel cell O₂?

00:50:17 CC Gemini VII, Carnarvon CAP COM. Fuel cell O₂ tank pressure, once it reads 200, turn your heater to the OFF position.

00:50:28 C Roger. It's off.

00:50:29 CC Roger. Thank you.

00:50:31 C And we still have the Delta-P light. Do you have any instructions on that?

00:50:34 CC Negative. Not at this time.

00:50:37 C Okay.

00:50:42 CC Okay, we have you GO on the radiator. Would you turn your evaporator to NORMAL.

00:50:47 C Roger.

00:50:50 P Evaporator is NORMAL.

00:50:52 CC Roger.

00:51:02 CC Okay, Gemini VII, we have you GO for 17-1. We're going to update your T_R at this time.

00:51:11 C Say again, please.

00:51:13 CC Roger. You are GO for 17-1.

00:51:18 C Thank you. GO for 17-1.

00:51:20 CC Roger. We're going to update T_R.

CONFIDENTIAL

CONFIDENTIAL

00:51:23 C Roger.

00:51:29 P ... update ...?

00:51:44 CC Houston advises that they do not have any solution for this Delta-P light at the present time. They think it might possibly be a reg pressure or a faulty Delta-P light.

00:51:59 C Roger.

00:52:01 CC We have your T_R updated. It is in sync with the ground.

00:52:06 C Thank you.

00:52:15 P Carnarvon, this is VII. D-4/D-7 powering down.

00:52:22 CC Roger. Copy powering down D-4/D-7.

00:52:35 CC Gemini VII, your GMT lift-off was 19:30:03. 19:30:03.

00:52:45 C Roger.

00:53:02 CC Gemini VII, would you confirm that your C-Band adapter is on in CONTINUOUS?

00:53:14 C It's in CONTINUOUS now; we have it in the COMMAND position.

00:53:18 CC Roger. Understand.

00:53:33 CC Gemini VII, Carnarvon. We're standing by for your main battery readouts.

00:53:38 C Thank you.

00:54:46 CC Gemini VII, Carnarvon.

00:54:49 C Go ahead, Carnarvon. Gemini VII.

00:54:51 CC Roger. Do you have a GET of a D-4/D-7 Separation Maneuver?

00:55:00 C Roger. It was 22 plus 17.

CONFIDENTIAL

CONFIDENTIAL

27

00:55:04 CC Roger. Copy. 22 plus 17.

00:55:43 P Carnarvon, this is Gemini VII. Stand by for the fuel cell tank readouts.

00:55:49 CC Roger.

00:55:51 P 1A, 7 amps, 27 volts; 1B, 7 amps, 27 volts; 1C, 8 amps, 27 volts; 2A, 6 amps, 27 volts; 2B, 6 amps, 26.9 volts; 2C, 8 amps, 26.9 volts.

00:56:18 CC Roger.

00:56:20 CC We are standing by for a readout on the main batteries.

00:56:26 P Roger. This is VII with a main of 26 volts. Stand by, Carnarvon.

00:56:36 CC Roger.

00:57:49 P Carnarvon, this is Gemini VII.

00:57:52 CC Roger.

00:57:54 P Four batteries are reading between 22 and 22-1/2.

00:57:59 CC Roger. Copy. Between 22 and 22-1/2. You can expect your power-down at 1 hour per normal flight plan.

00:58:09 P Gemini VII. Roger.

CANTON ISLAND

01:11:49 CC Gemini VII, Gemini VII, Houston CAP COM. Do you read?

01:12:02 CC Gemini VII, Houston CAP COM. Do you read?

01:12:12 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

01:12:18 C This is Gemini VII, Houston. Read you weak but clear.

CONFIDENTIAL

CONFIDENTIAL

01:12:22 CC Roger. Understand you are reading weak but clear. We are continuing to analyze the Fuel Cell light. We expect to have some procedures to analyze it further. We will pass those to you as soon as we are ready, probably over the States.

01:12:45 C Roger ... Understand.

01:12:51 CC Gemini VII, you are very weak here. Would you confirm that the Delta-P light is still on?

01:13:01 C This is Gemini VII. The Delta-P light is still on.

HAWAII

01:17:49 CC Gemini VII, Hawaii CAP COM.

01:17:51 C Go ahead Hawaii, Gemini VII.

01:17:53 CC How you doing up there?

01:17:55 C Very good. Except for the Delta-P light, everything is normal.

01:17:58 CC Okay. You're looking real good here on the ground. I'd like a readout of your OAMS propellant quantity.

01:18:04 C Roger. OAMS propellant quantity reads 82 percent.

01:18:08 CC Roger. You have ceased your stationkeeping?

01:18:11 C No. Not yet.

01:18:13 CC Okay.

01:18:15 C ... booster ... no longer have in sight.

01:18:18 CC Roger. Understand.

01:18:59 CC All right. We'll be standing by if you need anything from us.

01:19:02 C Roger, Hawaii.

01:19:17 CC How about a GET time hack?

CONFIDENTIAL

CONFIDENTIAL

29

01:19:20 C Roger.

01:19:22 CC Okay. Set up 80 minutes to count up. I'll give you a time hack in about 30 seconds.

01:19:26 C Roger.

01:19:50 CC 10 seconds.

01:19:57 CC 3, 2, 1.

01:20:00 CC MARK.

01:20:01 C Roger. Understand. 80 minutes, we're right on time.

01:20:04 CC Very good.

01:20:17 C The D-4/D-7 recorder was on for 26 minutes.

01:20:20 CC Understand.

GUAYMAS

01:28:16 CC Gemini VII, Guaymas CAP COM.

01:28:19 C Go ahead, Guaymas. You're loud and clear.

01:28:21 CC Roger. Everything looks good on the ground. We'd like to remind you of a critical tape dump over Texas at elapsed time of 1 hour and 30 minutes.

01:28:30 C Roger. Understand. We are in HORIZON SCAN. We should be in good shape.

01:28:33 CC Roger.

TEXAS

01:31:21 CC Gemini VII, Houston CAP COM. How do you read?

01:31:29 CC Gemini VII, Houston CAP COM. How do you read?

CONFIDENTIAL

CONFIDENTIAL

01:31:32 C Loud and clear, Houston. Go ahead.

01:31:35 CC Roger, Frank. We've been continuing to discuss the Fuel Cell light, and the feeling at the present time is we want to continue to observe it and probably wait at least through your fuel cell purge. We do not see any problem that this could present, and we feel that that will be a meaningful factor to help us understand what's going on, or else we're going to continue to observe the oxygen quantity. Do you have any comments you'd like to feed in at this point?

01:32:11 C Roger. We're just getting the critical tape dump ... just jumped up. The only thing I was wondering about is, do you want us to open the crossover valve to see if that does any good?

01:32:21 CC Well, that's one thing we're considering, Frank, but we do not want to do that yet.

01:32:26 C Okay.

01:32:30 C We're getting ... oxygen quantity now is about 99 - almost 100 percent and the oxygen pressure is dropping again. It's now down to 230.

01:32:41 CC Down to 230?

01:32:43 C Roger.

01:32:44 CC Roger.

01:32:49 CC And you say 99 to 100 percent on quantity?

01:32:53 C Roger. The quantity is just almost 100 percent.

01:32:57 CC Roger.

01:33:00 CC And could you describe the Stationkeeping Exercise for us a little better? As best we could - we had pretty bad communications before. It's very good now. We understood that the booster was venting quite excessively and tumbling quite a bit and this somewhat complicated the stationkeeping procedure. That is, it required quite a bit of maneuvering but you were able to do it all right.

CONFIDENTIAL

CONFIDENTIAL

31

01:33:25 C ... Roger. We are staying within about 50 feet of it. It was venting excessively and this required a little more maneuvering fuel than we had anticipated ...

01:33:37 CC Roger.

01:33:40 C We had difficulty getting a good glimpse of it because it was almost directly in front.

01:33:46 CC Roger. And was there any particular direction that this excessive venting caused you to have to maneuver? Was it left, right or up, down or back and forth, or just what did it cause?

01:33:59 C It was initially up and we had to maneuver up and then to the left.

01:34:04 CC Primarily up and to the left initially?

01:34:07 C That's affirmative. The ... looked like an ... and down the side of the booster.

01:34:14 CC Roger.

01:34:17 C ... The platform mode did not help much. I went out of platform because we were - we got too far above it for a while.

01:34:27 CC Roger. Understand. Did you actually terminate the stationkeeping on your OAMS cutoff point?

01:34:37 C Roger. We terminated and started our separation early because we got to 88 percent vent.

01:34:45 CC Roger.

01:35:10 CC Gemini VII, Houston. For your information, on the Fuel Cell light, we think the problem is probably the regulator. Irritator water regulator. And we - incidentally, in case you haven't been informed, we do have an indication on the ground that your light is due to an O₂ H₂O pressure being out of ...

01:35:37 C Gemini VII, Roger.

01:37:16 CC Gemini VII, Houston. I have a node update if you're ready to copy.

CONFIDENTIAL

CONFIDENTIAL

01:37:25 C This is VII. Stand by, please.
01:37:27 CC Roger.
01:37:55 C Go ahead. We're ready to copy.
01:37:57 CC Roger.
01:37:58 CC Time: 02:42:32; Rev 2; 160.8 degrees east; 13:49:41, right ascension. Do you copy?
01:38:09 C Roger. Node at Time 2 plus 42 plus 32. Rev 2, 160.8 degrees east; 13 plus 49 plus 41, right ascension.
01:38:24 CC That's correct, Gemini VII.
01:39:06 CC Gemini VII, Houston. We'd like to make a Com check with you now if it's a convenient time.
01:39:16 C This is VII. Roger.
01:39:28 CC This is Houston standing by for your call.
01:39:56 C Gemini on UHF Number 2. How do you read? Over.
01:39:59 CC I read you loud and clear on UHF Number 2. How me?
01:40:03 C Roger. Read you loud and clear.
01:40:05 CC Roger. You want to check out the HF also?
01:40:08 C Roger. We'll check out the HF. Stand by a second.
01:40:12 CC Thank you.
01:41:06 C Roger, VII; have you on UHF.
01:43:17 C Gemini VII here. Houston, how do you read?
01:43:20 CC Loud and clear, VII. Go ahead.
01:43:23 C I have a bogey at 10:00 o'clock high.
01:43:31 CC This is Houston. Say again, VII.
01:43:34 C Said we have a bogey at 10:00 o'clock high.

CONFIDENTIAL

CONFIDENTIAL

33

01:43:37 CC Roger.

01:43:50 CC Gemini VII, is that the booster or is that an actual sighting?

01:43:55 C ...

01:43:59 CC Say again, VII.

01:44:01 C Said ... we have several - looks like ... actual sighting.

01:44:05 CC Do you have any more information, estimated distance, or size?

01:44:11 C We also have the booster in sight.

01:44:14 CC Understand you also have the booster in sight.
Roger.

01:44:17 C ... there are very many - looks like hundreds of little particles going by from the left out about 3 or 4 miles.

01:44:33 CC Understand you have many small particles going by on the left. At what distance?

01:44:40 C ... looks like ...

01:44:48 CC Roger. Understand they're about 3 or 4 miles away?

01:44:52 C They're past now; they're in a polar orbit.

01:44:55 CC Roger. And understand they were about 3 to 4 miles away?

01:45:00 C That's what it appeared like, or further.

01:45:03 CC Roger.

01:45:04 CC Gemini VII, Houston. Were these particles in addition to the booster and the bogey at 10:00 o'clock high?

01:45:25 C ...

01:45:28 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

01:45:29 C Houston, this is VII.
01:45:33 CC Go ahead.
01:45:34 C I have the booster on my side and the brilliant body of the sun against a black background with billions of particles around it.
01:45:43 CC Roger. What direction is it from you?
01:45:56 C It's about 2:00 o'clock position.
01:45:51 CC Does that mean it's ahead of you?
01:45:55 C It's - ahead of us at 2:00 o'clock and it's slowly tumbling.
01:45:59 CC Roger.
01:52:44 P D-4/D-7, D-4/D-7 at 1 plus 52 plus 54; 12 plus 52 plus 34, 2 minutes in void measurements. Void measurement is completed; going to take a measurement on Rigel - take a measurement on Rigel. Stand by for a time.
01:54:30 CC Gemini VII, Houston CAP COM.
01:54:33 C Go ahead Houston, Gemini VII.
01:54:35 CC Roger. We're in contact at Ascension. We have no special messages. We're standing by.
01:54:38 C We'll continue our D-4/D-7 on - at this time.
01:54:42 CC Roger.
01:56:55 P D-4/D-7 at 01 plus 56 plus 53; 2 minutes of measurement on Rigel; recorder on. At approximately 1 plus 57 booster is deadhead.
01:57:16 C Thank you.
02:01:20 P Roger. At 2:01:17 we're taking recordings on boosters. This is right near Sirius. Who takes the measurement on the booster? Then it will go right down to Sirius. 2 minutes off the booster and then we're going to 2 minutes on Sirius

CONFIDENTIAL

CONFIDENTIAL

35

at 2:03:09. D-4/D-7 at 2 plus 04 plus 40; 2 minutes on Sirius; D-4/D-7 complete. D-4/D-7: we have turned on the recorder at 2 plus 12 plus 29 to pick up the horizon. We didn't turn on any sooner because of the long time to get down. At approximately 2 hours 31 minutes 17 seconds: both ECS bypasses are connected at this time. At 2 plus 39 - 2 plus 39: M-1 experiment connected and operating. At 3 hours and 2 minutes the fuel cell O₂ heater back on. Momentarily, the pressure of the Fuel Cell O₂ went down to 200. Fuel Cell O₂ heater going off at 3 plus 28 plus 26. At 4 hours 00:00 minutes, seconds: BIO MED Tape Recorder Number 2 is off. At 4 hours and 15 minutes the FC O₂ heater was on; pressure was at 200.

02:12:53 CC Gemini VII, Houston CAP COM. How do you read?

02:12:58 C Loud and clear, Houston. This is Gemini VII. Go ahead.

02:13:01 CC Roger. Just checking communications through Tananarive. We weren't able to get you last time. We have no additional information. Standing by.

02:13:13 C ... understand ...

02:13:22 CC Would you say again, Gemini VII?

02:13:25 C We tracked the booster this pass ...

02:13:30 CC Roger. Is that with the D-4 experiment?

02:13:33 C That's it.

02:13:35 CC Okay.

02:13:44 CC Gemini VII, Houston. Are you getting a reading on your OAMS gage for the experiment position?

02:13:51 C That's right. ... we turned the heater back on - pressure decreasing - the fuel cell O₂ heater is on.

02:14:02 CC Understand your fuel cell oxygen pressure decreased below 200 pounds so you have turned the heater back on.

CONFIDENTIAL

CONFIDENTIAL

02:14:11 C Affirm.
02:14:15 CC Is that correct?
02:14:16 C Affirmative. Roger.
02:14:18 CC Roger.

CARNARVON

02:24:37 CC Gemini VII, Carnarvon.
02:24:39 C Go ahead, Carnarvon. Gemini VII.
02:24:41 CC Roger. We have you - your T/M solid on the ground.
02:24:45 CC You're looking good here.
02:24:47 CC Also, we would like to tell you we had very little damage to Pad 19, and they are on schedule with the VI vehicle.
02:24:56 C Roger, Carnarvon. And thank you. And for your information, our Delta-P light blinked off at 2 minutes and 22 seconds, but then it came right back on again.
02:25:05 CC Roger. Understand.
02:26:15 CC Gemini VII, Carnarvon.
02:26:17 C Right, Carnarvon. Gemini VII.
02:26:19 CC Would you turn your Quantity Read switch to the FUEL CELL O₂ position, please?
02:26:22 C Roger.
02:26:26 C FUEL CELL O₂. I read 99.9 percent and 250 pounds.
02:26:36 CC Roger. Copy 99.9, 250 pounds.
02:26:40 C Roger.
02:26:42 C How does it look to you?

CONFIDENTIAL

CONFIDENTIAL

37

02:26:46 CC Wish you were 100 percent on the ground, VII.
02:26:49 C Thank you.
02:26:59 CC Okay. You should return it to the OFF position, VII.
02:27:03 C Okay. I have the heater back off now. It was down to ... when we turned it off, but it's off now.
02:27:10 CC Roger. Understand.
02:27:16 C Carnarvon, will you check with Houston to see if there are any special purge instructions for the purge coming up?
02:27:26 CC Roger. There are no special instructions, just a normal purge.
02:27:29 C Very well, thank you.

HAWAII

02:50:29 CC Gemini VII, Hawaii CAP COM.
02:50:30 C Hawaii CAP COM, Gemini VII.
02:50:32 CC How you doing?
02:50:33 C Very good.
02:50:34 CC Okay. We show you GO down here. They're going to do a fuel cell purge over Texas and they want you to be ready for it and they will advise you when they want you to start. They're going to wait till they get good telemetry at that time.
02:50:46 C All right.
02:50:47 CC All right.
02:50:52 C Would you tell them we would like to have a good star reference for the Apogee Maneuver too?
02:50:58 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

02:51:35 CC All right. We'll be standing by if you need anything.

02:51:36 C Thanks, Hawaii.

02:51:39 C You might tell them we have activated the M-1 experiment.

02:52:00 CC Okay. Will you give me the time that you activated M-1?

02:52:03 P Roger, Hawaii. This is VII.

02:52:12 P Activated M-1 2 plus 39 plus 30.

02:52:17 CC Two plus what?

02:52:20 P 2 plus 39 plus three zero.

02:52:23 CC Okay. I've got that.

02:52:57 P Hawaii, this is VII.

02:52:59 CC Go ahead.

02:53:00 P By my calculations, we have approximately 20 minutes and 10 seconds left on the D-4/D-7 recorder.

02:53:07 CC Roger. Understand.

GUAYMAS

03:02:30 CC Gemini VII, Guaymas CAP COM.

03:02:38 P This is VII. Go ahead.

03:02:41 CC Roger. Everything looks good on the ground. Houston will update the maneuver time and the star update that you requested with a new acquisition in Texas. And they will be standing by for your fuel cell purge.

03:02:58 P This is VII. Roger. And be informed we have just spotted the booster ahead and below. Quite aways out.

CONFIDENTIAL

CONFIDENTIAL

39

03:03:06 CC Roger.

03:04:44 CC Gemini VII, Houston CAP COM. How do you read?

03:05:09 CC Gemini VII, Houston CAP COM. How do you read?

03:05:13 C Loud and clear ...

03:05:15 CC Roger. We're ready for you to start your fuel cell purge now and you might - stand by a minute, stand by VII -

03:05:25 CC Gemini VII, now we're ready for you to start your fuel cell purge and you might observe the Fuel Cell light when you turn the crossover valve on. We think it may go off at that time.

03:05:36 P Roger. Understand.

03:05:40 P Starting purge. The crossover valve is on but the light did not go out.

03:05:47 CC Roger.

03:09:14 C Houston, this is Gemini VII. The booster is just passing the horizon, the outer air ...

03:10:07 CC Gemini VII, we observe you've completed your - negative, we understand you're still purging.

03:10:13 C That's Roger.

03:10:15 C How do you read now, Houston?

03:10:17 CC Loud and clear.

03:10:18 C Did you get my information about the booster crossing the horizon?

03:10:21 CC Roger. We did. I was off the channel myself but someone else heard it.

03:10:33 CC Still got that Delta-P light?

03:10:35 C Roger.

03:10:36 CC Did you get lights during the hydrogen purging?

CONFIDENTIAL

CONFIDENTIAL

03:10:38 C Negative. Can't tell; it's been on all the time.

03:10:43 CC Did you get the Section 1 light on during the hydrogen purging?

03:10:47 C Negative.

03:10:48 CC Roger.

03:10:52 C Fuel cell purge is complete.

03:10:54 CC Roger. Fuel cell purge complete. Any change in the light?

03:10:58 C Negative. We have reported that it did blink off once. Did you get that information?

03:11:02 CC Yes, that was back at 2 plus 22.

03:11:06 C That's affirmative.

03:11:07 CC Roger. No change during the purge then?

03:11:10 C No change at all.

03:11:11 CC Roger.

03:11:18 CC Okay, Gemini VII. I have some other information here for you if you're ready to copy.

03:11:24 C Stand by a minute.

03:11:34 C Roger. Go ahead.

03:11:39 C This is Gemini VII. Give us the information.

03:11:43 CC Okay, VII. You're ready to copy?

03:11:46 C Roger.

03:11:48 CC Okay. We have observed that your fuel usage is running a little high. You're running about 10 to 15 pounds high on the fuel usage, so minimize the fuel consumption as best you can. It looks like Spica is a good pointing star for your Perigee Adjustment and we are double-checking that now. I have an MSC-2 and 3 update. Are you ready to copy?

CONFIDENTIAL

CONFIDENTIAL

41

03:12:14 C Roger. Go ahead.

03:12:16 CC Time: 3 plus 30 plus 00; Sequence 02; boom extend; 6 plus 30 plus 00; off at 13:00:00.

03:12:41 CC Did you copy?

03:12:44 C Roger. We copied.

03:12:46 CC I have your perigee update - Perigee-Adjust Maneuver update, if you're ready to copy it.

03:12:53 C Roger. Go ahead.

03:12:56 CC GET of the burn: 3 plus 47 plus 59; Delta-V, 59; burn time, 1 plus 17; pitch 0, yaw 0; thrusters, aft; maneuver, posigrade. Do you copy?

03:13:23 C Roger. We copied.

03:13:27 CC Gemini VII, would you read that back?

03:13:30 C Roger. Understand. 3 plus 49 - correction - plus 47 plus 59; Delta-V, 59; Delta-P, 1 plus 17, 0, 0, 0 pitch, 0 yaw and thrust posigrade and ...; good evening star is Spica.

03:13:47 CC That's right. And that's with aft thrusters.

03:13:52 C Roger. Aft thrusters.

03:14:03 CC Gemini VII, we also would like to know how you like it up there.

03:14:08 C It's great!

03:14:10 P Outstanding!

03:14:13 CC You can cover up the Delta-P light if you want, if it would help.

03:14:20 C No, it's okay. It's just making us feel at home now.

03:14:25 CC Keeping you warm, right?

03:14:28 C Just like those 104's fire-warning lights all the

CONFIDENTIAL

CONFIDENTIAL

time. You know. You ought to know all about that.

03:14:35 CC That's a low blow!

03:16:22 CC Gemini VII, Houston. Would you place your ECS Quantity - your Quantity Read switch to the ECS O₂ position for approximately 15 seconds?

03:16:32 C Roger. ECS O₂ switch position.

03:17:38 CC Gemini VII, Houston CAP COM. Gemini VII, Houston CAP COM.

03:17:41 C Yes, Houston. Gemini VII.

03:17:44 CC The pointing command for Spica would be 12 degrees pitch up, 8 degrees yaw right. So that shows you how close it is for pointing.

03:18:14 CC Gemini VII, Houston CAP COM. Do you read?

03:18:27 CC Gemini VII, Houston CAP COM broadcasting in the blind. We have very rough signal with you at the present time. Confirming that Spica is a good pointing - pointing reference for you on your burn.

03:18:44 C I understand, Spica.

03:18:45 CC Roger. Spica is very close.

03:18:48 P Did you receive my message about the booster light still blinking?

03:18:52 CC Negative.

03:18:54 P ... still blinking.

03:18:58 CC Say again, Gemini VII. We read you pretty good now.

03:19:02 P I say: the booster is in front of us and the light's still blinking.

03:19:05 CC Roger. Booster in front of you and light still blinking.

CONFIDENTIAL

CONFIDENTIAL

43

03:26:15 CC Gemini VII, Houston CAP COM. How do you read?

03:26:25 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

03:26:45 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read through Ascension?

03:26:52 C Houston, this is VII. How do you read?

03:26:55 CC Roger. Read you loud and clear. Based on the results during the purge, we feel that the Delta-P light may very possibly be erroneous; at any rate, we do not see a problem of a short-time nature. We will continue to observe it. We are not very concerned about it at this point and we'd like you to feel the same way.

03:27:21 C This is VII and I thank you for your information that the light is not dangerous.

03:27:25 CC Roger.

03:32:17 CC Gemini VII, Houston CAP COM.

03:32:21 C This is Gemini VII.

03:32:24 CC Roger. I'd like to advise you Spica is not a perfect pointing command. Are you aware of that?

03:32:39 CC Gemini VII, do you read?

03:32:40 C Roger, we read. Spica is a little bit to our right. Is that not correct?

03:32:45 CC The pointing command to Spica would be 8 degrees yaw right and 12 degrees pitch up, so for your purposes you would want to go left and down.

03:33:04 C Roger.

03:33:05 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

TANANARIVE

03:43:49 CC Gemini VII, Houston CAP COM.

03:43:52 P Hello Houston, Gemini VII.

03:43:55 CC Roger. We're standing by for your burn. No special information.

03:46:50 CC Gemini VII, Houston CAP COM. We're coming up on 1 minute till your burn.

03:46:55 C Roger.

03:46:58 CC Mark 1 minute till burn.

03:47:02 C Roger.

03:49:30 C Houston, how do you read? Gemini VII.

03:49:32 CC Loud and clear, Gemini VII.

03:49:34 C Roger. The burn is completed; we were interrupted for about 2 seconds in the middle but we burned for one plus one seven.

03:49:43 CC Understand you burned for one plus one seven. The burn was interrupted for a couple seconds but you did burn a total of 1 plus 17.

03:49:54 C That's Roger and we hit something during the burn.

03:50:01 CC Understand you hit something during the burn.

03:50:08 C Houston, this is Gemini VII. During the burn something came far to the right of the window. It looked like a strap or piece of paper, or something of that nature.

03:50:22 CC Understand something came by the right window, like a piece of tape.

03:50:29 P Roger. It looked like a strap of some sort and I believe it was attached to the spacecraft.

03:50:36 CC Like a piece of strap from the spacecraft?

CONFIDENTIAL

CONFIDENTIAL

45

03:50:48 CC Gemini VII, did it look like this came from the nose section?

03:50:54 C No. It looked like it came from behind, and came up and hit right in front of the right window, then bounced off again and I haven't seen it since.

03:51:05 CC Roger. And this was during the burn?

03:51:08 C That's affirmative.

03:51:10 CC Roger.

CARNARVON

04:00:29 CC Gemini VII, Carnarvon CAP COM.

04:00:32 P VII. Go ahead.

04:00:33 CC Roger. We'd like to have you turn BIO MED Tape Recorder Number 2 off, please.

04:00:39 P Roger. That's just completed.

04:00:41 CC Roger.

04:00:53 CC That BIO MED Tape Recorder went off at 23 hours, 30 minutes and about 30 seconds - something like that.

04:01:28 CC Gemini VII, Carnarvon CAP COM. Would you give me a readout on your OAMS propellant quantity, please?

04:01:35 C Roger. It reads 67 percent.

04:01:38 CC Roger. Copy 67 percent.

04:01:41 C Now give us a reading on how we stand on that, will you please?

04:01:45 CC Roger.

04:01:51 CC Stand by one. Flight will come up with something.

04:02:04 CC What - do you have ACQ over Hawaii? Acquisition time?

CONFIDENTIAL

CONFIDENTIAL

04:02:09 CC Stand by.

04:02:10 CC Okay. Gemini VII, that's real good. We're going to have the critical tape dump over Hawaii instead of Texas, and also - -

04:03:09 CC Gemini VII, you will be updated with your OAMS usage information over Hawaii.

04:03:15 P VII, Roger.

04:03:20 CC That's all we have for you at this time and we're standing by.

04:03:23 C Roger. Thank you.

04:05:48 CC Gemini VII, Carnarvon. We have indication here on the ground of an oral temperature from the Pilot. Does he have a probe inserted at the present?

04:06:01 P This is VII. Negative. No oral temp.

04:06:03 CC Roger. Thank you.

HAWAII

04:25:13 CC Gemini VII, Hawaii CAP COM.

04:25:15 C Go ahead, Hawaii.

04:25:18 CC How are you doing up there?

04:25:33 CC ... usage status so get ready to copy that.

04:25:34 C Roger.

04:25:47 CC Okay. You ready to copy your OAMS data?

04:25:58 C Roger, Hawaii, Gemini VII is ready; go on.

04:26:00 CC Okay. Up to Perigee Adjust we show 71 percent actual OAMS remaining. That's seven one percent.

04:26:08 C Roger. Understand. Seven one percent. My gage is off by 4 percent.

CONFIDENTIAL

CONFIDENTIAL

47

04:26:12 CC Okay. This is 20 pounds. Two zero pounds of propellant more than nominal predicted for this time. However, Perigee Adjust was two three, 23 feet per second greater than nominal. Therefore, we're right on the profile for actual mission activity.

04:26:32 C Roger. Understand. We're right on the profile.

04:26:34 CC Roger. And your new orbit is 120 by 174.

04:26:42 C Roger. Understand. 120 by 174 and our OAMS is right on the money.

04:26:47 CC There you go.

04:27:18 C Hawaii, this is Gemini VII.

04:27:20 CC Go ahead, Gemini VII.

04:27:22 C Roger. We have requested a change in crew status reports to delay the one at 4:40. Will you assure that Houston knows about that?

04:27:28 CC I'll check on that.

04:28:44 CC Gemini VII, Hawaii.

04:28:46 C Go ahead Hawaii, Gemini VII.

04:28:48 CC Are you saying you want to get this crew status delayed to a later time?

04:28:51 C That's Roger.

04:28:53 CC About how long do you want to have it delayed?

04:28:55 C Till the next ...

04:28:59 CC Roger.

04:29:02 C ...

04:29:08 CC Okay. Okay, they'll take care of that for you.

04:29:10 C Thank you.

CONFIDENTIAL

CONFIDENTIAL

GUAYMAS

04:37:12 CC Gemini VII, Guaymas CAP COM.
04:37:15 C Go ahead Guaymas, Gemini VII.
04:37:17 CC Roger. Everything looks good here on the ground.
04:37:20 C Roger. Thank you. We're in the process of getting shipshape here for 14 days.
04:37:26 CC Roger. Understand. We have nothing for you this pass. We'll be standing by.
04:37:30 C Thank you.

HOUSTON

04:42:32 CC Gemini VII, Gemini VII. Houston CAP COM. How do you read? Over.
04:42:36 P This is VII. Read you loud and clear, Houston.
04:42:49 CC Roger, Jim, reading you loud and clear. I've got a few questions on this strap I'd like to ask you and then we'll forget about it. Was the - was it a strap or was it a tape such as a reflective tape?
04:42:58 P Houston, this is Gemini VII; you were cut out completely; say again.
04:43:02 CC Roger, Gemini VII. I've got a few questions on this strap you saw at the window during your burn and I'll ask them and then we can forget about it. Was it a strap or was it possibly some tape such as reflective tape?
04:43:19 P This is VII. It was hard to tell. It was at nighttime. It looked like the strap might have been tape but it came forward and slapped on the front of the spacecraft. Just now we saw the shadow of the tape on the nose. The nose is in the sunlight and the shadow went on by, but I can't tell from the shadow what it was.

CONFIDENTIAL

CONFIDENTIAL

49

04:43:40 CC Roger. Understand that you've got a shadow. Then you might think it's still attached at one end to the spacecraft?

04:43:45 P I'm fairly certain it's still attached. It might be some body tape between the booster and adapter, or something like that.

04:43:52 CC Roger.

04:44:43 CC Gemini VII, Gemini VII, Houston CAP COM. Over.

04:44:49 P Roger. This is Gemini VII.

04:44:52 CC Roger. I'd just like to remind you that these Maurer film magazines --

04:44:58 P ...

04:44:59 CC Say again.

04:45:01 P You're not coming through. You're breaking up badly.

04:45:04 CC Roger, Gemini VII. How do you read now?

04:45:07 P Clear now.

04:45:09 CC Roger. I'd like to remind you that these Maurer film magazines should be in plastic bags to contain any outgassing. Over.

04:45:18 P We will take care of that as soon as we get them out.

04:45:20 CC Okay.

04:46:17 CC Gemini VII, Gemini VII, Houston. We'd like you to go to Fuel Cell H₂ on your quantity gage for about 15 seconds.

04:46:26 C Roger.

04:46:31 C Gene, you're still not keying good ...

04:46:37 CC Roger. Understand it's still quite broken.

CONFIDENTIAL

CONFIDENTIAL

04:46:40 P Roger. Understand.
04:56:05 C Okay. Stand by. This is Borman dumping urination.
Right now.
04:56:06 C It's not dumping.
04:56:45 P Are you ... up?
04:56:46 C Yes.
04:57:00 P ... off the line ...
04:57:14 C ...
04:57:15 P ...
04:57:23 C Going now.
04:57:24 P ...
04:57:38 P Do we heat that stuff on preheat?
04:57:39 C Yes. 3 minutes.
04:57:40 P How long after ...
04:57:45 C ... What we've been doing.
04:57:52 P Yes. I think they put it in wine sauce so it doesn't
freeze.
04:57:59 C Yes. That's what I'm going to do right now.
04:58:02 C Okay ... bypass.
04:58:38 C Okay. Recorder off, dump completed.

ROSE KNOT VICTOR

04:59:22 CC Gemini VII, RKV CAP COM. All systems are GO on
the ground. You need not acknowledge.
04:59:30 C We'd like to say hello, RKV. Thank you.

CONFIDENTIAL

CONFIDENTIAL

51

04:59:33 CC Roger.
05:05:19 CC Gemini VII, RKV CAP COM.
05:05:22 P This is VII. Go ahead.
05:05:24 CC Roger. Will you place the adapter C-Band switch to CONTINUOUS?
05:05:27 P ...
05:05:30 CC Roger.

TANANARIVE

05:19:31 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read? Over.
05:19:37 P This is VII. Read you loud and clear, Houston.
05:19:40 CC Roger. We would like your adapter C-Band to COMMAND.
05:19:46 C Adapter C-Band is on COMMAND.
05:19:50 CC Roger. And how does a Medical Data Pass on the Command Pilot next pass over the States sound to you? Will that be too soon?
05:20:14 CC Gemini VII, Gemini VII. We would like a Medical Data Pass on the Command Pilot next pass over Texas. How does this sound? Over.
05:20:26 P This is VII. Say again, Houston.
05:21:16 CC Gemini VII, Gemini VII, Houston. Over.
05:21:19 P This is VII. Go ahead.
05:21:21 CC Roger. I would like your adapter C-Band back to CONTINUOUS until a lapsed time of 05 plus 25. Over.
05:21:31 P Roger. C-Band is on CONTINUOUS until 05 plus 25.
05:21:37 CC Roger. Then you can go back to COMMAND.

CONFIDENTIAL

CONFIDENTIAL

05:21:40 P Roger.

05:21:42 CC I didn't understand your reply. We would like to schedule a Medical Data Pass on Frank next pass over the States. Over.

05:21:51 P This is VII. Roger. We are in the midst of ... items ...

05:22:00 CC Roger. Understand. We'll nominally schedule it for Texas on the next pass and if you can't hack it we will reschedule it.

05:22:08 P This is VII. Roger. We are still in the process of getting settled down for a long winter's flight.

05:22:14 CC Roger. We know.

COASTAL SENTRY QUEBEC

05:44:44 CC Gemini VII, CSQ CAP COM.

05:44:46 P This is Gemini VII. Go ahead.

05:44:48 CC Roger. What's your status as far as being ready for your Medical Data Passes?

05:44:56 P This is VII. I think we'll be ready.

05:44:58 CC Okay. Will you have a Medical Data Pass scheduled for the Pilot at Hawaii this revolution?

05:45:05 CC Hawaii's acquisition is 6 hours 00:27.

05:45:13 C This is VII. Would you check with Houston? I believe they want us to do a Command Pilot ... status over Texas. Over.

05:45:21 CC I'll check.

05:45:26 P Do you want to do it on the Pilot on Hawaii also?

05:45:27 CC That's right.

05:45:38 CC Gemini VII. Roger. You have one on the Pilot at

CONFIDENTIAL

CONFIDENTIAL

53

the time I gave you for Hawaii. And the Command Pilot at Texas and Texas acquisition time is 6 hours 15 minutes.

05:45:51 C Roger. Understand.

05:45:52 CC Roger.

05:45:54 CC I would like to also know if you've made plans for your sleep period.

05:46:01 P This is VII. Roger. We are giving it some consideration. We're going to eat first.

05:46:07 CC Roger. I have a map update when you're ready to copy.

05:46:27 P This is VII. Ready to copy.

05:46:28 CC Roger. Title is Node: Time, 5:41:24: Remarks, Rev 4; 115.0 east; 13 hours 45 minutes 35 seconds; right ascension. Do you copy?

05:46:57 P Roger. Have copied.

05:47:02 CC Would you verify your Cryo Gaging switch to OFF? Quantity read to OFF?

05:47:10 P This is VII. We're plotting dump temperatures at this time. We'll turn it off shortly.

05:47:15 CC Roger.

HAWAII

06:01:05 CC Gemini VII, Hawaii CAP COM.

06:01:09 CC Okay. We've got that valid oral temp. Standing by for your blood pressure.

06:01:12 P Roger.

06:01:13 CC I'll be transmitting you a Tx here shortly, so you are going to get a DCS light.

CONFIDENTIAL

CONFIDENTIAL

06:01:16 P Thank you.

06:01:41 P Hawaii. Gemini VII. Our Fuel Cell Delta-P went off and stayed off for approximately 10 minutes, or 5 minutes, and then came back on.

06:01:48 CC Okay. Well, your cuff is full-scale. Tell me what time it went off.

06:01:58 P Went off at 57 and back on at 06:01.

06:02:03 CC Roger.

06:02:17 CC Okay. We copied that. Stand by for Surgeon.

06:02:21 CC We have a good blood pressure. Standing by for your exercise on your Mark.

06:02:29 C Roger. Commencing exercise at this time.

06:02:32 C MARK.

06:03:07 CC Stand by for blood pressure.

06:03:18 CC Your cuff is full-scale.

06:03:54 CC We have a good blood pressure. Standing by for your food and water report.

06:04:00 CC Roger. Stand by.

06:04:13 C This is VII. No food. Command Pilot, 4 ounces and Pilot, 2 ounces so far.

06:04:22 CC Roger.

06:04:24 CC Okay. We confirm all that. Did you say the light was off from 57 to 01, 4 minutes?

06:04:32 C That's the approximate time. Roger.

06:04:34 CC Okay. Thank you.

06:04:36 CC You did get the DCS light, didn't you?

06:04:39 P Affirmative.

06:04:40 CC Okay.

CONFIDENTIAL

CONFIDENTIAL

55

TEXAS

06:16:13 CC Gemini VII, Gemini VII, Houston CAP COM. We have a good oral temp. Give us a blood pressure and stand by for Surgeon.

06:17:09 P Houston, Gemini VII. Are you receiving the blood pressure?

06:17:13 CC Gemini VII, this is Houston Surgeon. We are not receiving your blood pressure.

06:17:21 P ... indicated pumped up at all.

06:17:23 CC That's a negative.

06:17:25 P It's pumped up.

06:17:39 P It's now pumped up full-scale.

06:17:43 CC Roger. We are not receiving it.

06:18:25 C Houston, Gemini VII. I'll go ahead with the exercise and maybe you can try blood pressure somewhere else.

06:18:56 P Houston, VII here. Are you ready for the exercise?

06:19:04 CC Gemini VII, Gemini VII. We had a T/M dropout problem. We would like to try this again over the RKV if you are willing. Over.

06:19:11 C Roger. You mean you don't want the exercise. Is that correct?

06:19:15 CC Negative on the exercise. We would like to start the crew status report again over RKV.

06:19:21 C Give me a time, please.

06:19:22 CC Roger. Will do.

06:19:29 CC Gemini VII, Houston. RKV acquisition, 6 plus 35.

06:19:34 C Roger. Thank you.

CONFIDENTIAL

CONFIDENTIAL

06:19:35 CC Roger. The crew status report from the Lovell house remains at three.
06:19:40 C Thank you.
06:20:51 CC Gemini VII, Gemini VII. That time at the RKV looks more like about 6 plus 32, 6 plus 32.

ROSE KNOT VICTOR

06:32:46 CC Gemini VII, RKV CAP COM.
06:32:49 C Right, RKV.
06:32:50 CC Roger. All systems are GREEN. We'd like you to turn on the C-Band beacon for track at Pretoria at elapsed time of 06:46, and turn it off at 07:00.
06:33:05 C Stand by.
06:33:38 C Right. You want the C-Band on at 06:46 and off at 07:00.
06:33:43 CC Roger. Roger.
06:33:44 C How about a blood pressure? Houston wants me to give you a blood pressure.
06:33:47 CC Roger. You can start pumping the cuff up.
06:34:12 CC Gemini VII, RKV says your cuff is full.
06:35:03 CC Gemini VII, this is Surgeon. Let us now have your exercise.
06:35:15 C Roger, you're ...
06:35:45 C Exercise complete.
06:35:46 CC All right. Let us have your blood pressure again.
06:35:56 CC Okay. Gemini VII, your cuff is full.
06:36:34 CC Gemini VII, RKV Surgeon. We have your blood pressure. Do you have a water or food report for us?

CONFIDENTIAL

CONFIDENTIAL

57

06:36:45 C We've each had an additional - I've had 3, Command Pilot 3 ounces of water supply, Pilot, 2 ounces and we haven't eaten anything yet.

06:36:55 CC Roger.

06:36:59 C RKV, this is Gemini VII. What beacon do you want on at 46?

06:37:05 CC That's adapter C-Band.

06:37:08 C Okay. Thank you.

06:37:13 C It's in the CONTINUOUS position now, RKV.

06:37:25 CC ... turn it back to COMMAND and then at 06:46 put it back to CONTINUOUS.

06:37:29 C Roger. Will do.

06:37:31 CC Have you got any idea what you plan on doing about your sleep period?

06:37:35 C We're going to eat a meal and then I'm going to sleep.

06:37:38 CC Okay.

06:37:41 C We're proceeding right along the flight plan now and the pilot is doing the ... test.

06:37:47 CC Roger.

TANANARIVE

06:54:26 CC Gemini VII, Gemini VII, Houston CAP COM. I have your D-4/D-7 update if you're ready to copy. Over.

06:54:34 P Stand by.

06:55:31 P Hello, Houston. This is Gemini VII. Go ahead on the update.

06:55:35 CC Okay. D-4/D-7 update: The Time, 08:29:06; Sequence Number 411; Mode 02. Time: 09:10:20;

CONFIDENTIAL

CONFIDENTIAL

Sequence 411; Mode 02. Time: 10:44:10; Sequence 411; Mode 04; recorder on for 30 seconds. Time: 11:26:45; Sequence 411; Mode 02. That's it.

06:56:34 P This is VII. Roger on the D-4/D-7.
06:56:44 CC This is Houston. Roger.

COASTAL SENTRY QUEBEC

07:18:30 CC Gemini VII, CSQ CAP COM.
07:18:33 P This is VII. Go ahead.
07:18:35 CC Roger. You're GO on the ground. Standing by.

HAWAII

07:37:23 CC Gemini VII, this is Hawaii CAP COM.
07:37:29 C This is VII. Go ahead Hawaii.
07:37:31 CC Roger. We show you GO on the ground. Would you give me the position of your C-Band adapter?
07:37:37 C Roger. C-Band adapter's on COMMAND.
07:37:40 CC Roger.
08:03:37 P At 7 hours, 23 minutes and 36 seconds; the C and E - beef sandwich for the first time ... and very crumbly - very, very crumbly.
08:11:34 C Okay. At 08 plus 11 plus 32, Command Pilot closing his eyes and resting.
08:12:12 P At 08:29:06: D-4/D-7; Ziegler's 411 was turned on. We have no turn-off time. We'll turn it on ... after turn on. ...

CONFIDENTIAL

CONFIDENTIAL

59

COASTAL SENTRY QUEBEC

08:53:22 CC Gemini VII, CSQ CAP COM.
08:53:45 CC Gemini VII, CSQ CAP COM.
08:53:52 C Gemini VII. Go ahead.
08:53:53 CC Roger. Did you do your fuel cell purge at ...?
08:53:59 C Negative. We moved it up to 09 hours. That way ...
08:54:03 CC Okay. There's a change in that. I would like you to start your purge at this time.
08:54:10 C Okay. Ready to start our purge at this time. Roger.
08:55:19 CC Gemini VII, CSQ.
08:55:24 C Go ahead, CSQ.
08:55:27 CC Okay. Your next purge time will be 13 hours, 45 minutes. That's over the CSQ.
08:55:37 C 13 hours, 45 minutes.
08:55:39 CC Affirmative. And at that time we'll advise you of your new purge cycle.
08:55:46 C Roger. And be advised our Delta-P light has been out now - it's been about a half hour. That's 08:26.
08:55:55 CC Say again time.
08:55:56 C 08:26.
08:55:58 CC 08:26. Roger.
09:44:06 C ...

HAWAII

10:48:31 CC Gemini VII, Hawaii.

CONFIDENTIAL

CONFIDENTIAL

10:48:33 C Go ahead.

10:48:34 CC Hello. We're getting these data for you. How about taking your Quantity Read switch to the ECS O₂ position, please?

10:48:39 C Roger.

10:49:19 CC Okay. Will you go to the FUEL CELL O₂ position on your Quantity Read switch?

10:49:22 C FUEL CELL O₂.

10:49:23 CC Okay. I've got your data for you. Ready to copy?

10:49:35 C All right; go ahead; ready to copy.

10:49:37 CC Okay. It's a Node: 10:10:36; Rev Number 7; 46.0 degrees east; 13:40:09; right ascension. Now will you go to the FUEL CELL H₂ position on your Quantity Read?

10:50:11 C Roger. Will you say again the right ascension?

10:50:15 CC Stand by.

10:50:29 CC Okay. Your right ascension, 13:40:09.

10:50:46 CC You copy that?

10:50:53 C VII, Roger.

10:50:55 CC Okay. Quantity Read switched off.

10:50:58 C Still on OFF on the Quantity Read.

10:50:59 CC Okay. We got all that.

10:51:28 P Hawaii, will you say again on the longitude, please, for that VII craft ascending mode?

10:51:30 CC 46.0 degrees east.

10:51:34 P Okay. Thank you.

10:51:36 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

61

ROSE KNOT VICTOR

11:20:26 CC Gemini VII, RKV CAP COM. All systems are GREEN. We would like to ask you to perform the D-4/D-7 experiments, to turn the ACQ-AID circuit breaker to the OPEN position. You need not acknowledge this transmission.

11:20:44 P Roger. Understand. Open D-4/D-7 - correction, open ACQ-AID circuit breakers.

11:20:51 CC That's during the D-4/D-7.

11:21:10 CC Gemini VII, RKV.

11:21:12 P Roger. Go ahead.

11:21:13 CC Okay. We - let me say that again to you. We'd like you to open the ACQ-AID circuit breaker during the D-4/D-7 experiment.

11:21:20 P Roger.

11:21:24 C You have an update for us?

11:21:27 CC You'll get your block update over the CSQ.

11:21:32 C Roger. Thank you.

11:21:54 C RKV, this is Gemini VII. Did you get our D-4/D-7 transmission on the last ... time ...?

11:22:02 CC That's affirmative.

11:22:05 C Okay. Thanks.

11:22:10 C Do you want us to run it again according to flight plan? ... D-4/D-7 ...

11:22:14 CC Stand by.

11:22:59 C RKV, this is Gemini VII. I checked that last transmission. We have another D-4/D-7 at 11:26:15.

11:23:07 CC Okay.

CONFIDENTIAL

CONFIDENTIAL

11:25:01 P ... D-4/D-7 at 10:45:10; recorder running for 30 seconds. That was Ziegler's 411 and ...
11:25:11 C ... 11:21 the D-4/D-7 going off. ACQ-AID Beacon coming on.
11:25:12 C Oh yes. Good!

COASTAL SENTRY QUEBEC

12:07:17 C CSQ, this is Gemini VII. How do you read?
12:07:19 CC Gemini VII, CSQ CAP COM. Read you loud and clear.
12:07:23 C Roger. Will you tell Houston that we're both catching catnaps now. We'd like to start on a regular schedule, with both of us awake about 8 in the morning, Houston time.
12:07:37 C And we're ready for your updates if you have them.
12:07:41 CC Okay. Stand by one.
12:07:58 CC Gemini VII, CSQ with your updates. Area 10-Delta, Area 10-Delta: 14:15:52; 20 plus 16. Area 11-Delta: 15:52:45; 18 plus 30. Do you copy?
12:08:28 C Roger. I'm getting them.
12:08:29 CC Okay. Area 12-2: 17:28:22; 17 plus 07. Area 13-2: 19:04:52; 15 plus 44. Area 14-1: 20:30:41; 16 plus 33. Area 15-1: 22:06:45; 15 plus 21. Area 16-1: 23:42:05; 14 plus 34. Do you copy?
12:09:32 C Roger. We got them all.
12:09:34 CC Okay. You're scheduled for a fuel cell purge over us, next revolution.
12:09:41 C Okay. We'll be looking for you then.
12:09:43 CC Roger.
12:09:53 C Flight, for your information, the Delta-P light blinked off and then on again around 12 hours.

CONFIDENTIAL

CONFIDENTIAL

63

12:09:59 CC Roger. Copy.
12:10:06 CC You tell us about how long it was off?
12:10:08 C No. As a matter of fact, I didn't notice it go off. I just saw it come back on, but it couldn't have been more than 2 or 3 minutes because we'd just checked it.
12:10:15 CC Roger.

COASTAL SENTRY QUEBEC

13:38:14 CC Gemini VII, CSQ CAP COM.
13:38:29 C This is Gemini VII. Go ahead.
13:38:30 CC Roger. Would you start your fuel cell purge at this time?
13:39:47 C CSQ, we are purging. Gemini VII here.
13:39:57 CC ... Gemini VII, CSQ. Your next purge will be at Carnarvon in approximately 20 hours, approximately 20 hours.
13:40:08 C I understand. Next purge 20 hours at Carnarvon.
13:40:11 CC Affirmative. Also, we'd like to have you bring your fuel cell O₂ tank pressure up to 400 psi on your gage.
13:40:20 C Roger.
13:40:22 CC That should be sufficient for the sleep period.
13:40:29 CC Houston would like to know if you've placed your film packs in the plastic bags.
13:40:34 C Roger.
13:40:41 C Did you get that, CSQ? We've placed all but ... in the plastic bags.
13:40:46 CC Roger. I copy.

CONFIDENTIAL

CONFIDENTIAL

13:43:44 C ... CSQ, Gemini VII. Purge complete.

13:43:47 CC Roger. We copy your purge. Would you give us your Quantity Read switch in the ECS O₂ position until my Mark?

13:43:55 C ECS O₂.

13:44:09 CC Okay. Would you go to the Fuel Cell O₂, please?

13:44:13 C Fuel Cell O₂.

13:44:15 CC Roger.

13:44:23 CC Okay. Fuel Cell H₂, please.

13:44:28 C Fuel Cell H₂.

13:44:44 CC Okay. We will try to maintain radio silence to about 20 hours elapsed time. And we're through with your Quantity Read switch. We got good - good readouts.

13:44:56 C ...

13:45:01 CC Would you go Quantity Read to OFF?

13:45:04 C Roger. Going to OFF.

13:58:35 P ... Ha!

4 am 13:59:09 P Okay. Borman urination at 13 ... SC O₂ on at 16:27, SC O₂ heater.

8 18 17:48:07 C Fuel cell Delta-P light, O₂ Delta-P light came back on again 17:48.

18:16:45 P Delta-P light out at 19:37.

18:16:46 C Two pictures over Africa ... Frame 3: Magazine A with a 250, f11; Frame 4 was at 250, f16; Frame 5: 250, f16 ... These pictures taken approximately 19:35.

CONFIDENTIAL

CONFIDENTIAL

65

CARNARVON

18:29:04 CC Carnarvon reads you loud and clear. How me?

18:29:06 P You're loud and clear. I'd like to inform you that our fuel cell Delta-P light went out at 15:22, but then it came back on again at 17:47 and is now on.

18:29:18 CC Roger. Understand. It came on at 15:22 and it's back on again at 17:47.

18:29:27 P Roger. That's off at 15:22, on at 17:47.

18:29:33 CC That's right. We already knew that, VII.

18:29:37 P Okay. Thank you.

18:29:38 CC Roger.

18:29:59 CC Gemini VII, Carnarvon.

18:30:01 P Go ahead.

18:30:02 CC Roger. We'd like for you to bring your Fuel Cell H₂ tank pressure back up to between 175 to 225 and maintain it at that pressure up until approximately an elapsed time of 40 hours.

18:30:19 P Roger. You have to give me the indicated pressure on my gage here, please.

18:30:25 CC Roger. Stand by.

18:30:40 CC VII, Carnarvon. That will be 390 to 500. Did you copy?

18:30:48 P You gave me a 390 to 500?

18:30:50 CC That's affirm.

18:30:51 P Heater coming on.

18:31:35 CC VII, Carnarvon.

18:31:37 P Go ahead.

CONFIDENTIAL

CONFIDENTIAL

18:31:38 CC Roger. We'd just as soon have you go back to sleep.

18:31:42 P Roger. We have had a pretty good night's rest and we're having a little breakfast.

18:31:48 CC Roger. Understand. We show you GO here on the ground and we'll be standing by.

18:31:56 P Okay. We'd like to hear some words on what you think is causing the Delta-P light trouble, if you have some.

18:32:02 CC Roger.

18:32:10 CC We don't think it's any problem on your Delta-P light at all. Did you copy?

18:32:15 P Roger. I realize it's no problem, but what's causing it?

18:32:19 CC Roger. We're still looking on that one.

18:32:22 P Okay. Thank you.

18:35:25 P Delta-P light back on at 19:37.

TEXAS

20:45:35 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

20:45:53 C This is VII, Houston. Good morning. It's about time you all got to work.

20:45:57 CC We were just thinking the same thing. We're ready to put you to work.

20:46:03 C Two weeks vacation with pay.

20:46:07 CC Okay. Are you wide awake and ready to go?

20:46:11 C Right. We're in the process now of taking some temperature measurements on the cockpit.

CONFIDENTIAL

CONFIDENTIAL

67

20:46:16 CC Roger. We'd like to give you our analysis on the fuel cell situation and we're also ready to take a fuel cell purge from you.

20:46:27 C Roger. We're standing by and listening.

20:46:31 CC Okay. Why don't we go ahead and get the purge started?

20:46:34 C Roger. We'll purge now. Now purge.

20:46:36 CC Roger.

20:46:59 CC Gemini VII, we don't see anything. Have you started to purge?

20:47:03 C Roger. We started to purge.

20:47:05 CC Roger. We've got it now.

20:47:21 CC Frank, I'd like to suggest you get the update book out. We'll be giving you some updates as soon as possible here.

20:47:27 C It's already out.

20:47:29 CC Okay. Will I interrupt anything if I give you an update during the purge?

20:47:34 C Negative.

20:47:36 CC Okay. I have a node update for you. Time: 20 plus 38 plus 33; that's Rev 13; 114.7 west; 13 plus 26 plus 43, right ascension. Copy?

20:48:06 C Roger. Understand. 13 plus 26 plus 43. Is that correct for the right ascension?

20:48:11 CC That is correct.

20:48:12 C Okay. Go ahead.

20:48:17 CC Flight plan update at - we have a crew status report on the next pass. It will be at 22 plus 17 plus 00.

20:48:42 C Roger.

CONFIDENTIAL

CONFIDENTIAL

20:48:44 CC Okay. And we'd like for you to be prepared to give you as much - for you to give us as much data as you can on both of you since we're running a little behind at that time.

20:48:53 C Roger.

20:48:55 CC We have a Radar Transponder Test at 22 plus 20 plus 00; Sequence 01; Remarks, off at 22 plus 28 plus 00.

20:49:18 C Roger.

20:49:25 CC We have a D-4/D-7 at 22 plus 56 plus 00; Sequence 409 and 40 - correction 409 and 410; Mode 02. Do you copy?

20:49:45 C Roger. Go ahead.

20:49:51 CC We have a crew status report at Carnarvon on the Pilot at 23 plus 11 plus 00. We have exercise at 23 plus 21 plus 00. Do you copy okay?

20:50:11 C Loud and clear.

20:50:15 CC You can begin your eating preparation at 23 plus 31 plus 00. We have a fuel cell purge at 23 plus 40 plus 00. We have D-5 at 24 plus 15 plus 20; Sequence 01; Mode 01. We have S-8/D-13: 25 plus 28 plus 52; Sequence 02; pitch 30 down, yaw 13 degrees left; closest to purge, 25 plus 29 plus 47. Do you copy?

20:51:21 P Roger. Understand. Do you want us to purge again at - in 3 hours? Is that correct?

20:51:29 CC That's what we're planning at the present time, Gemini VII.

20:51:35 P Okay.

20:51:45 P Anything else, Elliot?

20:51:47 CC Yes. I'll discuss the fuel cell with you here as soon as the purge is complete.

20:51:52 C Purge is complete, Elliot.

CONFIDENTIAL

CONFIDENTIAL

69

20:51:54 CC Okay. Here's a little rundown on what we think the situation is on that light. Can you give us a quantity readout on the fuel cell hydrogen and oxygen? Just give us the switch position for each one. We'll read them out here on the ground.

20:52:13 P Roger. Fuel cell oxygen now.

20:52:16 CC Roger. Okay. Give us the other one.

20:52:25 P Fuel cell hydrogen.

20:52:27 CC Roger.

20:52:32 CC Okay. Brief discussion here on fuel cell light as we can see it. We think the most likely reason is an accumulation of tolerances of the Delta-P light transducer and the regulator, plus a pressure difference between the water reference to the regulator and the Delta-P switch. In other words, just an accumulation of tolerances here, which is giving us a light that is really not indicative of the true condition.

20:53:03 C Roger. Thank you.

20:53:05 CC It's not much help I guess, but that's what we think is the most likely thing. Rundown on other possibilities. The next most likely thing, we think, is a defective Delta-P switch. The third possibility is a water valve closed or some restriction in the water line, and that would pose a problem, but we feel that we can handle that even if it means shutting down that fuel cell, and we feel this will be indicated by a deterioration in the performance of that fuel cell over many hours. We'll be able to watch that build up. It won't pose any hazardous condition at all. And the last possibility is a regulator which is slightly out of tolerance. We think the latter two things here now are not very high probability, but they are possibilities. Do you have any other items or suggestions?

20:54:09 C Negative.

20:54:12 CC Okay. Do you have a water reading handy for us at this time, Gemini VII?

CONFIDENTIAL

CONFIDENTIAL

20:54:22 C Stand by.

20:54:25 CC And do you have a propellant quantity readout?

20:54:31 C This is VII. Propellant quantity is 68.

20:54:36 CC 68?

20:54:38 C Roger. Six eight percent.

20:54:40 CC Roger. Would you place your Quantity Read switch to the FUEL CELL O₂ position again?

20:54:52 C Houston ... six one ounces of water.

20:54:57 CC 61 ounces for CP. Roger.

20:55:01 C Roger. And the P's had 52 - 52 ounces of water.

20:55:09 CC Roger. Five two ounces for the Pilot. And what were the times of those final readings?

20:55:27 CC Do you have the times marked down of the final - the last water entries?

20:55:31 C Roger. CP was 18 plus five zero.

20:55:35 CC Roger. 18 plus five zero. And yours, Jim?

20:55:39 P 18 plus three zero, for mine.

20:55:41 CC 18 plus three zero. Roger.

20:55:45 P ... we had ... mixed with the food we had for breakfast, Elliot.

20:55:50 CC Roger.

20:55:55 CC Next time over we'll get this crew status report from you and give you an update on the news.

CANARY ISLANDS

21:01:43 CC Five zero zero. PLA update over Canary. That's on the next pass over.

CONFIDENTIAL

CONFIDENTIAL

71

21:01:53 C Roger.

21:01:54 CC At 23:52:00 you receive your GO/NO-GO for 31-1 over Texas.

21:02:09 C Roger. Thank you.

21:02:11 CC Okay. What's the status of your helmets and gloves? You traveling with them on or off?

21:02:17 C They have been off since we got the GO for ...

21:02:20 CC Roger.

21:02:21 P Bob, my helmet is on but my gloves are off ...

21:02:26 CC Understand.

21:03:41 CC Gemini VII, Canary.

21:03:43 P Go ahead, Canary.

21:03:44 CC Roger. Who had his helmet on while they - while you were sleeping?

21:03:47 P We both did.

21:03:49 CC Both of you. Understand.

21:14:46 P General comment on the Hasselblad camera view-finder: the viewfinder ... the holder ..., requires a piece of tape to keep it on. I wonder if it's been ... checked before we got it.

21:14:56 C ...

21:41:19 P Okay.

21:41:20 C You ready?

21:41:24 P Ready.

21:41:55 C Okay. That last dump was the courtesy of Borman. In a minute, we will have Lovell. Stand by.

21:42:05 C Ready.

21:42:06 P Ready ...

CONFIDENTIAL

CONFIDENTIAL

CARNARVON

21:43:13 CC Gemini VII, Carnarvon CAP COM.
21:43:17 C Go ahead, Carnarvon, VII.
21:43:19 CC Roger. We noticed a rather sharp decrease in T/M signal strength here. Did you do any switching on telemetry?
21:43:24 C We're dumping urine.
21:43:27 CC Roger. Understand.
21:43:35 C Is that better now? We just turned the Dump switch off.
21:43:37 CC Yes. It was just a momentary dropout. It wasn't very long.
21:44:03 C Roger.
21:44:41 C Did you get the twizzle stick?
21:44:43 P Yes.
21:44:44 C You fink!
21:44:46 C Okay. That last urine dump was the courtesy of Lovell, at about 21:40.
21:44:48 C Okay. We got the fuel cell O₂ heater back on.
21:45:02 C Okay. We just got a picture, at 22:26:15, of shallow water on some islands in the Caribbean, or the Gulf of Mexico, I think.

CANTON

21:59:26 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?
21:59:33 P This is VII. You're coming in very weak and fading now.

CONFIDENTIAL

CONFIDENTIAL

73

21:59:37 CC Roger. We're remoting through Canton. Just want to alert you that we would like to have a flight plan report sometime in the near future; so if you could get that ready, it would be helpful.

21:59:57 P Roger. I understand you want a flight plan report sometime in the near future. We'll work it in our schedule.

22:00:05 CC Roger.

TEXAS

22:17:13 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

22:17:18 P This is VII. Read you loud and clear.

22:17:21 CC Roger. Like to advise you that we would like to have a UHF 6 pass this time. Is that okay with you?

22:17:30 P Roger. Stand by.

22:17:34 CC We are receiving your oral temperature. Give us a blood pressure and stand by for the Surgeon.

22:17:59 CC Gemini VII, this is Surgeon. Your cuff is full-scale.

22:18:06 P Roger. ...

22:18:57 CC Gemini VII, we have a good blood pressure; standing by for your exercise.

22:19:33 P Sending another blood pressure.

22:19:35 CC Roger.

22:19:49 CC Gemini VII, cuff full-scale.

22:20:47 CC Gemini VII, we have a good blood pressure. Could we start with your sleep report, Frank?

22:20:55 C Roger. We, Jim and I, slept alternately last night. I imagine we both got about 4 to 6 hours sleep last night.

CONFIDENTIAL

~~CONFIDENTIAL~~

22:21:03 CC Okay, Frank. I'd like to get some idea about the depth of that sleep. It appeared to us from the ground, from all of our records here, that you were sort of in and out most all of the time it was programmed.

22:21:18 C That's affirmative. It was rather light sleep.

22:21:25 CC Okay. Could we get the food report?

22:21:28 C Roger. We've had two meals, ... last time. We're now preparing our third meal.

22:21:37 CC And Meal B, both of you. You're preparing the third meal. Was the bulk of Meal A - -

22:21:45 C Roger. I ate everything but some rye and beef sandwiches. Jim ate all of Meal A, and of B we both are saving our gingerbread for dessert for the noon meal.

22:21:57 CC Very good. Have you added anything to the water report yet from the last time that we got the water?

22:22:13 C Say again please, Houston. Gemini VII.

22:22:14 CC Gemini VII, this is Houston Surgeon. We have had 61 and 52 ounces reported for water and have you added anything to that?

22:22:25 C I added eight one ounces for the Pilot. That's a total of 81 for the Pilot and a total of 88 for me.

22:22:39 CC 81 Pilot, 88 Command Pilot. Gemini VII, this is Houston Surgeon. Can you tell me about this exercise, Frank? Have you been able to do it before each of the meals so far? Have we done the 10 minutes as programmed?

22:22:54 C Negative. We're going to start it this meal.

22:22:57 CC Start this meal. Okay.

22:22:58 C Roger.

22:23:02 CC Gemini VII. Frank, can you tell me about the suits? Are you fairly comfortable in the suits as they are presently configured?

~~CONFIDENTIAL~~

CONFIDENTIAL

75

22:23:10 C Yes, I think we're both fairly comfortable. It's a little warmer than I thought it would be, based on Pete and Gordo's experience. We're running FULL COLD and we're just comfortable.

22:23:22 CC FULL COLD and just comfortable. Okay. How about the M-1 noise? Do we understand that you had the helmets on during sleep last night? Can you hear any noise from the M-1 and is it functioning all right at the present time?

22:23:36 C We had our helmets on but not our hoods, of course, and you can hear the M-1 and it makes noise, and it's functioning.

22:23:46 CC I read that you can hear the M-1 and it does make noise. Is that affirm?

22:23:55 C Yes, that's one of the reasons that sleep is light at times. But we are getting used to it now, ...

22:23:59 CC Okay. We better check that again tonight. And we may want to turn that off then, so we can be sure that we get enough rest here tonight. Your rates and things here look very fine, Frank. You're both leveling out very well. There haven't been any abnormalities that we have been able to see at all, and we have a report from both your families. They asked us to get the word to you that they're all okay. Sue's on her way back from the Cape and will arrive here sometime about 2:30 this afternoon. And said to tell you that everybody is okay, and Marilyn said the same, Jim.

22:24:35 C ... will you?

22:24:39 CC They haven't yet. Plane today.

22:24:44 C That's what I mean. Let us know this afternoon, not evening.

22:24:46 CC Roger.

22:24:59 CC Gemini VII, this is Houston Surgeon. Do you read?

22:25:04 C Loud and clear, Chuck.

CONFIDENTIAL

CONFIDENTIAL

22:25:06 CC Okay, Frank. You were going to try and do some estimates of ... volume. We'll wait for that until a later time. Do you think that this is helpful? Do you think you're going to be able to do that? If so, just say yes or no and we can try and get it on a later pass.

22:25:23 C Negative. I don't think I'll be able to give you any accurate volume.

22:25:26 CC Okay. Fine. We'll dispense with it and not even try it then.

22:25:34 C ...

22:25:36 C Chuck, for your information, this water gun is working very well and the ... unit also is functioning all right.

22:25:49 CC Gemini VII, this is Houston Surgeon. I read that the water gun was working very well. I didn't get the last unit that was functioning.

22:25:56 C ... unit. Bill Halstatter's unit.

22:26:04 CC Roger.

22:26:28 C Houston, this is Gemini VII. Can you give us a time hack on the elapsed time, please?

22:26:33 CC Roger. Elapsed time. I'll give you hack at 22:26:45.

22:26:48 CC MARK. 22:26:45.

22:26:53 C Roger. The elapsed timer working beautifully also. We haven't gained or lost a second on you.

22:26:58 CC Roger.

22:27:04 CC Got some news reports here, Frank. If it's a convenient time.

22:27:07 C Roger. Incidentally, Jim has just turned on the radar transponder. I hope you're reading it.

CONFIDENTIAL

CONFIDENTIAL

22:27:12 CC Roger. First item is everyone on the Wasp is very happy about your launch. Their theme song is: "I'll Be Home For Christmas". Next news item is we had - two airliners had a collision up near New York yesterday. Fortunately most of the people did survive. There were six lost but 106 survived. One airplane landed with about a 30-foot section of wing off. The headlines in the Post today say, "GT-VII and Spent Rocket Playing Tag". They've got very nice pictures of both Susan and Marilyn on the cover. And down at the Cape things are going real good setting up Gemini VI. They're running about four hours ahead of schedule. Tennessee beat UCLA 37 to 34. The Buffaloes play the Oilers here today and Minnesota is at Green Bay today. That's all we have right now.

22:28:25 C It looks like it's safer up here than down there.

22:28:27 P We're not down yet, Buddy!

22:28:28 CC Roger. Incidentally, in regard to the strap hanging on the back of the spacecraft, we sort of surmised yesterday that the report that you gave us hitting the front end was caused when it perhaps fell over in front of one of the aft thrusters during your Perigee-Adjust Maneuver and that caused it to flop up in the front. You probably deduced the same thing by now.

22:29:02 C When the strap came forward, that's when we stopped thrusting, ...

22:29:08 CC Roger. What we're saying - the reason it flopped up forward was it probably drifted over in front of the thruster at the time you were firing and that threw it up there.

22:29:14 C 22:56, D-4/D-7.

22:29:15 P Roger.

22:29:22 C ...

22:29:24 C ... reticle out.

22:29:31 P Okay ...

CONFIDENTIAL

CONFIDENTIAL

22:29:32 C Roger.
22:29:33 P Okay ...
22:29:34 C No, Jim, it's right here.
22:29:35 P Okay. We'll go through D-4/D-7, and that's what - 309, 09. Right?

BERMUDA

22:29:38 CC Gemini VII, Houston. Have you turned the transponder off at this time?
22:29:42 P Roger. Transponder is off.
22:29:44 CC Roger.
22:30:14 C 109, Jim.
22:30:15 P D-4/D-7.
22:30:16 C 22:56.
22:30:17 P ...
22:30:18 C 409 and 410.
22:30:45 P Okay. ACQ-AID circuit breaker should be open.
22:30:47 CC Gemini VII, Houston. We're about to lose contact. We'll get your flight plan report on the next pass.
22:30:54 P This is VII. Roger. We're going to turn the ACQ-AID beacon off for D-4/D-7.
22:30:59 CC Roger.

CANARY

22:36:25 CC Gemini VII, Canary CAP COM. Contact. How do you read? Over.

CONFIDENTIAL

CONFIDENTIAL

79

22:36:28 P This is VII. Loud and clear.

22:36:29 CC Roger. We have you GO on the ground. Your status?

22:36:35 P We're GO out here and waiting for an update.

22:36:37 CC Okay. Ready to copy?

22:36:38 P All set.

22:36:41 CC 17-1: 25:17:08; 14 plus 20. 18-4: 28:07:21;
15 plus 15. 19-4: 29:42:38; 14 plus 34.
20-3: 30:57:47; 17 plus 02. 21-3: 32:34:02;
15 plus 45. These are for a rolling reentry and
the weather in all areas is good.

22:38:07 C This is Gemini VII. Roger. And thank you for
the transmission; just the right speed.

22:38:12 CC Roger. You're welcome. We'll be standing by.

22:38:58 CC VII, Canary.

22:39:02 P This is VII. Go ahead.

22:39:04 CC Did you notice any venting while you were purging
the fuel cells, especially in the hydrogen?

22:39:10 P No, we couldn't tell of any and also we didn't
notice any Delta-P light on the first section.

22:39:16 CC No Delta-P on the first section while purging and
you didn't get any sort of venting at all?

22:39:22 P Not to my knowledge.

22:39:24 CC Okay. Copy.

22:42:07 CC VII, Canary.

22:42:11 C Go ahead.

22:42:12 CC Roger. We'd like to know if you got the right-aft
food box unstowed.

22:42:16 C Roger. It's unstowed. We're in mission con-
figuration and everything is in good shape.

CONFIDENTIAL

CONFIDENTIAL

22:42:21 CC Roger. Understand.
22:42:23 C The only hitch I saw in the plan was caused by having to put those magazines in plastic containers.
22:42:31 CC Roger. Copy.

CARNARVON

23:10:53 CC Gemini VII, Carnarvon.
23:10:54 C Come in, Carnarvon.
23:10:56 CC Roger. We have you GO on the ground, and also we are receiving a valid temperature from the Pilot. Stand by and I'll hand you over to the Surgeon.
23:11:00 C I think what we ought to do then is number in here the things that we get done. Okay? Just write okay after them. Okay?
23:11:01 P Right. Okay.
23:11:02 C ... okay?
23:11:08 CC Gemini VII, Carnarvon Surgeon standing by for your blood pressure.
23:11:13 C Roger.
23:11:24 P Yes, for everything but ...
23:11:25 C No. I mean the things we've done.
23:11:26 C We're supposed to get an ... update for 2235.
23:11:43 P Recorder tape.
23:11:44 C ... 10 - minute warning.
23:11:45 P At 22 plus 57 plus 14: D-4/D-7; Sequence 09; 2 minutes.
23:11:46 P D-4/D-7, Sequence 410, is between approximately 2300. Concerning D-5: Experiment is approximately

CONFIDENTIAL

CONFIDENTIAL

81

24 hours. Could not get the ... because of not enough time for dark ... and it was ... before we could get a good fix on it, and we could not get ... because the sunlight was coming up before that, before we could get a good fix on ..., and we would not be able to follow it down. The moon was out very bright and it might have some effect on the star ... photometer. The photometer could never go RED, it stayed GREEN all the time, and we had to use it through a green reticle. The calibrate - the gain wheel was all the way in the DOWN position.

23:12:16 CC Gemini VII, Carnarvon Surgeon. We have a valid blood pressure. Standing by for your Mark when you start your exercise.

23:12:28 C Starting exercise now.

23:13:05 C ... has completed sending blood pressure.

23:13:12 CC Gemini VII, your cuff is full-scale.

23:14:02 CC Gemini VII, we have a valid blood pressure. Do you have any change in your food or water intake to report?

23:14:11 P This is VII. Negative. We're going to ... exercise program about ...

23:14:16 CC Gemini VII, this is Carnarvon. Say again.

23:14:19 P No changes in food or water report at this time, but we will be starting our exercise program.

23:14:24 CC I understand. No change. Carnarvon Surgeon out.

23:14:47 CC Gemini VII, you don't have to acknowledge this. We're still having a GO on the ground. We'll be standing by.

23:15:02 P Thank you, Carnarvon.

CONFIDENTIAL

CONFIDENTIAL

CANTON

23:31:42 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

23:32:20 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

23:32:28 C Read you weak but clear.

23:32:31 CC Roger. We want the fuel cell purge at Texas instead of Guaymas. Do you read?

23:32:40 P Roger. We'll be ready to purge when we cross near Texas.

23:32:45 CC Roger.

23:32:46 P Thank you.

TEXAS

23:51:57 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

23:52:09 CC Gemini VII, Houston. How do you read?

23:52:13 C Houston, I read you loud and clear.

23:52:15 CC Roger. You have a GO for 31-1. Stand by to receive a T_R update.

23:52:24 P Roger. ... to go at 31-1.

23:52:35 CC Gemini VII. Did you get an update indication?

23:52:40 P This is VII. Roger. DCS light ... up.

23:52:42 CC Roger. Checks out good here too.

23:52:45 CC Standing by for fuel cell purge.

23:52:50 P Roger.

CONFIDENTIAL

CONFIDENTIAL

83

23:53:05 CC Is Frank available to talk to while you're doing that, Jim?

23:53:10 P ... go.

23:53:16 CC Frank, we have an opportunity to take a picture of the Houston area on this pass. It's not real close but if you have - if you're able to, you might take one. And on the next pass we have an S-8/D-13. Laredo - the weather is very good and very clear. We have smoke pots set up along the north edge of the pattern. The wind is coming from the south and you should have a real good opportunity there. And it will be an even better opportunity to take a picture of Houston on that pass if you can manage to do it after the Laredo pass. Of course, the S-8/D-13 has top priority.

23:53:59 C Roger. When did they move it to Laredo? I thought it was in California.

23:54:03 CC You mean Yuma.

23:54:07 CC Maybe it's still in Yuma.

23:54:10 P Gemini is purging now.

23:54:12 CC Roger. Observing the purge.

23:54:24 CC You have a TX on the way, Gemini VII.

23:54:27 C Thank you.

23:54:41 CC Reason - -

23:54:42 C Did you observe the purge?

23:54:45 CC Roger. We're observing the purge.

23:54:46 C Okay.

23:54:47 CC The reason we're asking for this picture of Houston is we have unusually clear weather here at the present time. We thought it would be a good opportunity to take a picture.

23:54:59 C We will try.

CONFIDENTIAL

CONFIDENTIAL

23:55:01 CC Roger.

23:57:37 C Elliot, this is Gemini VII. We missed you.

23:57:42 CC Okay. Well, you're about 120 miles away on this pass so I'm not too surprised, but the next pass should be real good.

23:57:50 C Roger. Jim took a picture of Mobile. He recognized Brookley. You know he always stops there for gas.

23:58:38 CC Even Jim could make it without stopping at Brookley today.

23:58:43 C ...

23:58:54 CC Observe you've completed your fuel cell purge. We would like fuel cell quantity Cryo readouts for approximately 20 to 30 seconds on each position.

23:59:05 C Roger. Gone to our oxygen.

23:59:08 CC Roger.

23:59:28 CC And Gemini VII, could you give us what you have in the way of a flight plan report at this time?

23:59:36 C Roger. I have just completed everything in the flight plan detail in general up to this point, plus one humidity transfer reading.

23:59:47 CC Roger.

23:59:54 CC Gemini VII, would you also give us a readout on ECS O₂ quantity?

23:59:58 C Roger. I'm now going to ECS O₂.

24:00:02 CC Roger.

24:00:09 CC We're asking for ECS O₂.

24:00:12 C Roger. I'll get you both. ECS O₂.

24:00:18 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

85

24:01:29 CC Gemini VII. Do you have any S-8/D-13 vision test or scores that you could give us?

24:01:40 C Not right now, Elliot. We didn't understand that would be REAL-TIME ... put away.

24:01:48 P Gem ... on one of the other sights.

24:01:50 CC Okay. We did want those out REAL-TIME, then that will be good on the future sight. We hope you'll have good luck on that S-8/D-13 on that next pass. It's very clear weather and, as I said, the smoke pots are all set up on the north edge, and they're trying to get a smoke generator set up on the northwest corner. They're not sure they'll have that, but there are a lot of smoke pots along the north edge there, so it should be well marked.

24:02:15 P Roger. We'll be looking.

24:02:18 P Gem - here we have a - a GO/NO-GO quantities on the fuel cells for you.

24:02:26 CC Go ahead.

24:02:27 P 1A reads 3.5; 1B, 4.0; 1C, 4.0; 2A, 3.5; 2B, 3.5; 2C, 4.5.

24:02:42 CC Roger.

24:02:44 P RCS, A: 3,000, temperature 75. D: 3,000, temperature 75. Left-hand secondary O_2 : 5400; right-hand secondary O_2 : 5200. All main batteries are 22 over and above.

24:03:00 CC Roger.

24:03:03 P Main - all the way to the main bus is 27.3.

24:03:08 CC 27.3 main bus voltage. Roger.

24:03:19 CC Gemini VII, have you noted any improvement in the fuel cell performance following the purges?

24:03:29 P We've noticed no change.

24:03:32 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

KANO

24:19:04 CC Gemini VII, Houston CAP COM, standing by. I'm remote through Kano.

24:19:07 C We're working D-5 right now.

24:19:09 CC Right.

24:29:52 P Houston, Gemini VII.

24:29:57 CC This is Houston. Go ahead, Gemini VII.

24:29:59 C This ... D-5 ... will not change from RED to GREEN. It's GREEN all the time. Ask him if he has any instructions.

24:30:11 CC This is Houston, Gemini VII. We're not reading you very clearly. Would you say again, slowly?

24:30:18 C Roger. The D-5 reticle on here will not change from RED to GREEN. The reticle is GREEN all the time. Is there any position you want us to use for calibrating reel?

24:30:32 CC Roger. Stand by.

24:30:54 CC Gemini VII, Houston. We are working on it. We'll probably not have an answer quickly.

24:31:07 CC Gemini VII, did you read me?

24:31:16 CC Gemini VII, Houston. Do you read?

24:31:30 CC Gemini VII, Houston. Do you read?

24:31:33 P Go ahead, Houston. Gemini VII.

24:31:35 CC Roger. We understand your D-5 reticle is GREEN all the time. We are working on the problem. We do not expect to have an answer quickly.

24:31:53 CC Did you copy, VII?

24:32:16 CC Gemini VII, Gemini VII, do you read Houston?

24:32:19 C Roger. Read you loud and clear. Go on.

CONFIDENTIAL

CONFIDENTIAL

87

24:32:22 CC Did you copy my transmission?
24:32:24 C Negative. Say again, please.
24:32:27 CC We understand your D-5 reticle is GREEN all the time. We are working on the problem. We do not have an answer.
24:32:38 C Thank you.
24:32:40 CC Roger.

CARNARVON

24:46:00 CC Gemini VII, Carnarvon.
24:46:02 P Go ahead, Carnarvon. Gemini VII.
24:46:03 CC Roger. We have your T/M solid on the ground. You look good.
24:46:07 CC We would like to get some information on your D-5 reticle as you can give it to us - detailed description.
24:46:14 C Roger. The reticle - when you push the Calibrate button it should turn RED and then if you advance the gain wheel it turns from RED to GREEN and flashes. This one stays GREEN at all times, so we're running the experiment with the gain wheel pulled down.
24:46:31 CC Roger. Copy.
24:46:48 CC I have the flight plan update for you if you're ready to copy. If you're not, we'll give it to you over Hawaii.
24:46:55 C Roger. I'd like to hold off on that; we're all - we don't have any lights on. We're trying to stay dark-adapted for these stars and we want to get set up right away for S-8/D-13 over Texas.
24:47:07 CC Roger. We'll hold off until you get over Hawaii.
24:47:11 C Thank you.

CONFIDENTIAL

CONFIDENTIAL

HAWAII

25:13:15 CC Gemini VII, Hawaii CAP COM.

25:13:18 C This is VII. Go ahead.

25:13:21 CC How are you doing up there this morning?

25:13:26 C Looking great! Looking great!

25:13:33 CC Okay. We're showing you GO here on the ground. Do you want to copy this flight plan update at this time?

25:13:43 P This is VII. Ready to copy, and also, would you confirm the yaw instructions to the S-8/D-13?

25:13:51 CC Okay. The yaw instructions for S-8/D-13: yaw 13 left.

25:14:01 P Roger. Understand. 13 degrees left. Thank you.

25:14:09 P Go ahead.

25:14:11 CC MSC-12: Time, 27:00:39; Sequence 01; pitch 30 degrees down, yaw 0 degrees. D-4/D-7: 27:00:39; Sequence 419; Mode 02; concurrent with MSC-12; Mode - correction - Sequence 421; Mode 02; same remarks; Sequence 422; Mode 02; same remarks. D-4/D-7: 27:14:00; equipment off. MSC-2 and 3: 27:15:00; Sequence 02; off at 42:00:00. D-5: 27:15:00; Sequence 01. At 28:37:00: crew status report, Command Pilot. At 28:44:00: purge fuel cells over Canaveral. MSC-2 and 3: 29:00:00; Sequence 03; stop at 29:20:00. The rest of these are S-8 - correction - next one is S-8/D-13: 29:42:00; Sequence 03. At 29:57:00: crew status report on the Pilot at Hawaii. At 31:33:00: you'll have a planned landing area update. At 31:55:00: radar transponder on. At 32:05:00: purge fuel cells at the RKV. At 32:05:00: radar transponder off; it will be end-of-pass. And I have a correction when you're ready.

25:18:10 P This is Gemini VII. Have copied. Say again.

CONFIDENTIAL

CONFIDENTIAL

89

25:18:13 CC Okay. The crew status report on the Command Pilot. That time will be over Texas.

25:18:25 P Roger, Hawaii. Have it all written down. And the crew status ...

25:18:30 CC Okay. They want to change that transponder off to to 32:12:00.

25:18:36 P Roger. ... changing the last transponder off to 32:12:00.

25:18:42 CC That's affirmative.

25:18:54 CC Okay. We'll be standing by here if you need anything else. Need not acknowledge.

25:19:37 CC There's heavy smoke west of Laredo, Gemini VII.

GUAYMAS

25:23:47 CC Gemini VII, Guaymas CAP COM.

25:23:50 P This is VII. Go ahead.

25:23:52 CC Roger. All systems look good here on the ground.

25:23:55 P Thank you, Guaymas.

25:23:57 CC We would like to tell you that there is some very dense smoke about 100 miles due west of Laredo with about a 30-mile plume.

25:24:11 P Roger. Understand dense smoke 100 miles west of Laredo with a 30-mile plume. Right?

25:24:17 CC Roger. We have nothing else for you. We'll be standing by.

TEXAS

25:29:53 P Hello, Houston. This is Gemini VII.

CONFIDENTIAL

CONFIDENTIAL

25:30:03 CC This is Houston. Go ahead, Gemini VII.

25:30:07 P Roger. Got the sight ... I read a 3 and a 4 and that was going away, Elliot. I picked up the four white bars just the last moment. We're going over the Gulf now.

25:30:24 CC Roger.

25:30:26 P I read ... of those, and we're just about overhead and looking slightly south.

25:30:31 CC Roger.

25:30:32 P I couldn't find the smoke.

25:30:34 CC I beg your pardon?

25:30:39 CC VII. Say again.

25:30:42 P Roger. I couldn't see the smoke at first.

25:30:44 CC Roger. Understand you read a 3 and a 4. Do you know what squares those were on?

25:30:49 P They're on the biggest ones, a 3, 2, and a 4. They're the only ones I could read.

25:30:54 CC A 3, a 2 and a 4 on the first three squares. Is that correct?

25:31:01 P Right. But that was a quick, shoot-from-the-hip look because I was on my way past ... at the time.

25:31:08 CC Okay, Deadeye.

25:31:15 CC Get anything with that?

25:31:16 P We missed that the last time. By the time we got to Houston, we were over Mobile.

25:31:22 CC How about this pass?

25:31:31 C We're just about pointing straight up now, Elliot. We would have to use too much gas to get back.

CONFIDENTIAL

CONFIDENTIAL

91

25:31:37 CC Roger. We'll give it another try tomorrow then, if we get a chance.

25:31:41 C Right.

25:31:43 CC I have some modifications in flight plan update when you're ready to copy.

25:31:55 C Stand by a second.

25:32:25 P Ready to copy.

25:32:27 CC Roger. We're deleting several items on that flight plan we just gave you and we're adding a new item. Okay. The ones we are deleting are: MSC-12 at 27:00:39; D-4/D-7 at 27:00:39; all three sequences on that. The D-4/D-7 at 27 plus 14 plus 00, and the D-5 at 27 plus 15 plus 00. Did you copy all that? The 01 Sequence on that. Did you copy all those?

25:33:16 P Roger. I have all the ones you deleted.

25:33:21 CC Roger. And the reason for deletion is the instrument malfunction which you reported. The thing we are adding is S-8/D-13 at 27:03:54; Sequence 02; pitch 30 down, yaw 18 left.

25:34:09 P Houston, Gemini VII. You were cut out for part of the transmission. Say again the time and the pitch angle, please.

25:34:19 CC Roger. The time was 27:03:54; pitch was 30 down - 30 down, do you copy?

25:34:32 P Roger. Adding S-8/D-13 and deleting D-4/D-7 and MSC-12. I have it.

25:34:40 CC Roger. And the D-5, deleting D-5.

25:34:45 P Roger.

25:35:15 CC Gemini VII, we have a question on the status of cabin lights at the time you were doing the D-5 experiment.

25:35:26 P The cabin lights were out except for the Fuel Cell Delta-P light, which is loud and clear.

CONFIDENTIAL

CONFIDENTIAL

25:35:34 CC Roger.

CARNARVON

26:22:03 CC Gemini VII, Carnarvon CAP COM. We have nothing for you this pass. We're standing by. You look good on the ground.

26:22:16 C This is VII. Roger. Stand by, we have a question for you.

26:22:19 CC Roger.

26:22:37 C Carnarvon, VII.

26:22:39 CC Roger, VII.

26:22:41 C We have an MSC-2 and 3 update, and when we copied it down, the time was 29 plus 00 plus 00; Sequence Number 03; and the remarks were stop at 29 plus 00 plus 00. We feel that we have one of the times wrong. Could you check that out for us?

26:23:06 CC The stop time was at 29:20 plus 00.

26:23:12 C Roger. 29:20 plus 00 and the - stand by now for the S-8/D-13 daily scores.

26:23:28 CC Roger. We're standing by.

26:23:53 C Lovell at 06 plus 53 with minus 4; Borman was minus 10. Lovell at 19 plus 10 was minus 7, and Borman was minus 10.

26:24:18 CC Okay. Gemini VII, Carnarvon. I copy Borman at 06 plus 53 was a minus 4, Borman at a minus 10 - -

26:24:42 CC Lovell at 19 plus 10 was a minus 7, Borman was a minus 10.

26:24:54 C That's Roger.

26:28:23 CC Gemini VII, Carnarvon. We copied a Fuel Cell O₂ Quantity read. We were reading out 95.2 percent here on the ground.

CONFIDENTIAL

CONFIDENTIAL

93

26:28:33 P VII, Roger.

HAWAII

26:47:59 CC Gemini VII, Hawaii CAP COM.

26:48:03 C This is VII. You come in loud and clear.

26:48:05 CC Roger, VII. We have you GO on the ground and no other - we have a tracking update when you're ready.

26:48:30 C This is VII. Ready to copy.

26:48:32 CC Roger. This is a map update: Node at 26:37:29; Romeo Echo 17; 153.5 degrees east at 13:19:29; right ascension.

26:49:05 C This is VII. Could you repeat, please?

26:49:07 CC Roger. It's a Romeo Ec - it's Node: 26:37:28; Rev 17; 153.5 degrees east at 13:19:39; right ascension.

26:49:38 C VII. Roger.

26:49:42 CC Since we have no further instructions, standing by.

TEXAS

27:01:59 CC Gemini VII, Gemini VII, Houston CAP COM. Will be standing by for your real time S-8/D-13 readout. Over.

27:02:07 P VII. Roger.

27:04:43 P This is VII. We have the site in sight.

27:04:50 P Yes, let's see.

27:04:51 C 1, 3 - I say 1, 3 blank 3.

27:05:04 P Okay. 1, 3 blank. That's Borman. I couldn't see them this time.

CONFIDENTIAL

CONFIDENTIAL

27:05:14 CC This is Houston. Roger. Got that. 13.3 Borman.
Is that correct?

27:05:18 P Roger. Frank caught that out about - we got it -
Frank got it on his side and I picked it up and I
couldn't read it. Frank got those readings.

27:05:27 CC Roger. We understand. We have some football
scores if you'd like them.

27:05:32 P How's the Army-Navy game?

27:05:36 CC The Army-Navy game! You haven't been up there that
long! Green Bay beat Minnesota 24 to 19. The
Bears beat Baltimore 13 to 0, and Buffalo slipped
by the Oilers 29 to 18.

27:05:59 C Roger.

27:06:14 CC Gemini VII, those football scores were the courtesy
of your other ever-vigilant WHITE TEAM.

27:06:21 C Thank you, Ever Ready.

27:06:31 P ... you can tell the invest - look there, look
there - the investigators on that - the stripes are
as plain as day but the numbers aren't quite so
plain.

27:06:49 CC Am I to understand the stripes are as plain as day
but the numbers aren't quite as clear?

27:06:54 C Roger. The markers that they have out there for
identifying are as plain as day.

27:07:00 CC Roger. Understand the markers are as plain as day.

27:07:30 CC Gemini VII, Houston CAP COM. Did you ever get a
chance to snap a picture of Houston this time?

27:07:36 P I - we're too far north.

27:07:38 CC Roger.

27:07:45 C Gene, we do get to see this strap and stuff that
we've got hanging, again - just briefly. It's
some light - looks like white, rubbery material.

CONFIDENTIAL

CONFIDENTIAL

95

27:07:55 CC Understand you've seen it recently and it looks like a white, rubbery type of strap.
27:07:59 C Right. It's very jagged. Looks like your ... material. It just drifted by the window here as we went over the site.
27:08:07 CC Roger. Could it be any of the stripping that they possibly put on a radiator?
27:08:11 C Definitely not. It's pretty thick stuff and it's jagged. Looks like it's some separation plane.
27:08:17 CC Roger.
27:08:27 CC We'll have to send up VI here in a few days and take - and take a look at it.
27:08:32 P There's an idea!
27:11:41 P At 26:31: Photograph, Hasselblad, which we think was either New Guinea or Australia.
27:15:35 C Roger. MSC-2 and 3, the ... switches on at 27:15.

CARNARVON

27:57:15 CC Gemini VII, Carnarvon CAP COM.
27:57:29 P Gemini VII.
27:57:35 CC Roger. We have nothing for you at this time. Everything looks good from the ground.
27:57:41 P Thank you.
28:01:40 CC Gemini VII, Carnarvon CAP COM. This will be our last pass for this series. We'll be back up with you again on Rev 27. We'll have LOS in about a minute or so.
28:01:54 C Okay. We'll see you then.
28:01:57 CC Right.

CONFIDENTIAL

CONFIDENTIAL

28:02:02 C Wish we could join you for awhile.
28:02:34 CC Oh yes, I imagine!

HAWAII

28:23:01 CC Gemini VII, Hawaii CAP COM.
28:23:12 CC Gemini VII, Gemini VII, Hawaii CAP COM.
28:23:16 C Hawaii, this is VII. You're loud and clear.
28:23:20 CC Roger. You're a little bit weak. We have you GO on the ground here and we have some information for you.
28:23:30 C Roger. Ready to receive.
28:23:33 CC Roger. You have a crew status report due over Texas. This is a change from the Medical Data Pass. They request a crew status report and your acquisition time would be 28:36 GET. Your OAMS usage is real good and no discernible change in the last 24 hours. Your on-board gage readings correlate real well with ground computations.
28:24:05 C Roger. Understand the crew status report for CP is at 28:36 and it's over Texas.
28:24:10 CC Roger.
28:25:16 CC Gemini VII, Hawaii CAP COM. We have nothing further. We're standing by.
28:25:20 CC VII, Roger.

TEXAS

28:36:56 CC Gemini VII, Gemini VII, we have a good oral temp. Give us a blood pressure and stand by for surgeon.
28:37:14 CC Gemini VII, Houston Surgeon. Your cuff is full-scale.

CONFIDENTIAL

CONFIDENTIAL

97

28:38:08 CC Gemini VII, we have a good blood pressure. Standing by for exercise on your Mark.

28:38:13 P MARK.

28:38:17 P Duane, Frank wants to know whether Sue and the boys ... yet.

28:38:27 CC That's affirm. They all got back okay and she said everything here is fine.

28:38:33 P Roger.

28:38:39 P MARK.

28:38:48 CC Your cuff is full-scale.

28:39:45 CC Gemini VII, we have good blood pressure. Standing by for your food, water and sleep report.

28:40:04 C Houston, this is VII. We had a third meal at 21:40, Day 2, Meal B. The Command Pilot's total water consumption today, 97 ounces. Pilot's total water consumption today 87 ounces.

28:40:40 CC Gemini VII, Houston Surgeon. We copy your report. The boys are both doing fine, for Frank's information. Houston Surgeon out.

28:40:50 C Roger. Thank you.

28:40:51 CC Gemini VII, Houston CAP COM. We'd like your Cryo readout, please. Go to your ECS O₂.

28:40:57 CC Go to ECS O₂.

28:41:27 C Now on FC O₂.

28:41:32 CC Roger. FC O₂.

28:41:42 C Switching to FC H₂.

28:41:45 CC Roger.

28:42:20 CC Gemini VII, you can switch your Cryo Quantity switch off and we'll take your fuel purge at this time. Fuel cell purge.

CONFIDENTIAL

CONFIDENTIAL

28:42:29 P Roger. The Cryo Quantity switch is off. Stand by for fuel purge.

28:42:33 CC Okay.

28:43:59 C At 28:03: Took a picture of general photography with the high-type ... 3400 off New Guinea.

28:46:28 CC Gemini VII, Gemini VII, Houston CAP COM. For information, I've just talked to Sue and to Marilyn. Everything is very fine and very happy on the home front. Jim's crew status report remains at three.

ROSE KNOT VICTOR

28:55:34 CC Gemini VII, RKV CAP COM.

28:55:52 C This is VII. Go ahead.

28:55:53 CC Roger. All systems are GO. I've got a flight plan update for you when you're ready to copy.

28:56:01 C Roger. ...

28:56:13 C We're ready to copy.

28:56:16 CC Roger. This is Sierra 6: Time, 29:24:18 to 29:32:18; Sequence 07; Rev 19; look for tropical storm Alice.

28:56:41 C What?

28:56:42 CC Alice. Estimated location 13 degrees south, 78 degrees east. Note the time of closest approach to the eye. The sun elevation is approximately 10 degrees above horizon.

28:57:09 P This is VII. Could you give us the degrees of the storm again, please?

28:57:13 CC Roger. The estimated location 13 degrees south, 78 degrees east.

28:57:22 P Thank you.

CONFIDENTIAL

CONFIDENTIAL

99

29:00:20 C Just took a time exposure of the sunset.

29:16:30 C Exposure Number 12 ... 29:16:40 ...

29:16:42 C Okay. 29:20. We are discontinuing MSC-2 and 3 at 29:20 ...

29:20:15 C Okay. At 29:20 435 took two pictures of the only area in the vicinity that looks like tropical storm Alice. Don't see any East S0217; exposure setting f4 to 250 is the very ...

29:24:49 P At 29:37 ...

29:39:53 C You want?

29:41:13 C Starting now, keep you ... down ... back up ...

29:42:01 C Repeating the run, starting at the top.

29:42:10 C Back up, down.

29:42:29 C VII. Roger.

29:42:58 C That is a very difficult task to do without any type of wing valves or any other ... Going to start out with a light film on those that are visible; right-hand window has a slight film in the middle and the outside one; and the left-hand window has one that is visible at certain times. However, I think that by and large we can say they are very good.

29:43:22 P Just took a picture of the moon. Set 10 degrees above the horizon, using recommended setting of f4 to 350th S0217 film. Elapsed time, 30 hours, 00 minutes. Magazine A, Exposure 14.

HAWAII

29:57:30 CC Gemini VII, Hawaii CAP COM.

29:57:32 C Go ahead, Hawaii.

CONFIDENTIAL

CONFIDENTIAL

29:57:33 CC Would the Pilot please put the oral temperature thermistor in his mouth?

29:57:37 C Roger. It's in his mouth.

29:57:38 CC Roger.

29:59:34 C Hawaii, you received the temperature?

29:59:39 CC Roger, Gemini VII. It's coming in. Could we go ahead with your blood pressure?

30:00:00 CC Your cuff is full-scale.

30:00:34 CC Gemini VII, your cuff is full-scale.

30:00:38 C Roger.

30:00:43 C This will bleed off very slowly.

30:01:27 CC We have a good blood pressure. Standing by for exercise on your Mark.

30:02:25 CC Gemini VII, your cuff is bleeding off. It did not reach full-scale.

30:02:36 CC Your cuff is full-scale.

30:03:29 CC We have a good blood pressure. Standing by for your food, water and sleep report.

30:03:36 C They're the same that we gave to Texas. We haven't had anything to drink or sleep or eat since then.

30:03:42 CC Roger. Gemini VII.

30:03:44 CC Okay. Can you give me some data on your S-6, please?

30:03:47 C Roger. We're not sure we found ours. We took a picture of the storm out there, but it didn't look too big.

30:03:53 CC Okay. What was your PCA?

CONFIDENTIAL

CONFIDENTIAL

101

30:03:59 CC Can you give me a point of closest approach to this storm?

30:04:02 C We used the time that was given to us and took a picture of the closest thing we saw. We did not see anything that looked like a big tropical storm.

30:04:11 CC Okay. Thank you.

30:04:12 C Roger.

30:04:19 CC Okay. This will be Hawaii just standing by.

30:04:21 C Thank you.

GUAYMAS

30:09:27 CC Gemini VII, Guaymas CAP COM.

30:09:39 CC Gemini VII, Guaymas CAP COM.

30:09:41 C Go ahead, Guaymas.

30:09:42 CC Roger. All systems look good here on the ground. I have a malfunction check for you to run on your D-5 photometers, if you're ready to copy.

30:09:53 C Roger. Stand by.

30:10:25 C Go ahead, Guaymas.

30:10:26 CC Roger. This should be done during the nighttime, before you begin your sleep period. There are nine sequences to this. Sequence Number 1: place Day-Night switch to NIGHT; Sequence 2: place your hand over the front lens; Sequence 3: turn gain wheel full-down.

30:10:57 P Full-down, Guaymas?

30:10:59 CC Roger.

30:11:02 P Roger. Sequence 2: place hand over lens; Sequence 3: turn gain wheel full-down. Go ahead.

CONFIDENTIAL

CONFIDENTIAL

30:11:22 CC Roger. Sequence 4: verify motor running by sound. We will like an answer to this later, either yes or no.

30:11:40 P Roger.

30:11:42 CC Sequence 5: press calibration button down.

30:11:54 P Roger.

30:11:56 CC Sequence 6: report color of reticle. We'll want an answer on this, either RED or GREEN.

30:12:09 P Roger.

30:12:12 CC Sequence 7: switch Day-Night switch to DAY.

30:12:26 P Roger.

30:12:27 CC Sequence 8: press calibration button.

30:12:39 P Roger.

30:12:51 CC Sequence 9: report color of reticle, either RED or GREEN. We'll want an answer on this sequence.

30:12:55 P Roger.

30:12:57 CC We don't have anything else for you. Everything looks real good here on the ground.

30:13:02 P ... We'll give this a try.

30:13:08 CC Roger.

ROSE KNOT VICTOR

30:30:44 CC Gemini VII, RKV CAP COM.

30:31:00 C Gemini VII.

30:31:02 CC Roger. All systems are GO. I have a node update for you when you're ready to copy.

30:31:07 C Roger. Stand by.

CONFIDENTIAL

CONFIDENTIAL

103

30:31:20 C Go ahead.

30:31:23 CC Title; Node: Time, 32:36:20; Rev 21; 61.8 degrees east; Time, 13:12:44; right ascension.

30:31:50 C Roger. Anything else?

30:31:53 CC The CSQ will be standing by for a flight plan update - flight plan report from you. The CSQ's hack time is 31 plus 14.

30:32:05 C Say again please. Your ...

30:32:09 CC I say, the CSQ is standing by for a flight plan report. Your AOS is 31 plus 14.

30:32:18 C Roger. Understand. And we ran your little D-5 photometer. We cannot hear the motor running. The light was RED at both of the other ...

30:32:29 CC Roger.

30:44:34 C The time is 30:30. We're running a check on the humidity ... to pilot ... temperature and dew point. It is also nighttime out now, and we'll see if this makes any difference.

30:57:18 C This is Borman urinating. Document urination.

30:57:20 P My!

30:57:24 C What's wrong?

30:57:29 P ...

COASTAL SENTRY QUEBEC

31:14:45 CC Gemini VII, CSQ.

31:14:51 C Go ahead, CSQ. Gemini VII.

31:14:53 CC Roger. Do you want to turn off your M-1 cuff for your sleep period? You're scheduled to do it again after RKV, next time.

CONFIDENTIAL

CONFIDENTIAL

31:15:03 C Okay. If it bothers us we will.

31:15:05 CC Roger.

31:15:09 CC Gemini VII, did you originally report your reticle as GREEN and then report it as RED during the test that you ran?

31:15:18 C It's - just a minute, I'll let Jim talk to you. He did it.

31:15:35 CC Gemini VII, CSQ.

31:16:01 P CSQ, Gemini VII.

31:16:05 CC Roger. In your initial report on your reticle, did you report it as GREEN and then report it as RED when you ran the test?

31:16:12 P Roger. In the day-side of the day, first the reticle is RED but when you go to night it is GREEN.

31:16:20 CC Roger. Understand.

31:16:50 CC Gemini VII, CSQ. We're standing by for your flight plan report.

31:16:52 C CSQ, we're right in the middle of eating. We don't have anything to report other than that we've done everything that's called up and anything that's listed in the flight plan.

31:17:01 CC Roger. Understand.

31:17:03 P We're eating right now.

31:17:05 CC Roger.

31:18:05 CC Gemini VII, CSQ.

31:18:09 C Go ahead, please.

31:18:11 CC We'd still like for you to elaborate a little on your reticle problem. Would you go back to your first indication of a problem with the reticle?

CONFIDENTIAL

CONFIDENTIAL

105

31:18:21 P Roger. The first indication of the problem with the reticle was the fact that the reticle of the ... photometer would never be RED. We'd always have it GREEN. We'd have the scale full-down, all the lights out and the mobile star would stay GREEN. We couldn't - we couldn't calibrate the star.

31:18:43 CC Understand. You could not calibrate.

31:18:49 CC Stand by, Gemini VII.

31:19:19 CC Gemini VII, CSQ. Would you now repeat the report you gave to the RKV after the test?

31:19:27 P Roger. Stand by.

31:19:29 C CSQ, this is Gemini VII. While Jim's getting that out, it's a little warm in here and dry. The ambient temperature is right at 81 with a dew point of 57 in most of the place. We're just a little warm.

31:19:51 CC Understand.

31:20:28 P CSQ, this is Gemini VII.

31:20:30 CC Go ahead.

31:20:31 P I'm going to answer 4, 6 and 9, the sequences to the photometer check. The motor was running for Number 4. It appears here that we reported that the reticle was RED for Number 6. We'll check that. We went back and checked it again and it was GREEN.

31:20:50 CC Roger.

31:20:51 P Number 9 was the calibrate of the data ... day. The reticle was RED.

31:21:01 CC Roger. Copy.

HAWAII

31:33:21 CC Gemini VII, Hawaii CAP COM.

CONFIDENTIAL

CONFIDENTIAL

31:33:37 C Go ahead, Hawaii. Gemini VII.
31:33:40 CC Okay. We're showing you good here on the ground.
How're you doing?
31:33:42 C Doing fine, having a little meal.
31:33:45 CC Okay. I've got a planned landing area update here
if you're ready to copy it.
31:33:49 C Stand by just a minute.
31:33:50 CC Okay.
31:34:15 C Go ahead, Hawaii, Gemini VII is ready to copy.
31:34:22 CC Okay. Area 22-3: 34:09:37; 14 plus 49.
31:35:18 CC Okay, Gemini VII. Area 23-3: 35:44:51; 14 plus 18.
24-Bravo: 37:20:18; 14 plus 17. 25-Delta:
38:12:29; 20 plus 30. 26-Delta: 39:49:55; 18 plus
40. 27-2: 41:25:29; 17 plus 20. 29-2: 43:01:50;
15 plus 58. 29-1: 44:28:14; 16 plus 40. That's
it.
31:36:57 C Thank you very much, Hawaii. Got them all.
31:36:59 CC Roger.
31:37:01 CC All areas except 25-Delta are good weather.
25-Delta is marginal.
31:37:07 C Thank you.
31:47:20 CC Okay. They're going to do a UHF 6 over the RKV.
31:37:24 P Roger.
31:37:46 CC Okay. That's all we have for you. We'll be
standing by if you need us.
31:37:48 C Roger. Thank you.

ROSE KNOT VICTOR

32:06:28 CC Gemini VII, RKV CAP COM.

CONFIDENTIAL

CONFIDENTIAL

107

32:06:31 P RKV, Gemini VII here.

32:06:33 CC Roger. All systems are GO. We're standing by for the purge.

32:06:37 P Roger. An interesting note on the fuel cells. A little while ago the Section 1 Delta-P light came on momentarily. ... voltages, we switched between 2B and 2C. Each time we switched, the Section 2 light would momentarily flicker off and then back on again.

32:06:58 CC Roger.

32:06:59 P Finally, on the last switch, the lights went out and stayed out.

32:07:05 CC That's the Section 2 Delta-P light?

32:07:07 P Right. Instead of having both of them on, now we have none of them on.

32:07:09 CC Roger.

32:07:13 P We're finished purge.

32:07:14 CC Roger.

32:07:30 CC Would you place your Quantity Read switch to ECS O₂?

32:08:18 CC Would you go to FUEL CELL O₂?

32:08:36 CC Okay. Would you go to FUEL CELL H₂?

32:09:18 CC You can turn the Quantity Read switch off.

32:09:27 CC Your next purge will be over Carnarvon on Rev 27 at an elapsed time of 42 plus 23.

32:09:44 CC Gemini VII, do you copy?

32:09:56 C Roger. Understand 42 plus 23 for the next purge.

32:10:00 CC That's affirm.

CONFIDENTIAL

CONFIDENTIAL

32:10:03 CC We'd like you to stow the photometer and we'll give you a complete briefing at the end of the sleep period regarding what we think the problem is.

32:10:13 C Roger. Thank you.

32:10:20 C I'm coming off the transponder if you have your reading.

32:10:25 CC Roger.

32:10:30 CC During the previous purge did you notice any venting of H₂?

32:10:35 P We did notice, but it is difficult to tell because we all - we have all this freeze-up at the windows and we don't know how we're coming.

32:10:43 CC Roger.

32:11:33 CC Could you give us the levels that you're going to leave your RSS pressures at prior to your sleep period?

32:11:40 P Roger. 600 ECS O₂, 450 RCS O₂, and 450 Hydrogen O₂.

32:11:49 CC Roger.

32:11:54 C RKV, you want the RCS heaters on at this time?

32:11:58 CC Stand by.

32:12:03 CC That's affirm.

32:12:05 C Roger. They are going on.

32:12:19 P Purge is complete.

32:12:21 CC Roger.

32:12:55 CC You both go for the sleep period after our LOS.

32:13:12 CC Gemini VII, RKV.

32:13:14 P This is VII. Go ahead.

CONFIDENTIAL

CONFIDENTIAL

109

32:13:15 CC Roger. You both go for the sleep period after LOS.
32:13:19 P Roger. Will do.

COASTAL SENTRY QUEBEC

40:37:13 C CSQ, this is Gemini VII. How do you read?
40:37:15 CC Gemini VII, CSQ CAP COM. Read you loud and clear.
40:37:19 C Roger. Will you tell Houston that we're both catching catnaps now and we'd like to start on a regular schedule with both of us awake about eight in the morning, Houston time?
40:37:30 CC Roger. Eight in the morning, Houston time.
40:37:33 C And now we're ready for the update to ...
40:37:37 CC Okay. Stand by one.
40:37:54 CC Gemini VII, CSQ here. Updates. Area 10-Delta - Area 10-Delta: 14:15:52; 20 plus 16. Area 11-Delta: 15:52:45; 18 plus 30. Do you copy?
40:38:24 C Roger. I'm getting you.
40:38:25 CC Okay. Area 12-2: 17:28:22; 17 plus 07. Area 13-2: 19:04:52; 15 plus 44. Area 14-1: 20:30:41; 16 plus 33. Area 15-1: 22:06:45; 15 plus 21. Area 16-1: 23:42:05; 14 plus 34. Do you copy?
40:39:28 C Roger. We got them all.
40:39:30 CC Okay. You're scheduled for a fuel cell purge over us, next revolution.
40:39:37 C Okay. Will be looking for you then.
40:39:39 CC Roger.
40:39:49 C Flight, for your information the Delta-P light blinked off, then on again around 12 hours.
40:39:55 CC Roger. Copy.

CONFIDENTIAL

CONFIDENTIAL

40:40:01 CC Could you tell about how long it was off?
40:40:04 C No. As a matter-of-fact, I didn't notice it go off. I just saw it come back on, but it couldn't have been more than 2 or 3 minutes because we just checked it.
40:40:12 CC Roger.

CARNARVON

42:23:59 CC Gemini VII, Carnarvon CAP COM.
42:24:04 C Good morning, Carnarvon, good morning. VII here.
42:24:09 CC Roger. Gemini VII, good morning from Carnarvon. Everything looks good here on the ground. We have a fuel cell purge coming up this pass and we also have a flight plan update for you.
42:24:19 C Roger. Let me do the fuel cell purge now. My friend here is getting breakfast ready.
42:24:26 CC Roger.
42:25:02 C Okay. We're ready to copy update. The purge has started now.
42:25:26 CC Roger.
42:26:02 CC Okay. The first one I have for you on the flight plan update is a Node. Time: 43:04:07; Remarks, Rev 27; longitude 99.0 degrees west; 12:58:24, right ascension. The next update: Time, 43:10:00; Sequence 01; transponder test at Antigua; turn off at 32:18:00. The last item: Time, 43:58:00; flight plan update at Carnarvon; Rev 28; D-5 check procedure to be given over States pass. Do you copy?
42:26:27 C On that last update you just want us to check with D-5, or check with you on D-5? They're going to give us the word over the States. Is that what you mean?
42:26:35 CC That's affirmative. The procedure will be given to you over the States.

CONFIDENTIAL

CONFIDENTIAL

111

42:26:40 C Thank you.

42:26:44 CC Okay. And they have a rather long flight plan update standing by for you. You'll be given that over Antigua.

42:26:54 C Okay. Now we went to bed and the Delta-P light was out and we got up this morning and it was back on.

42:27:05 CC Roger. All indications we have are that there are absolutely no problems with it, that it's just a level of setting that's slightly touchy.

42:27:24 CC Kraft just suggested that you put a piece of tape over that light.

42:27:30 C Tell him I would, but I'm afraid it would burn. It's getting hot.

42:27:33 CC Roger.

42:27:40 C Mr. Kraft up so early?

42:27:41 CC Right. He just came on here about 10 minutes ago.

42:27:46 C Very good.

42:27:50 CC Flight just advised me he's been on for an hour and a half.

42:27:57 C Thank you.

42:29:08 C Roger. Our control valve is cycling again.

42:37:44 C The meals evidently were not packed in order, so we are eating them at random, because it's too difficult to try to sift through every one, to pick up the proper order.

42:37:49 P We're eating them as they come off the lanyard.

TEXAS

43:09:41 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

CONFIDENTIAL

CONFIDENTIAL

43:09:56 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

43:10:16 CC Gemini VII, Houston CAP COM. How do you read?

43:10:21 C Clear, Houston.

43:10:23 CC Roger, VII. Could you cycle through your Quantity Read switch? Go to the first position and I'll tell you when to switch to the next one.

43:10:32 C Roger. We're on ECS O₂.

43:10:35 CC Roger, and good morning.

43:10:38 C Good morning to you.

43:10:41 CC I have a fairly lengthy flight plan update for you here. Are you ready to copy?

43:10:49 C Stand by a second.

43:10:51 CC We'll wait one.

43:11:05 C Hi, Houston! Go ahead. I'll copy.

43:11:08 CC Roger. Time: 44:43:00; crew status reports on the Command pilot at the Cape. D-5: this will be a check on the D-5 instrument; Time, 45:24:00. Let me first give you a little briefing here, Frank. It appears that the photo tube was saturated during the previous D-5 runs, the ones where you've had trouble. Want to advise you not to turn the photometer on until you're in total darkness when in the night mode. If you have to turn it on, you may saturate it for 15 to 20 minutes and it would not work properly for that period of time. Now some instructions here: delete the first star in the D-5, Sequences 01 and 02. Are you with me so far?

43:12:36 C I'm with you, but I don't agree. We didn't have that on when there was any light around but we'll go ahead and try it.

43:12:44 CC Roger. Would you switch Quantity Read to FUEL CELL O₂?

CONFIDENTIAL

CONFIDENTIAL

113

43:12:52 C O₂.

43:12:54 CC Okay. Here is the test procedure we would like you to run on it. Turn photometer on at sunset plus 10 minutes. Aline on any bright star and calibrate. Release button and track star for 30 seconds. This is just to check on the instrument. It does not have to be a star going over the horizon. Do you copy?

43:13:41 C Roger. We've already tried this but we'll try it again.

43:13:44 CC Roger. The only thing that seems to make any sense to us, Frank, is that you may have gotten it saturated. Sometimes it causes it to not work properly. You have to be careful not to let it see any light. We think even the fuel cell's light might be enough to saturate it.

43:14:02 C Okay.

43:14:05 CC Would you switch Quantity Read to FUEL CELL H₂?

43:14:08 C Roger.

43:14:11 CC Okay. Next update: 45:32:00; crew status report on the Pilot. That's at Carnarvon. 46:14:00: GO/NO-GO at Texas. 46:20:10: Sequence 02; transponder test; pitch 30 degrees down, yaw 17 degrees left; transponder on at 46:10:00. Copy so far?

43:15:10 C Roger. Go ahead.

43:15:12 CC D-4/D-7: 46:51:40; Sequence 413 plus 414; Mode 02. Time: 47:08:00; purge fuel cells. You can turn the Quantity Read switch off now.

43:15:46 C I don't think I heard you on D-4/D-7 paragraph. D-4/D-7: 46 ...

43:15:53 CC Roger. The time was 46:51:40; Sequence 413 plus 414; Mode 02. Do you copy?

43:16:08 C Roger. I read you.

CONFIDENTIAL

CONFIDENTIAL

43:16:11 CC Time: 47:08:00; purge fuel cells. D-4/D-7: 47:55:31; Sequence 430; Mode 04; pitch 35 degrees down, yaw 10 degrees right; 30 miles east of Cape Lighthouse. Do you copy?

43:16:49 C Roger.

43:16:51 CC Time: 48:00:00; eat period. S-5: 48:51:00; Sequence 07; Mode 01. S-8/D-13: 49:25:46; Sequence 02; pitch 30 degrees down, yaw 11 degrees right; closest approach, 49:26:41. Do you copy?

43:17:35 C Roger. Go ahead.

43:17:38 CC Right after that S-8/D-13, you'll have another chance to catch a picture of Houston. The closest approach time is 49:27:42, and we figure you'll have to yaw 28 degrees left from where you end up on S-8 and then pitch up to acquire Houston. Do you copy?

43:18:09 C We'll give it a try.

43:18:10 CC Roger. Time: 49:28:00; critical tape dump at the Cape. We're probably going to lose contact here shortly. I'll just keep going. Do you read?

43:18:24 C Go ahead.

43:18:26 CC MSC-2 and 3: 49:50:00; Sequence 02 off at 66:00:00. D-4/D-7: 49:46:00. Have we lost you?

43:18:51 C Negative.

43:18:53 CC Roger. How do you feel about taking your suit off now, Jim? Would you turn your transponder off?

CANARY ISLAND

43:23:37 CC Gemini VII, Canary CAP COM. Com check. How do you read?

43:23:40 C You're loud and clear, Canary.

CONFIDENTIAL

CONFIDENTIAL

115

43:23:42 CC Roger. Did you copy the flight plan completely on this date?

43:23:46 C I believe so. We're transposing it onto our flight plan now.

43:23:50 CC Okay. The last two items were the MSC-2 and 3 and the D-4/D-7.

43:23:55 C I did not get the last of D-4/D-7.

43:23:58 CC Okay. Ready to copy?

43:24:01 C Roger. Ready to copy.

43:24:03 CC Okay. D-4/D-7: 49:46:00; Sequence 406; Mode 02; cold IR off. I have one more item: 50:00:00; exercise period.

43:24:46 C Canary, VII.

43:24:48 CC Go.

43:24:49 C We have copied that and Houston asked about taking off the suit. Tell them that he'll be glad to take off the suit at their command during the time period because it will require some time to do it.

43:25:01 CC Okay. In the event that you do this - why - we'd like you to keep us informed on your status and how you feel - as much as you can, keep us informed.

43:25:14 C Will do.

43:25:20 CC At your discretion, you can take the suit off. It's your choice.

43:25:26 C Roger. Understand.

CARNARVON

44:01:00 C I'm calling Carnarvon. This is Gemini VII.

44:01:03 CC Roger. You ready for this block update?

CONFIDENTIAL

CONFIDENTIAL

44:01:06 C Just a minute.

44:01:07 CC Roger.

44:01:31 C Ready for the block update.

44:01:32 CC Roger. Area 30-1: 46:04:12; 15 plus 28. Area 31-1: 47:39:40; 14 plus 38. Area 32-4: 50:27:35; 16 plus 40. Area 33-4: 52:03:30; 15 plus 20. Area 34-4: 53:29:02; 14 plus 37. Area 35-3: 54:55:18; 17 plus 03. Area 36-Delta: 55:46:25; 23 plus 24. The weather in all areas is good. These are for reentry. Do you copy?

44:03:06 C Gemini VII, Roger. Thank you.

44:03:09 CC Roger.

44:03:18 C Carnarvon, this is VII.

44:03:20 CC Go ahead, VII.

44:03:21 C We've had another D-4 photometer check, as requested by Houston. I noted that we alined on a star and used it to calibrate, using the A-9 switch at night to turn her off, but the reticle would not go out of the RED. There were four low gains; there were four high gains.

44:03:44 CC Roger. We copy that it would not go out of the RED.

44:04:04 CC Houston copied it as being opposite during the last time that you used it.

44:04:07 C Roger. The first time we attempted to do the experiment with the same settings it appeared that the reticle stayed GREEN.

44:04:18 CC Roger.

44:04:19 C Now the reticle does turn GREEN with the calibrate switch up, but not with it down.

44:04:27 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

117

44:04:41 CC Flight said it might be a good idea if you send it on down so we can fix it and then we'll send it back up to you all fixed.
44:04:49 C Sounds like a good idea.
44:04:51 CC Right.
44:04:52 C ... you could send it up with VIII.
44:04:54 CC Ha! Ha! Ha! Okay.
44:04:56 C If we could figure a way to get it down to you, we would, believe me!
44:05:00 CC Right.

TEXAS

44:41:13 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?
44:41:19 P This is VII. Loud and clear.
44:41:23 CC Gemini VII, reading you slightly garbled. How do you read?
44:41:27 P This is VII reading Houston loud and clear, loud and clear.
44:41:31 CC Roger. Read you much better now. Like to advise this will be a UHF 6 pass.
44:41:40 P Roger. UHF 6 ... Frank has ...
44:41:47 CC Roger. Tell him to keep it there. We do not have it yet.
44:41:52 P Roger.
44:42:13 CC Jim, just a minute now. Do you know what the star was that you were checking the D-5 experiment on?
44:42:22 P On the last pass we used several stars. One was Acrux and we used both Alpha and Beta Centauri.

CONFIDENTIAL

CONFIDENTIAL

44:42:32 CC Just bright ones then, right?

44:42:36 P Roger. We ran through the original check again. The one you gave us yesterday.

44:42:40 CC Right.

44:42:46 CC Okay. They were bright stars. That was what we were trying to pin down.

44:42:50 P Roger. They were bright.

44:42:57 CC Have you got - has Frank got the oral probe, temp probe in real good? We are not getting a good reading.

44:43:03 P Roger. It's in and also be advised that we were mistaken yesterday. The motor on the D-5 is working. We - our ears got better today.

44:43:14 CC Roger. It's very dim. We were doubtful that you could hear it. What's your suit status at the present time?

44:43:21 P We're still suited. We found out that we had to open up the zipper between the legs to get comfort. It was too hot down there and we're now fairly well unzipped but our suits are on. We are waiting for a very quiet moment so I can take my suit off.

44:43:37 CC Okay. We want you to understand completely that we are clearing you to take it off if and when you desire.

44:43:45 P Roger. Understand.

44:43:53 CC Okay. We're going ahead without the oral temp in.
...

44:43:59 CC ... blood pressure.

44:44:01 P Roger. Blood pressure coming through.

44:44:02 CC Roger.

44:44:05 CC And stand by for the Flight Surgeon.

CONFIDENTIAL

CONFIDENTIAL

119

44:44:14 CC Okay. Gemini VII, blood pressure full-scale.

44:44:26 P Surgeon, be advised that Frank had switched to light-weight headset and that this thermometer might not be working.

44:44:35 CC Roger. We copy.

44:44:38 CC Roger. Jim, I copied that. We only got - it did not go up to what I'm sure his body temp is, so it may be a faulty thermometer. That's a good thing to know.

44:45:30 CC Gemini VII, we have a valid blood pressure. You are clear to do your exercise.

44:45:36 P ... exercise.

44:46:04 CC Blood pressure coming down.

44:46:13 CC Cuff is full-scale.

44:46:14 P Roger.

44:46:45 CC Gemini VII, this is Surgeon. Jim, you might tell me while we are waiting for this blood pressure to finish up, did you have the M-1 on all night?

44:46:54 P Roger. We had the M-1 on all night. No trouble.

44:46:58 CC The noise isn't as bothersome now as it was yesterday. Is that affirm?

44:47:03 P That's right. We're getting used to noise.

44:47:09 P Chuck, do you want our food and water report?

44:47:14 CC Roger. Gemini VII, we have a valid blood pressure. Yes, we'd like the sleep, food and water report now.

44:47:22 P Roger. Had breakfast this morning. We each had about 7 hours of sleep. Some of the best sleep we've had in weeks. Total water to date, 146 ounces for the Command Pilot.

44:47:37 CC Roger. Copy.

CONFIDENTIAL

CONFIDENTIAL

44:47:39 P 126 for the Pilot.

44:47:42 CC Say again, 126?

44:47:45 P 26. ... food was Day 2, Meal C for both of us.

44:47:57 CC Roger. Gemini VII, copy. Day 2, Meal C.

44:48:01 P Roger. That is our fifth meal, our fifth meal.

44:48:08 CC Jim, could you read from your log and give me the meals in sequence? Could you read the meal numbers? Do you have - -

44:48:19 P Roger. Stand by. First meal, Day 2, Meal A.

44:48:26 CC Roger.

44:48:28 P ... meals, Day 3, Meal 4.

44:48:32 CC Roger.

44:48:34 P Third meal, Day 2, Meal Baker.

44:48:42 CC Roger.

44:48:44 P Fourth meal, Day 1, Meal Baker.

44:48:50 CC Roger. I copy. Jim, we've been watching your sleep patterns here and we notice that there were several times when you were awake last night and particularly it appears from both your records that there was an awake period at about 37 and 1/2 hours over CSQ last night. Was there some particular activity that had you both awake at that time?

44:49:17 P We don't recall any. I think both of us got a good night's rest last night. Really felt great!

44:49:24 CC Okay. Fine. We'll be looking forward to see what happens with the suit story during the day. And be sure to record the time when you finally get it off, Jim, and watch for your - we'll be watching for the BIO MED data after you get hooked up again.

44:49:44 P Will do.

CONFIDENTIAL

CONFIDENTIAL

121

44:49:46 C Chuck, here's Frank. I lost the top left-hand lead off the EEG.

44:49:53 CC Gemini VII, say again. Did you say you lost the one, the top left-hand lead off the EEG? Is that affirm, Frank?

44:50:00 C Affirmative. It came off someplace.

44:50:05 CC Okay. You just noticed that now?

44:50:08 C It came off during the night while I was sleeping.

44:50:10 CC During the night. Okay.

44:50:14 C Also, the reason - the reason we're eating the food this way is that's the way it comes out on the lanyard and it's too much trouble, it's almost impossible to try to sort it out in order - I mean in sequence now.

44:50:24 CC That's - that's perfectly all right, Frank. It doesn't matter, except to try and keep track of the meals here. If we can - if you can just report it by day and number each time, and now that we're up to date, if you keep doing that, we'll have no trouble. If you'll do that and report the things that you are not eating from each meal, if any, that'll keep us up to date.

44:50:47 C And for Chris' information, Number 1 Delta-P light came on and then both of them went off.

44:50:57 CC Say again. Say again, Frank.

44:51:00 C The Number 1 Delta-P light blinked on about 15 minutes ago and then both of them went off and now our ... is off.

44:51:06 CC Roger. You're aware that you can cut both of the left EEG leads now, if you want to, since you've lost that one.

44:51:16 C I didn't know that. I thought they would want the others free also.

44:51:18 CC The two on the right can continue but the two on the left now are inoperative.

CONFIDENTIAL

CONFIDENTIAL

44:51:24 C Since retro, four days are up. So we don't take any ...

44:51:28 CC Yes, Frank, I think it would be best to just leave it for the moment unless it's bothering you. Let's leave it as is until we tell you differently. Okay?

44:51:38 C Should have put it back on again for them, Chuck.

44:51:42 CC I don't think you've got the right paste.

44:51:47 CC Gemini VII, like to advise you that we have studied the Cryo behaviors, and we think we've got a good enough handle on them now that we'd be happy for you to use the Auto Heater positions on all three during your sleep period. We feel this'll regulate the temperature and the pressure just fine for you and you won't need to worry about waking up or controlling it during the sleep period. Then we'll go back to manual during the day.

44:52:18 C Oh. Can you give us a report on what the projected mission completion Cryo quantities will be?

44:52:24 CC Roger. We'll get that for you, Frank.

44:52:31 P Hello, Elliot.

44:52:32 CC Go ahead.

44:52:34 P I've changed that second meal to Day 3, Meal A, not 4, Meal A.

44:52:39 CC Roger. And you might turn up your HF. We're going to put some music out from here.

44:52:48 CC Did you copy, Gemini VII?

44:52:50 P Still have you.

44:52:52 CC You can turn up your HF. We're going to put some music out for you.

44:52:56 P Thank you.

44:52:59 CC We'll probably lose contact here pretty soon but I'll take advantage of the time as long as I can.

CONFIDENTIAL

CONFIDENTIAL

123

We would like you to tape-record, with your on-board recorder, your thoughts on the stationkeeping task which you did.

44:53:16 P Will do.

44:53:20 CC On your next pass, I'll give you a report on the news.

44:53:23 P Thank you.

44:53:27 CC Okay. Should be receiving some music pretty quickly.

44:53:36 C The stationkeeping task was, I thought, relatively easy. The one thing that complicated it, in this case, was the venting booster. It was receiving continuous Delta-V from quite a large vent on the autoxious line. We came off the booster, just as planned, drove up - pitched up rather - 180 degrees, fired back to the booster for approximately 5 seconds, the way we practiced in the simulations, and I thought that the sumulations and the actual event were very, very, close together. The task - we're not able to use the platform forward because of the fact that the booster ended up a little bit above us and when we put it in platform, the space-craft started to pitch down out of view of the booster, so then went to pulse and, finally, in some cases, I had to go to direct in order to get back to the booster. From then on, it was relatively simple to stay in there. I think, with a stabilized vehicle, it should be a task of no great concern. However, the continual pulsing of the booster plus the continual venting of the booster, plus its rolling, made it a little bit fuel-consuming. I would estimate that we went within 100 to 50 feet of the vehicle most of the time.

44:53:48 CC Are you receiving the music yet?

44:54:07 CC Gemini VII, the music should be coming up pretty quickly.

CONFIDENTIAL

CONFIDENTIAL

CANARY ISLANDS

44:59:40 CC Gemini VII, Canary on UHF.

44:59:42 C Go ahead, Canary, Gemini VII.

44:59:45 CC Roger. In regard to the Cryo usages so far, all the cryogenics right now are normal. In fact, there's more than we expected at this time in all three quantities, but it's pretty hard to anticipate end-of-flight residuals at this time.

45:00:04 C Okay. Thank you.

45:00:05 CC You're welcome.

45:00:56 C Canary, this is Gemini VII.

45:00:57 CC Go ahead.

45:00:59 C Would you ask Houston if we could skip the - or postpone the crew status report on the Pilot? He's going to go ahead and take his suit off, but he would like about an hour to do it and if we skip the next one, that would give him time.

45:01:09 CC Stand by.

45:01:51 CC VII, Canary.

45:01:53 C Go ahead.

45:01:54 CC Roger. Flight gives a GO. You can skip that crew status report on the Pilot.

45:02:00 C Okay. Thank you. Jim is going to take his suit off now.

45:02:02 CC Okay.

45:02:05 CC Keep us informed as much as possible on your status and his status.

45:03:44 C ...

45:03:57 C Jim is trying to remove his suit now, at 45:03.

CONFIDENTIAL

CONFIDENTIAL

125

45:03:59 P Okay. ...

45:04:02 C That was an accident. I'm sorry.

45:04:03 CC VII, Canary. Were you calling?

45:04:05 C That was an accident. I'm sorry.

45:04:06 CC Roger.

45:04:09 P Okay. I have the suit ... two people, one at a time, or rather two people to help. One person to get out of the tubes ... and various pieces.

45:04:45 P I'm afraid now ... I need it right away. ...

45:05:16 P I don't think we will be able to wear gloves.

45:05:21 C Everything is going to be too cold to touch.

45:05:24 P I think it's just right; the temperature is beautiful. I'm leaving spare parts, ..., gloves, everything in the suit; two rolls of movie film ...

45:05:59 P There are lots of switches.

45:06:07 C On ... change you'll have - oops - the heater's on.

45:06:19 P Okay. The boots are coming off now.

45:06:20 C Okay. Jim - he's got one boot off. 45:21: Jim's plug on the BIO MED read now.

45:07:09 CC Gemini VII, Gemini VII, Houston CAP COM.

45:07:13 C Go ahead, Elliot. Gemini VII.

45:07:15 CC Roger. Thought I'd check and see if you were able to get the HF okay.

45:07:19 C Roger. Thank you very much.

45:07:22 CC And could you tell me what Jim's plans are on the suit? Does he plan to put the orbital flight suit on?

CONFIDENTIAL

CONFIDENTIAL

45:07:29 C I don't believe so, not at the present time. It's pretty warm in here.

45:07:33 CC Roger.

45:07:38 CC I'd like also to tell you, Frank, that we're very pleased with the OAMS quantity progress. You're finally being very stingy with the fuel and it looks real good.

45:07:51 C Fine. Thank you.

45:08:12 CC Sounds like you're receiving very well there. If you'd like, I could start giving you some of these news items or we can wait till your next US pass.

45:08:21 C Go ahead, I'll listen happily.

45:08:25 CC Okay. President DeGaulle received only 44 percent of the vote, pushing him into a run-off election for the French presidency. He is expected to win in a run-off, however. In Vietnam, the US troops had a clash with the Communists in an estimated regiment strength in a new battle at Michelin Rubber Plantation. The Soviet scientists are to attempt a soft landing on the moon with Luna 8 this afternoon. Here's an item about Gemini VII. It says: "Astronauts Borman and Lovell report all is well aboard their Gemini VII." You know anything about that? And Gemini VI launch preparations are still running ahead of schedule and the crew is ready for their launch - for their rendezvous attempt. Local news is that Secret Service agents arrested a former printer in Houston and seized 1 1/4 million dollars in counterfeit 20-dollar bills. How did you read?

45:09:42 C Read you loud and clear. I wondered where Chris got all that money down at the Cape.

45:09:51 CC Big spender from Houston!

45:09:52 CC I'm going to get some more of it, too.

45:09:59 C Jim is still proceeding with his suit removal. He is getting all his clothes off and so on now.

45:10:04 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

127

45:10:30 CC Gemini VII, Houston. Are you still receiving the HF? If not, could you tell us where you lost it?
45:10:37 C We turned it off. It got pretty garbled so we turned it off.
45:10:41 CC Where was that?
45:10:43 C Right before you called on UHF.
45:10:46 CC Right before Kano here.
45:10:48 C Roger.
45:10:49 CC Okay. Thank you.

TANANARIVE

45:20:23 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?
45:20:27 C ...
45:20:29 CC Roger. We've been advised that you might be able to pick up the HF again. We may have just had a skip in the Kano area and you might try it again if you're interested.
45:20:41 C Okay. Think I'll turn it on.
45:20:50 C You're right. It's coming in.
45:20:52 CC Roger.
45:20:54 CC How's the suit procedure going?
45:21:00 C It's going pretty good. He's taking off the BIO MED lead and the blood pressure lead now.
45:21:08 CC Roger.
45:21:24 CC I guess we've got a new chapter on what the well-dressed space pilot will wear.

CONFIDENTIAL

CONFIDENTIAL

45:21:29 C Roger. It looks like I can balance the flow out all right. ... by turning his way down and mine up I get some flow in my suit also.

45:21:40 CC Roger.

45:21:52 CC Does it look like he will try to wear the orbital flight suit or not?

45:21:57 C I don't think so. It's just not a real cold one.

45:22:00 CC Roger.

45:31:04 P We had to intervert circuit breaker actuation. Both the electronic and event timer circuit breakers were pulled and we got a digital elapse time hack from Carnarvon. Okay. Cuff's actuated again; reconnected at 45:42.

CARNARVON

45:33:41 CC Gemini VII, this is Carnarvon CAP COM.

45:33:44 C Go ahead, Carnarvon. Gemini VII.

45:33:46 CC Roger. We want to run a test on the L-Band transponder. Would you turn it to the ON position, please?

45:33:51 C Roger. It's on now.

45:33:53 CC Roger. And then leave it on for approximately one revolution.

45:33:58 C You want to leave it on for one revolution?

45:33:59 CC That's affirmative. We'll be turning it off over Carnarvon again on the next pass.

45:34:04 C Let's see. We have a test over the Cape with it one of these days. Just a minute.

45:34:17 CC Gemini VII, that will be on the same revolution.

45:34:22 C Okay.

CONFIDENTIAL

CONFIDENTIAL

129

45:35:07 CC Gemini VII, Carnarvon.

45:35:10 C Go ahead.

45:35:12 CC Roger. They'll update the computer for you during the GO/NO-GO over the States and that's the one that occurs at 46 hours, 14 minutes. They'll also tell you when they want you to turn the computer to the ON position.

45:35:28 C Okay. Thank you.

45:35:30 CC Roger.

45:35:31 C Jim is all out of his suit and comfortable.

45:35:34 CC Hey, very good!

45:36:14 CC Gemini VII, Carnarvon. We're not getting any data on the Pilot. Medical data. Would you check the plug, please?

45:36:20 C He hasn't got it plugged in yet. We'll have that fixed in a minute.

45:36:23 CC Okay. And we're also getting no indications of the clocks counting here on the ground. Would you check to make sure that the time reference system is on?

45:36:31 C Roger. It's off.

45:36:35 CC Roger. What's the reason for that?

45:36:39 C An inadvertent circuit breaker actuation during removing the suit.

45:36:43 CC All right. Fine. We're showing the clocks counting now.

45:36:49 C I'll need an update, please.

45:36:51 CC Let's see, you should be with 2 hours, 11 minutes, 55 seconds. You'll probably drift, so they can update your ... there.

45:37:00 C No, I mean, can you give me a time hack so I can set my digital elapsed timer?

CONFIDENTIAL

CONFIDENTIAL

45:37:05 CC All right. Let's see ~ we'll be setting at 45 hours 38 minutes and that'll be in approximately 40 minutes or 40 seconds after the hack. That's 45 hours, 38 minutes.

45:37:24 C Carnarvon, can you make it at 45:40?

45:37:28 CC Let's see, 2 minutes. That's pretty close to my LOS.

45:37:32 C All right. How about 39?

45:37:33 CC Roger. Can do.

45:38:45 C Gemini VII, standing by for an update.

45:38:50 CC 10 seconds.

45:38:51 C Thank you.

45:38:56 CC 3, 2, 1

45:38:59 CC MARK.

45:39:00 CC 45 hours, 39 minutes.

45:39:02 C Thank you very much, Carnarvon.

45:39:04 CC Roger.

45:40:37 CC Gemini VII, has the Pilot gotten his BIO MED plug in as yet?

45:40:41 C Negative.

45:40:43 CC Roger.

45:40:48 C It takes a little while here.

45:40:50 CC Okay.

45:42:16 C Okay. Jim is back in the suit, ready to operate; elapsed time 45:47.

CONFIDENTIAL

CONFIDENTIAL

131

TEXAS

46:13:53 C We are almost in position to do an S-5, pitching down now so that Jim can do a series of sequences every 10 seconds, shots over Mexico. Time is 46:14:09. Starting the sequence now of S-5, 46:15:38.

46:14:34 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

46:14:39 C Loud and clear, Elliot.

46:14:41 CC Roger. We'd like to have you bring your computer up at this time, Frank, in preparation for this 46-1 load. That would be A.C. power to IGS and then computer on in PRELAUNCH.

46:14:54 C Roger.

46:15:06 C Computer's on.

46:15:09 CC Roger. Stand by for a DCS update and you have a GO for 46-1 at this time.

46:15:16 C Roger. 46-1 GO. We inadvertently had our TRS circuit breakers off while Jim was taking the suit out. Will you check out our TRS for us?

46:15:25 CC Roger.

46:15:43 CC We have a proper readout here. You said it should be updated now. Did you get the light, Gemini VII?

46:15:50 C Roger.

46:15:53 CC Are you ready to check out the TR at this time?

46:15:57 C Negative. Not now, Elliot.

46:16:06 CC Understand you could not read it at this time anyway. It's too big. We'll have to wait until a later pass, I guess.

46:16:12 C As long as yours is looking all right to you, that's all I was worried about.

CONFIDENTIAL

CONFIDENTIAL

46:16:15 CC It's looking real good here.

46:16:16 C That's fine.

46:16:19 CC Okay. I would like to give you the 46-1 update.

46:16:24 C Roger. Can you stand by just a minute?

46:16:27 CC Roger.

46:17:49 P Houston, this is VII. Standing by for the 46-1 update.

46:17:54 CC Okay, Jim. GET RC: 71 plus 34 plus 29; Retro to 400K, 15 plus 01. RET RB: 20 plus 36; bank left 50, bank right 60. Do you copy?

46:18:25 P This is VII. Roger. Copy the 46-1.

46:18:28 CC You want to read it back?

46:18:31 P Roger. 46-1: GET RC: 71 plus 34 plus 29; RET 400K, 15 plus 01. RET RB: 20 plus 36, bank left to 50, bank right to 60.

46:18:48 CC Roger.

46:18:49 CC And do you have the 46-1 GO/NO-GO information for me?

46:18:54 P Not yet. We'll get that for you as soon as we can.

46:18:57 CC Roger. Instruction on your D-5 instrument: we are happy with your results in your check. We do not understand why it's doing that but we feel you made a good check. We would like to have you put that instrument aside for the time being and we're getting another one in here to do some analysis on. We are going to try to figure out just what is happening in it. We will not give you any more assignments on it for the time being.

46:19:28 P Roger. And we'll get this functional check for the 46-1 while we can work it in. We don't want to miss the Cape ... this time.

CONFIDENTIAL

CONFIDENTIAL

133

46:19:37 CC Roger. Just for your information, I've contacted both Sue and Marilyn last night and this morning. All families are doing fine and all the kids are back in school. Sue said the boys have promised to try to buckle down to their school work and Marilyn's particular message was that your mother's doing real fine, Jim. She talked to her on the phone.

46:20:07 P Fine! Great! I feel kind of naked here without my suit on.

46:20:12 CC Temporarily embarrassed, right? I assume it's still comfortable.

46:20:20 P Roger.

46:20:21 C Elliot, this is VII here. We're tracking in on the Cape. Let's have our radar test.

46:20:26 CC Roger. HF should be available again to you anytime you want to tune it back in.

46:20:40 C Roger. ... can we turn the computer off?

46:20:43 CC Stand by. We want to leave the computer on a few more minutes, VII.

46:20:51 C Okay.

46:21:41 C Okay. We passed over the Cape. Had a real good track. It was very easy to acquire and very easy to stay on.

46:21:47 CC Okay, VII. Have a report for you. Your D-4/D-7 data are coming in very good. We have been very pleased with the results on it so far.

46:22:00 C Thank you.

46:22:03 CC And we're standing by for your GO/NO-GO information.

46:22:05 C You're going to get it right now.

46:22:07 CC Okay.

46:22:09 C We took a little longer to get the suit off than we anticipated.

CONFIDENTIAL

CONFIDENTIAL

46:22:13 CC Roger.

46:22:20 C Will you remind Mr. Kraft the computer takes electrical power and electrical power uses cryogenics and we're not going to be long on it?

46:22:28 CC We'll let you turn it off in a few minutes.

46:22:31 C Okay.

46:22:35 CC Mr. Kraft knows all that good stuff. Stand by, we want to check your computer.

46:22:40 C Roger.

46:22:57 CC Last look at the cryogenics says you can stay up there about 20 days.

46:23:04 C Okay, Chris, we're ready. I may have to take my suit off though, to stand myself up here now.

46:23:12 CC No comment. There should be a clothespin stored on the left side.

46:23:23 C Roger. That's exactly what I need.

46:25:06 CC Go ahead, VII.

46:25:11 C Gemini VII, did you call Houston?

46:25:13 C Roger. Main batteries are okay. All batteries are 23 volts. Do you want individual stack readouts?

46:25:21 CC Roger.

46:25:22 C 1A, 4 amps; 1B, 4 amps; 1C, 4.5 amps; 2A, 4.0; 2B, 4.0; 2C, 5.0 amps. Main bus voltage 27.0.

46:25:44 CC Roger.

46:25:45 C ... pressure 3000. Temperature 80.

46:25:53 CC Thank you.

46:25:54 C RCS B: 2900, temperature 75.

46:26:01 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

135

46:26:03 C Left secondary O₂: 5400.
46:26:07 CC Roger. 5400.
46:26:13 C Right one is 5300.
46:26:16 CC I hear 5300. And Gemini VII, you are cleared to turn off your computer at any time now.
46:26:22 P VII. Roger.
46:26:51 CC Gemini VII, Houston CAP COM.
46:26:55 P Go ahead.
46:26:57 CC We've got a good check on your computer. You're in good shape now.
46:27:02 P Thank you.
46:27:16 CC VII, at some time in the future we plan to contact you about possibly reinstalling the EEG lead. Are you going to be able to get at that kit which has the special glue in it?
46:27:30 P Hey, we were only kidding!
46:27:36 CC Say again.
46:27:37 P We were only kidding about that.
46:27:42 C Yes, we can try.
46:27:44 CC Okay.

CANARY

46:33:42 CC Gemini VII, Canary CAP COM. Com check. Over.
46:33:45 P This is VII. Loud and clear, Canaries.
46:33:47 CC There's a crew status report on the Pilot over Carnarvon. I'll give you elapsed time. 47:08:00.
46:34:03 P Roger. Crew status at Carnarvon at 47:08:00.

CONFIDENTIAL

CONFIDENTIAL

46:34:07 CC Roger.

46:35:04 P Spacecraft T_R lags by 375 milliseconds.

46:35:08 CC Say again.

46:35:10 P Spacecraft T_R lagging the ground by 375 milliseconds.

46:35:49 CC VII, Canaries.

46:35:52 C Go ahead, Gemini VII.

46:35:53 C Roger.

46:35:54 CC We'd like to change the time on your D-4/D-7 experiment. The one you have listed as 47:55:31. We'd like you to change that time to 47:55:37.

46:36:11 C Roger. D-4/D-7, Sequence 430, is now 47:55:37.

46:36:18 CC Affirmative.

46:36:27 C Canaries, this is VII. Can you give us an idea how the transponder worked out over the Cape?

46:36:34 CC Stand by.

46:37:06 CC VII, Canaries. We will have an answer for you momentarily. You can turn off the Quantity Read switch if you like.

46:37:12 C Roger. We'd like also to turn off the transponder.

46:37:15 CC Roger. Stand by.

46:37:26 CC Flight says Carnarvon.

46:37:29 C Roger.

46:38:43 CC VII, this is Canary. We're about to lose you pretty soon now. We'll probably give you a report over Carnarvon on that transponder test over the Cape.

46:38:50 C Roger. We'll stand by.

46:51:13 P We weren't transmitting. ... Okay. We're now lining up on D-4/D-7. 414 lining on Betelgeuse in a RAD position for 3 minutes.

CONFIDENTIAL

CONFIDENTIAL

137

46:51:28 P I am trying D-5 at the same time. Okay. We'll pull down on ... filter's down and photocells are protected from any light till they get this position. Calibrate switch is now pressed down, Betelgeuse has a green light on it and we'll rotate D-wheel all the way out. No red light at all.

46:51:59 C Is the filter removed?

46:52:01 P Filter is removed.

46:52:02 C Try it on Sirius.

46:52:04 P It stays GREEN all the time.

46:52:09 C Can you see Sirius?

46:52:10 P Yes, I can see Sirius.

46:52:14 P Next, I'll try Sirius, D-wheel full-down. That's Sirius. Calibrate one that is depressed rotating.

46:52:35 P No soap.

46:52:42 C No soap on Sirius.

46:52:47 P The vertical lines remain GREEN at all times. GREEN.

46:52:54 C In the NIGHT position. I double-checked.

46:52:58 C Ground check okay.

46:53:04 P NIGHT position. NIGHT position.

46:53:06 C Okay. Because of the fact that the cockpit is completely blacked out, I don't have an accurate time hack on this one, but I've had a stand on Betelgeuse now with a maximum RAD of 3 minutes.

46:53:23 P I turned off ...

46:53:24 C Can I turn it on now?

46:53:25 P Yes.

46:53:27 C It's been 3 minutes. Now I'm going to max IR on Betelgeuse still.

CONFIDENTIAL

CONFIDENTIAL

46:53:40 C It's hot.

46:54:45 P No. I'm looking for my light.

46:55:25 P It's a planet.

46:55:35 C Yes. Okay. Now we're swinging to Rigel.

46:56:54 C Okay. Now Rigel acquired. Starting on Rigel for 3 minutes max RAD position. Time 46:57.

46:57:06 P We'll dim the lights, if it bothers you.

46:57:09 C Doesn't bother me.

46:57:47 C She just jumped up, didn't she?

46:58:42 C Pushing for 2 minutes to the max IR return, please. Still on Rigel. Time 47: ... correction, 47:20 experimenting completed; Sequences 414 and 413; D-4/D-7 completed at 47:02:18; firing down.

47:02:20 P At 47:23 our favorite friend, Section 2 Delta-P light came back on again; has been gone for some time and decided to come back.

CARNARVON

47:07:55 CC Gemini VII, Carnarvon CAP COM.

47:07:58 C Go ahead, Carnarvon. Gemini VII.

47:08:00 CC Roger. Have a fuel cell purge in addition to the Medical Data Pass.

47:08:04 C Okay. Which one do you want first?

47:08:07 CC We want the Medical Data Pass part of it first.

47:08:11 C Roger.

47:08:12 CC Can you possibly get them both at the same time?

47:08:14 C Negative, because the CM2, Jim Lovell, is going to be doing them both.

CONFIDENTIAL

CONFIDENTIAL

139

47:08:19 CC All right.
47:08:22 CC We have no indication of oral temp at the present.
47:08:25 C It's in his mouth.
47:08:27 CC Okay. Let's skip that part of it.
47:08:30 C Roger. Sending your blood pressure.
47:08:46 P Gemini will test ...
47:08:49 CC Roger. Let him bleed off.
47:09:46 CC We have a good blood pressure. Would you give us your Mark when you begin your exercise?
47:09:51 C Will do.
47:09:54 C Are you getting the oral temperature yet?
47:09:57 CC Negative.
47:09:58 C MARK. Beginning exercise.
47:10:00 C Okay. The oral temperatures on both our ... headsets are evidently not working. Mine didn't work either, last time.
47:10:08 CC Roger.
47:10:20 CC You can turn your transponder off at this time.
47:10:25 C It's off.
47:10:26 CC Roger.
47:10:30 C MARK. Exercise is complete. Here comes the blood pressure.
47:11:06 CC ... temp ...
47:11:12 C Roger. Bleeding off.
47:12:07 CC We have the blood pressure. Do you have any addition to your food and water report?

CONFIDENTIAL

CONFIDENTIAL

47:12:13 C No, not yet. Not since the last time.

47:12:15 CC Roger. We did, in fact, get an indication of temperature.

47:12:16 C Very good.

47:12:17 CC Surgeon out.

47:12:19 C Thank you.

47:12:22 C Proceeding with fuel cell purge.

47:12:26 CC Roger.

47:12:51 CC Okay. While you're purging, we have the results of the transponder test. They were negative, but they feel that it was a ground problem and quite sure that your transponder is okay. Apparently it was an error in the pointing data.

47:13:08 C No, it couldn't have been. I was tracked exactly on the ... it was very, very easy to spot and we were right on it.

47:13:16 CC What they feel is that it was an error in the ground pointing data, what the ground had themselves.

47:13:21 C Roger. I see. Thank you.

47:13:27 P From up here it looks like they're pretty busy on Pad 19.

47:13:32 CC Roger. Everything is going real good on it.

47:15:12 C Carnarvon, Gemini VII.

47:15:14 CC Roger, Gemini VII.

47:15:16 C Roger. While Jim is purging here, he's been out of his suit for about a revolution now. He's very, very comfortable. I'm able to stay as comfortable as I was. Our suit temperatures dropped and so did our cabin temperature.

47:15:29 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

141

47:15:33 C ... it's the only way to fly!
47:15:38 CC Roger.

HAWAII

47:27:38 CC Gemini VII, Cape.
47:27:47 CC Gemini VII, Houston.
47:28:05 C This is Gemini VII. Go ahead.
47:28:08 CC Roger, VII. This is Houston. Are you GO for D-4?
47:28:12 C Roger. GO.
47:28:14 CC Fuel cell purge complete?
47:28:17 C Say again?
47:28:19 CC Is your fuel cell purge complete?
47:28:21 C It's complete.
47:28:23 CC Roger. How do you like the music? Are you still getting it?
47:28:28 C We turned it off. We got a little busy there and we turned it off for awhile.
47:28:34 CC Okay. They've got some good Hawaiian stuff coming up to you.
47:28:37 C That's okay! We'll give it a try.
47:28:43 CC Cloud cover at the Cape is .3 to .5 for D-4.
47:28:49 C Say again, please.
47:28:52 CC Cape cloud cover .3 to .5.
47:28:56 C Where's that?
47:28:58 CC That's at the Cape for D-4.

CONFIDENTIAL

CONFIDENTIAL

47:29:02 C Yes, it was just about clear when I went by there the last time.

47:29:06 CC Yes, you don't know where they're getting it, Sport.

47:29:08 C Roger.

47:29:33 C ... worry about the ... and everything. It's evidently no problem. The atmosphere is very, very comfortable.

47:29:42 CC Very good, very good.

47:29:48 CC Elliot says that's worth a dollar to him.

47:34:22 CC VII from Houston.

47:34:34 CC Gemini VII, Houston.

47:34:38 CC Gemini VII, Houston is calling.

47:34:42 P Roger. This is VII listening.

47:34:44 CC Roger. They turned off your HF music. The Cape transmitter was getting too hot.

47:34:56 P This is VII. Would you repeat, please?

47:35:03 CC Houston advised that they turned off the HF music.

47:35:07 P Roger. Thank you. And also, our second fuel cell light .. back on until approximately 5 or 10 minutes ago.

47:35:19 CC Okay, Gemini VII.

47:35:30 CC Gemini VII, Houston. The music is available again.

47:35:36 CC Gemini VII, Houston advised music is available again.

47:35:44 C Okay. Thank you very much.

47:35:46 CC Roger.

HAWAII

47:36:12 CC Gemini VII, Hawaii CAP COM.

CONFIDENTIAL

CONFIDENTIAL

143

47:36:14 P This is VII listening.
47:36:16 CC Okay. How are you doing up there this morning?
47:36:18 P Pretty good. A good night's sleep. A lot of things to do in the morning.
47:36:22 CC Roger. Okay. We're showing you GO here on the ground. Would you put your Quantity Read switch to the ECS O₂ position, please?
47:36:29 P Roger. We're in the ECS O₂.
47:36:30 CC Okay. We got that. Just stay there a while.
47:37:25 CC Okay. Will you put your Quantity Read to the FUEL CELL O₂ position please?
47:37:31 CC Okay. Hold it there.
47:38:06 CC Okay. Quantity Read to the FUEL CELL H₂ position.
47:38:12 CC Okay. Hold it there.
47:38:16 P The Fuel Cell Delta-P light is back on, Hawaii.
47:38:20 CC Okay. Could you give me the time it came on?
47:38:22 P Stand by. 47:22.
47:38:33 CC Okay. Thank you.
47:38:48 CC Okay. Quantity Read switch off. Thank you.
47:39:01 P You're welcome.
47:39:04 CC Okay. We'll be standing by if you need anything else.
47:39:06 P Roger, Hawaii.

GUAYMAS

47:46:16 CC Gemini VII, Guaymas CAP COM.
47:46:20 P Guaymas. Go ahead.

CONFIDENTIAL

CONFIDENTIAL

47:46:21 CC Roger. We have you GO on the ground. Everything looks real good. We have nothing for you. We are standing by.
47:46:25 P ...

TEXAS

47:49:32 CC Gemini VII, Houston.
47:49:35 P This is VII. Go ahead.
47:49:36 CC Roger. We're standing by for your D-4. We have nothing special this pass. The D-4 is still on schedule.
47:49:46 P Roger. D-4 on schedule. We're all set to go.
47:49:60 CC For your information, the possible activity on the 38th revolution will not take place and so you'll have an uninterrupted sleep period tonight.
47:50:12 C Roger.
47:52:26 C Hey, Houston! We're right over you!
47:52:30 CC Hello there!
47:52:33 P Hey, Elliot!
47:52:34 CC Go ahead.
47:52:36 P Tell Conrad to get his kids off my roof!
47:52:40 CC He's out of town now.
47:52:43 C We got some very good pictures, Houston. It was as clear as a bell. They see the Astrodome - the whole works.
47:52:49 CC You say you got some pictures on this pass?
47:52:52 C Right over you.
47:52:54 CC You able to get some pictures this pass?

CONFIDENTIAL

CONFIDENTIAL

145

47:52:56 C Very good ones, I hope.
47:52:58 CC Excellent! We weren't sure you'd have enough time before the D-4 so we didn't tell you about that.
47:54:03 C Houston, this is VII. There have been some clouds move in here just in the time we've been around.
47:54:08 CC Roger. We've got 1 plus 30 to go.
47:54:12 C Roger.
47:54:37 CC MARK. One minute.
47:54:40 C Roger.
47:55:28 CC 10 seconds.
47:55:58 C We've got her! She's beautiful!
47:56:00 CC Very good!
47:56:13 C Hey, hey! I didn't know they were shooting that thing!
47:56:18 CC Something I forgot to tell you, Frank. Another aerospace first! Sorry about that, Chief.
47:56:30 C It's easy to track; we're right on it.
47:56:33 CC Roger.
47:56:40 C Staging.
47:56:43 CC Roger. Staging.
47:56:52 CC Gemini VII, do you have guidance initiate?
47:56:57 C Roger. Manual control.
47:57:20 CC Gemini VII, did you see a nose fairing separation?
47:57:24 C Saw it.
47:57:42 P Powered down.
47:57:46 C Okay.

CONFIDENTIAL

CONFIDENTIAL

47:57:51 C What's on the flight plan next? We ought to record that.

47:57:52 P Yes.

47:57:54 P Did you have that on record?

47:57:56 C No, I didn't. I wish we would.

47:57:58 C Okay. For the record: D-4/D-7; 430 went off perfectly.

47:58:10 CC Gemini VII, did you observe the separation?

47:58:15 P Negative. It went into the clouds as we kept on tracking it and it was just a white, long background.

47:58:23 CC Roger.

47:58:30 C Okay. What else do you want to say about it, Jim?

47:58:32 P Oh, ... The record - we identified the pass at 4:30 and it was very easy to spot out of the blue water.

47:58:42 C It was very easy to spot and very easy to track.

47:58:44 CC Gemini VII, understand you completed tracking. Is that correct?

47:58:48 P That is affirmative.

47:58:49 CC Roger.

47:58:50 P Okay. Let me get some pictures here.

47:58:58 C The time was right on the given time. What was it?

47:59:01 CC Roger.

47:59:03 P 55:37, wait. 47:5 ...

47:59:07 C 47:55:37.

47:59:09 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

147

47:59:10 C 47:55:37. It was a very easy task and I hope we got some good data.

47:59:11 C Easy job, and I hope we've got some good data.

47:59:15 CC Roger.

47:59:20 P General comments on preparing the photographs of the Cape from GT-V from the actual views: in the actual view, the sky, or rather the water and the land surrounding it, did not have as deep a blue color as the photograph indicates. Blue like in blue. Clouds are about as represented, only white doesn't show in the photograph and the grays and tans of the ground are more pronounced in actual life than they are on the photograph. Other than that, it is pretty representative.

47:59:44 CC Gemini VII, Houston. Did you make any meter readings during your tracking?

47:59:43 C Negative.

47:59:54 CC Roger.

47:59:58 C Both trying to observe it, track it, and then Jim was photographing while I was using the reticle.

48:00:04 CC Roger.

48:00:12 CC Gemini VII, you have a Tx coming up in about 20 seconds.

48:00:19 P Roger.

48:02:31 CC LOS at VII.

48:02:55 CC Gemini VII, do you still read Houston?

48:02:59 P We read you loud and clear.

48:03:01 CC Did I hear that you made an S-5 pass earlier today? I think it was across Mexico.

48:03:10 P ... 5. Say again, Elliot.

48:03:12 CC Did I hear that you made an S-5 pass over Mexico earlier this morning?

CONFIDENTIAL

CONFIDENTIAL

48:03:18 P We made one S-5 pass over southern Mexico earlier this morning. We were going to do another one but didn't have time prior to this last pass.

48:03:25 CC Roger.

48:07:29 C This is Borman about to make a urine dump. Turn on the tape for telemetry pickup.

48:16:41 CC Gemini VII, Houston CAP COM.

48:26:38 P Lovell dumping urine this time. Not too much of it; most of it's in my underwear.

TANANARIVE

48:27:04 CC Gemini VII, Gemini VII, Houston CAP COM.

48:27:08 C Go ahead, Houston. Gemini VII.

48:27:11 CC Roger. Have an update on the S-8/D-13 time. Can you copy?

48:27:37 C Roger. Go ahead with the time, please.

48:27:40 CC S-8/D-13 time should be revised to 49:25:53; closest approach, 49:26:48. Do you copy?

48:28:00 C Roger. We have that.

48:28:02 CC Roger. And Benjamin Franklin says the pleasure was all theirs. It's always a pleasure to help another Navy man out.

48:28:14 P Tell them thanks. They did a wonderful job!

48:28:17 CC Roger.

48:28:40 CC They said you reported staging even quicker than they did.

48:28:47 P Good cooperation!

48:29:08 CC Gemini VII, your music is off. We're changing reels.

CONFIDENTIAL

CONFIDENTIAL

149

48:29:14 P Thank you.
48:31:27 P Urine dump completed, flush off.
48:35:17 P ...
48:37:19 C MSC-2 and 3 going on now at 49:44. Sequence 02 without attitude control. Okay. D-4/D-7: the Sequence is 406 at 49:46; performed; the moon's so bright it is difficult to determine the Milky Way; the spacecraft is pointed directly at Cassiopeia and we are taking measurements for 2 minutes. The Sequence is 406; Mode 02; ... IR off. ...

CARNARVON

48:42:44 CC Gemini VII, Carnarvon.
48:42:59 P This is VII. Go ahead, Carnarvon.
48:43:01 CC Roger. We have your T/M solid on the ground. You're looking real good. We would like an on-board OAMS propellant quantity from you.
48:43:09 P Roger. On-board OAMS is 65 percent.
48:43:13 CC Roger. Copy 65.
48:43:18 CC That's about all we have for you this pass. We'll be standing by.
48:43:22 C Roger. Could you give us some idea of how our OAMS is doing?
48:43:25 CC Roger. Stand by.
48:43:32 CC Roger. Your OAMS seems to be doing real good. They were real pleased with your usage of it.
48:43:44 C Roger. We were kind of curious about the last exercises. Used up a lot of gas on that.
48:43:49 CC Roger. We'll have your up-to-date answer here in a minute.

CONFIDENTIAL

CONFIDENTIAL

48:43:52 C Okay.

48:46:05 CC Gemini VII, Carnarvon.

48:46:08 P Carnarvon, go ahead.

48:46:10 CC Thank you. We'd like for you to boost up your ECS O₂ pressure between 500 and 583, somewhere in there, on your gage.

48:46:19 P Roger. ECS O₂ ... up telemtries 500 to 583.

48:46:23 CC Roger.

48:46:28 C It's reading 500 now, Carnarvon.

48:46:31 CC Roger. We show you're a little low on the ground.

48:46:34 C Okay. I'll go ahead and boost it above 500.

48:46:36 CC Roger.

48:46:46 CC Also, you're right on the flight plan on your OAMS usage, Gemini VII.

48:46:47 C Okay. Thank you.

HAWAII

49:09:42 CC Gemini VII, Gemini VII, Hawaii CAP COM.

49:09:57 C Gemini VII.

49:09:59 CC Gemini VII, Hawaii CAP COM.

49:10:03 C Roger. Go ahead, Hawaii. This is Gemini VII.

49:10:05 CC Roger. We're showing you GO on the ground, and I have a flight plan update for you when you're ready.

49:10:12 P Is it a very long one?

49:10:14 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

151

49:10:16 P I'm right in the middle of trying to eat. I wonder if they can hold off for awhile.
49:10:19 CC Roger. We'll stand by.
49:10:21 P Thank you.
49:10:37 CC Gemini VII, Hawaii. They'll take care of it over the States.
49:10:46 P Thank you.
49:10:51 CC Standing by.

CALIFORNIA

49:20:05 CC Gemini VII, Gemini VII, Houston CAP COM.
49:20:17 CC Gemini VII, Houston CAP COM.
49:20:20 C This is Gemini VII. Read you loud and clear.
49:20:22 CC Roger. Have you finished eating lunch yet?
49:20:26 P We haven't quite.
49:20:31 CC Understand you have not quite finished.
49:20:35 P That's right. That is, we haven't quite finished with it. We're going to do an S-5 ... minutes ago; coming up on it now.
49:20:43 CC You aren't forgetting your S-8/D-13, are you?
49:20:49 C No. We won't forget that one.
49:20:52 CC Okay.
49:21:02 C Elliot, we were not able to get the S-5 over Australia. It was still too dark and also cloudy.
49:21:08 CC Roger.
49:21:14 CC As soon as you're able here, we've got a flight plan update to pass on to you, but S-8/D-13 is

CONFIDENTIAL

CONFIDENTIAL

top priority here. We don't want to foul you up on that.

49:21:22 P Okay. Go ahead and pass the flight plan up. It looks like it's going to be too cloudy to try and take pictures of Mexico anyway.

49:21:30 CC Okay. Get your attitude on S-8 and whenever you need me to stop talking just say so and we'll break into the flight plan update, and then we'll catch it after you finish.

49:21:39 C Roger. I think you can go ahead and start now.

49:21:42 CC Roger. You ready to copy?

49:21:45 C Roger.

49:21:46 CC Node: 49 plus 02 plus 56; Rev 31; 169.1 degrees east; right ascension, 12:50:31. D-4/D-7: 50:56:00; 418, and that was Sequence 418; Mode 02; pitch 90 degrees down, yaw zero degrees. Do you copy?

49:22:33 C I copied.

49:22:35 CC D-4/D-7: 50:56:00; Sequence 421; Mode 02; pitch 90 degrees down, yaw zero. D-4/D-7: 50:56:00; Sequence Number 422; Mode 02; pitch 90 degrees down, yaw zero. Do you copy?

49:23:23 C I copied.

49:23:25 P We better stop now, Houston, and get ready for S-8/D-13.

49:23:29 CC Okay. Give me a call when you're able to copy some more.

TEXAS

49:24:34 CC Gemini VII, Houston.

49:24:36 C This is VII. Go.

CONFIDENTIAL

CONFIDENTIAL

153

49:24:38 CC Roger. The wind is from the north so there is smoke along the south border, and your pass will be 40 miles north of the site. The weather is very clear.

49:24:50 C Roger.

49:26:41 C Houston, this is Gemini VII. We got it.

49:26:45 CC Go ahead.

49:26:52 C It's 3. The second one is a 1. The fifth one is a 3. I can't read the rest of them.

49:26:59 CC Roger.

49:27:12 CC Jim make any readings?

49:27:14 C No, Jim didn't acquire it that time.

49:27:16 CC Roger. Understand you're the only one that acquired and you called the first one as a 3, the next one as a 1, and you couldn't make any more readings.

49:27:26 C Third one was a 3 also, and I couldn't read any after that.

49:27:29 CC The first one was a 3, the second one a 1, and the third one a 3.

49:27:35 C Right.

49:27:37 CC Is that correct?

49:27:38 C Say again.

49:27:40 CC You read a three, one, three. Is that correct?

49:27:44 C It's correct.

49:27:45 CC Roger. And were you just not able to make out anything further than that, or were you just not able to see the square well enough?

49:27:53 C Well, we couldn't see the squares very well. There's not much contrast down there now.

CONFIDENTIAL

CONFIDENTIAL

49:27:58 CC Roger.

49:28:00 C The big markers stick out very well.

49:28:02 CC Roger.

49:28:12 P Roger.

49:28:13 CC Okay. Ready to copy some more?

49:28:15 P Roger.

49:28:16 C Let me get some books out here.

49:28:18 CC Roger.

49:28:20 C We want to get some passes down the islands this time too, to check the damage from the last hurricane.

49:28:28 CC Roger.

49:28:33 C Go ahead.

49:28:35 CC D-9: 51:13:00. Incidentally, do you know you have a critical dump - tape dump on this pass over the Cape?

49:28:49 P Roger.

49:28:51 CC Okay. The time on the D-9 is 51:13:00; Sequence 01; Mode 01. At Time 52:20:00: fuel cell purge at Hawaii. At Time 52:36:00: crew status report on the Command Pilot at Texas. Do you copy?

49:29:33 P VII. Roger.

49:29:36 CC Okay. At Time 52:42:00: Sequence 01; transponder on. Time 53:00:00: Sequence 01; transponder off. Time 53:55:00: crew status report on the Pilot at Hawaii. Time 55:10:00: PLA update at the CSQ.

49:30:24 CC Do you copy?

49:30:26 P Have copied.

49:30:28 CC Roger. This is the end of the message.

CONFIDENTIAL

CONFIDENTIAL

155

49:30:31 P Thank you.

49:30:39 CC Gemini VII. On the update we gave you this morning you noted that the D-4 - the next thing you have - the D-4 had a note, cold IR off. Do you understand that? It just means you are to do that without using the cold IR.

49:30:57 P Roger.

49:30:58 C We left the cold IR off.

49:30:59 CC Roger.

49:31:07 CC We got a report on your OAMS usage. I think it's essentially been reported correctly to you. You are right on your flight plan profile as far as OAMS usage. Doing real well.

49:31:18 P I was kind of concerned. We have been using it quite drastically lately.

49:31:22 CC Well, we have given you a lot to do today. That's the reason.

49:31:30 CC I have another question, Gemini VII. Could you give us an estimate, for flight planning purposes, on the time required for eating?

49:31:41 C Roger. It takes at least an hour.

49:31:43 CC One hour for eating. Roger. And about 10 minutes extra for exercising.

49:31:48 C That's right. And then we have some other functions that take time too.

49:31:53 CC Roger. We've noticed that.

49:31:57 C We haven't done them yet.

49:32:03 C We've got some pictures coming up here of the islands.

49:32:06 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

49:32:19 CC Gemini VII, Houston. Flight Surgeon would like to have a brief discussion with you at this time regarding the EEG leads.

49:32:29 C Roger.

49:32:32 CC Okay, Gemini VII. This is the Surgeon. We've checked with the experimenter and we would like to get the answer to one question, Frank. Did the electrode come off with your helmets on all the time, or did you have it on so that it came off during sleep with your helmet on, or after you were taking your helmet off?

49:32:54 C The lead came off while I had my helmet on. It was loose when I had my helmet on. It caught on the back of my neck. The lead between my helmet and the harness caught on something and pulled very badly, and one of them came off while I had the helmet still on.

49:33:08 CC Roger. I copied.

49:33:10 CC Okay. That's fine. We'd like to have Jim try to reapply this if he can. And here are some instructions that you can use for trying it with the kit that you have there for applying the electrocardiogram electrode. If he can clean the area with a wet wipe and then dry it. Clean the electrode flange, being careful not to put any tension on the other electrode. Then slightly underfill the electrode with paste. Take one of the Dermical tapes, cut it to size to that electrode, and then apply the electrode. Then cut a small square of Dermical tape and cover the electrode with that square of tape. Jim will have to hold his hand for a little while over that to just heat-seal the tape as we did when applying the electrocardiogram electrode.

49:34:17 CC Did you copy all that?

49:34:20 P Roger. I don't think this is my job description but I'll do it.

49:34:24 CC We'll have to redo your job description. We'll give you a job when you come back, Jim.

CONFIDENTIAL

CONFIDENTIAL

157

49:34:32 P ... sleep anyway, do you?
49:34:38 CC I didn't hear that last, Gemini VII.
49:34:51 CC Gemini VII, if all else fails, try the scissors.
49:34:58 C Roger.
49:35:38 CC Gemini VII, Houston. You have a Tx on the way.
49:35:44 C Thank you.
49:35:55 CC Gemini VII, Houston. Would you say that your readings on the S-8/D-13 were made at point of closest approach?
49:36:26 CC Gemini VII, Houston. Did you copy?
49:36:30 C ... Tx.
49:36:32 P Not yet.
49:36:33 C Roger.
49:36:37 CC Gemini VII, did you copy?
49:36:39 P Roger. Do you read now?
49:36:41 CC Go ahead.
49:36:42 P Copied. We have a Tx.
49:36:44 CC Roger. Would you say that your S-8/D-13 readings were made at point of closest approach?
49:37:04 CC Gemini VII, Houston. Do you read?
49:37:06 C Roger. We're reading you.
49:37:09 CC Were your S-8/D-13 readings made at point of closest approach?
49:37:16 C ... Houston. We did not understand.
49:37:21 CC Were your S-8 readings made at point of closest approach?
49:37:32 C Roger. They were.

CONFIDENTIAL

CONFIDENTIAL

49:37:34 CC Roger.

50:13:26 C You got a clothespin?

50:13:28 P What do I need a clothespin for?

50:13:31 C For your nose.

50:13:33 P To cover my nose?

50:13:34 C Yes.

50:13:38 P I just put up the helmets like this.

50:13:40 C That's a good idea. They say to take and clip a little bit of this thing off.

50:13:45 P Yes, and put the lid of that germicide off and stick it away from the bottle so that you could break it.

50:13:55 P How you coming?

50:13:57 C I haven't started yet.

50:13:58 P Well, listen. You're not going to be ready for this so I'd better do this first.

50:14:12 P Stack A circuit breaker beacon is open, isn't it?

50:14:13 C Yes.

50:14:36 C That's a pretty good idea. I can't see what's going on.

50:14:37 P Wait a second. One more thing I'd like to get before you - -

50:14:43 C What's that?

50:14:45 P ... drink of water got over my ...

50:14:48 C What do you think I'm going to do?

50:14:50 P I don't know. I don't think I want to take any chances.

50:15:28 P Don't let that germicide get out, whatever you do!

CONFIDENTIAL

CONFIDENTIAL

159

50:15:29 C Why?
50:15:31 P Well, that **stuff** will burn!
50:15:32 C Will it?
50:15:33 P If it gets in the eye, it will really sting!
50:15:38 P Okay. Here goes nothing.
50:15:43 C I thought we were going to be partners on this thing. Well, let's just get a position corrected here.
50:15:57 P You sure you don't want one of those other kinds of pills?
50:16:02 C Boy, I hope it's positioned correctly.
50:16:04 P Not any more than I.
50:16:09 C Let's see where the thing for the ... is.
50:16:16 P Oh boy!
50:16:57 P ... some good practice for this.
50:17:00 C It helps out ... practice for this.
50:17:36 P Boy, we got another to do, and right after that we've got to get out the sextant.
50:17:55 C ...
50:17:57 P Praise be ...

CARNARVON

50:18:35 CC Gemini VII, Carnarvon.
50:18:44 C This is VII. Go ahead, Carnarvon.
50:18:46 CC Roger. We have you looking real good here on the ground. I would like an on-board OAMS propellant quantity readout, please.

CONFIDENTIAL

CONFIDENTIAL

50:19:00 C 62 percent.

50:19:02 P 62 percent?

50:19:03 C Yes.

50:19:04 P We are reading about 62 percent.

50:19:05 CC Roger. Copy 62 percent.

50:19:10 CC That's about all we have for you here this pass. We'll be standing by.

50:19:17 P Roger.

50:19:24 P Oh, I know. I know.

50:19:36 ...

50:19:43 ...

50:24:38 C I can't help it; it's either that or ...

50:26:02 P Squirt some in the bag, too. ...

50:26:32 C We just had a standby. There are so many factors.

50:30:50 P The bag couldn't get any smaller.

50:30:59 C How's that? Pretty good.

50:31:04 C ... how do you mean ... Son of a gun! Here. ... Hang on. Hang on ...

HAWAII

50:44:02 CC Gemini VII, Hawaii CAP COM. We're standing by. We have you GO.

50:44:27 P This is VII. Roger. Head you loud and clear.

50:44:31 CC Roger, Gemini VII. Standing by.

50:57:14 P Pretty cloudy though, isn't it, Frank?

50:57:26 C Got a pitch landing.

CONFIDENTIAL

CONFIDENTIAL

161

50:57:27 C ... water now. Water. ... water ...
50:58:42 P Off.
50:58:43 C Off.
50:58:50 P For your track.
50:58:57 P Yes, you pitched down. You pitched all the way through.
50:58:58 P Well, instead of doing that why don't we just twist around? Twist over.
50:59:04 P No! No! We can't get any more than plus 53.13. ... Just about 14 minutes ... we can't get it on the sextant.
50:59:14 P Let me record this.
50:59:45 C ... pretty far south now ... Jim.
50:59:50 P Yes.
51:00:30 C Turn around, why don't you?
51:00:35 P More desert land. Reading IR, reading desert land.

TEXAS

51:01:08 CC Gemini VII, Gemini VII, Houston CAP COM. We don't have anything for you here. You're solid GO.
51:01:09 C Thank you.
51:01:21 C Thank you, Houston. Gemini VII, performing the D-4/D-7.
51:01:25 CC Roger, Houston.
51:01:30 P Keep the ... running now until I get this beach here.
51:01:38 P Okay. Now going to land to water. Water. Okay, that's enough ...

CONFIDENTIAL

CONFIDENTIAL

51:01:45 C Recorder is on CONTINUOUS.

C Finish the tape at D-9.

C Yes, pitch down.

P All right. Is that far enough?

P You going to pitch down?

P ...

C All right. Is that far enough?

C We're doing the D-4/D-7, correction D-9, on the propellant now. Start the horizon measurements.

C Mode 1, Sequence 1; put the green filters in first.

C Cut.

C 3.3.

C Look around.

P Which way?

C Right to the right.

P Boy, that sure was ...

C Can you reach it?

P 30. - 3.64.

C How much?

P 3.64.

C 3.64?

P 30.64.

C Oh!

C What are you trying now?

CONFIDENTIAL

CONFIDENTIAL

163

C Well, that's it! Okay, let's go to ...
C Okay ... right now. It's the lower one, right?
P That's it.
C Got you.
P ...
P 5 degrees.
C Okay. Good show!
P Okay. Here we go.
P Okay. See what you read.
P It's on the horizon up here.
P Okay. ... 21.
P 22, 22.
P Is that better?
C ...
P 7.061.
P Okay. We're just about through now. ... Why don't we just let it go ... then because ...?
C That's fine.
P ... up a little, please.
C How's that?
51:23:17 P Okay.
51:23:21 C Okay.
52:18:37 P Hold on now ...

CONFIDENTIAL

CONFIDENTIAL

HAWAII

52:19:47 CC Gemini VII, Hawaii CAP COM.

52:19:57 CC Gemini VII. This is Hawaii CAP COM.

52:20:05 C Hawaii, Gemini VII. Go ahead.

52:20:07 CC Roger. We have you GO on the ground. Standing by for your fuel cell purge.

52:20:25 C Roger. Stand by.

52:20:29 C Coming through now.

52:21:54 CC Gemini VII, Hawaii CAP COM. Would you turn your Quantity Read switch off, please?

52:21:59 C Roger. It's off now.

52:22:01 CC Roger.

52:23:41 CC Command Pilot, I have a flight plan update if you are ready to copy.

52:23:46 C Go ahead.

52:23:47 CC Roger. At 53:36:00: flight plan report, CSQ. At 56:00:00: purge fuel cells, RKV. And we have a crew status report due over Texas, Rev 33, on the Command Pilot.

52:24:17 C Roger. That's at 52:36.

52:24:22 CC That's affirm. Standing by.

52:24:26 C Roger. Hawaii.

52:25:13 C Hawaii purge complete.

52:25:15 CC Roger. Understand.

52:31:42 C Jump through.

52:31:43 P The window filter.

CONFIDENTIAL

CONFIDENTIAL

165

52:31:44 C The window filter. The window filter is cutting down the amount of light.

52:33:13 P Recommend it on all points. Some general comments about our first attempt at D-9 restricted at 51 hours, 13 minutes: first of all, there was no trouble with getting the section out; they are easily handled inside the spacecraft at zero g. The strap on the side is useless, in fact it's - in fact it's so close to the knob that it sometimes gets in the way of turning the knob. The stars are sometimes hard to acquire ... because one or two of the ... of the lens will get in the way on the spacecraft structure of the window and block out one or the other ... and it's hard to tell. The green filter has proved to be useless because I couldn't see the horizon through it. All the shots are taken to the horizon under the top or bottom of the upper air ... area and ... more definite block. The lower horizon down there ...

HOUSTON

52:34:30 CC Gemini VII, Gemini VII, Houston CAP COM. We have a good oral temp. Give us a blood pressure and stand by for Surgeon.

52:34:46 CC Gemini VII, Houston Surgeon. Your cuff is full-scale.

52:35:44 CC Gemini VII. We have a good blood pressure. Standing by for exercise on your Mark.

52:36:17 P ... exercising ... blood pressure.

52:36:24 CC Gemini VII, your cuff is full-scale.

52:37:21 CC Gemini VII, Houston Surgeon. We have a good blood pressure. Standing by for your food, water and sleep report.

52:37:34 C Roger, Houston. Water report on the Command Pilot, 211 ounces to date. One more meal. That's Day 3, Meal C, and one ... blue bag ... On the Pilot, 166 ounces of water to date. The same meal, D-3

CONFIDENTIAL

CONFIDENTIAL

M-C, D-3 M-C. Neither of us have had any more sleep than previously reported.

52:38:10 CC Roger, Gemini VII. We copy the report. Surgeon out.

52:38:14 CC Gemini VII, this is Houston CAP COM. I've got some information on Luna 8 if you'd like it.

52:38:20 C Roger. What's Luna 8?

52:38:22 CC Luna 8 is the Russian soft landing on the Moon which was launched on Friday. The signal ceased at 4:51 pm Eastern Standard Time and Sir Bernard Lovell, Observatory Director, said the rocket is undoubtedly on the lunar surface but whether it made a soft landing or smashed itself we do not know. The comment from Radio Moscow is "No comment".

52:38:47 C Thank you.

52:38:49 CC And we'd like you to elaborate on your flight plan - daily flight plan report - and give us the scores of the vision test, your approximate film usage and give us an account whether M-7 has been going okay.

52:39:09 P Roger, Gene. Do you want that stuff now?

52:39:11 CC No. You can give it to us with the flight plan report, Jim, and that will be a UHF 6 pass.

52:39:19 P Roger.

52:43:15 P I want the whole thing when I tell you.

52:43:17 C Right.

52:43:18 P These are the following readings of the D-9 pass:
... stop watch, 33.9; digital clock, 51:17:30;
sextant, 30.6.864 - 30.864 at the minimum.. Stop
watch, 22.2; digital, 51 plus 21 plus 00; sextant,
11.06. Stop watch, 35.48; digital, 51:23:30;
sextant, 10:02 ... I believe that was the wrong
star though. I couldn't find that one. Stop
watch, 23.5; digital, 51 plus 27 plus 00; sextant
24.077. ... Stop watch, 26.8; digital, 51 plus
30 plus 00; sextant 36.072. ... Stop watch, 21.5;

CONFIDENTIAL

CONFIDENTIAL

167

digital, 51 plus 33 plus 00; sextant, 34.82. ... Stop watch, 11.1; digital, 51 plus 38 plus 00; sextant, 30 plus 925. ... Stop watch, 17.3; ditital, 151 plus 45 plus 00; sextant, 51.155. ... I've an idea that is the ... vacuum cube. Since it already has speed ... small debris here. Right now it's approaching our sleep period and one thing we're doing is to tell you that one of the silver bags to put over both windows to ...

ROSE KNOT VICTOR

52:51:52 CC Gemini VII, RKV CAP COM. We have nothing for you. We're standing by. All systems are GO.
52:51:59 C VII. Roger.

COASTAL SENTRY QUEBEC

53:37:24 CC Gemini VII, CSQ CAP COM.
53:37:31 C This is VII. How clear are we?
53:37:34 CC Roger. Loud and clear. We have a UHF Number 6 test this pass.
53:37:40 C Roger.
53:37:44 CC Also, we want to pass on to you that the Luna 8 did not make a soft landing.
53:37:52 C Roger. Understand.
53:37:56 CC We're standing by for your flight plan report.
53:38:09 C Gemini. For the Hasselblad film we've used 43 frames ... from Magazine A ...
53:38:24 C ... We're on the third one now.
53:38:31 C We've used two magazines of the 16mm movie.
53:38:44 C On the D-9 experiment, we did not use the green

CONFIDENTIAL

CONFIDENTIAL

filters. Thought it was much better to leave the filters out.

53:38:51 CC Roger.

53:38:56 C On the S-8/D-13, Lovell missed 8 and Borman missed 7.

53:39:06 CC Say Lovell missed 8 and Borman missed 7?

53:39:10 C Roger.

53:39:11 CC Got it.

53:39:15 C Roger. We also requested that you schedule the cabin temperature surveys rather than leave them at random. We can put them with the flight plan then.

53:39:23 CC Say again last.

53:39:26 C Roger. We'd like to have you schedule the cabin temperature surveys.

53:39:33 CC Roger.

53:39:39 P CSQ, this is VII.

53:39:41 CC Go ahead.

53:39:42 P I'd like to confirm you want to leave the Cryo heaters on AUTOMATIC this evening while we're sleeping.

53:39:49 CC Stand by.

53:40:00 CC VII, CSQ. That's affirmative at this time. You'll be advised further over the States.

53:40:07 P Roger. How's the sea duty?

53:40:10 CC Say again.

53:40:12 P How is the sea duty?

53:40:13 CC It's pretty rough down here.

CONFIDENTIAL

CONFIDENTIAL

169

53:40:48 CC VII, CSQ. Have you taken any cabin humidity readings recently?

53:40:59 P Not recently. The latest were around 58 for the dew point.

53:41:06 CC Roger. Houston will probably want one before you start your sleep period.

53:41:11 P Roger. We'll take a temperature survey this evening.

53:41:15 CC Roger.

53:41:25 CC VII, CSQ. Have you been copying the HF music?

53:41:31 C We've been having it off and on. When we're busy we turn it off, but we've been picking it up otherwise.

53:41:36 CC Roger.

53:42:39 CC VII, CSQ. Your report on your Hasselblad 43 frames. I did not copy the next time. Would you repeat it?

53:42:46 C Roger. That was from Magazine A, Magazine A.

53:42:52 C Roger. I thought I copied S0217, but I wasn't sure.

53:42:56 C Roger. That's the film. That's the Mil-type.

53:42:58 CC Roger.

53:43:47 CC Gemini VII, CSQ. Could you tell us how your Mike-7, M-7 experiment is going?

53:43:58 C This is VII. We're balancing all the calcium. We're drinking everything and recording everything. Appears to be okay.

53:44:05 CC Roger.

53:44:09 C We are eating some of the meals out of sequence ...

53:44:16 CC Gemini VII, CSQ. We're at LOS. I did not copy your last transmission.

CONFIDENTIAL

CONFIDENTIAL

HAWAII

53:54:41 CC Gemini VII, Hawaii CAP COM.
53:54:45 P Go ahead, Hawaii. Gemini VII.
53:54:47 CC Hi there! We have a valid temperature. Standing by for blood pressure.
53:54:50 P Roger. He's sending it now.
53:55:15 CC Your cuff is full-scale.
53:55:17 P Roger.
53:55:56 CC We have a good blood pressure. Standing by for your exercises. On your Mark.
53:56:01 P Roger. Stand by.
53:56:05 C MARK.
53:57:29 CC We have a good blood pressure. Standing by for your food, water and sleep report.
53:57:39 C Roger. There has been no change since we gave the food, water and sleep over Texas, except for the fact that we're now eating the evening meal. Do you want the results of that also?
53:57:50 CC Roger. Which meal is that?
53:57:53 C Okay. That's evening meal that we're eating, meal - Day 15, Meal B.
53:58:03 CC Meal B. Roger. Surgeon out.
53:58:06 C Okay. We've got the water here too up-to-date, if you want that.
53:58:08 CC Please.
53:58:14 P For Command Pilot, the water up-to-date is 237 ounces.
53:58:30 P And Pilot is 178 ounces.

CONFIDENTIAL

CONFIDENTIAL

171

53:58:34 CC Roger, Gemini VII. Surgeon out.

53:58:43 CC VII, like to have a complete - just a short report on your flight plan. Just want to know if you have completed all scheduled flight plan items in the last 24 hours?

53:58:57 C Roger. We have a flight plan update, CSQ. We have completed them all, except one pass of S-5 over Mexico. There were clouds. D-4/D-7 over Mexico: the IR return from the water and the land was degraded because of cloud cover, but we completed it.

53:59:17 CC Roger.

53:59:18 C Other than that we're all up-to-date.

53:59:22 CC Roger. Flight's real happy with the report.

53:59:26 C Roger.

ROSE KNOT VICTOR

54:27:10 CC Gemini VII, RKV CAP COM. We have nothing for you this pass. We're standing by. All systems are GO.

54:27:54 P RKV, how do you read Gemini VII?

54:27:56 CC Read you loud and clear, Gemini VII.

54:27:58 P Okay. We're just doing a little housekeeping now.

54:28:00 CC Roger.

55:00:04 C We're getting in preparation for a urine dump. Lovell will be dumping first.

COASTAL SENTRY QUEBEC

55:11:49 CC Gemini VII, CSQ CAP COM.

55:11:53 P Go ahead, CSQ. Gemini VII.

CONFIDENTIAL

CONFIDENTIAL

55:11:55 CC Roger. You have a UHF Number 6 test at Hawaii on this revolution.

55:12:05 C Roger. Understand.

55:12:06 CC Have you taken a humidity measurement in the last revolution or so?

55:12:11 C Yes. We will by the time we get there, though, if you want us to.

55:12:20 CC ...

55:12:22 C I say, we have not yet, but we will, shortly.

55:12:24 CC Roger. I have a PLA update when you're ready to copy.

55:12:36 C Swing it CSQ, we're ready.

55:12:38 CC Roger. Area 37-3: 58:07:06; 14 plus 53. Area 38-3: 59:41:58; 14 plus 20. Area 39-Delta: 60:32:59; 22 plus 00. Area 40-Delta: 62 08:05; 20 plus 53. You copy?

55:13:39 C Roger. We copied them all loud and clear.

55:13:41 CC Okay. I've got some more. 41-Delta: 63-46:15; 18 plus 58. Area 42-2: 65:22:31; 17 plus 30. Area 43-2: 66:58:45; 16 plus 08. Area 44-1: 68:23:04; 17 plus 18. Do you copy?

55:14:41 C Roger. Got them all.

55:14:45 CC Okay. We have nothing else for you this pass. Everything looks good here.

55:14:49 C Roger. Thanks very much, CSQ.

55:14:51 CC Roger. Standing by.

55:14:53 C Oh, one thing we encountered. We're getting a lot of heat in through the windows, so we took a food container bag and put them in an aluminized food container bag, and we're trying to cut the heat down that could come in through the windows.

CONFIDENTIAL

CONFIDENTIAL

173

55:15:06 CC Roger. Copy.

55:15:17 C We also had another catastrophe while I was reaching down to get a food bag. I smacked my head on the overhead and it tore off all my EEG leads and we're in the process of pasting them back on now, also.

55:15:30 CC Okay.

55:16:12 CC Gemini VII, CSQ. All the weather is good in those areas I passed up, except 38-3 has marginal conditions - in 38-3.

55:16:23 C Roger. Thank you.

HAWAII

55:29:45 CC Gemini VII, Hawaii CAP COM.

55:29:49 C Go ahead, Hawaii. Gemini VII.

55:29:51 CC Okay, I need a little info out of you and I've got a couple of things I'd like you to do.

55:29:55 C Okay. Go ahead.

55:29:56 CC Okay. I'd like to know what kind of configuration, as far as flight suit goes, will the Pilot be in for the sleep period?

55:30:03 P Suit's off.

55:30:09 P I will sleep with the suit off.

55:30:12 CC Okay. He's going to sleep with his suit off, and what head gear will the Command Pilot be wearing, and will he have his gloves on?

55:30:19 C We haven't had gloves or head gear on since insertion.

55:30:23 CC Okay. Going to keep them off while you sleep?

55:30:25 C Roger.

CONFIDENTIAL

CONFIDENTIAL

55:30:26 CC Okay. I would like to put your spacecraft into a sleep configuration, and I would like you to do it as I tell you so we can monitor it here on the ground.

55:30:34 C Okay.

55:30:35 CC Okay. Would you put your RCS heaters on now?

55:30:38 C They've been on all day.

55:30:40 CC Okay. Your fuel cell heat - correction - your fuel cell H₂ auto heaters to AUTO position.

55:30:46 C Roger.

55:30:50 C AUTO.

55:30:52 CC Okay, your Fuel Cell O₂ Heater switch to the AUTO position.

55:30:56 C It's on AUTO.

55:30:57 CC Okay. I would like you to take your ECS O₂ Heater switch, go to the ON position, and raise it to 580 psi.

55:31:08 C Okay. How about putting it in the AUTO position?

55:31:13 CC It looks good AUTO.

55:31:14 C It's in AUTO.

55:31:15 CC Roger.

55:31:41 CC Okay. We'd like to know whether the Pilot will be sleeping in his underwear or his orbital flight suit.

55:31:45 C He's sleeping in his underwear. We're a little warm. We have been since we have been up here.

55:31:51 CC Okay.

55:31:58 C For your information I've got my suit completely unzipped, and I'm trying to stay as cool as I can that way.

CONFIDENTIAL

CONFIDENTIAL

175

55:32:05 CC Roger. I've got that.

55:32:36 C Hawaii, Gemini VII. We just took down a complete survey of the temperatures around the cabin.

55:32:41 CC Go ahead.

55:32:43 C We're emitting ambient about 78 with a dew point of 57.

55:32:46 CC Roger.

55:33:27 C Hawaii, Gemini VII. Do you have any other instructions?

55:33:29 CC Okay. When that ECS O₂ reaches 580 we'd like you to go back to the OFF position on the ECS O₂ Heater switch.

55:33:36 C Okay. I'd just as soon leave the others off too, unless you really want them in AUTO.

55:33:42 CC I think they want them in AUTO.

55:33:58 CC If you'll wait a second, I'll give you the values they want them to be left at, and then you can set them up the way you'd like.

55:34:03 C Thank you.

55:36:42 CC Okay. We'd like you to go to your Fuel Cell H₂ to 500 psi.

55:36:48 C H₂ to 500. Roger. How about the O₂?

55:36:51 CC We're working on that one.

55:36:53 C Okay. Tell them that I'll turn it off when I get there and if they want me to turn it back on, wake us up. I'll sleep better if I know it's on AUTOMATIC.

55:37:01 CC Very good.

ROSE KNOT VICTOR

56:02:52 CC Gemini VII, RKV CAP COM.

CONFIDENTIAL

CONFIDENTIAL

56:02:56 P This is Gemini. Read you loud and clear.

56:02:58 CC Roger. We're standing by for your purge. All your systems are GO.

56:03:02 P Roger. All systems GO.

56:03:07 C RKV. The cabin pressure ...

56:03:12 CC Roger, we'd like for you to leave Fuel Cell O₂, 750, Fuel Cell H₂, 500. The minimums for Fuel Cell O₂ are 170; the minimum for Fuel Cell H₂, 330. Do you copy?

56:03:38 C Stand by, please.

56:04:05 C Understand the spread for RSS oxygen is 750 to 150 and I need the hydrogen spread.

56:04:12 CC The hydrogen spread is 500; the minimum is 330.

56:04:19 C Hydrogen 500 to 330. How about ECS O₂?

56:04:24 CC ESC O₂, 580 to 230, 233.

56:04:38 CC That's 580, 233.

56:04:42 C Roger. Will you all please ask the network to wake us up if we get within range of these minimums?

56:04:46 CC Roger. Will do.

56:04:49 C Thank you.

56:04:50 CC Will you place your Quantity Read switch to ECS O₂?

56:04:53 C There you are.

56:05:14 CC Your next fuel cell purge after sleep period will be over Carnarvon at an elapsed time of 66 plus 20.

56:05:23 C Thank you.

56:05:49 CC Would you place Quantity Read to FUEL CELL O₂?

56:06:00 CC I have a map update for you when you are ready to copy.

CONFIDENTIAL

CONFIDENTIAL

177

56:06:11 C Roger. Go ahead.

56:06:12 CC Node: 55:01:40; Rev 35; 77.2 degrees east; right ascension; Time 12:43:01.

56:06:37 C Roger. Copy.

56:06:42 CC Quantity Read to FUEL CELL H₂.

56:06:45 C Roger.

56:07:13 CC By the way, the pad preparation schedule for Gemini VI is going real well.

56:07:18 C Thank you.

56:07:26 CC We've got some information for you on tomorrow's exercise. The current mission plan calls for a small Posigrade Maneuver about 10 to 12 feet per second to be done at apogee and Rev 44 between Carnarvon and Canton.

56:07:44 C Okay. You going to want the platform up or down?

56:07:47 CC Well, they'll brief you over the States after you wake up. I just wanted to let you know.

56:07:53 C I wonder - would you have any idea - can you give us a report on what our orbit is now?

56:08:02 CC Roger. Stand by.

56:08:05 CC You can place the Quantity Read to OFF.

56:08:19 CC That's 172.1 by 119.9.

56:08:27 C RKV, Gemini VII. Copy 172.1. How about perigee?

56:08:33 CC 119.9.

56:08:36 C Roger. 119.9.

56:08:38 CC Roger.

56:08:40 C Thank you.

56:08:59 CC At a GET in approximately five days, the decision

CONFIDENTIAL

CONFIDENTIAL

to launch Gemini VI on the eighth or ninth day will have to be made. If the decision is to launch Gemini VI on the eighth day, a Circularization Maneuver will be made at that time. The approximate GET equals 5 days. This will give us two launch windows on the eighth day and one window on the ninth and tenth days. If the decision is made to launch Gemini VI on the ninth day, the Circularization Maneuver will be delayed until approximately 7 1/2 elapsed days. This will allow the launch windows per the preflight normal, nominal flight plan. You got that?

56:09:40 C Got you. Thank you very much.

56:09:42 CC Okay.

56:09:44 C Ask him what's going on in the world.

56:09:47 CC Nothing much; it's dark down here.

56:09:50 C It's dark up here too. We've got aluminum foil over the windows. We're just about ready to settle down for a sleep.

56:09:57 CC Sounds like you're getting ready for Christmas.

56:28:56 P Okay.

56:28:58 C Okay. We have 30 seconds to go.

56:31:35 C Boy ...

56:31:51 P Okay. Turn dump off.

56:31:52 C Two thoughts occurred to us to help future flights. Number 1 - we are using a small piece of tape to mark our next activity in the flight plan right above the panel clock. This reminds us of what the next activity is going to be without looking in our flight book. Number 2 - we think you ought to color the covers of the log and experiments procedures book differently so you can pick them without having to guess what book it is and then have to read it later on.

66:11:44 P ... 66 plus 00. We're starting breakfast at Day 5,

CONFIDENTIAL

CONFIDENTIAL

179

Meal A. Also, our MSC-2 and 3 were off at 66 plus 00. I just took a picture, Magazine A, Exposure 43, 66:14:50, of the sunset. The exposure was 2.8 at 1/60th. Okay. We're observing the sunset now. I can see the entire area where the dense part meets the terminator. It's black on the bottom, black on top with blue in between. And as you go out toward the middle you gradually pick up a darker red, right on the earth, giving way to an orange, then a light blue and a very distinct blend of dark blue followed by a lighter blue and then gradually going into a black. So starting out at the bottom next to the earth, it is a red, orange, yellow, light blue, brilliant electric blue, then a definite band of light, and then dark blue and gradually going into a black at sunrise. We are observing no zodiacal light that we can see at that time. We're in perfect position to note it. Just after we're drifting through, but no zodiacal light.

CARNARVON

66:19:39	CC	Gemini VII, Carnarvon.
66:19:42	C	Go ahead, Carnarvon. Gemini VII.
66:19:44	CC	Roger. How are you doing up there? We've got you good on the ground.
66:19:48	C	Everything is fine up here.
66:19:50	CC	Roger. We'd like a fuel cell purge whenever you're ready to start it.
66:19:55	C	Roger. Stand by for fuel cell purge.
66:21:35	CC	Gemini VII, Carnarvon. How did you make out during the night?
66:21:38	C	Fine. We slept fairly well.
66:21:40	CC	Very good.
66:21:43	C	Jim had his suit off. Was very comfortable all evening.

CONFIDENTIAL

CONFIDENTIAL

66:21:47 CC Very good.

66:22:05 CC How was your suit condition, Gemini VII, for the Pilot - Command Pilot?

66:22:11 C I've got the suit off. All I'm using is the ventilation garment. I've got it completely unzipped and I'm halfway out of it, but it's fairly comfortable that way.

66:22:20 C Roger. Copy.

66:22:58 C We've turned off MSC's 2 and 3 at 66, and I guess we don't have anything else now but eat and an S-8/D-13, Carnarvon.

66:23:06 CC Roger.

66:23:09 C One thing we tried last night was to put the EEG leads back on my head and this was impossible to do; so we no longer have the leads on. I cut the harness. All four of them came off and we don't have the proper size "stickem" to put them back on my head.

66:23:27 CC Roger. Copy.

66:23:30 C We've got - -

66:24:22 CC Gemini VII, Carnarvon.

66:24:24 C Go ahead.

66:24:26 CC They have a complete flight plan update for you, which will be given to you over the States.

66:24:34 C Very well.

66:24:54 C Carnarvon, Gemini VII, Purge complete. Crossover switch off.

66:25:00 CC Roger, VII. Could you place the Panel Quantity switch to the ECS O₂ position, please?

66:25:05 C There she is.

66:25:14 C I didn't have to use those heaters all night.

CONFIDENTIAL

CONFIDENTIAL

181

66:25:17 CC Roger. Understand. You did not have to use them all night.

66:25:21 C That's right. I think the bottles are just about staying there now.

66:25:24 CC Roger. Very good.

66:25:28 CC Okay. Can you position it to the FUEL CELL O₂ position?

66:25:34 C I have.

66:25:55 CC Okay. To the FUEL CELL H₂ position, please.

66:25:59 C FUEL CELL H₂.

66:26:20 CC Okay. You can cut them back off now.

66:26:25 C Roger.

66:26:27 CC Okay. That's about all we have for you this time, Gemini VII. We'll be standing by.

66:55:56 C What is it - Day 5?

66:55:57 P Yes.

66:55:58 C Day 5, Meal A. My compliments to the chef. Outstanding.

67:06:16 CC Gemini VII, Houston CAP COM.

67:06:29 P Houston, this is Gemini VII. Read you loud and clear.

67:06:33 CC Roger, VII. Good morning.

67:06:36 P Good morning. Frank's out getting the milk. I'm minding the store.

67:06:42 CC How's breakfast going?

67:06:46 P My compliments to the chef. Tell Paul ... that Day 5, Meal A was excellent.

67:06:53 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

67:06:59 CC Just because you are eating Day 5, don't think you only have nine days to go.

67:07:02 P It keeps us happy that way.

67:07:07 CC Are you so busy eating you can't talk to me for a few minutes?

67:07:12 P Roger. Frank is doing the S-8/D-13. I'm available.

67:07:16 CC Okay. Is it handy for you to give us a water report at this time? We are trying to calculate your weight distributions pretty accurately.

67:07:27 P Roger. Stand by.

67:07:42 P The Command Pilot, as of this morning, 271 ounces.

67:07:48 CC Roger.

67:07:50 P Day 5, Meal A was eaten this morning. He did not eat the sausage patties.

67:07:56 CC I don't need that part, Jim. Just the water.

67:08:03 P Pilot was 216 ounces. 216 ounces.

67:08:09 CC Roger.

67:08:11 CC Also, I would like to ask you about the 16mm camera film magazine stowage. Specifically, did you stow them in individual bags or several in one bag, and specifically when you stowed them as best you can remember; that is, how soon after launch?

67:08:33 P We stowed them in two bags, splitting them up evenly. I'm sorry, three bags. We put them in three different bags and we did it about, I'd say, about 5 or 6 hours after launch.

67:08:48 CC Roger. 5 to 6 hours after launch. We are still chasing that one around.

67:08:59 CC Okay, Jim. I'd like to brief you on a possible - on a definite maneuver plan that we are working on. Did they brief you on this at all last night?

CONFIDENTIAL

CONFIDENTIAL

183

67:09:12 P They just mentioned that we were going to do a small Posigrade Maneuver sometime today.

67:09:17 CC That is correct. That will be done on the 44th revolution, which is two from now, and the purpose of it is to allow us an option of optimizing for an eighth day or ninth day launch on Gemini VI. We will not have to decide which of those days we are optimizing for until the fifth day, by making this burn today. Do you copy?

67:09:52 P Roger. Understand.

67:09:54 CC Gemini VI is going along extremely well. They're about a day ahead at this time, so we want to preserve this option; and this maneuver today will enable us to do that. We are planning for you to do it without the platform, if that sounds all right to you. We will brief you on the stars here in a minute.

67:10:17 P Roger. No platform. Understand.

67:10:21 CC Okay. We'll be giving you more information on that burn in the flight plan update on your next pass over the US, and we will be giving you a specific update for the maneuver at some later time also.

67:10:37 CC How is the suit configuration working out? We heard the comments over Carnarvon. Do you have any additional comments to make, any clothespin problems or anything like that?

67:10:48 P Suit configuration is working out very well. I've been out of the suit. I became slightly cool last night when I was sleeping. However, I'm fine right now.

67:10:58 CC Roger. Have you thought about using the orbital flight suit at all?

67:11:03 P No. I didn't want to break it out because it would make more of a housekeeping problem and I'm not that cold.

67:11:10 CC Roger. The headline over the Gemini VII story today says, "Lovell orbits in underwear".

CONFIDENTIAL

CONFIDENTIAL

67:11:21 P Yes, I sure feel out of place up here.

67:11:29 CC Are you taking humidity readings occasionally and recording those?

67:11:35 P Roger. We took a full set last night, including some skin temperatures of myself.

67:11:41 CC Roger. And did you make that tape recording of your stationkeeping exercise?

67:11:48 P Roger. We've done that too.

67:11:50 CC Very good. I've got one more thing I would like to ask of you now, and that is to make an accurate sunset and sunrise time check. What we're interested in is to have you pinpoint what you would consider exact sunrise and sunset times to check us on our flight planning activity, to see how close our computer program is giving us to what you consider sunset and sunrise.

67:12:19 P Roger. We'll make an accurate sunrise and sunset time check - over this next pass, if we can do it.

67:12:27 CC Okay. Just any time is good and whenever you get it just phone them down to us and we'll compare it with what the computer would say.

67:12:43 CC That's all I have on this pass, Jim. We'll see you next time around.

67:12:46 P Roger. Elliot.

67:13:13 CC Gemini VII, Houston. We're going to crank up the tape again and you can tune in HF later on if you want.

67:13:25 P Sounds real fine.

67:13:27 CC Be a few minutes before we get it going.

67:13:41 CC Gemini VII. We show you running down a little low on the hydrogen pressure. You might bump that one up.

67:13:50 P Roger. Will do. We're reading about 340 right now.

CONFIDENTIAL

CONFIDENTIAL

185

67:13:58 CC Roger. We want your minimum to be 333. You can hold it up around 445 if you want to.
67:14:07 P Roger. Will do.

CANARY

67:23:30 CC Gemini VII, Canary.
67:23:44 CC Gemini VII, Canary.
67:23:46 C Roger, Canary. Gemini VII. Go ahead.
67:23:48 CC Roger. Like to pass up to you that we will make the GO/NO-GO on this pass in preparation for the burn.
67:23:55 C Roger. You want the GO/NO-GO on this pass. As soon as Jim gets through with the S-8/D-13, we'll start working on it.
67:24:01 CC Roger.

CARNARVON

67:54:26 CC Gemini VII, Carnarvon.
67:54:46 C This is VII. Go ahead.
67:54:51 CC Go ahead, Gemini VII.
67:54:53 CC We have you GO on the ground. We've got a map update and a PLA update whenever you're ready to copy.
67:55:16 C Roger. Ready for the map update.
67:55:18 CC Okay, we have a Node: 69:58:23; Rev 44; longitude 152.3 west; right ascension, 12 hours 25 minutes 00 seconds. Also at 68:10:00: cabin temperature survey. At 68:36:00: GO/NO-GO at Texas. Did you copy?
67:56:23 P This is VII. Roger. Have copied.

CONFIDENTIAL

CONFIDENTIAL

67:56:25 CC Okay, that completes the flight plan update. Whenever you're ready, I have your PLA.

67:56:32 C Go ahead.

67:56:34 CC 45-1: 69:58:08; 17 plus 01. 46-1: 71:33:54; 16 plus 08. 47-4: 74:23:33; 17 plus 50. 48-4: 75: 59:34; 16 plus 45. 49-4: 77:35:25; 15 plus 54. 50-3: 78:50:06; 18 plus 28. 51-3: 80:26:19; 17 plus 17. Weather in all areas good. These are for rolling reentries. Did you copy?

67:56:36 P At 65:24: took pictures of unusual dune formations over Africa. Four shots, Magazine A, Frames 44 to 48.

47:56:41 C Ready?

67:56:43 P All right.

67:58:41 C Roger. We have them all. Thank you.

67:58:42 CC Roger.

67:58:46 CC We'll be standing by, Gemini VII.

67:58:48 C Roger.

67:59:24 CC Gemini VII, Carnarvon. We would like a propellant quantity readout, please, on-board.

67:59:29 P Roger. Reading 62 percent on-board.

67:59:33 CC Roger. Copied 62 percent.

68:30:02 C Better tell what you're doing.

68:30:03 P This is Lovell dumping urine ...

68:30:23 P There she goes! Look at that big piece! Brilliant! Urine dump at sunrise.

68:30:43 C Okay. Now it's my turn.

68:31:02 C This is Borman dumping urine also.

68:33:10 P Urine dump complete.

CONFIDENTIAL

CONFIDENTIAL

187

TEXAS

68:36:03 CC Gemini VII, Gemini VII, Houston CAP COM.

68:36:28 CC Gemini VII, Gemini VII, Houston CAP COM.

68:36:41 CC Gemini VII, Gemini VII, Houston CAP COM. How do you read?

68:36:46 P This is VII. Read you loud and clear.

68:36:49 CC Roger, Gemini VII. This will be a UHF 6 pass.

68:36:55 P Roger. Understand.

68:36:57 CC Would you place your ECS Quantity Read switch in the ECS O2 position?

68:37:03 P Switch is in the ECS O2 position.

68:37:06 CC Roger. You have a GO for 61-1.

68:37:14 P Roger. We have a GO for 61-1.

68:37:18 CC Roger. And I have a PLA when you're ready to copy, and a flight plan update when you're ready to copy.

68:37:30 P Roger. Would you like to have your system check now at this time?

68:37:35 CC Go ahead.

68:37:37 P All main batteries are okay. About 23 volts each. Fuel cell stack readouts are: 1A, 2.5 amps; 1B, 30.0 amps; 1C, 3.0 amps; 2A, 2.5 amps; 2B, 2.5 amps; 2C, 3.5 amps. Main buses reading 27.8 volts. Our CS A pressure is 2900; our CS D, 2900. Left secondary O2, 5400; right secondary O2, 5300. Temperatures for both the RCS pressures are 75 each.

68:38:32 CC Roger. Copied.

68:38:37 P ... now has the thermometer in his mouth and standing by for crew status check.

68:38:44 CC That won't be until the next pass, Gemini VII. We're

CONFIDENTIAL

CONFIDENTIAL

going ahead with flight plan update on this pass.

68:38:51 P Roger. Understand.

68:38:53 CC Let me know when you're ready to copy flight plan update.

68:39:07 P VII's ready to copy.

68:39:09 CC Roger.

68:39:14 CC Okay. Time: 68:43:00; Sequence 01; transponder check at Bermuda. This is on this pass if you want to be setting up for that.

68:39:33 P Roger.

68:39:35 CC Time: 68:54:00; crew status report at Canary. This is on the Pilot.

68:39:50 P Roger.

68:39:52 CC At Time 69:43:19 will be the forward burn, translation for the Perigee-Adjust. We'll have a direct update on that for you here in a minute.

68:40:10 P Roger. Understand.

68:40:13 CC Would you like to take that now or get the rest of the flight plan update?

68:40:18 P Let's get the rest of the flight plan update, then we'll get that separately.

68:40:21 CC Roger. Apollo Landmark: 70:10:32; Sequence 311; Mode 01; pitch 30 degrees down, yaw five degrees left. Time: 70:15:00; crew status report on the Command Pilot over the US. Do you copy?

68:41:00 P Have copied.

68:41:07 CC 30; Sequence 01; Mode 01. Time: 71:32:00; purge fuel cells. S-8/D-13: 71:47:26; Sequence 02; pitch 30 degrees down, yaw 8 degrees right; closest approach, 71:48:22. Do you copy?

68:41:49 P Roger. I have copied.

CONFIDENTIAL

CONFIDENTIAL

189

68:41:51 CC D-4/D-7: 71:47:26; Sequence 419; Mode 02. Time: 72:00:00; exercise period. Stand by for a T_R update coming up.

68:42:23 P Roger. Received.

68:42:24 CC Roger. Time: 72:10:00; eating period. Apollo Landmark: 73:08:40; Sequence 234; Mode 01; pitch 30 degrees down, yaw 2 degrees right. D-4/D-7: 73:08:40; Sequence 420; Mode 02. Do you copy?

68:43:08 P Roger.

68:43:10 CC S-8/D-13: 73:22:20; Sequence 02; pitch 30 degrees down, yaw 1 degree right; closest approach, 73:22:20. MSC-2 and 3: 73:40:00; Sequence 02; off at 89:00:00. Do you copy?

68:43:51 P Roger. Have copied.

68:43:53 CC Jim, I want to interrupt here and give you the pad update on the maneuver load, just in case we run out of time here.

68:44:02 P Roger.

68:44:05 CC Let me know when you're ready to copy.

68:44:11 P Copy.

68:44:16 CC Say you're ready, Gemini VII?

68:44:17 P Gemini VII is ready.

68:44:19 CC GET of the burn: 69:43:19; Delta-V, 12.4; burn time, 16.5 seconds; yaw zero, pitch zero; aft thrusters; maneuver, Posigrade. And we will update this over Carnarvon if required. Do you copy?

68:44:52 P Roger. GET is 69:43:19; Delta-V, 12.4; Delta-P, 16.5 seconds; yaw and pitch are zero; aft thrusters; Posigrade; declining star. Over.

68:45:07 CC Roger. Here's the information on the star. You'll be SEF, and you'll be just coming out of the dark at this time, as a matter of fact. Your track or your pointing should pass just about halfway between

CONFIDENTIAL

CONFIDENTIAL

Denebola and Spica, and Arcturus will rise at 69:43 - correction - 69:39:41. You should aline 4.9 degrees right of Arcturus. Do you copy?

68:45:53 P Roger. Our alinement will be 4.9 degrees right of Arcturus, which should be rising at 69:39:41, and the general position between Denebola and Spica will be SEF.

68:46:05 CC That's correct. Okay. We'll continue with the flight plan update now, if you're ready.

68:46:29 CC Gemini VII, do you still copy?

68:46:36 P Roger.

68:46:41 P Houston, this is VII. Go ahead.

68:46:42 CC Okay. MSC-4: 73:45:35; Sequence 09; Mode 01; pitch 30 degrees down, yaw 10 degrees right - correction - 10 degrees left. This may be scrubbed due to equipment problems. We'll let you know later. D-4/D-7: 74:00:00; Sequences 415 and 416; Mode 02; pitch 90 degrees down. Do you copy?

68:47:39 P Roger.

68:47:42 CC Okay. That's the end of the flight plan update. We'll be giving you a systems review status of all your systems and quantities and so forth - if you want to have your systems book out - either on the next pass or the following one, depending on how long the crew status report takes on the next pass.

68:48:02 P Okay. Understand that.

68:48:07 CC You can turn your ECS Quantity Read off.

68:48:11 P Read switch is off at this time.

68:48:16 CC We have some questions on the D-9 experiment. Probably won't have time to finish them here. Let me comment one thing. After you leave our station here you might tune in your HF. We've got some special music for you. Okay. On the D-9, we're wondering about the green filter comments that you made on the airglow measurements. Does the filter dim the airglow substantially?

CONFIDENTIAL

CONFIDENTIAL

191

BERMUDA

68:48:52 P , I used the green filter on our first pass, Elliot.
It eliminated the airglow and the horizon completely.

68:49:01 CC Roger.

68:49:06 CC Okay. I think that covers all the rest of the questions, Jim.

68:49:11 P Roger.

68:49:16 CC Okay. You can tune in for the special music now.
We'll see you the next time around.

68:49:22 P See you around.

68:49:50 CC Gemini VII, how do you read?

CANARY

68:53:47 C Canary, how do you read Gemini VII?

68:53:49 CC Gemini VII, Canary. Read you loud and clear.

68:53:53 C Pilot's got the thermometer in his mouth.

68:53:55 CC Okay.

68:54:01 CC Not quite valid yet.

68:54:02 CC Canary. We have a valid temperature; standing by for a blood pressure.

68:54:21 C Coming now.

68:54:37 CC Your cuff is full-scale.

68:55:09 CC All spacecraft systems are GO on the ground.

68:55:37 CC Gemini VII, Canary Surgeon. We have a valid blood pressure; we'll stand by for exercise on your Mark.

68:55:46 C MARK.

CONFIDENTIAL

(E2)

CONFIDENTIAL

68:56:15 CC Your cuff is full-scale.

68:56:51 CC Gemini VII, we have a valid blood pressure; stand by for your food and water and sleep report.

68:57:01 P This is VII. Roger.

68:57:19 P Command Pilot water to date, 274 ounces; ate meal D-5, M-A at 66 hours.

68:57:38 P Pilot water to date, 218 ounces. Same information on the food.

68:57:46 CC Roger. Understand. Sleep?

68:57:52 P Both the Command Pilot and Pilot have had about 7 hours sleep at about 3 or 4 periods last night.

68:58:04 CC Could you give us an estimate of the quality of the sleep, please?

68:58:10 P I would say the sleep was very sound.

68:58:13 CC Roger. Gemini VII, this is Canary Surgeon out. Thank you very much.

68:58:18 P Roger.

68:59:23 CC VII, Canary.

68:59:33 CC Gemini VII, Canary.

68:59:44 P This is VII. Go ahead.

68:59:45 CC Roger. You can turn off your transponder if you wish.

68:59:48 P Roger. Transponder going off.

68:59:52 CC Show it OFF on the ground.

KANO

69:02:06 CC Gemini VII, Gemini VII, Houston CAP COM. Do you read?

CONFIDENTIAL

CONFIDENTIAL

193

69:02:11 C This is VII. Read you loud and clear, Houston.
69:02:13 CC Roger, Gemini VII. I'd like to check; I think I omitted one update. Did I give you D-9 at 70:41:30?
69:02:28 C Roger. We have that update.
69:02:30 CC Roger. A note to go with that. Attempt 01 Mode; insure that you're not using the blue filter instead of green. If it still is unsatisfactory, use Mode 02.
69:02:47 C Roger. Will do.
69:02:49 CC Roger. Are you setting that up now?
69:02:56 C We haven't started on D-9 yet, Elliot.
69:02:59 CC Okay. I was thinking that was a different pass. Okay.
69:03:02 C Roger. We're going to prepare for our burn now.
69:03:05 CC Roger. I gave you that complete update the last time, you say?
69:03:11 C Affirm, Elliot.
69:03:12 CC Okay.

CARNARVON

69:29:33 CC Gemini VII, Carnarvon.
69:29:53 CC Gemini VII, Carnarvon.
69:20:55 C Roger. Go ahead.
69:29:56 CC Roger. You're GO for your burn, but also I'd like to tell you, your on-board propellant quantity reading should be 59 percent after you burn. Also, at 77 hours and 30 minutes your propellant quantity reading should be 55 percent.
69:30:24 CC I have a deletion for your flight plan, whenever

CONFIDENTIAL

CONFIDENTIAL

you're ready to copy it.

69:30:31 C Roger. Stand by.

69:30:40 C At 77 hours, it should read 55 percent.

69:30:44 CC That's right. At 77 hours and 30 minutes it should read 55 percent.

69:30:51 CC That's after your flight plan completion.

69:31:53 C Go ahead, Carnarvon, with the deletions.

69:31:55 CC Roger. At 70:10:32, delete Apollo Landmark. That is because of weather.

69:32:17 C Okay. We copied.

69:32:18 CC Roger. We're standing by.

69:32:21 C Give me a time hack, please.

69:32:23 CC Roger. SGET time hack will be 69 hours 32 minutes and 35 seconds on my Mark.

69:32:34 CC MARK.

69:32:35 C Put her right on.

69:32:36 CC Roger.

69:47:56 C Okay. We accomplished a burn right on time and burned for 16 and 1/2 seconds. Used the ... and the lines on the window to establish our attitude. Everything looks good.

69:49:04 P Okay. At 69:49:00: I took a picture of a satellite moving below us.

69:49:07 C What direction?

69:49:11 P Approximately same direction. I'm not sure now whether it was a satellite. Maybe it's a big piece of ... from our own spacecraft. I have a picture of it, anyway.

69:49:23 C What was the magazine?

CONFIDENTIAL

CONFIDENTIAL

195

69:49:25 P Magazine A. Exposure 49, I believe. Took a picture of an island at 69:52.

CANTON

69:49:39 CC Gemini VII, Gemini VII, Houston CAP COM.
69:50:07 CC Gemini VII, Gemini VII, Houston CAP COM.
69:50:11 C Read you loud and clear, Elliot. Go ahead.
69:50:15 C Could you give us a report on your burn, Frank?
69:50:16 C It was right on time, 16 1/2 seconds, and it should have been a good one.
69:50:21 CC Roger. Understand you burned for 16 1/2 seconds and it should have been a good one.
69:50:28 C Roger. We also have sunrise and sunset times for you.
69:50:32 CC All right. Go ahead.
69:50:40 C ... the sunrise was at 69:43:17 ...
69:51:01 C Roger. This is Gemini VII.
69:51:03 CC Go ahead. We received the sunrise. We did not get the sunset.
69:51:09 C Sunset was 69:11:19.
69:51:13 CC Roger. Understand. Sunrise, 69:43:17; sunset, 69:11:19.
69:51:23 C That is Roger.
69:51:25 CC Roger. How is this connection? Are you reading us good?
69:51:28 C Reading you fine now.
69:51:30 CC Roger. Stand by.

CONFIDENTIAL

CONFIDENTIAL

69:51:39 CC Frank?

69:51:41 C Yes.

69:51:42 CC Stand by. Deke would like to talk to you for a minute.

69:51:45 CC Hey, Frank. This is Deke. How do you read?

69:51:48 C Real clear.

69:51:49 CC Okay. One question. You've been nominated for the National Award - -

69:51:53 C My ... quit working.

69:51:55 CC What's that?

69:51:57 C All right, Deke.

69:51:59 CC You've been nominated for the National War College, effective August '66, and I have to send an answer back tomorrow. I assume you want to go.

69:52:10 C Say again, would you Deke?

69:52:14 CC I said, you've been nominated for the National War College by USAF Headquarters. I need an answer tomorrow. I intended to tell them you wanted to go. Is that correct?

69:52:26 P That's wrong. I volunteered him.

69:52:30 CC Roger. Okay. We'll give them the right answer.

69:52:32 C Thank you very much.

69:52:34 CC Roger.

69:52:37 CC You're doing a good job up there, Sport. We'll see you later.

69:52:39 C It's a lot of fun!

69:52:41 CC I bet it is.

69:53:00 CC Gemini VII, Houston. I have an addition to the

CONFIDENTIAL

CONFIDENTIAL

197

flight plan update.

69:53:07 P Roger. Stand by 1 second.
69:53:19 P We are ready to copy, Houston.
69:53:24 CC This is on the flight plan Time line. We want you to adjust the Time line by 5 minutes. For instance, change 66:00 to 66:05. Do you copy?
69:53:45 C Roger. We're adjusting the Time line 5 minutes ... another 5 minutes.
69:53:50 CC Roger. That's all we have.

TEXAS

70:10:56 CC Gemini VII, Gemini VII, Houston CAP COM.
70:11:01 P This is VII. Read you loud and clear.
70:11:03 CC Roger. Would you get that probe in your mouth?
70:11:10 P Roger. Temperature is in Frank's mouth.
70:11:13 CC Roger.
70:11:18 CC Could you tell me how the QAMS quantity gage looks?
70:11:22 P Roger. QAMS quantity now looks like 59 percent.
70:11:26 CC Very good.
70:11:36 CC Has he had the thermometer in for quite a while?
70:11:40 P No. It's still going up.
70:11:42 CC Roger.
70:11:56 CC Stand by for the Surgeon, Gemini VII.
70:12:00 CC Frank, this is Surgeon. Let's go ahead with the blood pressure with the probe in. While it's coming up Frank, let's get your first blood pressure.

CONFIDENTIAL

CONFIDENTIAL

70:12:14 CC Your cuff is full-scale.

70:12:58 CC We have a valid blood pressure. Let's - -

70:13:06 P Starting exercise.

70:13:07 CC Roger.

70:13:25 CC Gemini VII, this is Surgeon. Jim, what probe did he have in? Is it the one with the lightweight headset?

70:13:32 P Roger. He has the one with the lightweight headset.

70:13:40 P Blood pressure coming through.

70:13:48 CC Cuff full-scale.

70:14:46 CC We have a valid blood pressure, Gemini VII. You can also remove the temperature probe, Frank.

70:14:54 C Roger.

70:14:58 CC Gemini VII, this is Surgeon. Frank, we have no more to add, I think, to your food, water and sleep report. We have all of that data from Jim on the last pass. I would like to ask a few questions here. One, what about the exercise before meals? Have you been doing those as programmed now?

70:15:22 C Chuck, we missed those yesterday due to the work load. We didn't get them in, but we're going to do them religiously today.

70:15:32 CC Very good. Are you feeling stiff at all, Jim?

70:15:38 P Not too stiff. Just about around the waist is a little stiffness. We have to keep arching our backs a little bit due to our sitting position.

70:15:50 CC Gemini VII. Right now you sound as if your voice is getting a little bit gravelly, and we heard this on a couple of occasions yesterday. Have you had any hoarseness or dryness in the cabin at all? Any symptoms at all?

CONFIDENTIAL

CONFIDENTIAL

199

70:16:06 P My voice sounds a little hoarse in the cabin, too. Might be due to the oxygen, but no other problems.

70:16:14 C How do I sound, Chuck?

70:16:19 CC You must be taking helium!

70:16:21 C No, we're feeling fine. I'm very sorry about the EEG experiment. The ... caught on as I was trying to put something away and ripped ... three of them off. We tried last night but we just couldn't put them back on satisfactorily.

70:16:36 CC That's perfectly understandable, Frank. You didn't have the proper equipment for trying to replace those, and it was just an attempt that - it would be a real amazing thing if it did work out. It was worth a try and we're sorry it didn't, too.

70:16:49 C ... anyway.

70:16:53 CC Roger.

70:16:55 CC We have one other thing. I wonder if in the reporting on these meals - you're doing very well reporting meal number and reporting the time you had that meal, which is real helpful to us in our log here. Is it possible from your log of the water - at the time you say you had a certain meal at a given hour - could you also give us your water intake at the time so we can get some additional points on our curve here? It would make it easier to spread in the 24-hour period. Is that easy to do?

70:17:25 P We can give you the water that we added to the meal that we're supposed to eat at the same time as the meal, plus the water we drink at meal time. How's that?

70:17:33 CC That would be very fine, Jim, if you could do that. I have nothing else here.

70:17:46 CC Gemini VII, Houston. Have the news for the day if you're ready.

70:17:51 P All right. That's a good diversion. Go ahead.

CONFIDENTIAL

CONFIDENTIAL

70:17:53 CC John Meekham has just bought half of Houston, seems like. He's bought five major properties of the Jones family, including the Chronicle, the Rice Hotel, and a third interest in the Texas National Bank of Commerce.

70:18:13 P Great Scot!

70:18:19 CC The Russian moon shot, Luna 8, did not work. Apparently they hit the moon too hard. I guess you heard about that last night, though.

70:18:28 P Roger.

70:18:31 CC And, mentioned in the Gemini VII story, it talks about you're the well-dressed pilot. There is also a comment, the press is calling MCC the Kraft Music Hall. We had another big power blackout last night. Electrical power was out for about 25 minutes in 10 counties in east Texas. And the final item, there are 18 shopping days to Christmas.

70:19:11 P ... about.

70:19:18 CC That's all we have on this pass, Gemini VII.

70:19:22 P Thank you for the news, Elliot.

BERMUDA

70:19:43 CC Gemini VII, you might have your systems books out if you want to on the next pass, and we'll discuss your status as we see it here on the ground.

70:19:52 C Thank you.

70:20:50 CC Roger. Go ahead.

70:20:52 C We would like a report on our new orbit on the outcome of that burn if you get a chance.

70:20:57 CC Roger. We'll give it to you as soon as we have it.

70:21:00 C Thank you.

CONFIDENTIAL

CONFIDENTIAL

201

70:21:11 CC We plan to look at the States data and Carnarvon tracking also before we give that.
70:21:18 C Roger, thank you.
70:21:21 CC How was the star reference?
70:21:23 C Excellent! No trouble at all.
70:21:26 CC Roger.

CANARY

70:31:16 CC Gemini VII, Canary ... read.
70:31:33 C Canary, this is Gemini VII. You're loud and clear.
70:31:36 CC Roger. We have you GO on the ground. All systems look good.
70:31:39 C Roger. Thank you, Canary.
70:31:41 CC From Bermuda ... 127.2 by 171.4. Exactly what we asked for.
70:31:53 C Roger. Thank you.
70:33:16 CC VII, Canary.
70:33:19 C Go ahead.
70:33:20 CC Roger. You still receiving HF?
70:33:23 C Yes, but we've been so busy we haven't ... but we can try though.
70:33:32 C Roger. Coming in a little garbled.
70:33:33 CC Roger.
70:41:39 C ...
70:41:56 P Okay.
70:42:12 C This is D-9 ... stars.

CONFIDENTIAL

CONFIDENTIAL

70:42:41 P I lost Do you have it? You can do what you want to Is the recorder still on? Is the recorder still on or not? ...

70:44:39 P Measure to the top of the bright-band horizon without the filter. The horizon is completely unavailable with the green filter in.

TANANARIVE

70:50:15 CC Gemini VII, Houston. Were you calling?

70:50:29 CC Gemini VII, You're very weak. Say again, please.

70:50:32 C The green filter on this segment blocks out the horizon completely.

70:50:38 CC Roger. So you're not using it at all?

70:50:41 C We're using no filter.

70:50:43 CC Roger. I read you.

71:11:56 C Right. This is the second sequence. Temperature 410.

71:12:10 C ... 15 minutes ... cloud cover on the earth ...
... is just one bright band It appears to us as the earth's horizon but it's vague and biggest of the stars ...

71:12:39 C All our shots are ... horizon which is probably a glow of the earth break where the cloud ...

71:12:48 P All of our cloud shots have been ... rolled the spacecraft vertically so that the window ...

71:13:22 C ... shots. ...

71:24:27 P Jim is now on record commenting on the ... horizon with the blue-haze filter, D-9. I can see the horizon and the earth through the blue-haze filter. I cannot pick out any airglow band above the horizon though. Just blue-haze color.

CONFIDENTIAL

CONFIDENTIAL

71:32:54 CC D-4/D-7: 71:47:26; Sequence 419; Mode 02; start at Mississippi River and continue to Atlantic Coast.

71:33:24 C Roger, we have that.

71:33:26 CC Okay. That's the flight plan update. Would you put Quantity Read switch to ECS O₂ position?

71:33:34 C All right.

71:35:18 P Hawaii, this is Gemini VII. Do you have any word on the weather over Houston?

71:35:22 CC Hold on here a second; let me check.

71:35:30 CC They have to get somebody that can look outside. They've no windows in that building.

71:35:33 C Okay.

71:35:52 CC They say they've got high scattered clouds.

71:35:56 C Okay. Fine.

71:36:54 CC Fuel cell - correction - Quantity Read switch to FUEL CELL O₂ position.

71:36:57 C Roger.

71:41:36 P Okay. We're turning on the IR for a run from the Mississippi to the Atlantic. Getting set here. We had to delete S-8/D-13 because of weather; we are changing the emphasis on there. D-14 also. Okay. We finished D-4/D-7, taking an IR run sequence for 419, Mode 2. So actually we ran it all the way from Mexico to Florida. Pointed down to the earth. We have some clouds in there but quite a great deal of ... We also took some series of pictures of Houston and then some color-shifted IR film across Mississippi and Florida. All of this is recorded in the log book.

GUAYMAS

71:41:48 C Hawaii, this is Gemini. Can we turn off the Hydrogen Read switch now?

CONFIDENTIAL

CONFIDENTIAL

203

71:24:37 P There seems to be a lot of haze extending upwards from the horizon itself. The horizon is very fuzzy, but don't see any band above the horizon.

71:25:00 C None at all, Jim?

71:25:01 P No.

71:25:03 C ... back there we had the whole night run plus you kept your eyes shut until we got here.

71:25:05 P Right.

71:25:06 C Okay. Going off recorder.

HAWAII

71:31:41 CC Gemini VII, Hawaii CAP COM.

71:31:44 C Go ahead, Hawaii. Gemini VII.

71:31:46 CC How are you doing this morning?

71:31:51 CC How are you all doing up there this morning?

71:31:54 C ... standing by for a fuel cell purge.

71:31:56 CC Okay. We're showing you GO here on the ground. We're ready for your purge. Go ahead and start it.

71:32:19 CC Command Pilot, if you can copy, I have a short flight plan update for you.

71:32:22 C Stand by a minute.

71:32:24 CC All right.

71:32:29 C Okay. Go ahead.

71:32:31 CC S-8/D-13: 71:47:26; Sequence 02; delete weather.

71:32:46 C Do you want me - want us to delete that because of weather?

71:32:49 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

205

71:41:56 CC Gemini VII, Guaymas CAP COM. Roger. You can turn it to the OFF position.

71:42:00 C Thank you. Do you want me to turn that heater on or ...

71:42:18 CC Gemini VII, Guaymas CAP COM. Flight advises they'll wait and look at it over the States and then give you - -

71:42:26 C Okay.

71:42:31 CC All systems look good here on the ground. We don't have anything special for you. We'll be standing by.

71:42:36 C Thank you.

TEXAS

71:45:15 CC Gemini VII, Gemini VII, Houston CAP COM.

71:45:26 CC Gemini VII, Gemini VII, Houston CAP COM.

71:45:29 C Go ahead, Houston. Gemini VII.

71:45:32 CC Roger. We would like to have you take a look at the weather in the Houston - in the Laredo area this time in preparation for a possible pass next time. Can you see it at all?

71:45:47 P Roger. Houston.

71:46:19 CC Gemini VII, Houston. Could you place your Quantity Read switch in the FUEL CELL HYDROGEN position? We're not sure we got a good readout at Hawaii.

71:46:28 C It reads about 380.

71:46:31 CC Roger.

71:46:40 CC Can you see Laredo at all?

71:46:42 P We're not there yet.

CONFIDENTIAL

CONFIDENTIAL

71:46:43 CC Okay.

71:46:50 CC When it's convenient, I'd like to run over the systems real quick here with you.

71:46:55 C Okay. Stand by a minute, please.

71:47:23 CC Gemini VII. You have a TX coming up in about 30 seconds.

71:47:27 C Thank you.

71:48:01 P The weather - we're right over Laredo now - may be good next pass; it's just very high ...

71:48:08 CC Roger, VII. We'll give it a try next time if we can get it set up.

71:48:13 P All right.

71:48:20 CC Got your book out yet?

71:48:22 C Say again.

71:48:24 CC Got your book out yet?

71:48:26 C Stand by just a minute, please.

71:48:37 C Smile, Elliot.

71:48:40 CC Are you ready?

71:48:42 C We're taking your picture.

71:48:43 CC Oh, okay.

71:49:04 CC That's all we have down here is smiles, Frank.

71:49:07 C Roger, Chris. Boy, is it ever clear today. We're right over Houston now. The Astrodome sticks out like a sore thumb. We can see the whole works.

71:49:15 CC Roger.

71:49:27 CC Can you associate the music, the HF reception, with the day-night cycles at all, or has it been generally good all the way around?

CONFIDENTIAL

CONFIDENTIAL

207

71:49:37 C It's been good.

71:49:42 C Okay on the systems.

71:49:44 CC Okay, and you can turn off your H₂ switch now.

71:49:50 CC Okay. The first curve I have in your book here is. the estimated propellant usage. If you adjust the curve down for the maneuvers we've made ahead of time here, raising the perigee, we feel you're running about 12 pounds ahead on that curve. That's at approximately 70 hours.

71:50:17 C Okay.

71:50:19 CC The next one is primary O₂. As you know, you show ending up with about a 38 percent at the completion of the mission. We show you're running about 4 percent ahead of that at the present time.

71:50:34 C Roger.

71:50:36 CC The next one is the full cell Cryos. We show you're expecting about 15 percent at completion of mission. We show you're running about 2 percent ahead of that on oxygen and about 4 percent ahead on hydrogen.

71:50:52 C Roger.

71:50:57 CC On the water, we show you're running just about on the line for water usage, based on the equipment adapter water only. Of course, in addition to that you have your retro water, so looks like you're in real good shape on that.

71:51:13 C Roger.

71:51:17 CC In regard to the ...

71:51:22 CC You're probably about as familiar with that as we are. Understand you didn't have to pump any of them up during the night. They all held very well. The ECS O₂ usage appears to drop substantially during the sleep period, and so it's holding very constant at about 700 pounds, we show here. The fuel cell oxygen pressure dropped the most of all of them and apparently we have a real good bottle there.

CONFIDENTIAL

CONFIDENTIAL

It's very well insulated and the pressure came down. You had pumped it up about, up to about 870 or so, and our pressure here and that came down during the night, back down to about 500 on our gages.

71:52:18 C All right.

71:52:19 CC So looks like we have real good bottle there. Hydrogen came down a little bit. I think it dropped about 50 pounds or so during the night. It looks like we're in real good shape on everything.

71:52:29 C Very good.

71:52:33 CC Did you get these on-board gage readings to be used for your Cryo temperature controls or pressure controls? We have a set of readings here which are good until about 80 hours, if you would like to use them.

71:52:48 C Okay. Stand by. I'll copy them.

71:52:51 CC Roger.

71:52:57 C Go ahead.

71:52:59 CC Okay. ECS O₂: We have a minimum of 417, a nominal range of 500 to 582. These are your on-board gage readings. Fuel cell O₂: Minimum 208, nominal 333 to 500. Fuel cell H₂: Minimum 333, nominal 445 to 500. Did you copy?

71:53:37 C Roger. Thank you.

71:54:11 C Boy! Hi Fi is really coming in great now, Elliot.

71:54:15 CC Roger. We're getting it pretty good here too. Is it seeming to hold all the way around or do you get fadeouts in certain areas?

71:54:23 C We get fadeout in areas, but it sure is good over here.

71:54:29 CC Does it seem to be related to the day-night cycle at all?

71:54:33 C We haven't noticed it. Actually, when we get real busy, we turn it off. It would be difficult to

CONFIDENTIAL

CONFIDENTIAL

209

relate it to anything while we're working.

71:54:40 CC Roger.

71:55:50 CC Frank, that burn worked out real well. Real pleased to see that you were able to do that well with the platform down.

71:55:57 C Roger. You gave us the right stars; you can't miss.

71:56:02 CC How about the pitch reference? Do you feel you need any - do you feel that's any problem at all?

71:56:08 C Nothing.

71:56:09 CC I say, do you feel that the pitch reference is any problem?

71:56:14 C Pitch is no problem.

71:56:15 CC Okay.

71:56:17 C As a matter of fact, the moon is so bright, we can even pick up ... at night on the clouds below.

71:56:22 C Roger.

71:57:33 CC Gemini VII, Houston. Do you know roughly what the time left on your D-4 recorder is?

71:57:55 C 17 minutes and 20 seconds are elapsed, but if you want to we can play it back.

71:58:00 CC Roger. Have you seen any Aurora on your night passes?

71:58:07 C Negative.

71:58:09 CC Roger.

71:58:10 C No meteors either. Just quite a bit of fires over Africa and a lot of thunderstorms over the Amazon.

71:58:18 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

CARNARVON

72:40:10 CC Gemini VII, Carnarvon CAP COM.

72:40:25 C Carnarvon, this is Gemini VII. Go ahead.

72:40:28 CC Roger. I've got three items on your flight plan to delete because of weather, whenever you're ready.

72:40:36 C Stand by a minute.

72:40:37 CC Roger.

72:40:41 CC Okay. Go ahead, please.

72:40:43 CC Okay. The first one is the Apollo Landmark at Time, 73:08:40; Sequence 234. Second item is the D-4/D-7: 73:08:40; Sequence Number 420. The final item is MSC-4: 73:45:35; and these are deleted due to weather.

72:41:22 C Roger. Thank you.

72:41:24 CC Roger. Everything looks good from the ground. We have nothing further for you. We're standing by.

72:41:29 C Thank you.

72:45:04 CC Gemini VII, Carnarvon CAP COM.

72:45:07 C Go ahead, Carnarvon.

72:45:08 CC Roger. Would you check your fuel cell hydrogen pressure please?

72:45:15 C Roger. I'm reading 360 about.

72:45:29 C What do you read?

72:45:31 CC Okay. Gemini VII, what we would like to do is have you keep it between 445 and 500.

72:45:39 C Okay. I was working the minimum on it. They gave me the minimum on 333.

72:45:44 CC Okay. Flight just said he would like for you to

CONFIDENTIAL

CONFIDENTIAL

211

keep it between 445 and 500. Would you run it up, please?

72:45:51 C The heater's on.
72:45:53 CC Roger. Thank you.

HAWAII

73:06:19 CC Gemini VII, Hawaii CAP COM.
73:06:23 C Go ahead, Hawaii. Gemini VII.
73:06:25 CC Roger. We're still showing you GO here. Standing by.
73:06:29 P Roger. Do you want the fuel cell purge now?
73:06:33 CC Negative.
73:06:35 P Okay. That was in the original flight plan. I guess they must have changed it. Thank you. We'll delete it.
73:06:45 CC Roger. Would you give me the position of your adapter C-Band, please?
73:06:52 C On COMMAND.
73:06:56 CC Roger. All those original flight plan items have been changed.
73:07:02 C Roger.
73:07:21 CC Gemini VII, Hawaii. Would you please put your adapter C-Band to CONTINUOUS for a moment?
73:07:26 C Roger.
73:07:28 C CONTINUOUS.
73:07:41 CC Gemini VII, Hawaii. How do you feel about an S-8/D-13 experiment on your next pass?
73:07:50 C Roger. Going to try it.

CONFIDENTIAL

CONFIDENTIAL

73:07:54 CC Roger.

73:08:14 CC Roger. Gemini VII, would you go back to COMMAND on your adapter C-Band - your ACQ-AID?

73:08:21 C ... adapter C-Band.

73:08:24 C Roger.

TEXAS

73:17:27 CC Gemini VII, Houston CAP COM.

73:17:36 CC Gemini VII, Houston. Do you read?

73:17:38 P We read you loud and clear. Go ahead.

73:17:40 CC Roger. Are you all set up, Frank, for the S-8?

73:17:44 C Roger.

73:17:46 CC Can I give you some items here - and you just tell me when to stop? We have several items on a continued flight plan update.

73:17:57 C Roger. Stand by a minute.

73:18:07 C Go ahead.

73:18:08 CC Okay. You just tell me when to stop here for your S-8.

73:18:12 C All right.

73:18:14 CC We have a slight change in the closest approach time for this S-8. Time is now 73:23:41.

73:18:28 P Roger.

73:18:29 CC Are you just crossing the coast of California now?

73:18:35 P We're coming up on it now.

73:18:37 CC Okay. The next item is D-4/D-7: 74:00:00; Sequences 415 and 416; Mode 02; cancel, weather.

CONFIDENTIAL

CONFIDENTIAL

213

73:19:08 CC Did you copy?
73:19:09 P Roger. Cancel, weather.
73:19:14 CC I'll just keep going here and I'll stop, every item. You tell me if I need to stop talking.
73:19:20 C Elliot, you better stop it now. We're coming up over the coast. We'll be there shortly.
73:19:25 CC Okay. Give me a call when you're free to talk afterwards.
73:19:28 C Roger.
73:21:46 P You're coming up on S-8/D-13. There goes El Paso.
73:21:55 C El Paso?
73:22:09 P Yes. Well, let's see, there are some clouds off the coast, but we just might luck out, Frank.
73:22:11 C We got the red patch. Up there.
73:22:16 P We got the red patch already?
73:22:17 C Yes. Out quite aways. See it out there?
73:22:26 P Come on now! There is too much haze today.
73:22:33 C I've got it.
73:22:34 P Just that little patch. Okay. Now.
73:22:35 C See the red patch there now? Look, Jim.
73:22:42 P Okay. I've got it.
73:23:04 C Any luck?
73:23:05 P No.
73:23:23 P It's on your side.
73:23:26 C What?
73:23:38 P It's right below you now, I think. Do you see it?

CONFIDENTIAL

CONFIDENTIAL

73:23:40 C No.

73:23:45 P Do you want to roll it?

73:23:47 C Which way?

73:23:48 P Down to your left but I don't think ...

73:23:59 C No, we didn't pick it up, Elliot. There is a cloud - high cloud cover and we missed it.

73:24:05 CC Okay, Frank.

73:24:13 CC That was a real good pass. Right - almost directly over the site, so we thought you might be able to have some luck on that.

73:24:21 C Roger. Well, there are clouds. It's clear everywhere else but right over there.

73:24:26 CC Okay. What control mode did you use during the burn?

73:24:28 C Aztec Sequence, 74:36. We don't see any jet streams here so we're taking some pictures of the unusual cloud formations here. Down there ... We ought to come up with some. Roll them this way so I can get a shot ... Jet stream ...

73:24:32 C RATE COMMAND.

73:24:34 CC RATE COMMAND. Roger. And do you have any non-nominal stowage that you could mention? We're looking into the weight distribution.

73:24:47 C Say again, please.

73:24:48 CC Do you have any non-nominal stowage that you care to report? We have a question in regard to weight distribution.

73:24:59 P No. We're doing everything according to plan so far.

73:25:08 P Stand by just one.

73:25:12 P ... stands out like a sore thumb up there.

CONFIDENTIAL

CONFIDENTIAL

215

73:25:20 P I say, you can really see the new airport.

73:25:23 CC Oh Roger.

73:25:25 P . . .

73:25:27 P Okay, Jim. It's 74:10:00. Cabin temperature survey. S-6: 74:36:00, Sequence Numbers 4, 10 and 11; jet stream cirrus south of track. Do you copy?

73:26:00 P Roger.

73:26:02 CC Time: 74:41:00; purge fuel cells; that will be at Hawaii. D-9: Time, 75:11:00; Sequence 01; Mode 02. Time: 76:16:00; crew status report on the Command Pilot at Hawaii. Time: 76:28:00; crew status report on the Pilot at Guaymas. MSC-2 and 3: Time, 76:40:00; Sequence 04; stop at 77:00:00. Do you copy?

73:27:06 P Roger.

73:27:09 CC D-4/D-7: 77:09:00; Sequence 412; Mode 02; use air-glow, measure for 2 minutes. 77:33:00: flight plan report at CSQ. 78:24:00: PLA update at the RKV. 79:08:00: purge fuel cells at the CSQ. Did you copy?

73:28:05 P Roger.

73:28:08 CC Okay. That's the end of the message.

73:28:12 C Elliot, I think the flight plan is going real well. You're keeping us busy but not too busy - looks just about right.

73:28:19 CC Very good. Glad to hear that and sorry we had to cancel so many of them today due to the weather.

73:28:26 C Roger. Did Mike and Ed get back all right?

73:28:28 CC Oh yes. They've been in and out - kibitzing - and one thing and another.

73:28:33 C Did they have to stop at Brookley?

73:28:36 CC I didn't ask them. I'll check with them when I see them.

CONFIDENTIAL

CONFIDENTIAL

73:28:40 C They hardly ever make it nonstop.

73:28:44 CC Roger.

73:28:54 CC Frank, I really think that we have got a real good handle on what these hydrogen and oxygen quantities are doing and how you're going to use the rest of them during the flight. And I think that you should pay attention to using these auto heaters. We are going to try and give you our best advice this afternoon, and when they give it to you I think you ought to follow it.

73:29:16 C I have been, Chris

73:29:19 CC I'm talking about the use of the auto heaters. Auto positioning.

73:29:24 C Roger. We've been following any advice you gave.

73:29:29 CC Okay.

73:29:30 CC We're talking about leaving them in the AUTO position during the sleep period, Frank.

73:29:36 C Okay, fine, if that's what you want to do.

73:29:38 CC Very good.

73:30:03 CC Frank. We're real pleased about how everything's going, usage of fuel and the productiveness of the flight. And I think we just want to say: keep up the good work. Everything is looking real good for both of you.

73:30:17 C Thank you.

73:30:20 CC How's the suit configuration doing now? Are you both fairly comfortable?

73:30:25 C Roger.

73:30:29 CC You have a TX on the way in about a half a minute.

73:30:33 C Thank you.

73:30:40 CC Frank, are you squared away with what we're doing

CONFIDENTIAL

CONFIDENTIAL

217

with the orbits now?

73:30:46 C I think you're getting us in sync so you can put us up for a good window launch on either eight or nine.

73:30:52 CC That's correct.

73:30:55 C Okay.

73:30:57 CC Look's like we're going to be well within the fuel budget to get almost a perfect 161.

73:31:03 C Very good.

73:31:08 CC Jim, could you comment on the comparison of the suit configuration versus the non-suit; that is, as to comfort and ease of getting around the cockpit and so forth?

73:31:22 P Well, Elliot, there is really no comparison as far as getting around in the cockpit. I can get back to my food box and waste basket with no strain.

73:31:31 C ...

73:31:32 P I have a lot easier way of getting around, and I stowed the suit as we planned, ... Mike's suggestion. I'm dry and comfortable. During the night I get a bit cool when I sleep. The circulation is not as great with the suit off. In other words, it might be a tense spot someplace. But my hose is in position whereby I get nice circulation ... the body.

73:32:04 CC Roger. Understand, Jim.

73:32:08 P Elliot, one other thing required for perfect suit-off operation in the spacecraft is the proper placement of ventilators.

73:32:17 CC Roger. I copy. How about this business of getting a little cooler at night? Do you feel it was too cool, or did you adjust the temperature up slightly to take care of that?

73:32:29 P Right. I could adjust it; however, I didn't want to because of Frank and I think it's just because my

CONFIDENTIAL

CONFIDENTIAL

metabolic reaction ... Frank says he gets a little cool at night, too.

73:32:42 CC Okay. So possibly by turning the heater up - the temperature up a little bit - it might just take care of that part.

73:32:49 P Yes. Because I think we slow down, and sleeping - we're not producing much heat; and, therefore, we just slowly get cooled off.

73:32:55 CC Roger.

TEXAS

73:36:52 CC Gemini VII, Houston Flight.

73:37:12 P This is VII. Go ahead, Houston.

73:37:15 CC Just want to wish you good day.

73:37:29 CC Gemini VII, just signing off RED shift for today. We'll see you tomorrow.

73:42:33 CC Gemini VII, Houston CAP COM.

73:42:53 CC Gemini VII, Houston CAP COM. Do you read?

73:42:57 P Roger. Houston. This is VII.

73:43:01 CC Roger. Like to ask how you took picture of the Polaris. Did you use movie camera or still camera?

73:43:17 C Say again, please.

73:43:19 CC What did you take picture of - what did you take pictures with yesterday on the missile launching? Did you use the Hasselblad or what was that?

73:43:31 C We used both. We had the 16mm going and we used the Hasselblad.

73:43:37 CC Had everything going, correct?

73:43:39 C Everything.

CONFIDENTIAL

CONFIDENTIAL

219

73:43:41 CC Roger.

CARNARVON

74:16:23 CC Gemini VII, Carnarvon CAP COM.
74:16:28 P This is VII. Go ahead.
74:16:30 CC Roger. I have one item here for you. It's a node update.
74:16:36 P Roger. Stand by.
74:16:37 CC Roger.
74:16:49 P Go ahead.
74:16:52 CC Roger. ... Time: 75:57:39; Rev 48; 115.9 degrees east; right ascension at 12:17:13, and that's it. We have nothing else for you. You look good here on the ground. We're standing by.
74:17:25 P Roger. Thank you.
74:17:28 CC Roger.
74:17:29 C Carnarvon, this is Gemini VII.
74:17:31 CC Roger.
74:17:32 C Check with Flight. I understand he wants me to go to auto heaters. Is that correct?
74:17:38 CC I think it was just during the sleep period. Stand by. I'll ... on that.
74:18:01 CC Roger, Gemini VII. It will be only the auto heater on the RSS O₂ bottle during the sleep period. They'll brief you further on that again over the States.
74:18:12 C Very well. Thank you.
74:18:14 CC Roger.
74:18:17 C That sure sounds like Gene ... It's not, is it?

CONFIDENTIAL

CONFIDENTIAL

74:18:20 CC Down here? Negative.
74:18:22 C Okay.
74:18:23 CC ... down to Houston. He just came on.
74:18:27 C I thought maybe he took a good deal and went to Australia.
74:18:30 CC No. He's not.
74:18:32 C Okay.

HAWAII

74:41:12 CC Gemini VII, Hawaii CAP COM.
74:41:26 CC Gemini VII, Hawaii CAP COM.
74:41:27 C Did you get a picture of that program?
74:41:28 P Yes. I got a picture ...
74:41:29 C Go ahead, Hawaii. Gemini VII.
74:41:31 CC Okay. We're GO here on the ground. We're ready for your fuel cell purge.
74:41:36 P Roger. Stand by just one. We're taking an S-6 picture now.
74:41:39 CC All right.
74:41:49 P Okay. Temp of 59, relative humidity ...
74:42:54 C Okay. Take a pencil and mark "used", or something like that.
74:43:27 P Okay. We just took some pictures. 30 through 36. The temperature ... and cloud ... Gemini VII.
74:43:28 C You took a picture of S-6 at 74:51:13. Cloud formation over the Pacific.
74:46:58 P Hawaii, Gemini VII. Purge complete.

CONFIDENTIAL

CONFIDENTIAL

221

74:47:00 CC Okay. We've got all that. Do you need anything else?

74:47:02 P Not a thing.

74:47:04 CC Okay. This is your Panel Controller standing by. You need not acknowledge.

74:47:07 P Thank you.

74:54:58 P S-6 at 74:54:58; taking a picture of what looks to be a low forming over Mexico. A very well-developed flow pattern.

74:55:10 C Watch it ... we're coming right over it.

74:55:11 P Taking an S-5 Sequence; 74:57:43; ... I was trying to record then ...

TEXAS

74:55:36 CC Gemini VII, Gemini VII, Houston CAP COM. Over.

74:55:39 C Roger. Houston.

74:55:41 CC Roger. How have things been going up there, Frank?

74:55:43 C Good.

74:55:44 CC Good. I've got a briefing on your Cryos - what we would like to suggest you do, if you'd like to listen in.

74:55:51 C Go ahead.

74:55:52 CC Okay. First of all, the ECS O₂. The pressure decrease has pretty well stabilized out to be about zero. Between now and the expected time that the sleep period begins, it's probably going to start increasing in pressure up to a point of about 3 psi per hour and then continue a slow increase during your sleep cycle. So what we're going to be recommending is that you keep your ECS O₂ heaters off, and they're probably going to remain off through the rest of the mission.

CONFIDENTIAL

CONFIDENTIAL

74:56:24 C All right.

74:56:25 CC Okay, the RSS H₂. Prior to the sleep period, we'd like you to build it up to about 445 psia. This is an on-board reading.

74:56:36 C Right.

74:56:37 CC This gives you about 5 hours after your sleep period before you actually hit the dome, or before you actually would need heat with the present decay rate.

74:56:48 C Right.

74:56:49 CC So what we're going to suggest then is that you keep the RSS H₂ heaters off during the sleep period.

74:56:56 C H₂ off also.

74:56:58 CC Right. Now your RSS O₂. We'll give you an exact time account on this, but what we're going to like you to do, or want you to do, is go to the AUTO position on your heater, probably about one revolution prior to your sleep period. This will give us a chance to monitor the heater and the temperatures and watch them stabilize out.

74:57:21 C Roger.

74:57:22 CC And we'll give you a hack exactly when we want you to go to the AUTO position on the O₂.

74:57:28 C Fine and dandy.

74:57:37 C Taking an S-5 picture.

74:57:40 CC Say again, Frank.

74:57:43 C I'm sorry. I was trying to record that hack.

74:57:45 CC Okay.

74:57:46 Ready?

74:57:47 Hack.

74:57:48 Good.

CONFIDENTIAL

CONFIDENTIAL

223

74:58:03 C Hack.

74:58:15 C S-6 sequence continuing. 74:58.

74:58:16 C Hack.

74:58:25 CC Gemini VII, Houston. The rest of our pass is pretty empty. If there's anything I can pass on home for you, I'd be glad to. If not, your WHITE TEAM will be watching while you're sleeping tonight.

74:58:27 C Hack.

74:58:37 C Hack.

74:58:38 P Roger.

74:58:40 P Say hello to everybody for us.

74:58:41 C Hack.

74:58:42 C I said to say hello to everyone at home for us.

74:58:43 C Say hello to everybody for us.

74:58:48 CC Say again, Gemini VII.

74:58:49 C I said, say hello to everyone at home for us.

74:58:51 CC I sure will do. Right after we lose you here.

74:58:56 P Hack.

74:59:00 CC I might add that everyone's fine and everybody's very happy down here.

74:59:04 C Thank you.

74:59:06 C Thank you. Okay. There are not many clouds now. Okay. Ran into cloud trouble, ceasing at 74:59:15.

74:59:17 CC I guess Jim knows that he's been called the "man in the flying underwear" now.

74:59:22 C Right.

74:59:27 P Do you smell that underwear?

CONFIDENTIAL

CONFIDENTIAL

74:59:30 C Yes.

74:59:34 C Okay. Let's see. Let's get those ... 74:15:09.
How many did we take?

74:59:39 P 9 total ...

74:59:40 C Yes.

74:59:41 C What's the sequence over northern Mexico, Jim?

75:00:01 P Wait. I'll look it up. 5.

75:00:06 C ... Mexico had just what they wanted.
That's a Number 1 priority.

Yes.

75:00:42 C Well, they want all that info on there too.

75:00:46 C Time, sequence, mode.

75:00:49 P Okay. The time for the last one was 74:59: Magazine Number M; Shot Numbers 2 to 9; Frames 2 to 9; Sequence 01; Mode 01 on S-5. We have taken, approximately 74:36, cloud pictures over the Pacific. About 5 frames, Magazine A. We've taken 2 frames of Magazine M, fli, at 250. we've also taken, over southern Mexico, about 01 stripped photos of Mexico. Approximately 74:59. Do you hold the position now?

75:04:06 C That's what I'm going to do. Why?

75:04:07 P I want to get a moon shot.

75:04:13 C Take it with 26mm.

75:04:34 P ...

75:04:35 P Recorder tape just blinked. What's the time, Frank?

75:04:42 C 75:06.

75:05:06 C Now taking measurements D-9; Mode 1; Sequence 1; Mode 02. Just started with ... and presently now to ... I am having trouble with this D-9 measure-

CONFIDENTIAL

CONFIDENTIAL

225

ment because the moon is so bright that it makes a little difficult trying ... star, Jim.

ROSE KNOT VICTOR

75:15:25 CC Gemini VII, RKV CAP COM. You need not acknowledge. All your systems are GO. We're standing by.

75:15:31 C Thank you, RKV.

75:15:35 C I have an S-8/D-13 from this morning. Boreman missed 7 and Lovell missed 11.

75:15:41 CC Roger.

75:15:43 C We're doing D-9 now. We just completed a sequence for S-6 over the Pacific and also a Sequence 1, S-5 over southern Mexico. Sequence 1, Mode 1 on S-5.

75:15:54 CC Roger.

75:16:02 C How is it down on the ground?

75:16:04 CC Real nice today.

75:17:51 P ... stars because the bright moon ... identification ...

75:17:58 P We did not use ...

75:59:27 P We do not ...

COASTAL SENTRY QUEBEC

76:00:10 CC Gemini VII, CSQ. We have nothing for you this pass. We have you GO on the ground. You need not acknowledge this transmission.

HAWAII

76:16:58 CC Gemini VII, Hawaii CAP COM.

CONFIDENTIAL

CONFIDENTIAL

76:17:04 P This is VII, Hawaii. Loud and clear.

76:17:07 CC Roger. Hold the temperature a little bit. We're - it's still rising - we're showing you GO on the ground.

76:17:16 P Roger. Understand GO on the ground.

76:18:11 CC Gemini VII, we have a good hold temperature. Standing by for your blood pressure.

76:18:17 P Coming down.

76:18:28 CC Your cuff is full-scale.

76:19:27 CC We have a good blood pressure. Standing by for your exercise.

76:19:32 P MARK. On the exercise.

76:20:02 P Blood pressure coming down.

76:20:05 CC Your cuff is full-scale.

76:20:47 CC We have a good blood pressure; standing by for your food, water and sleep report.

76:20:59 P Roger. For the Command Pilot: total water to date, 298 ounces. He had one meal, Day 7, Meal C, at which time he had with it about 15 ounces of water.

76:21:19 CC Roger.

76:21:21 P For the Pilot: total water to date, 234 ounces; one meal, Day 7, Meal C, 12 ounces of water with the meal.

76:21:35 CC Roger, Gemini VII. Do you have a total water consumption at the time of your Meal 7-C?

76:21:49 P For the Pilot, I think total water consumption is around 15 ounces during that time.

76:21:55 CC 15 ounces at that time.

76:22:00 CC Roger, Gemini VII.

CONFIDENTIAL

CONFIDENTIAL

227

76:22:02 CC Would you turn off your BIO MED Tape Recorder Number 1?

76:22:09 P Roger. Number 1 cut off.

76:22:14 CC Thank you, Gemini VII. Hawaii Surgeon out.

76:22:19 P Roger. The Command Pilot had about 19 ounces during his meal time.

76:23:20 CC Gemini VII, Hawaii CAP COM. You have a UHF 6 test over the RKV this pass.

76:23:29 P VII, Roger.

GUAYMAS

76:29:34 C Guaymas, this is Gemini VII. How do you read?

76:29:37 CC Loud and clear. Loud and clear, Gemini VII.

76:29:41 C Are you getting our oral temperature?

76:29:42 CC Roger. It's coming up real good. They want to conduct the crew status report over Texas. Your temperature is up real well.

76:29:49 C Okay. Thank you.

76:29:52 C We were given 76:28 but we'll hold on.

76:29:57 CC Roger. You should be getting to Texas in about 2 minutes.

76:30:01 C Thank you.

76:30:18 CC Gemini VII, Guaymas CAP COM.

76:30:20 C Go ahead.

76:30:21 CC Roger. They decided to conduct it over Guaymas after all. We have a valid oral temperature. Stand by for the Surgeon.

76:30:27 CC You can go ahead with your blood pressure.

CONFIDENTIAL

CONFIDENTIAL

76:30:32 C Blood pressure coming up.

76:30:42 CC That's good.

76:31:22 CC We have a valid blood pressure. Standing by for your exercise Mark.

76:31:26 P MARK.

76:31:59 CC Cuff full-scale. Oh, oh Jim, pick it up again. Okay, let it off.

76:32:55 CC We have a valid blood pressure. Give me what you can of your food status and your water status.

76:33:01 P Roger. Stand by.

76:33:06 C We just gave that to Hawaii, Guaymas.

76:33:10 CC Roger.

76:33:47 CC Gemini VII, Guaymas CAP COM. Everything looks real good on the ground.

76:33:52 C Roger. Thank you.

ROSE KNOT VICTOR

76:49:10 CC Gemini VII, RKV CAP COM.

76:49:17 C Okay. Here we are at 76:40, starting on MSC-2 and 3; Sequence 04; ... Also, Jim just took a picture of a sunset. 76:59:36 ... IR off.

76:49:29 C Just a second, RKV. Go ahead.

76:49:31 CC Roger. All systems are GO.

76:49:35 CC We'd like to give you a status report on the G and C systems. Your QAMS meters seem to be working well. Your thruster temperature ranges from 60 to 80 degrees when the ACME is powered down. Your thruster temperature ranges are from 80 degrees to 105 degrees during use of the pulse mode. Your source temp and other systems temperature have stabilized in the

CONFIDENTIAL

CONFIDENTIAL

229

range from 55 degrees to 65 degrees. In summary, the system works beautifully.

76:50:13 P Sounds good to us.

76:50:14 CC Your RCS source pressure has stabilized at 3000 psi and the temperature has stabilized at 65 to 75 degrees.

76:50:28 P They seem to be in pretty good form now.

76:50:30 CC Roger. As far as the computer goes - every time we have seen the computer run it looks completely normal. All updates have been verified on the ground by reading out the memory.

76:50:41 P Roger.

76:50:44 CC Your fuel cell water pressures indicate your consumption of water is equal to the amount produced. All your coolant loop temperatures are nominal. Your radiator outlet temps are running 0 to plus 10 degrees. And your suit heat exchanger inlet temp is constant at 47 to 48 degrees.

76:51:04 P Sounds like we're serious about that two weeks.

76:51:07 CC That's affirm.

76:51:16 CC Oh, by the way, the next hour and a half of uninterrupted mood music on HF will be brought to you by the compliments of Station WRKV. Among the selections are the excerpts of "LA Boheme" by Puccini, "Symphony Number Three, The Rennish" by Schumann, "Try to Remember Broadway" by the Fantastics, "Symphony Number Two" by Rachmaninoff, "The Lawrence of Arabia Overture" and "Water Music" by Handel.

76:51:45 P Outstanding!

76:51:55 CC We're sorry but there will be no in-flight movies tonight.

76:52:00 P ...

76:59:45 P Right.

CONFIDENTIAL

CONFIDENTIAL

76:59:46 C IR on.

76:59:48 P Right.

76:59:49 C Power on.

76:59:50 P Right.

76:59:52 C Stand by on the transmitters. ACQ-AID beacon is open. Standing by ... 412 ... 76 - correction 77:09 ... We're using the airglow ... and tracking ... Okay. At 77:00 we're stopping ... telemetry ...

77:00:09 P We will attempt now at - what time is it, Frank?

77:00:10 C Almost 09 ... 76:09 or 76 ...

77:00:31 P Okay. We will attempt now at 76:09 to take some night photography, with the high-speed film, of the airglow and the cloud covers beneath it. We fortunately tonight have a practically full moon on the beam, right angles to the method of shooting.

77:08:50 C Listen, you might turn on that transmitter before you ...

77:08:51 P What transmitter?

77:08:55 C D-4/D-7 transmitter. D-4/D-7 transmitter coming on for Sequence 412 at 77:09.

77:09:02 P The first show - leave it on.

77:09:03 C I am.

77:09:12 P Okay. The first shot with high-speed film will be f2.8, 1/2 second.

77:09:26 P The next shot - you want 1 second?

77:09:28 C Yes. 1.

77:09:40 P The next shot, f2.8, 1 second.

77:09:45 P Hold her steady.

77:10:02 P 2 seconds coming up. This will be a time exposure.

CONFIDENTIAL

CONFIDENTIAL

231

77:10:12 P Next shot is 2 seconds time.

77:10:28 P 2 seconds.

77:10:29 C I just saw a meteorite.

77:10:32 P Four.

77:10:33 C I just saw a meteorite falling, 77:10:32. Left of BEF and it was left and below us.

77:10:45 P 4 seconds down. Airglow. Time. You all set?

77:10:52 C Yes.

77:10:53 P Very little cloud coverage ... We'll see just ... signs of clouds.

77:11:12 P Next shot.

77:11:16 C Jim, you can turn off D-4/D-7. We've finished Sequence 412 tracking up here.

77:11:26 C D-4/D-7 is cloud ...

77:11:33 P 3 seconds now.

77:11:50 C Take it?

77:11:51 P Okay.

77:11:52 C You only have 40 rolls of that so we'd better - -

77:11:57 P Yes.

77:11:58 C - - save some.

77:12:00 P Very good.

77:12:04 C Now we have to log all that info ... keepsake.

77:12:09 P And finishing airglow high-speed photography.

77:14:12 C All right. We have a target of opportunity, a huge fire. Tracking it with IR. Record. Coming up on it right now. You want to get the time, Jim?

CONFIDENTIAL

CONFIDENTIAL

77:14:19 P Roger. Time is 77:14, about - say around zero seconds. 77:14. Huge fire on the ground. We're recording this on IR.

77:14:24 P Did you get it ...?

77:14:25 C Yes ...

77:14:26 P Okay. The sun's coming up ...

77:14:28 C All right.

77:14:31 C Mark at the end of it at 77:14:31.

77:14:33 P Powering down.

77:14:34 C Yes. ...

77:14:44 C We have - you weren't transmitting that anyway. You were using the recorder, weren't you?

77:14:55 P I put the transmitter recorder on.

77:14:57 C ACQ-AID beacon was on ...

77:15:00 P No.

77:15:02 C ...

77:15:11 P Okay. Let me get a record here on D-4/D-7. Got the log book?

77:15:14 C I have it right here.

77:15:19 C ...

77:15:28 P Here it is.

77:15:33 P Just as a matter of comment: The screens on the exit hoses of the suits were a good idea because they act as sort of a vacuum cleaner. Mine does. My extension hose does - the right-hand side and we don't have to clean up the cockpit that way.

COASTAL SENTRY QUEBEC

77:33:39 CC Gemini VII, CSQ.

CONFIDENTIAL

CONFIDENTIAL

233

77:33:48 C Go ahead, CSQ. Gemini VII.

77:33:51 CC Roger. We have you GO on the ground. We're standing by for your flight plan report.

77:33:56 C Roger. Today we've used one magazine of S0217 standard Hasselblad; 14 frames on the second magazine. We've shot six frames of color-shifted IR, five frames of Hasselblad high-speed black and white. One frame Hasselblad high-contrast, low-speed black and white. We've used two magazines of 16mm movie film and two tape recorder packages. I gave our scores on S-8/D-13 before, but here they are again. Borman missed 7, Lovell missed 11 this morning.

77:34:32 CC Repeat that last again, Gemini VII.

77:34:36 C Roger. Borman - 7, Lovell - 11 for S-8/D-13 vision test this morning.

77:34:41 CC Roger. Copied.

77:34:44 C My OAMS fuel now reads 57 percent.

77:34:49 CC Roger.

77:35:14 C Anything else, CSQ?

77:35:16 CC Negative. Gemini VII, we got it.

77:35:19 C Okay. Thank you.

77:36:16 P CSQ, Gemini VII.

77:36:19 CC Go ahead, Gemini VII.

77:36:20 P I inadvertently knocked off the electronic circuit breaker - Time Recorder circuit breaker again. Would you give me a time hack, please?

77:36:27 CC Roger. GET time hack 77:37 on my Mark. 20 seconds to Mark.

77:36:55 CC 5, 4, 3, 2, 1.

CONFIDENTIAL

CONFIDENTIAL

77:37:00 CC MARK. 77 hours, 37 minutes and 00 seconds.
77:37:04 C Thank you very much ...
77:37:19 CC Gemini VII, CSQ.
77:37:22 C Go ahead, please.
77:37:23 CC Have you completed all flight plan scheduled items for today?
77:37:27 C Roger. All except those that were deleted by weather.
77:37:31 CC Roger. Understand. Thank you.
77:52:28 C Last dump.

HAWAII

77:54:00 CC Gemini VII, Hawaii CAP COM.
77:54:14 P This is VII. Go ahead.
77:54:15 CC Okay. We would like for you to put your Fuel cell O₂ Heater switch to the AUTO position.
77:54:22 P Roger. Fuel Cell O₂ is AUTO.
77:54:24 CC Okay. We have nothing further for you. Hawaii standing by. Need not acknowledge.

ROSE KNOT VICTOR

78:24:38 CC Gemini VII, RKV CAP COM.
78:25:05 C RKV, Gemini VII.
78:25:07 CC Roger. All systems look good. I've got a block update for you when you're ready to copy.
78:25:11 C Roger. Stand by.

CONFIDENTIAL

CONFIDENTIAL

235

78:25:41 C ... when ready, RKV.

78:25:44 CC Roger. Area 52-3: 82:02:18; 16 plus 23. Area 53-Bravo: 83 plus 38 plus 57; 15 plus 37. Area 54-Delta: 84:29:31; 22 plus 21. Area 55-Delta: 86:06:02; 21 plus 14. Area 56-2 Charlie: 87:42:05; 20 plus 03. Area 57-2: 89:18:18; 18 plus 49. Area 58-1: 90:43:50; 19 plus 41. The weather in all areas is good.

78:27:23 C Roger. And copied them all.

78:27:25 CC Okay. I've got a map update for you.

78:27:28 C All right. Stand by.

78:27:43 C Go ahead.

78:27:44 CC Title, Node: 81:56:41; make that 81:56:51; Rev 52; 24.0 degrees east; right ascension; Time, 12:10:02.

78:28:14 C Roger. I have the update.

78:28:16 CC Roger. Your present orbit is 127.1 by 171.1.

78:28:25 C Thank you. We're getting up there.

78:28:27 CC Okay. You've got a UHF 6 over the CSQ on Rev 50.

78:28:40 C Roger. ... UHF 6.

78:28:42 CC Could you give us the Pilot's sleep configuration as far as suits, underwear, et cetera, go, for tonight?

78:28:50 P Roger. I think I'll try the underwear bit again. It's pretty comfortable.

78:28:54 CC Okay. How about the Command Pilot?

78:28:57 P He's still in his suit.

78:29:01 CC Zipper open?

78:29:02 P Just about everything is open.

78:29:04 CC Okay. How about gloves?

CONFIDENTIAL

CONFIDENTIAL

78:29:06 P No gloves.
78:29:08 CC Is he going to wear a hat?
78:29:09 P No hat.
78:29:13 CC Okay. Your fuel cell H₂ pressure is adequate for your sleep period.
78:29:21 P Roger.
78:33:01 C There, that's the end of the dump.
78:33:02 C Here it is. ... 78:47 ...
78:47:22 P Thank you.

COASTAL SENTRY QUEBEC

79:09:14 CC Gemini VII, CSQ.
79:09:18 C This is VII. Go ahead.
79:09:22 CC Roger, Gemini VII. I have you GO on the ground. We also have a GO on your tank, tank pressure - your fuel cell O₂ tank pressure.
79:09:35 C Roger. Understand.
79:09:40 CC I have a fuel cell purge scheduled for this pass. Your next fuel cell purge is at Canary Islands. That's a GET of 57 hours 89 minutes 4 seconds.
79:10:01 C ... say again ... we're going to purge the fuel cell ...
79:10:06 CC Stand by.
79:10:15 CC CSQ, Gemini VII, CSQ.
79:10:24 C This is VII. Come on in CSQ.
79:10:27 CC Your next fuel cell purge will be at the Canary Islands on the 57th revolution, with elapsed time of 89 hours, 41 minutes.

CONFIDENTIAL

CONFIDENTIAL

237

79:10:39 C Roger. We understand you want a purge now. Stand by. It's coming down.

79:10:43 CC Roger.

79:10:48 C CSQ, this is VII here.

79:10:50 CC Go ahead.

79:10:51 C I understand they want me to leave the fuel cell O₂ Cryo on AUTOMATIC all night.

79:10:57 CC Roger. That's affirmative.

79:10:59 C The other two ... are okay with the heaters off?

79:11:03 CC That's affirmative, Gemini VII.

79:11:05 C Thank you.

79:11:26 CC Gemini VII, CSQ.

79:11:29 C Go ahead.

79:11:30 CC Do you plan to leave your M-1 experiment on for the sleep period?

79:11:35 C Roger.

79:11:36 CC Thank you. Would you place your Cryo Quantity switch to ECS O₂ and hold it?

79:11:44 C Roger.

79:12:46 CC Gemini VII, CSQ. Give us FUEL CELL O₂ on your Quantity switch.

79:12:53 P FUEL CELL O₂?

79:12:55 CC Roger.

79:13:28 CC Gemini VII, CSQ. Give me FUEL CELL H₂.

79:13:33 P FUEL CELL H₂.

79:14:18 CC Gemini VII, CSQ. Place your Quantity Read switch to OFF.

CONFIDENTIAL

CONFIDENTIAL

79:14:24 P It's OFF.

79:14:26 CC Roger. We have nothing else for you this pass. We have you GO on the ground.

79:14:31 P Thank you. Be sure you wake us up as we start to get - I don't want to go into ... with those bottles.

79:14:37 CC Roger. Will do.

79:15:21 CC Gemini VII, CSQ.

79:15:23 C Go ahead.

79:15:25 CC The lower limit on your fuel cell H₂ on-board reading is 300 psi.

79:15:33 C Roger. I'm not sure that the bottle will stabilize. I think it might be below there even though the people in Houston don't feel it will, so all I'm saying is if it starts to get that low, please wake us up.

79:15:43 CC Roger. Will do.

79:15:50 C Purge complete, CSQ.

79:16:07 CC Gemini VII, CSQ. We confirm that the decay rate on the H₂ is 6 psi per hour and that's a trend established over a 24-hour period.

79:16:17 C Thank you.

88:16:26 C And we're taking the shots now at 88:15:50 and boy, they're phenomenal over Africa! We just woke up and saw this long stream of clouds. Look like ... Okay, we just wasted ... high-speed ...

88:16:27 C Okay. 88:19:07: taking a picture of land, water, and beautiful clouds. We just woke up with ... over Africa. Big ... Magazine M, Exposure 16.

88:16:32 C Okay. We just took another picture of the Nile valley at 88:21. Magazine M, Frame 2P, evaluating Apollo Landmark Number 51 the ... and another shot of the Dead Sea here and that's it ...

CONFIDENTIAL

CONFIDENTIAL

239

88:22:53 C All these are taken at drifting flight.

88:22:54 P Commenting on the Apollo Landmarks: I thought the map here was very adequate. As a matter of fact, it was a very fine representation of the view of the eastern Mediterranean - particularly Africa ... taking a picture at 88:29.

88:40:16 C Okay. At 88:31:32: taking pictures of stratified cloud formations ... Indian Ocean.

88:40:19 P Also, at about the same time, 88:16, there's a beautiful shot of a full moon against the black sky and the strato formations of the clouds of the earth below.

89:09:34 C Borman's dumping urine. Urine's approximately 1 minute.

P Standing by. Lovell's going to dump urine.

P There's a sight to behold!

P Frank.

C ... what?

P Oh!

CANARY ISLANDS

89:42:22 CC Gemini VII, Canary CAP COM. Com check. How do you read? Over.

89:42:46 P Good morning, Canary. This is Gemini VII.

89:42:48 CC And good morning to you, VII. How are you this morning?

89:42:51 P Oh, very nice, very nice!

89:42:53 CC Okay. We have a fuel cell purge coming up, whenever you're ready.

89:43:00 P We just purged them about a half-hour ago according to flight plans.

CONFIDENTIAL

CONFIDENTIAL

89:43:06 CC Okay. Now we'd like you to place your Fuel Cell O₂ Heater switch to the AUTO position.

89:43:18 P Roger. Fuel Cell O₂ Heater switch is in AUTO.

89:43:22 CC Roger, Surgeon. The Big Brother is watching on the ground, right?

89:43:26 C Right, and we purged at 89:05.

89:43:30 CC 89:05. Copy.

89:43:32 C Roger.

89:43:35 C Our Fuel Cell O₂ is quite high on pressure though. We're reading 680.

89:43:39 CC Okay. We want to do that.

89:43:42 CC They want it at 680. Right now we'd like you to go to the Quantity Read switch ECS O₂.

89:43:50 P Roger. We're on ECS O₂.

89:43:52 C The reason we turned it off AUTO, I thought they just wanted it there for the sleep period.

89:43:58 CC Roger. They want it left there.

89:44:00 C Okay.

89:44:08 CC What do you read up there on quantity and pressure?

89:44:12 C 89 percent and about 560.

89:44:17 CC Roger.

89:44:39 CC Quantity Read switch to FUEL CELL O₂.

89:44:43 P Roger. We're at FUEL CELL O₂.

89:44:45 CC Roger.

89:45:12 CC What is your reading up there?

89:45:15 P We're reading about 82 percent at 680.

CONFIDENTIAL

CONFIDENTIAL

241

89:45:26 CC Okay. Quantity Read switch to FUEL CELL H₂.
89:45:30 P Quantity, H₂ - and we're reading 87 percent at 400.
89:45:40 CC Roger.
89:45:58 CC The Quantity Read switch to OFF - and thank you.
89:46:03 P Roger.

CARNARVON

90:17:58 CC Gemini VII, Carnarvon CAP COM.
90:18:19 C Go ahead, Carnarvon. Gemini VII.
90:18:21 CC Roger. Good morning from Australia. I have a flight plan update, a brief one, and also your PLA update for you when you are ready to copy.
90:18:31 C Roger. Go ahead with flight plan.
90:18:37 CC Roger. It's five items. The first one is Nodal Crossing: Time, 92:25:19; Remarks, Rev 58; 137 degrees west; right ascension 11:56:08. Second item: Time 90:50:00; that will be a cabin temperature survey. Third item: Time, 91:03:00; that's a crew status report over the Cape. Time: 19:17:08; that will be a crew status report on the Pilot at Canaries.
90:19:49 C The last one should be 91.
90:19:51 CC Roger. That's affirmative, Gemini VII. 91.
90:19:55 C Okay. Is that it?
90:19:57 CC Okay. And the slight change to the flight plan - you will be updated with a complete flight plan at 90 hours and 10 minutes.
90:20:10 C We're already past that.
90:20:22 CC Roger. Gemini VII. What they mean here is that the time line has changed by 10 minutes as of 90 hours.

CONFIDENTIAL

CONFIDENTIAL

90:20:32 C Roger. I read you.

90:20:33 CC All right. Are you ready for your PLA's?

90:20:37 C Ready.

90:20:39 CC Roger. Area 59-1: 92:20:31; 18 plus 23. Area 60-1: 93:56:40; 17 plus 15. Area 61-1: 95:32:44; 17 plus 16. Area 62-4: 98:22:44; 17 plus 56. Area 63-4: 99:58:51; 16 plus 53. Area 64-3: 101:11:54; 20 plus 01. Area 65-3: 102:48:40; 18 plus 45. That's it.

90:22:17 C Thanks a lot, Carnarvon.

90:22:18 CC Roger. We have some general information for you.

90:22:22 C Go ahead.

90:22:24 CC Okay. They say the weather over southwestern US is not too good today; however, from the Mississippi River to Florida it is clear. It will be cloudy in southern Florida. There is a frontal system in the -1 areas, so it's not very good. The -2 areas have high waves. Areas 3 and 4 are good.

90:22:56 C Roger. Thank you.

90:22:59 CC Okay. They say the sim flight is scheduled for this morning. They have replaced the computer in GT-VI. It now has the same math flow as GT-VII. There is still a chance to launch GT-VI on Day 8.

90:23:18 C Roger. Thank you.

90:23:20 CC Right, and that's all we have for you at this time.

90:23:22 C Roger.

C ...

C ... Meal A, Day 4 ...

C Okay. At 89:26 we're taking pictures of some strange cloud formations ... 89:29, Magazine M, Exposure Number 24. We took a picture at 89:35 ... Magazine M, Exposure Number ...

CONFIDENTIAL

CONFIDENTIAL

243

90:34:18 P Pictures taken at 89:74 of ... Looks like a lava flow in a desert over Africa.
90:54:19 C That's Magazine M, Frame Number 25.
90:54:43 P Take it back; the last one is Frame 26.

TEXAS

91:02:24 CC Gemini VII, Gemini VII, Houston CAP COM.
91:02:29 C This is VII, Houston. Loud and clear.
91:02:32 CC Roger. Good morning VII. Are you set up for the crew status report?
91:02:37 C Good morning Houston. We're set up for the crew status report.
91:02:44 CC Roger. Stand by.
91:02:50 CC We have a good temperature. Start on the blood pressure and stand by for the Surgeon.
91:02:58 C Blood pressure coming down.
91:03:11 CC Cuff is full-scale.
91:04:12 CC Gemini VII, we have a valid blood pressure. You can start your exercise.
91:04:17 C Exercise, now.
91:04:20 CC Jim, while Frank is exercising, I'd like to talk with you one second about this food and water report before we get to it. Apparently, I gave you a wrong idea yesterday when we talked about it, and you were giving us details of how much water you had with each meal and that's not what we had in mind. What I'd like for you to do is to just take your M-7 log, the way you have it in your logbook, and just start and read the time and the water in ounces that would appear across from the time that you ate a particular meal package. We have a valid blood pressure, Gemini VII.

CONFIDENTIAL

CONFIDENTIAL

91:05:00 P Roger.

91:05:01 CC ... cuff full-scale here.

91:05:07 P Understand Chuck. Actually, the way that we normally eat a meal - we pitch the water with the meal; therefore, we have one drink either before or after the meal. That'll be all during that meal period.

91:05:20 CC Well, Jim, what we really want is your total that you've had up until that meal time. So in essence, each time you would report that. If you reported two meals, we would get two different totals - a total at each meal time, and then we would get a total at the time that you are reporting, if you're reporting at some time other than just right at a meal time. Does that - do you follow that?

91:05:45 P We follow, but I think we get a little complicated in our procedures.

91:05:50 CC Okay. If that - if you can't read that directly right off of your log, we won't do it, Jim. If it's a lot of calculation, we don't want to do it.

91:06:03 CC We do have this valid blood pressure, Jim. We have a couple of other questions here now. Can we get your food, water and sleep report? Let's do food and water first.

91:06:13 P Roger. Stand by.

91:06:23 P Roger. Stand by.

91:06:24 CC Jim, this is Houston Flight. I didn't understand it. I don't know whether you did or not.

91:06:28 P We're doing our best, Chris. ... the Command Pilot water to date is 345 ounces.

91:06:38 CC 345.

91:06:40 P Roger. And we ate a meal about at 89:30. D-4, Meal A.

91:06:51 CC 89:30, 4-A.

CONFIDENTIAL

CONFIDENTIAL

245

91:06:59 P For the Pilot, the total water to date is 283 ounces - at the same time eating meal D-4, M - Day 4, Meal A.

91:07:16 CC Okay. Could we have your sleep report?

91:07:21 P Roger. Both of us slept, I'd say, approximately 6 to 7 hours last night, probably awaking 2 or 3 times during the night.

91:07:31 CC Roger. 6 to 7 hours and awake 2 or 3 times. We can see those wake times very easily on your records down here, Jim. And it appears that at about - over CSQ, at about 83 hours and almost 84 hours - 83:53 or so - the BIO MED Tape Recorder Number 2 was turned on for a few minutes. Why was that done?

91:07:56 P I don't believe it was done up here, Chuck. We turned off BIO MED 1 some time ago and both of them have been off since that time.

91:08:04 CC Okay. It may have been a spurious signal of some sort. Looks like it was on for about 10 minutes over CSQ, according to the report. We couldn't understand how it came about. Do you think that you're sleeping better now from last night, than you were the last couple of nights?

91:08:25 P I believe our sleep has been pretty consistent since the first night. The first night was pretty poor, as you could probably guess, but we both needed a good sleep the second night and we've been sleeping the same way since that time.

91:08:38 CC Very good. Okay, how about the exercise? Are you getting it in now before the meal times? We saw one scheduled this morning and it appeared you were exercising.

91:08:48 P Roger. Both of us did our exercise before meal time, and one more meal that we had, which we can't find the title of. At 78 hours we had shrimp, potato soup and an orange drink, but the number was not on it.

91:09:07 CC Okay. We can get that off the list, Jim; that's

CONFIDENTIAL

CONFIDENTIAL

fine. One other thing that we might ask you real quickly about the sensors - we're having a little bit of erratic reading in Frank's respiration sensor, which we're not going to do anything about, unless he gets his suit off later. And the - his ECG leads are just fine, and so it can't be in the sensor itself. It's probably at the connection of the signal conditioner, which he can't get at there. Are you having any itching or problem with the sensors themselves?

91:09:45 P No, neither of us is having any trouble with the sensors. There's one ... advantage with this suit-off operation. I can see all mine, feel all mine and scratch around a bit, as a matter of fact.

91:09:56 CC Very good. Okay, we have nothing else here. I'm turning you back to the CAP COM.

91:10:03 CC Gemini VII, I'd like to start on your flight plan update if you're ready to copy.

91:10:09 P Stand by one.

91:10:13 C 91:01, 91:10; two pictures of overhead. One of weather.

91:10:16 P ...

91:10:18 P Go ahead.

91:10:19 CC S-5: 92:40:00; Sequence 15, Mode 01; pitch 90 degrees down, yaw zero degrees. S-5: 92:40:00; Sequence 12. We may lose contact here, Jim. I'll just keep reading and we'll get as much as we can and then I'll finish up on the next time around. Have you copied okay, so far?

91:10:55 P Keep going.

91:10:57 CC D-4/D-7: 93:13:00; Sequence 428; Mode 04; combine radiometer and IR spectrometer measurement. That is for a total of 4 minutes measurement. In other words, instead of doing each one 2 minutes, do them both for a total of 4 minutes. Do you copy?

91:11:32 P Roger.

CONFIDENTIAL

CONFIDENTIAL

247

91:11:34 CC D-4/D-7: 93:28:00; Sequences 415 and 416; Mode 02; pitch 90 degrees down, yaw zero degrees. Time: 94:08:00; GO/NO-GO at Texas. Do you copy?

91:12:08 P Roger.

91:12:09 CC S-5: 94:13:19; Sequence 12; Mode 02; pitch 30 degrees down, yaw 14 degrees left. 94:16:00: purge fuel cells at Bermuda. 94:20:00: exercise. 94:30:00: eating period. Do you copy?

91:12:52 P Roger.

91:12:54 CC MSC-4: 95:44:39; Sequence 01; Mode 01; pitch 25 degrees down, yaw 44 degrees left. D-9: 96:11:35; Sequence 01; Mode 01. Correction on that, that was Sequence 02. Time: 96:45:00; cabin temp survey. Did you copy?

91:13:44 P Roger.

91:13:46 CC Okay. That's the end of message.

91:13:49 P Roger. Elliot.

91:13:51 CC On the MSC-4, we're going to try White Sands because the weather is clobbered at Hawaii and Ascension.

91:13:58 P Roger. We'll give a try.

91:14:00 CC Roger.

91:14:04 CC The HF is on any time you are interested.

91:14:09 C Thank you.

91:15:33 C Magazine M, exposure 30, 29, 28 and 27.

CANARY ISLANDS

91:17:44 CC Gemini VII, Canary CAP COM. We have a valid oral temp. Standing by for your blood pressure.

91:17:49 CC Canary - Gemini VII, Canary Surgeon.

CONFIDENTIAL

CONFIDENTIAL

91:17:57 C ...

91:18:08 C Blood pressure now has become full.

91:18:16 CC Right ... cuff is full.

91:18:23 CC Cuff pressure coming down.

91:19:18 CC We have a valid blood pressure. Begin exercise on your Mark.

91:19:25 C Roger. Canary.

91:19:52 P Blood pressure ...

91:19:53 CC All right ...

91:20:05 CC ...

91:21:06 CC And we have a valid blood pressure, thank you. Canary Surgeon out.

91:21:12 CC VII, Canary CAP COM.

91:21:15 C This is VII. Go ahead.

91:21:17 CC Roger. You might look at your fuel cell hydrogen pressure. You can bring it up to around 450 if you want to.

91:21:27 P Roger. We've just been looking at them.

91:21:33 C Thank you.

91:21:34 CC Roger.

91:21:49 CC We have a short flight plan update when you get ready to copy.

91:21:53 C Roger. We're ready to copy.

91:21:56 CC Okay. This is a Sunrise Test, and we would like you to note the following time during the next night you will report on the next US pass. That's when the sun's lower rim touches the horizon and the time the sun's upper rim sets, the time the sun's upper rim rises and the time the sun's lower rim clears the horizon.

CONFIDENTIAL

CONFIDENTIAL

249

91:22:27 C Roger. We'll get out our strong sun classes to catch that.

91:22:32 CC Say again.

91:22:33 C We'll get out our sun glasses to catch that.

91:22:35 CC Okay.

KANO

91:27:01 CC Gemini VII, Gemini VII, Houston CAP COM.

91:27:15 CC Gemini VII, Houston CAP COM.

91:27:19 C Come in Houston. Gemini VII.

91:27:22 CC Roger. We feel that your fuel cell hydrogen tank is performing better than expected. We wonder about the possibility that the hydrogen tank squib could have been blown at the time we used the oxygen crossfeed on the first day. Can you confirm that either way?

91:27:50 C Stand by.

91:27:56 C That's negative. We have not had the Bus Arm switch on. It's been in place the whole time.

91:28:03 CC Roger, Gemini VII.

91:28:55 CC Gemini, Houston.

91:29:10 CC Gemini, Houston.

91:29:12 C Go ahead, Houston.

91:29:15 CC We'd like to try that one one more time, Frank. We feel that the Bus Arm switch would have been in the EXPERIMENT position at times for some of your D-4 work and we wonder if you are certain that it was not on at the time crossfeed was used.

91:29:45 P Hello Houston, this is VII.

CONFIDENTIAL

CONFIDENTIAL

91:29:46 CC Go ahead.

91:29:49 P We had the Bus Arm switch on the EXPERIMENT position only twice. One was to erect D-4/D-7 equipment and the second time was about several seconds or minutes later when we jettisoned the IR - ... IR equipment. Since that time, we put it right back in the SAFE and it has been that way ever since.

91:30:08 CC Roger. Gemini VII.

91:30:13 C That was a modification flight plan to leave that squib off unless it is being used, Elliot. It should have been inked in flight plan, ...

91:30:22 CC Roger. We understand that.

91:48:32 P We've got full-moon operation, which we have at this time ...

91:48:47 C Full moon.

91:48:48 P ... above them.

91:48:58 C ...

CARNARVON

91:52:51 CC Gemini VII, Carnarvon CAP COM.

91:53:05 P This is VII. Go ahead, Carnarvon.

91:53:08 CC Roger. You're looking good here on the ground. We'll make the GO/NO-GO this pass over the States because we want to reconfigure the pass to support the sim flight for GT-VI.

91:53:26 P Roger. Understand. GO/NO-GO over the States.

91:53:30 CC That's affirmative. We have nothing further for you this pass. We'll stand by.

91:53:41 P Roger.

CONFIDENTIAL

CONFIDENTIAL

251

91:54:00 C Carnarvon, are you busy at this time?
91:54:03 CC That's negative.
91:54:05 C How about relaying a message for me?
91:54:07 CC Roger. Will do.
91:54:09 C To Mr. Roy Botchum of the Australian Trade Commission in Berlu, Lebanon, and tell him we said hello. Will you please?
91:54:16 CC Roger. Will do.
91:54:18 C He came through MSC some time ago and was a very fine gentleman.
91:54:22 CC All right.
91:54:50 CC Gemini VII, Carnarvon. Will you give us a short test count, please? We want to mark the squib bus voltages.
91:54:58 C Roger. 1, 2, 3, 4, 5, 4, 3, 2, 1. Gemini VII.
91:55:18 C That sufficient there, Carnarvon?
91:55:22 CC Roger. We're going to want another count from you here. Stand by one.
91:55:27 C Roger.
91:56:21 CC Gemini VII, Carnarvon CAP COM. Will you give us a long count, please?
91:56:24 C Roger, Gemini VII. 1, 2, 3, 4, 5, 4, 3, 2, 1. Gemini VII.
91:56:40 CC Roger. Thank you, Gemini VII. We were noticing a decrease in the bus voltage on that, but it doesn't look too serious. This is during the time you transmit. No problem.
91:56:54 C That's ..., isn't it?
91:56:55 CC That's affirmative.

CONFIDENTIAL

CONFIDENTIAL

91:56:57 C Thank you.

92:24:02 P Also, while this is of the airglow ... to see the airglow with a full moon is almost impossible ...

92:33:56 C We're going to start S-5, Sequence 15, Mode 01. Magazine number and frame number coming up. Magazine Number M.

92:34:01 P M.

92:34:02 C Frame number starting with 29.

92:34:08 C Frame Number 29. We'll be starting this at 92:40.

TEXAS

92:35:04 CC Gemini VII, Gemini VII, Houston CAP COM.

92:35:08 C Go ahead Houston, Gemini VII.

92:35:11 CC Roger. You are GO for 75-1. Standing by for your data.

92:35:18 C Roger. Understand. GO for 75-1. Thank you.

92:35:25 C B batteries are all 22.8 volts. Fuel cell 1A, 3 amps; 1B, 3 - -

92:35:34 CC Gemini VII. You cut out after 1A.

92:35:38 C 1A, 3 amps; 1B, 3 amps; 1C, 3 amps; 2A, 2 amps; 2B, 2.5 amps; 2C, 4 amps. How are you reading, Houston?

92:35:59 CC Loud and clear.

92:36:00 C RCS: A 2900, 75 degrees; B 2900, 75 degrees. Left-hand secondary O₂, 5400 pounds; right-hand secondary O₂, 5300 pounds.

92:36:19 CC Roger. And you have bus voltage?

92:36:24 C Roger. It's 27.5.

CONFIDENTIAL

CONFIDENTIAL

253

92:36:29 CC Roger.

92:36:32 CC Have a flight plan item for you here. We'd like you to run a D-4/D-7, Sequence 417. We're not going to schedule a specific time because we feel you can pick that the best. This is one of clouds illuminated by lightning, so we'd like you to just pick that one up whenever you think you have a good opportunity. Do you copy?

92:37:01 C Roger. Will do.

92:37:04 CC Are you ready for the day's version of the Haney- See Managed News?

92:37:09 C Roger. We're just - we're just starting on this S-5 run.

92:37:14 CC That's at the Atlantic Coast isn't it?

92:37:17 C It's coming up 92:40 here in a minute. Three minutes. Go ahead.

92:37:23 CC Roger. Interrupt me if you need to.

92:37:27 C Roger. Looks okay.

92:37:29 CC They reported an important capture in Vietnam. The First Infantry Division troops found a major Viet Cong training camp on the outskirts of the Michelin Rubber Plantation, including underground command bunker and complete classrooms.

92:37:53 P Sounds good.

92:37:57 CC Jim, Surgeon has requested if you could check your external ECG leadings. Getting some spurious signals.

92:38:10 P I'll press down on the belly and see if he gets any better signals.

92:38:13 CC Okay.

92:38:18 CC The Gemini - Gemini VII story today says: "Borman Hitches GT-VII to a Star." He talked about your burn yesterday, primarily. In the sports area,

CONFIDENTIAL

CONFIDENTIAL

the Oilers' Billy Fraxier is out for the season with a shoulder separation and it looks like the Oilers may sign Tommy Nobis.

92:38:44 P Oh good! I thought he was going to Atlanta.
92:38:48 CC Apparently not definite yet.
92:38:50 P I hope he comes to the Oilers.
92:39:00 CC It looks okay, Frank. He fixed it.
92:39:03 C Okay.
92:39:05 CC And the last thing is, there's 15 shopping days till Christmas. We gave you a wrong number yesterday.
92:39:12 C Thank you.
92:39:13 CC You don't get credit for 3 days in one.
92:39:16 C Roger. Let us know how the sim flight comes out, will you?
92:39:21 CC We sure will. We'll be reconfiguring the center right after this pass, to work with the sim flight.
92:39:32 CC Let me know when you're finished that S-5 pass. I've got another item.
92:40:01 CC Gemini VII. Standby for a T_R update.
92:40:04 P Roger.

BERMUDA

92:44:43 CC Gemini VII, Houston. Are you completed on the picture?
92:44:48 C Roger. Complete.
92:44:52 CC Roger. Have you reported the sunset and sunrise times from that special test we asked for?

CONFIDENTIAL

CONFIDENTIAL

255

92:44:58 C We couldn't get them. It's so bright we have to get the Polaroids and sunglasses out to get it - to look into it.

92:45:06 CC Okay. Well, just keep it in mind and whenever it's convenient get them. Any sunrise or sunset would be all right.

92:45:13 C Roger. We could get them now, as a matter of fact.

92:45:14 CC Roger. How was the temperature in the cabin last night? We noticed you adjusted it up a little better. Does it seem comfortable to both of you?

92:45:27 C Roger. We're comfortable, but I didn't know - we didn't touch the temperature.

92:45:32 CC You did not touch it for the sleep period last night?

92:45:36 C Negative.

92:45:38 CC And you were both comfortable last night?

92:45:40 C Roger. It seems like late in the afternoon, just before we go to bed it gets real hot, and then after we settle down in here it cools off, and you're cold in the morning. Hot at night when you go to bed, and cold when you wake up.

92:45:52 CC Roger. I was just wondering if Jim wouldn't like to try out that orbital flight suit, just to get another data point working toward the ultimate flight suit here.

92:46:04 P We will.

92:46:05 CC Roger.

92:46:06 P ... data point ...

92:46:09 CC Say again, Jim.

92:46:13 P I'll try out Rannawski's special suit for us.

92:46:16 CC Roger. We'll be very interested in your comments on it.

CONFIDENTIAL

CONFIDENTIAL

92:46:36 P Incidentally, Elliot, I bet somebody in MSC that I'd have to turn the hydrogen heater on last night and I had to.

92:46:45 CC Roger. Looks like we're picking up all kinds of goodies around here.

92:46:49 P I think it was Mr. Kraft I bet.

92:46:53 CC You say that was Mr. Kraft you bet?

92:46:55 CC No, that wasn't me you bet.

92:47:00 P Okay.

92:47:03 CC I'd like to make you some - all kinds of bets down here that we could turn on the auto heater on the hydrogen and forget it.

92:47:10 P Roger. I had it on this morning for just a while and then they told me to turn it off over Australia, or somewhere.

92:47:16 CC Roger.

92:47:20 CC Well, the people in the back room are not quite ready to do the hydrogen one, but I'm pretty certain you could.

92:47:35 CC How you making out after 4 days?

92:47:37 P We're doing pretty good, Chris. It's amazing. The spacecraft seems to be getting bigger and bigger. Either we're losing weight or we're getting used to it. I don't know which.

92:47:45 CC Very good.

92:47:47 CC Gemini VII, the Surgeon would like to make a comment to you - to - to you - about this external lead again.

92:47:54 CC Jim, would you check that external lead pretty carefully if you're going to put on that other garment? It looks like it probably was loose. I don't know if - it has been going somewhat erratic still. It looks pretty good most of the

CONFIDENTIAL

CONFIDENTIAL

257

time now, but it was - it looked like it was completely loose there for a while, so you better check that pretty thoroughly as you're putting on that other garment. Would you do that?

92:48:18 P Roger. I'm checking them all right now.

92:48:24 P ...

92:48:28 CC We didn't quite copy that.

92:48:31 P ... the lead ...

93:12:44 C S-5: Sequence 420 - correction - Sequence 15; Mode 01; completed 92:42:52.

93:14:48 P Okay. We're starting D-4/D-7 Sequence 428. On the moon. ... on the moon now. 4 minutes on the moon. Was it f16? f16? f8 not ... There she is right on the ... The time, 93:15.

93:15:29 C You have the recorder on?

93:15:30 P Got the recorder on now.

93:15:34 C ...

93:15:35 P About 6 minutes, I guess ...

93:15:36 P How much film do you want?

93:15:39 C Give me two frames. ...

93:15:48 C ...

93:16:00 C Okay. Taking ... pictures also.

93:16:03 P On D-4/D-7 at 93:17, we used 16mm cameras, ... mm lens in conjunction with the moon. Our measurements, f8 and 250. Taking a series of source sequences at 6 frames per second.

93:17:34 C What happened to that ...?

93:19:51 C Now moving off the moon.

93:19:52 P Recorder was off at 4 minutes after ...

CONFIDENTIAL

CONFIDENTIAL

93:19:56 C Okay. Back up.

93:19:58 P You sure?

93:19:59 C Yes.

93:20:05 P No, it was 6 minutes.

93:20:06 C That's right.

93:20:36 P ... I hope we got some good of ... Polaris.

93:20:48 C ... altitude. It sure flattened out there.

93:20:51 P Boy! Me too!

93:21:00 C Okay. D-4/D-7: Sequence 428 completed at 93:22:14. Next sequence.

P This is ...

C ...

93:28:15 P Roger. We're doing now 415 and 416 at 93:28, which are night land and night water measurements. We're over the water now. There's quite a bit of clouds down here.

CARNARVON

93:28:22 CC Gemini VII, Carnarvon.

93:28:25 P Roger. Carnarvon.

93:28:26 CC Okay. We have you good and clear on the ground. We have one message for you. We'd like to move your purge back from Bermuda to Texas. The Texas CAP COM will advise when to start the purge. Did you copy?

93:28:43 P Roger. You've moved the purge from Bermuda to Texas and CAP COM will tell us when to start the purge.

93:28:46 P Roger. We'll be standing by for his call.

CONFIDENTIAL

CONFIDENTIAL

259

93:28:49 CC That's affirm.

93:28:51 P Roger. We'll be standing by for Bermuda's call.

93:28:53 CC Roger.

93:28:54 C S-8/D-13 ... degrees down ...

93:28:58 P No, no ...

93:29:22 P This is D-4/D-7 again. The night water and night land measurements. Quite a few clouds down here and I don't know whether you'll get good results from this. We should be passing over water, not land.

93:29:43 C Yes, we're over water now at 93:29:30.

93:29:45 P 93:29:30 over water ...

93:29:53 P Wait a minute, Frank. Water.

93:29:56 C All right.

93:29:59 C ... clouds.

93:30:01 P ... quite a few clouds.

93:31:19 C Now we are getting some water intermingled now with the clouds. Water now.

93:31:24 C Water and clouds.

93:31:29 C Water.

93:31:34 C Clouds. Very bright moon. The clouds should appear much brighter than the water. The water is dark.

93:31:41 P Do you feel you're straight down now?

C No, I know I'm not straight down. I'm practically ...

93:31:45 P Oh, I see.

93:31:48 C ... water ... See what I mean.

CONFIDENTIAL

CONFIDENTIAL

93:31:51 P Following the water?

93:31:55 C Yes, I'm trying to follow water right now. I'm on water now.

93:31:59 C It's not quite straight down. ...

93:32:03 P Okay. I think the sea ... Wait, here comes some good water. Here comes an island.

93:32:11 C All right.

93:32:19 P Here comes an island with a light on it. And we're going to go right over it. At 93:32:23 - 93:22:33 - :3¹₄, an island has a white-looking spire on it. And we should go straight over it. Do you get it now, Frank?

93:32:34 C Clear water now.

93:32:36 P With the island.

93:32:39 C Land. Coming up on land now; right by the fire.

93:32:41 C We're now over land.

93:32:46 C 4 minutes over land.

93:32:51 C Land is also cloudy but not as much as the water.

93:33:05 P You covered a great cloud bank back there.

93:33:10 C ... Came over a great cloud bank right now.

93:33:12 P Got your UHF ...

93:33:32 C ...

93:33:39 P No, let's - well -

93:33:41 C ...

93:33:43 P Okay. We're over a great cloud bank now. White clouds. Hey! They want us to get lightning too, tonight?

93:33:49 C Yes, but I don't see any. Do you?

CONFIDENTIAL

CONFIDENTIAL

261

93:33:52 P There's some coming up over here.
93:33:54 C Whereabouts?
93:33:58 P Just keep the way you're drifting right now.
93:33:59 C ... Sequence of lightning and ...
93:34:02 P RAD 1.
93:34:03 C There's lightning right now. ...
93:34:05 P Going to RAD 1 for lightning.
93:34:10 P On RAD 1 for lightning only.
93:34:12 C ...
93:34:17 P The transmitter's on.
93:34:22 P I got it ... recorder on ...
93:34:25 C ...
93:34:27 P Okay. We'll use the recorder time hacks. ...
You better power-down at this time.
93:34:34 C Okay. Powering down.
93:34:35 P At 93:34:33 powering down.
93:34:44 C ...
93:35:15 P What time did we start that? About 93 hundred?
93:35:21 C ...
93:36:12 P What else do you want to talk about?
C ...
93:36:27 P We want to report we have 10 hours - 10 minutes
and 45 seconds left on the tape recorder.
93:36:31 C ...
93:36:32 P Yes. Next time we get over the States ...

CONFIDENTIAL

CONFIDENTIAL

93:36:41 C Okay. Now Jim, the sun ought to be coming up right there. We're looking right at it.

93:37:02 C ... Are you going to take a shot now?

93:37:07 P No.

93:37:08 C What?

93:37:09 P No.

93:37:10 C No?

93:37:12 C How's that?

93:37:27 P Okay. Looks good.

93:37:29 C I can't ... okay?

93:37:32 P That's okay.

93:37:39 C See if you can see the ... light. You're supposed to be able to see it.

93:37:43 P Swing over that way to the left.

93:37:48 C Swing over that way.

93:38:10 P Yes, there's the light.

C Go ahead, Hawaii.

93:38:11 C ... wait just a minute. Are you in good shape for the sun now?

93:38:17 P Yes, you're pitching up.

93:38:19 C Pitch up now?

93:38:22 P Okay. I'm in good shape for the sun.

93:38:40 P ... I turned down the filter all the way so we can get the first strike of the ... coming up.

93:38:43 C Okay.

93:38:47 P Now you can just barely make out the horizon ... filters.

CONFIDENTIAL

CONFIDENTIAL

263

93:38:52 P Right. ...
93:39:07 C Still in good shape?
93:39:22 P Yes.
93:39:27 P ... lot of refraction around the earth's atmosphere
...
93:39:28 C Yes.
93:39:29 C Boy, she's coming up!
93:39:30 P Yes.
93:39:31 C ...
93:39:42 P I'm in good shape right now. ...
93:39:48 P Yes, she should be. Let's see, what are we? Are
we SEF or BEF? We're SEF. Right?
93:39:52 C SEF. Right.
93:39:55 P All right. Then she should be off to our right.
She should be coming at an angle off to our right.
93:39:58 C What, the sun?
93:40:06 P No, the ... lights should be at an angle off to
the right where that orange is.
93:40:07 C Yes, ... you should be able to see it, and I can't
see it.
93:40:08 P Well, that's what probably could be.
93:40:12 C ...
93:40:19 P Okay. Yaw just a little bit to the left.
93:40:21 C Left?
93:40:27 P That's good. That's fine.
93:40:28 C You have a good hack on her now?

CONFIDENTIAL

CONFIDENTIAL

93:40:43 P Have a good hack. I have the filter right down; just barely visible now. That lamp should go out like a sore thumb.

93:40:58 P Stand by for ...

93:41:03 C ...

93:44:42 C Coming up on an S-5 ... Mississippi mouth, time 94:06:21.

93:45:12 P I'm going to take one shot of the delta Mississippi in blue water.

TEXAS

93:53:21 CC Gemini VII, Gemini VII, Houston CAP COM.

93:54:14 CC Gemini VII, Gemini VII, Houston CAP COM.

93:54:39 C Houston, Gemini VII. Go ahead.

93:54:42 CC Roger. VII. Would you turn your DCS circuit breaker off and leave it off until further notice?

93:55:00 C VII.

93:55:02 CC Roger. Did you copy?

93:55:04 C Roger. DCS circuit breaker is off.

93:55:08 CC Roger. And we'll be doing a manual tape dump when you come through the US.

93:55:18 C Houston, how do you read Gemini VII?

93:55:21 CC Loud and - weak but clear. Go ahead.

93:55:30 CC Gemini VII, did you copy?

93:55:42 CC Gemini VII, Houston CAP COM. Did you copy?

93:55:46 P DCS Power circuit breaker is off ...

93:55:49 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

265

GUAYMAS

94:05:27 CC Gemini VII, Guaymas CAP COM.
94:05:33 P This is VII. Go ahead.
94:05:34 CC Roger. We'd like you to turn your T/M switch to REAL-TIME and ACQ-AID.
94:05:39 P Roger. Go to REAL-TIME and ACQ.
94:05:42 CC And place the adapter C-Band in CONTINUOUS.
94:05:48 P Roger. C-Band is CONTINUOUS.
94:05:55 CC Everything looks real good here on the ground, Gemini VII. We have nothing else for you. We'll be standing by.
94:06:00 P Roger.
94:06:51 CC Gemini VII, Guaymas CAP COM.
94:06:54 P Go ahead, Guaymas.
94:06:55 CC We would like an on-board readout of Squib 1 and 2 and the common control bus, please.
94:07:03 P Roger. Common control bus is reading 25 volts at the present time.
94:07:08 CC Roger.
94:07:12 P Squib 2 reads about 25.7, Squib 1 reads about 25.7.
94:07:19 CC Roger. Thank you.

TEXAS

94:09:10 CC Gemini VII, this is Texas CAP COM.
94:09:14 P Go ahead, Texas.

CONFIDENTIAL

CONFIDENTIAL

94:09:16 CC We have you GO on the ground here and we are standing by for your fuel cell purge.

94:09:23 C Roger. Fuel cell purge coming up.

94:14:17 P 4, 5 seconds. I'm going to purge the fuel cells.

94:14:22 P Fuel cell purge complete.

94:14:23 CC Gemini VII, this is Texas CAP COM. We read your fuel cell purge. We'd like some Cryo quantity readouts at this time. Would you select ECS O₂ please?

94:14:28 C Okay.

94:14:33 C On ECS O₂.

94:14:35 C Quantity, ECS O₂.

94:14:38 C ...

94:14:48 P Okay. We have a hatch temperature here ...

94:14:50 C ...

94:14:53 P Look at those two cloud fields down there ...

94:14:55 C Yes.

94:15:00 C Now let's see, right up here ...

94:15:02 P Jacksonville should be right over here someplace.

94:15:05 P Now, here's the tape again. Let me see what ...

94:15:07 C ...

94:15:09 P ...

94:15:22 CC Would you move your selector switch to FUEL CELL O₂ now please?

94:15:29 C Got it, Jim?

94:15:31 P Yes ...

CONFIDENTIAL

CONFIDENTIAL

267

94:15:38 C Okay, I'll keep you ...
94:15:48 P Boy, they're really working on Pad 19 down there!
... Wally.
94:15:52 CC Gemini VII, would you move your selector switch to
FUEL CELL H₂ now?
94:15:57 C Roger.
94:16:00 C You ought to be able to keep seeing it.
94:16:05 P ...
94:16:17 C Can you see the gantry and everything?
94:16:18 P No, I can't.
94:16:25 CC Gemini VII, this - we've got good readings. Would
you turn your switch to OFF position? We are
standing by.
94:16:30 C Thank you, Texas.
94:16:31 P You want to swing around and take a look?
94:16:33 C Yes. I'm right over it now.
94:16:34 P ...
94:16:38 P This is VII. Roger.
94:16:42 P Gemini VII. Roger.
94:16:44 CC You doing your photograph now, Jim, on the S-5?
94:16:48 P We couldn't take the picture really. It was
cloudy over the Mississippi Delta.
94:16:55 CC Roger. Okay. Would you get your - we want to do
a manual tape dump here? Would you place your
Standby T/M switch to DELAY TIME?
94:17:00 P Roger. Stand by. Going DELAY TIME.
94:17:04 P Roger. Standby DELAY ... DELAY TIME.
94:17:12 CC Place your Tape Playback switch to CONTINUOUS.

CONFIDENTIAL

CONFIDENTIAL

94:17:14 P Tape playback is on CONTINUOUS.

94:17:21 P Roger.

94:17:22 CC And you can get out your flight plan update book. I've got two items for you.

94:17:26 P Roger.

94:17:29 CC For your information, the Spacecraft VI sim flight is underway.

94:17:31 P Roger. We just passed over the Cape and with the telescope we could see them working on 19.

94:17:42 CC Very feverish activity, isn't it?

94:17:43 P Right.

94:17:59 P Okay. Go ahead with the update.

94:18:02 CC Roger. The first item is a deletion. D-9 at 96:11:35 is deleted.

94:18:16 P Roger. Understand the D-9 is deleted.

94:18:19 CC We'll get that later today. A new one in that same area is D-5: 96:13:00; Test Number 2. I have the instructions for that test when you're ready to copy.

94:18:34 P Test Number 2.

94:18:35 P Go ahead.

94:18:38 C Go ahead.

94:18:41 CC Okay. Number 1: calibrate on Venus; Number 2: if calibration successful, release the Cal button, track to occultation and report number of gain wheel turns to maximum from the calibration setting. Do you copy?

94:19:14 P Roger. We have it.

94:19:15 P Roger. Got it.

CONFIDENTIAL

CONFIDENTIAL

269

94:19:18 C Roger. We have it.

94:19:21 CC Step 3: If normal calibration not successful, repeat calibration without depressing Cal button. Track Venus for 15 seconds. Move and count gain wheel turns to maximum. Continue tracking to occultation and report results. Do you copy?

94:19:31 P Roger. Understand.

94:20:14 C Roger. Got it.

94:20:15 CC Caution: Ground equipment tests show that sunlight on the photo tube can have an adverse effect even with the power off. So we'd like to advise you to keep the unit out of the sunlight at all times, or any bright light.

94:20:32 P Roger. Understand.

94:20:37 CC Like to advise you that the weather is marginal for your MSC-4 pass on White Sands on the next revolution. We hope to try to get you a weather update on this at Carnarvon so you - we might be able to tell you just not to unstow the gear.

94:20:55 P Roger. That's a shame. We were looking forward to that one.

94:20:59 P Roger. ...

94:21:02 CC Roger. So are we.

94:21:03 P Where's the ...

94:21:09 P No, I was looking for the log book ...

94:21:11 CC That's all I have right now. We're standing by for a completion of the manual tape dump. I'll call you on that in just a minute.

94:21:14 C Roger.

94:21:17 P ... log book ...

94:21:22 CC Haven't had a chance to try out that flight suit, have you?

CONFIDENTIAL

CONFIDENTIAL

94:21:26 P That's it, Elliot. I'll try ... this evening.
How's that?

94:21:31 P I'll try it this evening. How's that?

94:21:33 CC I beg your pardon.

94:21:34 P I want to try it out this evening. How's that?

94:21:36 CC Roger. Whatever's convenient to you, Jim.

94:21:40 CC Would you place your Tape Playback switch to
COMMAND?

94:21:43 P Tape Playback, COMMAND.

94:21:45 P Playback to COMMAND.

94:21:48 CC Standby T/M switch to OFF.

94:21:50 P Standby is in OFF.

94:21:54 P Standby to OFF.

94:21:56 CC Roger.

94:22:04 CC Frank, this is Houston Flight. How are you this
morning?

94:22:07 C Very good, Chris. Very good.

94:22:11 CC I talked with Sue a little while ago. She thinks
you're doing great.

94:22:12 C Well, thank you.

94:22:16 C Thank you.

94:22:17 C No, we're all in good shape - waiting to see how
VI comes out.

94:22:19 P ... we're in good shape ... Wait till VI comes
down.

94:22:21 CC Yes, that's what she's looking forward to also.

94:22:24 C They don't.

CONFIDENTIAL

CONFIDENTIAL

271

94:22:31 P We kind of lost our darn log book, Chris.

94:22:37 CC Jim, I would like to advise you that Marilyn apparently came by the Control Center here last night and watched from VIP room and nobody knew she was here.

94:22:48 P That's kind of sneaky.

94:22:52 CC Roger.

94:22:55 CC They are all over having coffee this morning.

94:22:57 P How badly was ...

94:22:59 C Probably with ... drinking our coffee.

94:23:07 P I wish I could find that book.

94:23:16 CC They've been monitoring all the squawk boxes that we've got over there and they are both very happy about that.

94:23:21 C That's a very nice setup. We appreciate that.

94:23:23 P I said ...

94:23:27 CC I'll see you after lunch on the next revolution.

94:23:29 P Roger.

94:23:30 C Roger.

94:23:45 C What?

94:23:55 C What's coming up next?

94:24:19 CC Gemini VII, Houston. Just to advise you, we want this DC circuit breaker left off because of the Spacecraft VI tests that are going on.

94:24:33 P VII. Roger.

94:26:19 C What's our next activity ...?

94:26:50 P ... I'm going to try to get ...

CONFIDENTIAL

CONFIDENTIAL

94:26:53 C That's the next thing?
94:26:55 P ...
94:26:57 C Should we get up to date on all this stuff before we eat?
94:27:00 P ...
94:27:02 C That's all we have to do now?
94:27:03 P ...
94:27:07 C Maybe we better break it up in little nibbles.
94:27:12 P Yes, why don't you ... out the food ...?
94:27:14 P ...
94:28:55 P Let's see, the log book.
94:29:02 P ...
94:29:29 C ... me up to ...
94:29:30 P Okay.
94:29:36 C 1592 to 1604.
94:30:05 P ...
94:30:06 C Yes.

CANARY

94:32:15 CC Gemini VII, Canary Com check. How do you read?
94:32:16 P Carnarvon. Read you loud and clear.
94:32:19 P VII. Read you loud and clear.
94:32:20 CC Roger. We'll get a C-Band telemetry from you. We'll have to turn the switches off in about a minute.

CONFIDENTIAL

CONFIDENTIAL

273

94:32:24 P Roger. Standing by.
94:32:28 P Roger. Standing by.
94:33:00 CC Gemini VII, Canary. Would you place the C-Band switch to COMMAND?
94:33:04 P Roger. C-Band on Command.
94:33:06 P Roger. C-Band switch to COMMAND.
94:33:08 CC Roger. Place Fuel switch to OFF.
94:33:09 P Roger.
94:33:11 C ...
94:33:14 CC Roger. Copy. See you tomorrow.
94:33:18 P Roger.
94:33:52 P I'll try and use your suggestions ...
94:34:07 P ... will do it.
94:34:33 C Okay. ...
94:43:04 C Borman about to dump urine. 94:46.
94:52:53 C Okay.
94:52:58 C Ready.
94:53:03 P 36, 41, 52.
94:54:48 C Meal 4.

CARNARVON

95:03:33 CC Gemini VII Carnarvon.
95:03:51 C This is VII. Go ahead.
95:03:52 CC Roger. We would like to have you turn your T/M switch to REAL-TIME and ACQ-AID position, please.

CONFIDENTIAL

CONFIDENTIAL

95:03:59 C T/M, REAL-TIME and ACQ.

95:04:01 CC Okay. We've got it. Will you turn your adapter C-Band to CONTINUOUS, please?

95:04:07 C Set C-Band on CONTINUOUS.

95:04:11 CC Okay. At elapsed time of 95 hours, 16 minutes, 00 seconds we would like you to turn your adapter C-Band switch to COMMAND. This will allow ... to track you.

95:04:32 C Understand that 95:16:00, adapter C-Band to COMMAND. Is that correct?

95:04:38 CC That's affirmative.

95:04:40 C Roger.

95:04:43 CC Also I have some information for you about the MSC-4.

95:04:49 C Roger. Go ahead.

95:04:51 CC MSC-4 has been scrubbed. White Sands will bring up their equipment and track you. If you see it, go ahead, but don't use a lot of fuel because it's a good long way away from you on this pass.

95:05:12 C ... Understand MSC-4 has been scrubbed but we will look for the beam.

95:05:17 CC Roger.

95:05:21 CC Weather is pretty bad also, VII.

95:05:25 C Understand.

95:05:28 CC We have you solid on the ground. Before LOS, we'll have Elliot come up, tell you when to turn your T/M switch back to COMMAND.

95:05:43 C Roger.

95:10:56 CC Gemini VII, Carnarvon.

95:10:58 P Go ahead, Carnarvon.

CONFIDENTIAL

CONFIDENTIAL

275

95:10:59 CC Okay. You're still looking real good here on the ground. You can turn your T/M switch to COMMAND position. Okay. We have you and we're standing by. We'll have a couple more minutes in acquisition.

95:11:09 P Roger.

95:11:21 C Carnarvon, Gemini VII.

95:11:22 CC Go ahead, Gemini VII.

95:11:24 C Would you relay to the Flight in Houston please the following times. The sunset, the lower end across the horizon, 93:10:57.5; the upper end, 93:11:15.5. Did you get that?

95:11:48 CC Roger. Copy.

95:11:50 C Sunrise, the upper end across the horizon, 93:42:34.5; the lower end, 93:43:22.0.

95:12:05 CC Roger. Copy.

95:12:07 C Thank you.

95:12:08 CC Roger. Gemini.

95:22:48 P A comment here at 95:22: I've been wrestling with a beef and gravy package for at least the last 15 minutes, Serial Number SC596, and it just doesn't come out. You put water in one end and it doesn't get to the dry material on the other end. No matter what you do, you can't mix it and then you try to force it out of the eating end, and it takes an awful long time.

HAWAII

95:28:37 CC Gemini VII, Hawaii CAP COM. If you read, place your T/M Control T/M switch to REAL-TIME and ACQ-AID, and your adapter C-Band to CONTINUOUS.

95:29:03 P Tananarive, Gemini VII.

CONFIDENTIAL

CONFIDENTIAL

95:29:08 CC Gemini VII, Hawaii CAP COM. Would you repeat?

95:29:10 P Roger. Hawaii. You're coming in very weak. We have T/M ... adapter CONTINUOUS.

95:29:17 CC Roger.

95:29:29 CC VII, we show you GO on the ground. You need not acknowledge.

95:29:36 C Thank you.

95:36:16 CC Gemini VII, Hawaii CAP COM. Would you place your adapter C-Band to COMMAND? T/M Control T/M switch to COMMAND.

95:36:31 C Roger.

CALIFORNIA

95:40:56 CC Gemini VII, Houston CAP COM.

95:40:59 C Go ahead, Gemini VII.

95:41:02 CC Would you place your T/M switch to REAL-TIME and ACQ-AID?

95:41:06 C Roger.

95:41:12 C C-Band adapter CONTINUOUS for wide bands ... Elliot.

95:41:15 CC Okay. That's what we want.

95:41:24 CC Hey, we're going to be giving you several things on this pass but we don't want to interrupt the possible MSC-4, so let me know on that one.

95:41:32 C Say again ...

95:41:34 CC We've got several things for you this pass but we don't want to interrupt the MSC-4, so keep me posted.

95:41:41 C Roger. We can't hear you. You're just cutting in

CONFIDENTIAL

CONFIDENTIAL

277

and out. Say once more, please.

95:41:47 CC We've got several things for you but we do not want to interrupt the MSC-4. Keep me posted.
95:41:54 C Thank you.
95:43:44 CC Can you tell anything about the weather, Gemini VII?
95:43:46 C It looks like it might break up right before there.
95:43:49 CC Very good.

TEXAS

95:45:57 CC Gemini VII, Houston. Any joy?
95:45:59 C No joy.
95:46:01 CC Roger. Place your Standby T/M switch to DELAYED TIME.
95:46:07 C DELAYED TIME.
95:46:15 CC We have a flight plan update for you when you're ready to copy.
95:46:18 C Okay. Stand by.
95:46:21 C Too many clouds, Elliot.
95:46:23 CC Roger. Understand.
95:46:44 P Go ahead, Elliot.
95:46:46 CC Roger. Incidentally, toward the end of this pass, Spacecraft VI wants to try to talk to you. We'll try to work that in. Node: 96:54:45; Rev 61; 154.2 degrees east; right ascension, 11:50:56. Do you copy?
95:47:17 P Roger.
95:47:19 CC S-6: 97:16:46; Sequence 10; pitch 30 degrees

CONFIDENTIAL

CONFIDENTIAL

down, yaw 0 degrees. MSC-2 and 3: 97:40:00; Sequence 02; off at 112:00:00. D-9: 97:41:34; Sequence 01; Mode 02. Time: 98:14:00; purge fuel cells at Carnarvon. Do you copy?

95:48:24 P Roger.

95:48:25 CC HF: 98:20:00; Sequence 01; test stop at 99:50:00. Time: 98:54:00; crew status report on the Command Pilot at Texas. Place your Tape Playback switch to CONTINUOUS.

95:49:08 CC Did you get that, VII?

95:49:09 P Roger. Tape Playback, CONTINUOUS. On the HF Test, that was stop at 99:50:00?

95:49:15 CC Roger. Did you get the next item?

95:49:17 P Roger. Have the crew status.

95:49:20 CC Roger.

95:49:23 CC Time: 100:05:00; cabin temperature survey. Time: 100:15:00; crew status report on the Pilot at Hawaii. Time: 101:32:00; PLA update at CSQ. Time: 101:50:00; fuel cell purge at Hawaii. Time: 102:00:00; BIO MED Recorder Number 2 CONTINUOUS; off at 112:00:00. Do you copy?

95:50:41 P ... copy.

95:50:49 CC We're still working on the dump now, Gemini VII. Gemini VI can call you in here if they make it brief.

95:50:59 P Standing by for VI.

95:51:05 CC Gemini VII, one more message for you. Place your - this is at a Time 96:27 - place your adapter C-Band to COMMAND.

95:51:19 P At 96:27 adapter C-Band, COMMAND.

95:51:22 CC Roger.

95:51:33 C6 Gemini VII, Gemini VII, Gemini VI on the ground.

CONFIDENTIAL

CONFIDENTIAL

279

Do you read? Over.

95:51:39 C7 Roger. Read you loud and clear, Gemini VI. Go ahead.

95:51:46 C7 Gemini VI, this is Gemini VII. We read you. Go ahead.

95:51:52 C6 Gemini VII, Gemini VI. We do not read you. We'll come up and look her over and see how we hear you then.

95:52:05 C7 Gemini VI, this is Gemini VII. How do you read?

95:52:12 CC Apparently they're not reading you, VII.

95:52:15 C7 Okay. We read them.

95:52:17 CC Roger.

95:52:19 C7 Not too loud and clear, but we read them.

95:52:21 C6 VII, Roger. We do not read. We read you, Flight and CAP COM.

95:52:29 C6 Very good. We'll get a little closer range next time.

HOUSTON

95:52:52 CC Gemini VII, Houston.

95:52:55 P Go ahead, VII, or Houston.

95:52:58 CC CM3 says you're just now passing his retro time.

95:53:04 P Roger. That figures.

95:53:15 CC CM3 also reports they did not have to stop at Brookley on the way back.

95:53:21 P Roger. We might have to.

95:53:24 CC Place your Tape Playback switch to COMMAND.

CONFIDENTIAL

CONFIDENTIAL

95:53:28 C COMMAND on the Tape Playback.

95:54:31 CC Gemini VII, Houston. Your orbit today is 127.5 by 170.7.

95:54:41 C Roger. Thank you.

95:54:53 C Elliot, what time do you want us to turn the C-Band adapter back to COMMAND, please?

95:54:59 CC Is that the one I gave you a minute ago? Right. That's 96 plus 27.

95:55:05 C Thank you.

95:55:35 CC Gemini VII, place your Standby T/M switch to OFF.

95:55:42 P OFF.

95:56:11 CC Gemini VII, would you turn your ACQ-AID beacon on?

95:56:22 P Beacon circuit breaker on.

95:56:27 CC Understand. ACQ-AID circuit breaker on.

95:56:31 P ...

95:57:16 CC Gemini VII, Houston. Is the music coming in okay today?

95:57:23 P Loud and clear. Thank you Kraft Music Hall.

95:57:27 CC Roger. The Director just took a bow.

95:59:05 CC Gemini VII, turn your T/M switch to COMMAND.

95:59:10 P T/M on COMMAND.

96:20:50 C Okay. Special D.5/10 on ninth. Gain wheel full-down.

96:20:57 C Temperature normal?

96:20:59 P Yes. C food is stowed. ... with the reticle and screen. Calibrating button went down and ... gain wheel from full-left rotated clockwise. The reticle stays free. It will not switch. Stays free.

CONFIDENTIAL

CONFIDENTIAL

281

96:21:21 C ...
96:21:23 C Calibration unsuccessful. Released Calibrate button and ... cal not successful. Repeat cal without depressing Cal button. Try doing it without depressing the Cal button.
96:21:35 P Okay.
96:21:53 C Did it work?
96:21:57 P I don't know.
96:21:59 C Is that in good position, Jim?
96:22:02 P It was pretty far to the right here.
96:22:15 P No? All right, in the same thing, ninth scale, no filter --
96:22:21 C That sure is right. I double-checked it so it has to be.
96:22:28 P Okay. Ninth - Can you read it?
96:22:33 C In the ninth position.
96:22:35 C What happened? Anything?
96:22:38 P The reticle just stays GREEN.
96:22:43 C Okay, repeat cal. Track Venus for 15 seconds; remove and count gain wheel constant max. Okay, it doesn't matter ... count. It just stays GREEN.
96:22:52 P Calibrate, to me, is when we go from RED to GREEN, or from --
96:22:57 C But you can't get it to go from RED, can you?
96:22:59 P No, now it went RED if I go into daylight, now - I'll go into day. This shouldn't hurt it at all.
96:23:04 C Yes.
96:23:07 P All right. We have a brilliant RED.

CONFIDENTIAL

CONFIDENTIAL

96:23:09 C All right.

96:23:16 P I'm sure it is going to stay a brilliant RED.

96:23:26 C Yes. We can't get a normal calibration with the
...
96:23:28 P No, it stays a brilliant RED in the DAY switch
side.

96:23:31 C Okay. Now try it once with the - without pressing
the Calibrate button - you know, just - -

96:23:38 P Gain wheel coming back again. Going up now.

96:23:43 P Full-down.

96:23:45 P Still the exact same thing.

96:23:47 C Still GREEN or RED?

96:23:50 P Still RED. ... RED.

96:23:52 C All right.

96:23:55 P Now I'll switch it while ...

96:23:59 C I can't make it change color except by changing
from day to night, right?

96:24:07 P That's it, that's it!

96:24:11 C Okay.

96:24:16 P Okay. Now I've got the ... receptacle on.

96:24:18 C Yes.

96:24:19 P Cut the line.

96:24:21 C Right.

96:24:22 P I can hear the motor running.

96:24:26 C Okay.

96:24:28 P Nothing I can see.

CONFIDENTIAL

CONFIDENTIAL

283

96:24:33 C All right. ... let's put it away.
96:24:35 P We'll tell ...
96:24:38 C Yes, we will, but I mean there is nothing we can do about it. Ready?
96:24:40 P Yes.
96:24:41 P ...
96:24:45 C Yes.

CARNARVON

96:38:09 CC Gemini VII, Carnarvon.
96:38:24 P This is VII. Go ahead, Carnarvon.
96:38:26 CC Okay. We'd like to have you close your DCS circuit breaker, please.
96:38:35 P Roger, DCS is closed.
96:38:37 CC Okay. Very good.
96:38:45 C Now, will you relay a message to Houston for us?
96:38:46 CC Sure will.
96:38:48 C On this D-5 photometer, when we align on Venus, in the NIGHT position the reticle stays GREEN regardless of what you do and in the DAY position, it stays RED regardless of what you do.
96:39:05 CC Roger. Copy. In the NIGHT position it stays GREEN and in the DAY position it stays RED. Is that affirm?
96:39:14 C Whether you have the Calibrate on or not and regardless of what you have it pointed at.
96:39:19 CC Roger. We copy.
96:39:50 CC VII, you're looking good here on the ground. We

CONFIDENTIAL

CONFIDENTIAL

have nothing else for you. We'll be standing by if you need us.

96:39:57 C Thank you very much.

96:40:18 CC VII, Carnarvon. The reason we had you go back with the DCS circuit breakers to the CLOSED position, they finished all the command work with Spacecraft VI. They're continuing on with the tests, and everything is going real well.

96:40:33 C Thank you.

HAWAII

97:04:41 CC Gemini VII, Hawaii CAP COM.

97:04:56 P Hawaii, Gemini VII.

97:04:59 CC Roger. VII. We have you GO on the ground here, you need not acknowledge.

97:15:18 C Okay. C97 - 97. ... cloud formation.

97:15:23 P I thought maybe ...

97:15:25 C ...

97:15:28 C Am I right?

97:15:30 P ...

GUAYMAS

97:16:31 CC Gemini VII, Guaymas CAP COM.

97:16:37 P Go ahead, Guaymas.

97:16:39 CC Roger. All systems look real good here on the ground. Flight said to pass along that he had some of your friends watching this afternoon.

97:16:52 P Who was it? His girl?

CONFIDENTIAL

CONFIDENTIAL

285

97:16:54 CC He didn't say.
97:16:56 CC Real close friends.
97:17:47 P Yes. Okay. We'll get ...
97:17:56 P ... Carnarvon ...
97:17:59 C ...
97:18:46 CC Gemini VII, Guaymas CAP COM.
97:18:52 P Go ahead. This is VII. Go ahead.
97:18:53 CC We'd like for you to open the ACQ-AID Beacon circuit breaker.
97:18:56 P ...
97:19:04 P Roger. ACQ-AID open.
97:19:59 CC Gemini VII, Houston.
97:20:03 P Roger. Houston. This is VII.
97:20:07 CC We have some flight plan update for you, and also Flight suggests you say something pleasant. We have a couple of girl friends of yours here.
97:20:20 C ...
97:20:23 C Bah, Humbug!

TEXAS

97:20:27 C I'll come back, Marilyn, honest I will.
97:20:35 CC Turned out that was bum dope we had last night. She was not here last night. This is her first visit.
97:20:42 C Roger.
97:20:45 CC Let me know when you're ready to copy.

CONFIDENTIAL

CONFIDENTIAL

97:20:48 C Roger. We're right over southern Mexico now, and everything looks beautiful from up here.

97:20:54 CC Roger.

97:21:10 CC Are you ready to copy?

97:21:13 P Go right ahead, Elliot, shoot away.

97:21:17 CC D-5: 99:50:00; Test Number 3. This is another test to try to troubleshoot the instrument. Attempt an MSC-12 ground-observation type run on the water. Spacecraft pointing away from the sun. See if instrument will calibrate. Record number of turns of gain wheel from calibration point to maximum. Do you copy?

97:21:47 P Okay. Write this down.

97:22:23 C Roger. And you have the results from our PDS-10 didn't you?

97:22:28 CC That's right. We did. That's what led to this one. At Time 100:48:00: flight plan report of the RKV.

97:22:53 P Roger.

97:22:59 C Elliot, this is Frank.

97:23:01 CC Go ahead.

97:23:02 C I think we ought to try this test, but I'm pretty well convinced that we've got a defective instrument. I hate to keep wasting fuel on it.

97:23:10 CC Okay, I'll - -

97:23:15 CC - - working on analyzing it here, and apparently do not understand it completely because they are still asking for these tests, but I'll pass that comment on.

97:23:24 C Okay. Won't make any difference but we haven't had any luck with any of the tests so far, and we don't have a lot of fuel to waste.

CONFIDENTIAL

CONFIDENTIAL

287

97:23:36 CC Roger.

97:24:06 CC Gemini VII, Houston. Would you give us a propellant quantity reading?

97:24:11 C Roger. We're reading 54 percent.

97:24:14 CC Roger. 54 percent.

97:24:23 CC Been talking to Spacecraft VI during the sim flights, making the Com checks. Everything is looking real good.

97:24:30 C Can they read us at all?

97:24:33 CC They apparently did not read you at all. I read them, and I read you both very well. And I understand that you read them.

97:24:43 C That's affirm.

97:24:47 CC Say, here are some more instructions to go with this Test Number 3.

97:24:54 P Do you have any idea when he's trying to have them in orbit?

97:24:59 CC Roger.

97:25:05 CC Chris wants to talk to you on that, Jim.

97:25:08 P Roger.

97:25:10 CC They're still trying to make Sunday at the Cape, Jim, and we're going to talk this thing over tomorrow around noon regarding the sim flight both on the spacecraft and the launch vehicle, and try to make a decision at that time. You have to make a burn approximately 3:41 Central Standard Time, so that will give us plenty of time to get you "ginned up". We're also thinking about having you bring up the platform at that time, because we want to take a look at a higher amperage reading on the fuel cell to get a little better look at the EI curve.

97:25:51 P Roger. Understand.

CONFIDENTIAL

CONFIDENTIAL

97:25:53 CC It also turned out that, if we decide not to go for the eighth day and go for the ninth, the maneuver comes out in the middle of your sleep period. We're probably going to reshape that thing so we do two sets of maneuvers; one before you go to sleep, and one after you wake up.

97:26:12 P That's very considerate.

97:26:16 CC And the way we're going to do this thing is do two maneuvers. We'll bring up perigee and then bring down apogee within the fuel budget we have.

97:26:27 P Roger.

97:26:37 CC Gemini VII, you have a T_X coming up in about half a minute.

97:26:41 P Roger. Is that the finish of the flight plan update?

97:26:46 CC Negative. I've just a little bit more here.

97:27:12 P I've received the T_X .

97:27:17 CC Roger. VII. And for your information, if we don't circularize tomorrow - if we go for a Monday launch - we will be circularizing you on Sunday.

97:27:30 P Roger.

97:27:33 CC Are you ready to copy these additional instructions for the Test Number 3?

97:27:38 C All right. Stand by.

97:27:44 P Go ahead.

97:27:47 CC When you try to calibrate on this test, if you get no calibration, here are the instructions. If reticle stays GREEN, put a hand over the objective lens and see if the color changes. If the reticle stays RED, remove the day filter leaving the photometer in the DAY position, and try to calibrate on the water. Do you copy?

CONFIDENTIAL

CONFIDENTIAL

289

97:27:51 P No calibration. We had no calibration ...

97:28:43 P Roger. We copied.

97:28:46 CC Okay. I think we're about to run this down, and I think this test should certainly wind it up.

97:29:00 C We have it. We'll try it.

97:29:03 CC Roger.

97:29:16 P ...

97:29:25 C Is that all?

97:29:27 P At 41 we have a D-9 ...

97:49:23 P I've gotten in a D-9 and we're trying to shoot Aldebaran on the horizon. Two factors sort of force this operation. One of them is the fact that Aldebaran, due to the moon being full, is in the vicinity of Orion and it just about blanks out any stars. We did manage to pick up Aldebaran, but it is so high and so faint that we never could get a really good shot at it.

98:06:13 P Our ... comments on D-9: temperature ... First of all, Aldebaran is, as we previously stated, too close to the moon and we used Mirak and Almak. Almak was fairly high but we could just ... to a degree, because it was farther away from the moon. We went back again -

98:06:32 C ...

98:06:37 P We didn't ... Almak so we went back to get Mirak and the moon's light was so bright that as we tried to bring it down to the horizon, it just faded into the airglow on the horizon. You couldn't get a definite horizon at all on it. The star itself was too dim with the bright full-moon background to get a good shot. Instead, we plan to use stars away - at least 90 degrees from the moon, and the full moon is due in seconds ...

98:07:34 P One more comment on D-9: now as there is a - moon is full ... two things it does. Number 1 is

CONFIDENTIAL

CONFIDENTIAL

it ruins any vision to pick up ... stars near it; and Number 2 is that reflection smudge on the window is such that it just blurs anything that's out there. It's just a big smudge.

98:08:17 P Okay.

CARNARVON

98:13:43 CC Gemini VII, Carnarvon.

98:13:45 P Roger. Carnarvon. ...

98:13:48 CC Roger. We're ready for your fuel cell purge.

98:13:52 P Coming now.

98:18:49 P Purge complete, Carnarvon.

98:18:51 CC Roger. Did we get a Cryo quantity readout too? Switch position on the ECS O₂.

98:18:59 P Pilot, now.

98:19:14 CC Okay. FUEL CELL O₂, please.

98:19:17 P Roger.

98:19:27 CC FUEL CELL H₂, please.

98:19:39 CC Okay. You can go to the OFF position.

98:19:57 CC Gemini VII, this is Carnarvon. You're still looking good here on the ground. This is our last pass of the evening, so we'll be seeing you tomorrow.

98:20:08 P Roger. Nice work.

98:20:20 CC Roger.

98:35:10 P This is Gemini VII. 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1.

98:35:15 P Gemini VII. This is GET ... Gemini VII. 1, 2, 3, 4, 5 ...

CONFIDENTIAL

CONFIDENTIAL

291

HAWAII

98:40:04 P This is Gemini VII. 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1. ...
98:40:45 CC Gemini VII, Gemini VII, Hawaii CAP COM.
98:41:02 CC Gemini VII, Hawaii CAP COM on HF.
98:49:10 P This is Gemini VII. 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1. Gemini VII. ...

TEXAS

98:54:38 CC Gemini VII, Gemini VII, this is Houston on HF. We have a good oral temp. Give us the blood pressure and stand by for Surgeon.
98:55:10 P This is Gemini VII. 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1. Gemini VII. ... 10 - 20. This is Gemini VII. ... 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1. GET ... 150. This is Gemini VII. 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1. Gemini VII. ... This is Gemini VII. ... 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1. ... GET 25:31.
98:55:17 CC Gemini VII, Gemini VII, Houston CAP COM on HF. We have a good oral temp. Give us blood pressure and stand by for Surgeon.
98:55:53 CC Gemini VII, Gemini VII, Houston CAP COM on HF. We have a good oral temp. Give us blood pressure and stand by for Surgeon. How do you read?
98:56:01 C Loud and clear on UHF.
98:56:03 CC Roger. Understand loud and clear. We'll stay UHF throughout the pre-status report pass.
98:56:10 C Roger.
98:56:16 CC Gemini VII. This is Houston Surgeon. Your cuff is full-scale.

CONFIDENTIAL

CONFIDENTIAL

98:57:12 CC Gemini VII. We have a good blood pressure.
Standing by for your exercise.

98:57:36 C Stand by ... exercise.

98:58:00 C Gemini VII ... exercise.

98:58:04 CC Houston, Roger. Understand you're starting your
exercise.

98:58:30 C ...

98:58:32 CC Gemini VII, your cuff is full-scale.

98:58:36 C ... start it pumping again.

98:58:45 CC Gemini VII, this is Houston. Can you turn your
H off - HF off at this time? It's very difficult
to read you. We'll go back to HF after the pass.

98:58:54 P Roger.

98:59:24 CC Gemini VII, we have a good blood pressure. Standing
by for your food, water and sleep report.

98:59:37 C Houston, this is Gemini VII. Are you calling?

98:59:40 CC Roger. This is Houston Surgeon. Gemini VII, we
have a good blood pressure and are standing by
for your food and water and sleep report.

98:59:48 C Roger.

98:59:52 C Command Pilot has had a total of 387 ounces of
water. ... Day 4, Meal B and ...

99:00:07 CC Roger. Understand.

99:00:13 C Pilot has had 317 ounces of water. ... Meal 4,
excuse me, Day 4, Meal B.

99:00:25 CC Roger.

99:00:26 CC Gemini VII, Houston Surgeon copies. Houston
Surgeon out.

99:00:31 C Roger.

CONFIDENTIAL

CONFIDENTIAL

293

99:00:32 CC Gemini VII, this is Houston. We'd like to try transmitting on HF. I'd like you to go Number 2 Audio to HF - not to HF/VF but just the HF. We're getting the tone and we can't seem to get through.

99:00:59 C Houston, Gemini VII. You're blocked out. We cannot read you now.

99:01:24 CC Gemini VII, Gemini VII, Houston CAP COM. Broadcasting HF. How do you read?

99:01:37 C Loud and clear, Houston. ...

99:01:47 CC Gemini VII, Gemini VII, this is Houston CAP COM. HF not reading you. How do you read? Over.

99:01:53 C We read you loud and clear. How do you read us?

99:01:56 CC Roger. Gemini VII. Understand you're reading us loud and clear. We're reading you clear but pretty weak, more like you're in a big barrel. Over.

99:02:12 CC Gemini VII, Gemini VII, Houston CAP COM. Would you confirm the position of your Antenna Select switch to ADAPTER at this time? Over.

99:02:40 C ...

99:03:34 CC Gemini VII, Gemini VII, Houston CAP COM, UHF. How do you read? Over.

99:03:54 CC Gemini VII, Gemini VII, Houston CAP COM, UHF. How do you read? Over.

99:04:45 CC Gemini VII, Gemini VII, Houston CAP COM broadcasting UHF. Now how do you read?

99:04:58 CC Gemini VII, Gemini VII, Houston CAP COM on UHF. How do you read? Over.

99:05:29 CC Gemini VII, Gemini VII, this is Houston CAP COM broadcasting UHF in the blind. We understand that your Antenna Select position is REENTRY and has been since lift-off. Roger?

99:05:40 C That's right, Gene. How do you read me now?

CONFIDENTIAL

CONFIDENTIAL

99:05:41 CC Frank, I hear your broadcast and I hear you talking but it's very, very garbled in the background.

99:05:48 C Roger. That's all because the HF is still on.

99:05:55 C How about now, Gene?

99:05:56 CC Roger. Reading you loud and clear. You UHF now?

99:05:59 C Roger. UHF. When we - when we turn the HF radio off - then you can read us. When the radio's on, you can't read us.

99:06:06 CC Yes, okay. We're apparently UHF. You said you're reading us loud and clear and I can read noise in the background. Sort of like you're in a big barrel.

99:06:17 C Okay, we're going back to our HF test then, if you don't have anything else for us.

99:06:20 CC Roger. We don't have anything. Go back to your HF test, and it appears that if you're going to talk over the station HF, Frank, you're going to have to go from the HF/VF position to the HF position.

99:06:31 C We did that.

99:06:36 CC Okay, Roger. We understand. And we'll be standing by all night. See you tomorrow.

ROSE KNOT VICTOR

99:12:54 CC Gemini VII, RKV CAP COM.

99:13:12 CC Gemini VII, RKV CAP COM on HF.

99:13:28 CC Gemini VII. If you read me, I've got a tone on HF. Beep me on UHF.

99:15:10 P This is Gemini VII. Broadcasting HF. 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1. Gemini VII. GET 30:30.

CONFIDENTIAL

CONFIDENTIAL

295

99:20:05 P Gemini VII. Broadcasting HF. 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1. ... GET ...

99:30:05 P This is Gemini VII. 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1.

99:35:26 P Gemini VII. GET ... 40:40.

TANANARIVE

99:40:03 C This is Gemini VII. ... testing 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1 ...

99:40:07 P Gemini VII. Broadcasting HF. 1, 2, 3, 4 - 4, 3, 2, 1. Gemini VII. GET 40:20.

99:45:07 P This is Gemini VII, broadcasting HF. 1, 2, 3, 4, 5 - 5, 4, 3, 2, 1. Gemini VII. ...

COASTAL SENTRY QUEBEC

99:58:09 CC Gemini VII, CSQ CAP COM.

99:58:13 C Go ahead, CSQ. Gemini VII.

99:58:15 CC Roger. We'd like your evaluation of the HF test, please.

99:58:21 C ... sequence order. All we did was make transmission. We didn't get any reception.

99:58:30 CC Roger.

99:58:31 C My evaluation of it is that it is a waste of fuel.

99:58:35 CC Roger.

99:58:45 CC Also, your pass over Hawaii this revolution will be a UHF Number 6.

CONFIDENTIAL

CONFIDENTIAL

COASTAL SENTRY QUEBEC

99:59:16 CC Gemini VII, do you have any preference in the selection of HF music for the next series of HF music?

99:59:23 C Something quiet and restful.

99:59:26 CC Say again?

99:59:28 C Something quiet and restful.

99:59:31 CC Roger. Copy.

99:59:32 P No, something loud and noisy!

99:59:38 CC What are we going to do now?

100:00:01 C Is Chris still on back in Houston, CSQ?

100:00:04 CC Say again last.

100:00:05 P Is Mr. Kraft still on Flight and Systems?

100:00:08 CC Negative. C. C. Kraft is Flight this time.

100:00:15 C How about advising him that I am thinking about coming in with a request about taking my suit off also, please.

100:00:20 CC Roger.

100:00:26 P Okay. Just like that?

100:00:36 C ...

100:00:39 P ...

100:00:45 C ...

100:00:55 P ... noisy.

100:01:05 C ...

100:01:29 P I wanted to tell them that.

CONFIDENTIAL

CONFIDENTIAL

297

100:01:36 C ... your choice. ...
100:01:43 CC Gemini VII. Stand by.
100:01:51 CC VII. All systems appear to be GO on the ground. Flight said they would make some selections for you on the HF and surprise you. We're standing by.
100:02:00 C Roger. Thank you.
100:02:02 C We are a little concerned about the unbalance on our Section 2 fuel cell and Section 2C ...
100:02:13 CC Flight advises they'll brief you later.
100:02:16 C Roger.
100:02:25 C CSQ, did you receive my transmission about the fuel cell?
100:02:28 CC Roger. Copy. You have an unbalance of Section 2, Stack 2C. Is that affirm?
100:02:34 C I just wondered if you noticed; it's been that way all along.
100:02:37 CC We don't copy 2C or 1C on the ground. We only have the 2A and 2B.
100:02:45 C What do you read for 2A?
100:02:47 CC Stand by. I'll give you a reading for 2A and 2B.
100:03:02 CC VII. 2-Alpha is reading 2.36 amps and 2-Bravo is reading 2.19 on the ground.
100:03:11 C Roger. 2C is reading about 4.2.
100:03:14 CC Roger. Copy. 4.2.
100:03:57 P Yes, but look at ...
100:04:05 C I wish we had ... problem ...
100:04:15 P ...
100:13:52 P Why don't we put ... and fly by recorder?

CONFIDENTIAL

CONFIDENTIAL**HAWAII**

100:16:03 CC Gemini VII, Hawaii CAP COM.
100:16:05 C Go ahead, Hawaii. Gemini VII.
100:16:07 CC Okay. While we're trying to lock up here, I've got a short flight plan update for you.
100:16:11 C Stand by.
100:16:26 C Go ahead.
100:16:32 CC Okay, we've got a valid oral temp. We're standing by for your blood pressure.
100:16:33 C Hawaii. VII. Go ahead.
100:16:43 C ...
100:16:44 C Blood pressure is on the way.
100:16:58 CC Your cuff is full-scale.
100:17:03 C Roger.
100:17:40 CC We have a good blood pressure. Standing by for your exercise on your Mark.
100:17:44 C Roger.
100:17:48 C MARK.
100:18:13 C Blood pressure coming.
100:18:25 CC Your cuff is full-scale.
100:18:27 C Roger.
100:19:04 CC We have a good blood pressure. Standing by for your food, water and sleep report.
100:19:09 C Roger. We've had nothing since reported last.
100:19:14 CC Roger. Understand.

CONFIDENTIAL

CONFIDENTIAL

299

100:19:17 CC Okay. I've got your flight plan update, if you're ready to copy.

100:19:20 C Go ahead.

100:19:22 CC Okay. You're going to run a Radar Transponder Test. At 10 - correction - at 100 plus 40, transponder on; at 100 plus 55, transponder off.

100:19:42 C Roger. We have that.

100:19:44 CC Okay.

GUAYMAS

100:27:27 CC Gemini VII, Guaymas CAP COM.

100:27:45 CC Gemini VII, Guaymas CAP COM. All systems look real good here on the ground. We have nothing else for you at this time. We'll be standing by.

100:27:53 C Thank you.

100:28:26 CC Gemini VII, Guaymas CAP COM.

100:28:27 C Go ahead.

100:28:31 CC Roger. We would like to know if the request you made over the CSQ should be taken to the management level?

100:28:37 C I think it should.

100:28:40 CC Roger.

100:28:41 C I'll tell you what you might do. Ask him to call Deke tomorrow or something and tell him that I was thinking about both of us might as well be comfortable.

100:28:49 CC Roger. We copy.

100:38:14 C The recorder ... computer ...
... 00. Stand by ...

CONFIDENTIAL

CONFIDENTIAL

100:41:04 C Stand by. ...
100:47:03 P Continuing with the D-9. Last two ... 75:30:30.
100:47:14 P Stop watch, 6.3; sextant, 33.082; ... tolerance, 0075, 3400. Stop watch, 200; sextant, 44.116.

ROSE KNOT VICTOR

100:47:26 CC Gemini VII, RKV CAP COM.
100:47:30 C Come in RKV. This is Gemini VII.
100:47:31 P Okay. One more D-9: ... 4035 ... 02. Mode 02. Did not measure the ... too close to the moon. It was full, very bright to try to verify ... 430. Stop watch, 41.3; sextant, 32.19. ... sextant, 37.09. Stop watch, 33.92; ... 0530. Stop watch, 14.6; sextant, 16.265 ...
100:47:32 CC Roger. We're standing by for your pipeline recording when you're ready.
100:47:36 C Roger.
100:47:52 C Okay. Gemini VII. Today we accomplished all the flight plan activities with the exception of the following: Number D-4/D-7 at 93:28 burn. We tracked, but there was a great deal of cloud cover over both the land and the water.
100:48:08 CC Roger.
100:48:10 C Number 2, S-5: Sequence 12; 94:13:18; cancelled, weather.
100:48:16 CC Roger.
100:48:22 C MSC-4: 93:44:39; cancelled, weather.
100:48:23 CC Say again.
100:48:25 C MSC-4: 93:44:39; cancelled, weather.
100:48:30 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

301

100:48:32 C D-9: 97:41:34; the moon was too bright to get our dimmer on more than one measurement on the other two passes. We selected Marfik and Almak in place of Marfik and Aldebaran. Aldebaran and Marfik are both very close to the moon and it's almost impossible to measure them with the sextant.

100:48:55 CC Roger.

100:48:58 C S-8/D-13 score: Borman was - 8, Lovell - 7.

100:49:04 CC Roger.

100:49:06 C Okay. We used 39 exposures today on Magazine M with a Hasselblad; 10 feet of 16mm film and two tape recorder cartridges.

100:49:18 CC Roger.

100:49:20 C I guess that about covers it.

100:49:23 CC Okay.

100:50:48 P Just another ...

100:54:17 CC Gemini VII, RKV CAP COM.

100:54:25 P This is VII. Go ahead.

100:54:28 CC Roger. You can go ahead and set the transponder off.

100:54:30 P Oh Roger. Thank you.

TANANARIVE

101:09:21 CC Gemini VII, Gemini VII, Houston CAP COM. Over.

101:09:41 P Hello Houston, Gemini VII. Go ahead.

101:09:43 CC Hello Gemini VII. Read you loud and clear. First off I would like to advise you that we're working on that suit request; we don't yet have an answer. As soon as we get it, we'll shoot it up. I might say we're working quite hard on it at the time.

CONFIDENTIAL

CONFIDENTIAL

101:09:58 P Thank you very much.

101:09:59 CC And we have a couple of questions Jim, if you'd like to answer them. We'd like - this concerns the results of that Photometer Test. Were you able to calibrate?

101:10:12 P We haven't had a chance to run it yet. We plan to do that the very next today. If you could hold off a little bit we would appreciate it.

101:10:19 CC Okay. Fine. I understand you have't done it yet. Question concerning the film report. Was that used during the last 24 hours or is that the total of the flight?

101:10:30 P That was the last 24-hour usage.

101:10:33 CC Okay. Fine. And I'd like to update you on a fuel purge for after you're awake.

101:10:39 P Understand an update on fuel purge. Okay.

101:10:41 CC Okay. It'll be on Rev 71 at Canaries, at Time 112:05 elapsed time.

101:10:57 P Understand. The next fuel cell purge will be at 111, Rev 71, Canary 112:05. Is that correct?

101:11:10 CC 112:05. That's affirm.

101:11:25 CC Gemini VII, this is Houston Surgeon. Jim, I would like to pass one more item about this water thing which would help us a great deal to pin down your intakes here. If you give us - give a last report on the water- your water intake at the last station contact before you go to sleep, which tonight will be Hawaii. If you'd just give them the total water, ounces of water that each of you have had at that time. And can you also then give us a total tomorrow morning from Column 6 - Columns 5 and 6 on your M-7 log? Just totals.

101:12:14 P Roger. Check at Hawaii on water input totals tonight and tomorrow we'll give you Columns 5 and 6 of the M-7. Hope you ... much.

CONFIDENTIAL

CONFIDENTIAL

303

101:12:27 CC Very good.

101:12:29 C Hey, Gene, this is Frank.

101:12:32 CC Go ahead, Frank.

101:12:33 C Listen, this request to take the suit off is not a big deal. I'm very comfortable. I've got it unzipped and everything. So don't make out like it's an emergency, will you?

101:12:41 CC Okay. I think we understand it pretty well.

101:12:44 C Doctor Miller was pretty much against doing it now. I didn't want him to think it was an emergency but I thought since we've had the good success with him he might change his mind. But I'm comfortable the way I am.

101:12:55 CC Okay. I think we've got your request.

101:13:01 CC Gemini VII, I've got a node update for you now.

101:13:08 P Roger. Go ahead.

101:13:10 CC Okay. At Time: 107:23:13; Rev 68; 6.8 degrees west; right ascension at 11:37:16.

101:13:28 P Would you give us the longitude again, please?

101:13:30 CC Okay. That's 6.8 degrees west.

101:13:36 P Roger. 6.8 degrees west and also the right ascension. We've missed that.

101:13:40 CC Okay. Right ascension is at 11:37:16.

101:13:48 P Thank you very much, Gene.

101:13:49 CC Okay. Everything seems to be going great down here. It sounds like it's going real fine up there.

101:13:56 P We've found all kinds of room in the space ...

101:13:59 CC Where?

CONFIDENTIAL

CONFIDENTIAL

101:14:02 P ... over the Islands.

101:14:04 CC That's outstanding! Keep that a secret; I'd like to find out how.

101:14:09 P ...

101:14:11 CC Yes.

101:14:14 C Listen. Do you still read?

101:14:16 CC Go ahead, Gemini VII. Read you loud and clear.

101:14:18 C Okay. If you get a chance, call my boys and wife and say hello. Will you?

101:14:22 CC I sure will do.

101:14:24 C Thank you.

101:14:44 CC Gemini VII, this is Houston. You still reading?

101:14:48 P Roger.

101:14:49 CC Okay. Probably tomorrow night, if we get a chance, maybe the last pass over the States, we have a special request for a song from your 12-year-old daughter, Jim, that we'll play on up to you.

101:15:00 P Okay. Thank you.

101:15:02 CC We'll let you know when it's coming.

101:15:35 CC Gemini VII, this is Houston. Are you calling?

101:15:38 P Negative.

101:15:41 P This is Gemini VII. Negative.

101:15:43 CC Okay.

101:15:45 C Communications on this flight are phenomenal, aren't they?

101:15:55 CC Yes. They are extremely good, Frank, very fine.

CONFIDENTIAL

CONFIDENTIAL

305

COASTAL SENTRY QUEBEC

101:32:10 CC Gemini VII, CSQ CAP COM.

101:32:34 CC Gemini VII, CSQ CAP COM.

101:32:41 C CSQ, this is VII.

101:32:45 CC Roger. You'll have a UHF Number 6 over Hawaii this revolution. And I have your PLA update when you're ready to copy.

101:32:54 C Roger. Stand by.

101:33:00 CC Also, on your cryogenics tonight, I'd like to leave the fuel cell O_2 heater in AUTO. On the fuel cell H_2 , we'd like to have you pump it up to 525 psi and your low level, or your minimum tonight on that one will be 310. And no heat on the ECS O_2 .

101:33:38 C Okay. I understand that you want us to turn on the fuel cell O_2 for the evening and want us to blow up the hydrogen to 525 with the minimum of 310. Is that correct?

101:33:48 CC That's affirmative. And no heat on the ECS O_2 .

101:33:55 C Roger. I understand, no heat on the ECS O_2 . Ready to copy the PLA update.

101:34:00 CC Roger.

101:34:07 CC Okay. Area 66-3: 104:24:57; 17 plus 32. Area 67-3: 106:01:08; 16 plus 32. Area 68 - 68-Bravo: 107:37:46; 16 plus 01. Area 69-Delta: 108:27:23; 22 plus 27. Area 70-Delta: 110:04:31; 21 plus 21. Area 71-2: 111:40:05; 20 plus 21. Area 72-2: 113:16:52; 19 plus 03. Area 73-1: 114:42:38; 19 plus 51. Weather is good in all areas. Do you copy?

101:36:03 C Roger. Copy. Thank you.

101:36:06 CC I would like to know if the pilot is going to sleep in his orbital flight suit tonight?

CONFIDENTIAL

CONFIDENTIAL

101:36:13 C Roger. The pilot will put on his orbital flight pajamas.

101:36:18 CC ... Roger.

101:36:35 P CSQ, Gemini VII.

101:36:37 CC Go ahead, VII.

101:36:39 P Roger. We're playing with this photometer now. There is so much cloud cover out here that we haven't been able to get a good stretch of water. We've ... but we're working at it. So far we haven't been able to get it to change from RED to GREEN. Excuse me, from RED to GREEN unless we're right over clouds. Then it changes.

101:36:59 CC Okay. I'll pass that back.

101:37:04 P Thank you.

101:37:45 CC Gemini VII, CSQ. You look real good on the telemetry. We have nothing else. Standing by.

101:37:51 P Roger and thank you.

101:49:03 C We would now like to record a commentary in the case of the wounded leg.

101:49:08 P We see all this - our efforts ... on the left-hand side, ... Colonel Frank Borman on the pulled muscle of his leg.

101:49:24 C ... my left leg, doing isometric exercises, and I just don't want anybody to think that this is the result of the OGA. I felt it go this morning when I was straining against the safety belt.

101:49:28 P That's about 85 or 90 hours.

101:49:30 C That's right.

101:49:31 P And I will authenticate same. Lovell dumping urine.

CONFIDENTIAL

CONFIDENTIAL

307

HAWAII

101:50:07 CC Gemini VII, Hawaii CAP COM.
101:50:23 CC Gemini VII, Hawaii CAP COM.
101:50:25 P Roger, Hawaii. This is VII.
101:50:28 CC All right, we are standing by for your fuel cell purge. We're showing you GO here on the ground.
101:50:32 P Roger. Coming through at this time.
101:50:44 C Hawaii, Gemini VII.
101:50:46 CC Go ahead, VII.
101:50:47 C Roger. Dr. Berry wanted the water left with you - we haven't had supper yet, but the total to date as of right now - 387 ounces for the Command Pilot.
101:51:05 CC I've got that. Go ahead.
101:51:07 C 322 ounces for the Pilot.
101:51:09 CC Roger.
101:51:10 C Now we'll probably have about 30 more ounces tonight and that - I think that's close enough.
101:51:16 CC Roger. Okay will you put your - correction - will you give me an OAMS propellant quantity readout?
101:51:24 C Roger. 52 percent.
101:51:27 CC Roger. Put your Quantity Read switch in the ECS O₂ position.
101:51:32 C ECS O₂.
101:51:34 CC Roger. Can you give me a readout of your OAMS source pressure?
101:51:50 C 18 - no, about 1900 pounds.

CONFIDENTIAL

CONFIDENTIAL

101:51:56 CC Roger.

101:52:08 CC The Quantity Read switch to the FUEL CELL O₂ position.

101:52:12 C FUEL CELL O₂.

101:52:13 CC Roger. We've got some data for the Command Pilot, if he would like to listen.

101:52:18 C Go ahead.

101:52:19 CC Okay. The fuel cell status. Stack times have been balanced within .5 to .75 amps for the mission with the exception of 2-Charlie. Charlie has been a hot stack both prelaunch and flight. A plot of percent total load sharing versus time shows the following figures: Prelaunch, 18.6 percent; 20 hours, 20.0 percent. Quantity Read to the FUEL CELL H₂ position, please. 40 hours, 20.0 percent; 60 hours, 20.0 percent; 80 hours, 21.0 percent; 100 hours, 20.5 percent. Data indicates load sharing has not changed depreciablely since lift-off. Looks like we have a good stable fuel cell system. The G-Stacks normally share a larger percent of load since the coolant fluid is higher in these stacks. Over.

101:53:55 C Roger. Thank you very much.

101:53:57 CC Roger.

101:54:13 CC Quantity Read switch off, please.

101:54:15 C Quantity Read off. Understand you want me to monitor H₂ and keep above 310 tonight.

101:54:30 CC What we'd like you to do is - you don't have to monitor it, you - it shouldn't drop any lower than that point.

101:54:38 C Okay. If it does, you all give us a call, will you?

101:54:40 CC That's affirmative. People on the ground will watch it for you.

CONFIDENTIAL

CONFIDENTIAL

309

101:54:42 C Thank you.

101:54:43 CC Roger.

101:54:44 C We appreciate all the help, really. Feel a lot better sleeping if you know somebody is down there keeping check on these things.

101:54:52 CC Okay. Very good.

101:55:15 CC Okay. A little bit more data here. Your OAMS propellant remaining - we're ahead of the flight plan. And your numbers agree real well with ours, and your orbit at this time is 127.4 by 170.5.

101:55:34 C Roger. Thank you.

101:56:00 CC You got any data on your M-7 log for me?

101:56:05 C No. What I gave you just - had them - do you want Columns 6 and 7 added up today?

101:56:11 CC If you don't mind, I'll take that from you.

101:56:14 C Stand by.

101:56:25 C Okay. Column 1, 2, 3, 4, and 6 on the Command Pilot is 2.

101:56:31 CC Roger.

101:56:35 CC I've got that.

101:56:43 C Column 5 on the Command Pilot is 9.

101:56:46 CC Say again the number.

101:56:47 C Niner.

101:56:48 CC Roger.

101:56:52 C On the Pilot, Column 6 is 0.

101:56:56 CC Roger.

101:57:02 C And Column 5 is 11.

CONFIDENTIAL

CONFIDENTIAL

101:57:04 CC I copy that.

101:57:06 C Thank you.

101:57:10 C You might mention that I wish they'd had a little more charcoal going and a little less lithium hydroxide in this canister.

101:57:17 CC Okay. Very good.

102:17:57 P At 102:18 - -

102:18:55 C Don't play games with that thing! That's a 50-watt heater, Lovell.

102:19:02 C Is she running through?

102:19:04 P Yes it is!

102:19:19 P Okay, thanks.

102:19:20 C Okay.

102:19:35 C ...

102:19:38 P All right.

102:19:52 P Borman dumps here.

102:19:59 P Borman dumping here. You have that? Second dump was Borman's on that.

102:20:55 C End of dump tape.

103:00:09 C ... 112 elapsed time. Borman minus 11, Lovell minus 6.

103:00:16 C Borman dumping here.

CANARY

112:05:50 CC Gemini VII, Canary CAP COM contact. How do you read?

112:06:04 P Okay. This is Gemini VII.

CONFIDENTIAL

CONFIDENTIAL

311

112:06:10 CC A pleasant good morning to you from Canary. We have a couple of things for you. Have you done a fuel cell purge recently?

112:06:14 P It's overdue in the flight plan but we thought we'd wait until we were over somebody.

112:06:19 CC Okay. Very good. We're ready for you now, whenever you are.

112:06:22 P Okay. One purge coming down.

112:09:09 CC VII, Canary. Would you put your Quantity Read switch to FUEL CELL H₂?

112:09:13 P Roger. FUEL CELL H₂.

112:09:14 CC Roger.

112:11:11 P Purge complete, Canary.

112:11:13 CC Roger. We need some readouts here on the ground. You can keep it there on FUEL CELL H₂.

112:11:19 P Okay.

112:11:20 CC What are you reading up there on quantity and pressure?

112:11:28 P About 82 percent and 400 psi.

112:11:33 CC Roger. Okay. You want to go back to 1 to FUEL CELL O₂ on the Quantity Read switch?

112:11:44 P Right. We are at FUEL CELL O₂.

112:11:47 CC Roger.

112:12:08 CC What are you reading, quantity and pressure, please?

112:12:15 P About 77 percent, Ed. 720.

112:12:20 CC Roger. I copy. Now Quantity Read switch to ECS O₂.

112:12:42 CC Quantity and pressure.

CONFIDENTIAL

CONFIDENTIAL

112:12:45 P 86 percent and 580.

112:12:48 CC Okay. We have a flight plan update for you.

112:12:52 P Okay. Stand by.

112:13:06 P Go ahead.

112:13:07 CC Okay. Time: 111:52:35; Rev 71; 75.6 degrees west; 11 hours 32 minutes 51 seconds; right ascension. Flight plan Time line update: change 11 to 00 to 112:17. We may have LOS and in the event we do, we will continue later on.

112:13:47 P ...

112:13:49 CC 113:40:00: PLA update at Canary. 114:16:00: crew status report on Command Pilot at Carnarvon. You copy?

112:16:04 P We're over Canary here.

112:16:06 C ... strange, no, no it isn't ...

112:16:49 P We must be ... over southern Africa.

112:30:47 C One comment here on these meals: we are going on relatively normal. Just a day. I think it would be better to plan our meals so we don't have anything but peas and shrimp - peas and salad for breakfast.

112:30:56 P I concur.

CARNARVON

112:42:58 CC Gemini VII, Carnarvon.

112:43:03 C Go ahead, Carnarvon. Gemini VII.

112:43:05 CC Roger. We'd like to have you turn your Cryo Gaging switch to the OFF position, please.

112:43:09 C All right.

CONFIDENTIAL

CONFIDENTIAL

313

112:43:13 CC I'd also like an OAMS propellant quantity readout, please.

112:43:18 C 52 to 53 percent.

112:43:26 CC Repeat, Gemini VII. I did not copy.

112:43:31 C About 52 to 53 percent.

112:43:34 CC Roger. Copy.

112:43:39 CC Also, I'd like to complete the flight plan update you were getting over Canary whenever you're ready to copy, please.

112:43:42 C We're ready. Go ahead.

112:43:50 CC Okay. Did you get the 111 - sorry, 113:30:00 time?

112:44:00 P Back up the time 113:40:00, but that's all. He faded out then.

112:44:32 CC At Canary.

112:44:42 CC Okay. 114:16:00: crew status report for the Command Pilot at Carnarvon.

112:44:58 P Roger.

112:45:00 CC 115:01:00: crew status report, Pilot, at Carnarvon.

112:45:11 P Right.

112:45:12 CC S-6: Time, 115:18:28; Sequence Number 10; Remarks, pitch 30 degrees down, yaw 12 degrees left.

112:45:34 P Roger.

112:45:35 CC Okay. That completes the flight plan update. You're looking good here on the ground. We'll be standing by if you need us.

112:45:43 P Roger. ...

112:45:47 CC Very good.

CONFIDENTIAL

CONFIDENTIAL

GRAND TURK ISLAND

113:26:58 CC Gemini VII, Houston CAP COM.

113:27:00 C Go ahead, Houston. Gemini VII.

113:27:02 CC Gemini VII, Houston CAP COM. This is the world's most untalkative CAP COM coming to you with the D-4/D-7.

113:27:10 C Roger. Stand by a minute. How are you doing, Charles?

113:27:13 CC I am doing fine, Frank. How are you today?

113:27:16 C ...

113:27:21 C All right. Just a little warm.

113:27:23 CC You're just a little warm. We're mighty proud of you guys, down here.

113:27:34 C I'm ready, Charles.

113:27:35 CC Okay. It's a D-4/D-7: Time, 113:57:37; Sequence 427; Mode 03; pitch 4 degrees down, yaw 115 degrees left; passing from right to left; closest approach at 113:58:00.

113:28:10 C You faded.

113:28:12 CC Say again?

113:28:15 CC Your closest approach at 113:58:00; record 30 seconds maximum.

113:29:01 CC Gemini VII, Houston. Did you read that update?

113:29:04 C Negative, Charlie. You faded completely. I hear you now though.

113:29:07 CC Okay. It's a D-4/D-7 at 113:57:37: Sequence Number 427; Mode 03; pitch 4 degrees down, yaw 115 degrees left; passing from right to left; closest approach at 113:58:00; record 30 seconds maximum.

CONFIDENTIAL

CONFIDENTIAL

315

113:29:55 C Roger. Houston. Gemini VII. We read you.
113:30:03 CC Roger. Gemini VII. Did you get that update?
113:30:05 C That's affirmative. Roger.
113:30:08 CC Could I get a readback? Negative, you don't have to do that.
113:30:13 C We got it.
113:30:17 CC Did you sleep well last night?
113:30:20 C Yes, except we were a little warm.
113:30:26 CC CM4 says to get to work.
113:30:29 C I hear him. Tell him to get his bloody eyes back on his homework.
113:31:18 CC Gemini VII, Houston CAP COM.
113:31:20 P This is VII. Go ahead Houston.
113:31:22 CC Can I start giving you your big flight plan update for this morning? The next pass over the States will also be a crew status pass and it's a rather large - -
113:31:34 P Roger. We can start taking the flight plan update.
113:31:38 CC Okay. The first item is at 115:40:00: a cabin temperature survey.
113:31:49 C Hey, Charlie?
113:31:50 CC Right. Go ahead, Frank.
113:31:56 C Listen, the cabin temperatures haven't varied much at all. Can we cut down the frequency of those to maybe once a day?
113:32:06 C Do it this time, but ask them to cut the frequency then, will you? They haven't varied it 2 degrees over the whole flight.
113:32:10 CC Sure. That'll be fine, Frank.

CONFIDENTIAL

CONFIDENTIAL

113:32:20 CC Well, why don't we go ahead with this one and we'll cut out any of the rest of them for today. How's that?

113:32:25 C That's what I'm suggesting.

113:32:26 CC Okay.

113:32:32 CC The next time is 116:29:00: fuel cell purge at Guaymas. D-4/D-7: 116:58:00; Sequence 424; Mode 02. At 118:07:00: you'll have a GO/NO-GO for 90-1 at Texas. MSC-12: 118:12:52; pitch 30 degrees down, yaw 0 degrees; do over west coast of Florida. 118:20:00 is an exercise period. 118:30:00 starts your eat period. At 118:55:00: use horizon scanner to control spacecraft SEF for UHF test over Carnarvon; use the adapter antenna.

113:34:21 C Charlie, you faded on that when I got horizon scanner to control spacecraft.

113:34:29 CC Control spacecraft SEF for UHF test over Carnarvon; use the adapter antenna. At 119:00:00: key UHF continuously until 119:10:00; voice-modulate the UHF until 119:06:00; note, that's the first 6 minutes of a 10-minute key. We realize this is in the middle of an eat period, but it's a particularly good pass for this test over Carnarvon.

113:55:26 CC Gemini VII, Houston. Are you with me?

CANARY

113:40:58 CC Gemini VII, Canary CAP COM. Com check. How do you read?

113:41:06 C Loud and clear, Canary.

113:41:07 CC Okay. We have a PLA update for you whenever you're ready to copy.

113:41:13 P Stand by a minute.

113:41:31 P ... update, Canary.

CONFIDENTIAL

CONFIDENTIAL

317

113:41:37 CC Okay. I wasn't going to ask you.

113:41:39 P All right.

113:41:41 CC Area 74-1: 116:19:10; 18 plus 34. Area 75-1: 117:55:26; 17 plus 23. 76-1: 119:30:56; 16 plus 27. 77-4: 122:21:12; 18 plus 09. 78-4: 123:56:17; 17 plus 12. 79-3: 123:10:37; 20 plus 08. 80-3: 126:47:12; 18 plus 53. These are for rolling re-entry and the weather is good in all areas.

113:43:39 P Roger. Thank you, Canary.

113:43:46 C Canary, could you give us the D-4/D-7 update that we heard from Houston? Do you have that yet?

113:43:50 CC Yes, I do. That was D-4/D-7: 113:57:37; Sequence 427; Mode 03; pitch 4 degrees down, yaw 115 degrees left; passing right to left; closest approach at 113:58:00; record 30 seconds maximum.

113:44:37 P That was record 30 seconds maximum?

113:44:39 CC Roger. Record - record.

113:44:42 P Roger. Thank you.

113:54:44 C Coming up to 13, 113:57, D-4/D-7, Sequence 428. We're ... 4 degrees down ...

113:54:51 C Okay. Power-down equipment 13:59:27. No joy on the 427 ...

113:54:53 P 30 seconds of recording, Houston.

113:54:55 C 15:17:53: taking shots at ... Sequence 10, off the Canaries ...

CARNARVON

114:16:30 CC Gemini VII, Carnarvon.

114:16:32 P This is VII. Go ahead, Carnarvon.

114:16:33 CC Roger. We have a solid temperature. All your systems are GO on the ground. I'll be handing you

CONFIDENTIAL

CONFIDENTIAL

over to the Surgeon here shortly, and after the crew status report I have a message and a flight plan update for you.

114:16:51 P Roger. Blood pressure coming down.

114:16:58 CC Gemini VII, this is Carnarvon Surgeon. Your cuff is full-scale.

114:17:08 P Roger.

114:17:54 CC Gemini VII, I have a valid blood pressure. Give us a Mark before you start exercising, please.

114:17:59 P MARK.

114:18:28 P Completed.

114:18:37 CC Gemini VII, your cuff is full-scale.

114:18:40 P Roger, full-scale.

114:19:29 CC Gemini VII, we have a valid probe, exercise and blood pressure. Do you have any change in your food, water or sleep report since last report?

114:19:36 P Roger. Stand by.

114:19:47 C Carnarvon Surgeon, Gemini VII. Here is the total water now: for the Command Pilot, 435 ounces. We both had Meal A, Day 15, except the Pilot did not eat any of the gingerbread squares and the Command Pilot ate only two of them.

114:20:11 CC Gemini VII, this is Carnarvon Surgeon. We copy.

114:20:15 C Roger. The Pilot has now had a total of 350 ounces of water and we've both had one urination since last report.

114:20:28 CC This is Carnarvon Surgeon. We copy. This is Carnarvon Surgeon out.

CONFIDENTIAL

CONFIDENTIAL

319

114:20:36 CC Gemini VII, Carnarvon CAP COM.

114:20:39 C Go ahead, CAP.

114:20:42 CC Okay. We'd like for you to know that the suit situation will be discussed over MCC on the next revolution. They want to discuss Lovell getting back into the suit and Borman getting out. Did you copy?

114:21:09 C We copied.

114:21:11 CC Roger.

114:21:41 CC On your last plan update at 11:55:00, use a horizon scanner to control spacecraft, small end forward, for UHF test over Carnarvon. You copy?

114:22:02 P Roger. We copied.

114:22:04 CC Use adapter antenna.

114:22:09 P Roger.

114:22:11 CC Time: 119:00:00; key UHF continuously until 119:10:00; voice-modulate UHF until 119:06:00. Next item, MSC 12: Time, 119:48:28; pitch 30 - 30 degrees down, yaw 0 degrees; due over west coast of Florida. MSC-2 and 3: Time, 120:00:00; Sequence Number 02; off at 136:00:00. Do you copy?

114:23:49 P Roger. We copy.

114:23:51 CC Next item, D-4/D-7: Time, 120:08:00; Sequence Number 423; Mode 02; do even if cloudy.

114:24:25 P We copy.

114:24:27 CC Roger. Okay, one other item. Have you had any success with doing D-4/D-7 417; lightning, and 425, cumulous clouds, as per measurement of oxygen opportunity?

CONFIDENTIAL

CONFIDENTIAL**TEXAS**

114:59:00 CC Gemini VII, Gemini VII, Houston CAP COM.

114:59:03 C Go ahead, Houston. Gemini VII.

114:59:07 CC Roger. We observe your oral temp. It isn't - have you got your temp probe in?

114:59:15 C Not yet.

114:59:16 CC Okay.

114:59:21 CC Frank, have you eaten yet, this morning?

114:59:25 C Roger.

114:59:27 CC Roger.

114:59:33 C Just a little bit warmer up here than we would like to see it, Elliot, and it seems to be getting hotter.

114:59:39 CC Roger.

114:59:43 CC Okay. We observe your temp coming up now on the temperature.

114:59:49 C Fine.

114:59:56 CC Okay. Stand by for the Surgeon, for his discussion.

115:00:02 CC Frank, while the temperature probe is coming up on Jim, could I go ahead and ask you - let's check on this meal. You had Meal 15A - you had 15A, apparently last night, I assume. Could you give me the time on that, and then for breakfast this morning, could we get your food report?

115:00:20 C 15A.

115:00:24 CC Roger. 15A.

115:00:27 C Flight, Jim didn't eat the gingerbread and I only ate two of the gingerbread. I gave that to the Carnarvon Surgeon, I believe it was.

CONFIDENTIAL

CONFIDENTIAL

321

115:00:33 CC Roger. Well, that was breakfast. That was not dinner last night.

115:00:53 CC Gemini VII, Gemini VII, this is Surgeon. Do you read?

115:00:56 C Yes. Go ahead, Houston.

115:01:02 CC Frank, what meal did you have for dinner last night? We're missing this - this one meal. You didn't report a dinner meal.

115:01:13 C I had Day 7, Meal C.

115:01:19 CC Roger. 7C.

115:01:22 C 14C. 14C.

115:01:30 CC 14C. Read 14C. All right, we have a valid temperature. You can go ahead and get your blood pressure.

115:02:07 CC The cuff didn't go full-scale, Jim.

115:02:14 CC Full-scale.

115:03:06 CC Have - -

115:03:17 CC Gemini VII, we do not have a valid blood pressure here. Can you repeat that pressure, please?

115:03:25 P Roger. Stand by. I'll pump it up again.

115:03:29 CC Roger, Jim.

115:03:31 CC Frank, while that's going on I'd like to ask you - are you sure of the Cabin Temperature setting being down FULL-COOL, both of them? We concur about the slightly warmer cockpit. Some of our data are showing that it's running a little warmer. Cuff full-scale.

115:03:50 C Our Cabin Temperature is FULL-HOT, our Suit Temperature is FULL-COLD.

115:03:58 CC Roger.

CONFIDENTIAL

CONFIDENTIAL

115:04:13 CC Frank, would you check the Suit Temperature valve for FULL-COLD position? Our data show that it is not at that position.

115:04:22 C Say again, please.

115:04:23 CC Would you check the Suit Temperature valve position? Our data do not show FULL-COLD.

115:04:32 C It would take three men and a boy to move it and I've got it as tight as we can get it.

115:04:37 CC Roger.

115:04:49 CC Frank, how about trying the Cabin Temperature valve a little cooler?

115:04:54 C That will cut off some of the coolant loop's flow through the suit loop and should make us hotter.

115:05:00 CC Why don't you give it a try?

115:05:04 C All right.

115:05:08 CC Gemini VII, this is Surgeon. Jim, we're still not getting a valid blood pressure here. We're not seeing any trace of it. Let's don't try and repeat it here, but I wish you would check. Check in your microphone and the cuff there before you do any changing with the - with the suit configuration. And also, did you have to do anything to those sensors other than just press on that external sensor yesterday?

115:05:32 P Negative. I did not. The cuff's still way up. I could check it very easily here.

115:05:40 CC All right. Fine.

115:05:43 CC Frank, can you tell me what you had for sleep last night? We don't have that report yet. Could I get your sleep and the quality of it, also?

115:05:52 C We slept about 6 to 7 hours last night. I think Jim slept sounder than I did. I was warm most of the evening.

CONFIDENTIAL

CONFIDENTIAL

323

115:06:01 CC Roger. Copy. 6, 7 hours.

115:06:04 C Sure would like to have some sort of petroleum jelly or Vicks to put in your nose up here.

115:06:11 CC Is it getting pretty dry, Frank?

115:06:19 C Houston, do you read?

115:06:21 CC Roger. Gemini VII. I read. Frank, you could use some of that ointment that you have there, that cream. You could use some of that for your nose. I suggest that you do that if you are getting dry.

115:06:42 CC Gemini VII, did you copy?

115:06:49 CC Gemini VII, do you read?

115:06:55 P Houston, Gemini VII.

115:06:59 CC Did you read the transmission about going ahead and using the ointment that is available there, Jim? I would suggest you use that for your nose.

115:07:09 P Roger, understand that. And also it looked like the cuff did slip down. I could see the microphone just half way out of the cuff. Do you want me to try?

115:07:20 CC Jim, I think we ought to get this suit discussion here. Let's hold this one and we'll get a recheck on your pressure and exercise later. Let's let them go on to the suit discussion now and make sure that your cuff is all right and we'll check you later. All right?

115:07:33 P Roger.

115:07:35 CC Gemini VII. We are working on that suit situation. We would like to ask for a report on the orbital flight suit at this time.

115:07:48 P Roger. I put on the orbital flight suit last night to wear it to go to bed but it's just too hot, so I removed it about 15 minutes later and stowed it. I'm very comfortable just the way I am.

CONFIDENTIAL

CONFIDENTIAL

115:08:09 CC Roger. I copied Gemini VII, Jim.

115:08:12 CC Jim, we'd like to ask if you are - if this cabin temperature is comfortable for you in your present configuration or if you are also feeling somewhat warm?

115:08:25 P I am at times plenty warm. It's 78 in the cabin and a comfortable temperature would be more like 72. However, I'm perfectly dry, much more free of freedom of movement, and certainly just as cool as I'd ever be in a suit.

115:08:43 CC Roger.

115:08:47 C Flight, I opened this Cabin Heat control now to FULL-COOL and the suit temperature's gone up about another half a degree since I did that.

115:08:55 CC Roger. We concur. You can turn it back down.

115:09:04 CC Frank, we are - as I said - we are working on the suit situation to accumulate further data. We would like to ask for Jim to put his suit back on and you to take yours off. Over.

115:09:22 P Roger. I would prefer to leave it this way if you don't mind.

115:09:29 C ... be able to get back in and he's a lot bigger. Why do you want him to change?

115:09:36 CC Roger, Gemini VII. The purpose was to accumulate more information on the suit situation. We have your input. If you are able to change suits, we can delete the cabin temperature survey at 115:40.

115:09:57 C Okay. I would prefer - if we have to keep one suit on - I would prefer to have me keep my suit on and let Jim the way he is.

115:10:06 CC Roger. We copy, Gemini VII. We will discuss it more with you at a later pass.

115:10:13 C Roger. I also would like to go to two-suit compressors here if this keeps going up.

CONFIDENTIAL

CONFIDENTIAL

325

115:10:22 CC Roger. We'll look in - we are looking into that and will concur with you on that at a later point.

115:10:28 C Thank you.

115:10:41 CC Gemini VII, I'd like to complete the flight plan update. We almost finished it at Carnarvon. Could you tell me how far you got?

115:10:57 C Stand by, Houston.

115:11:08 C Our last flight plan update was D-4/D-7: 120:08:00; Sequence 423.

115:11:17 CC Roger. Did you get the note: do even if cloudy?

115:11:21 C Roger. Got that.

115:11:23 CC Okay. Then we have a question. Have you had any success with doing the D-4/D-7, Sequence 417, which was lightning, and 425 cumulous clouds as measurements of opportunity?

115:11:40 C We have not yet been successful along those lines.

115:11:44 CC You have not gotten either one of them?

115:11:46 C That's affirmative. We're standing by for a good opportunity.

115:11:50 CC Roger, VII.

115:17:55 P Could you - - ?

CANARY ISLANDS

115:19:44 CC Gemini VII, Canary.

115:19:46 C Go ahead, Canary. VII.

115:19:48 CC Okay. What we want you to do is turn off Pump B in the primary loop and turn on Pump A in the primary loop after you get done with the survey. That's the cabin temperature survey. That's 115:40:00.

CONFIDENTIAL

CONFIDENTIAL

115:20:10 C Roger. Understand. Turn off Pump B, turn on Pump A primary loop after cabin survey.

115:20:18 CC Roger. That's affirmative, and you might take a look at your H₂ pressure. Pump it up a little bit.

115:20:31 C Canary, this is Gemini VII. Our cab - our suit temperature's gone down a little bit now since we turned the cabin cooler - Cabin Heat control back to WARM. I prefer not to go to Pump A on that big loop. I don't want to close the fuel cells. I would prefer to go to Compressor 1 and 2 if they don't mind, for a while, just to get it cool, and then we'll go back to 1.

115:20:57 CC Wait one.

115:20:58 C In the meantime, I'll run it the way I am until we get too hot.

115:21:14 CC Flight says he concurs with you a little bit, but turning on Primary Pump A is going to bring the amp up and it'll help the fuel cell rather than hurt it.

115:21:31 C Okay. When we get too warm, we'll turn on Pump A and turn off Pump B. I'm not worried about that. I'm worried about the coolant - change in the coolant flow through the fuel cell.

115:21:41 C I don't want to put a load on it.

115:21:45 CC That's no problem either.

115:21:47 C Record the ...

115:21:48 C Okay.

115:21:53 P S-6 completed in about 115:17 to :18. Three pictures were taken of the Canaries, showing the cloud formations on the islands. The Magazine M of S0217, 44, 45 and 46, I believe, were the exposures.

115:22:09 P At 115, one note occurring, pertaining to cabin temperature: the sunlight, when it shines directly through the windows, produces an awful lot of heat in the cockpit. I'd say the temperature rises maybe 10 to 15 degrees right by the window. This is a big

CONFIDENTIAL

CONFIDENTIAL

327

source in heat - of heating the cockpit, and by keeping one of the spacecraft window areas from the ... or to, the filters up the deflectors, you could cut down the heat of the cockpit by quite a bit.

115:23:21 CC VII, Canary.

115:23:22 C Go ahead.

115:23:23 CC Okay. We're going to lose you in a little bit. Did you talk to me about that fuel cell hydrogen pressure?

115:23:26 C Roger. Sure did.

115:23:27 CC Okay. Very good.

115:23:28 C The heater's on. Thank you very much.

115:23:30 CC Okay.

115:23:35 C It's a pretty good bottle, isn't it?

115:23:37 CC Yes.

115:23:53 CC VII, Canary. We have HF on again for you.

KANO

115:29:15 CC Gemini VII, Gemini VII, Houston CAP COM. Do you read?

115:29:19 C Go ahead, Houston. Loud and clear.

115:29:21 CC Roger. We've been looking over the cooling situation and we would recommend that you go to Pump A on the primary loop in place of Pump B, and go back to the one-suit band.

115:29:37 C Roger. If we get too warm, we'll do that.

115:29:41 CC We - it looks to us like that would do more good for you.

CONFIDENTIAL

CONFIDENTIAL

115:29:45 C Okay, fine.
115:29:47 CC And for less amp.
115:29:48 C I realize the amps. Listen, can we give Jimmie our ... status report over Carnarvon this time?
115:29:58 CC Okay, that'd be fine.
115:30:01 C ... we're going to be busy around ...
115:30:09 CC We've got a lot of static here, and I'm not reading you now.

CARNARVON

115:50:42 CC Gemini VII, Carnarvon.
115:50:44 C Go ahead, Carnarvon. Stand by for a Pilot-crew status report.
115:50:49 CC Roger. Also, after the crew status report we'd like to get your status on your heating problem. I'll turn you over to the Surgeon at this time.
115:50:58 C Roger.
115:51:07 C Blood pressure cuff coming up.
115:51:20 C How's it look, Surgeon?
115:51:26 CC The cuff is full-scale.
115:51:28 CC Okay, good.
115:51:31 C A little in-flight repair.
115:52:11 CC Gemini VII, we have a valid blood pressure. Give us a Mark before you start your exercises, please.
115:52:19 C MARK.
115:52:53 CC Gemini VII, your cuff is full-scale.
115:53:52 CC Surgeon ... water intake. We'd like to discuss this with you briefly. You copy, Gemini VII?

CONFIDENTIAL

CONFIDENTIAL

329

115:54:01 C Go ahead.

115:54:03 CC We would like to ask first of all why - how is it that Jim is not taking in quite as much fluid as we think he ought to and wonder why. Does he have - first of all, is he thirsty?

115:54:18 P This is Lovell. Number one is I'm out of the suit and Frank's in it. I'm not sweating as much as he is.

115:54:26 CC Well, that's one of the problems. First of all, are you thirsty? Do you - is the reason you're not drinking because you're just not thirsty?

115:54:35 P Just not thirsty. I think that's ...

115:54:38 CC Very well. Is Frank sweating? Frankly, just a - overtly sweating?

115:54:45 P He said not much.

115:54:47 CC Does - do you notice in looking at him that his skin is moist?

115:54:51 P I'll let him answer that.

115:54:53 C During the 10 days before when we ran the 1070 experiment, I drank almost twice as much water as Jim did, and I think it is probably natural for me to drink a little more. I'm pretty comfortable now. Our cabin temperature's gone down, my suit temperature's gone down, and we both feel we are in pretty good shape.

115:55:09 CC Understand. Have you been sweating at all, Frank?

115:55:19 CC Gemini VII, this is Carnarvon. Did you copy?

115:55:22 C About sweating? I'd say, yes I'm perspiring a little.

115:55:26 CC Very well. Thank you.

115:55:27 C Roger

115:55:28 CC Then, I think that all we would pass then is - Jim, can I get you to take in a little more water?

CONFIDENTIAL

CONFIDENTIAL

115:55:35 C Very well, we will start drinking.

115:55:39 CC Very well, this is Carnarvon ... out.

115:55:41 C I've got the gun out now.

115:55:50 C Carnarvon, Gemini VII.

115:55:52 CC Go ahead, Gemini VII. Carnarvon.

115:55:54 C You probably noticed that our suit temperature's going down now. Our cabin temperature's also going down since we've turned the Cabin Heat exchanger to the ON position. We feel that when in doubt, do nothing. We've done nothing and it seems to be clearing up.

115:56:10 CC Roger, Gemini VII.

115:56:13 C And if we get hot, we'll take Flight's advice and turn on Pump A and turn off Pump B on the primary loop.

115:56:18 CC Roger.

115:56:24 C If we're going to stay one suit on and one suit off, we'd like to stay the way we are until Tom and Wally come up, and Jim'll get back in his suit. I prefer not to switch out and have him get back in. Let's go the way we are if we have to stay with one suit on.

115:56:37 CC Roger. We'll relay this on to Flight.

115:56:40 C Thank you.

115:56:45 C Wonder if we're all going to see you all in the daylight.

115:56:48 CC What say, Gemini VII?

115:56:50 C I wonder if we're going to see you in the daylight.

115:56:52 CC Yes, we should hear, maybe in a couple more days.

115:56:55 CC Flight reported that they wanted to talk to you some more on this suit problem, over the next pass.

CONFIDENTIAL

CONFIDENTIAL

331

115:57:01 C Okay.

CARNARVON

115:58:34 CC Gemini VII, Carnarvon.

115:58:35 C Go ahead.

115:58:36 CC Do you have both the compressors on at this time?

115:58:39 C Negative, negative. We will not do that. We were told not to do that.

115:58:43 CC Roger. Understand.

115:58:45 C We've done nothing. That's Yardley's philosophy. When in doubt, do nothing.

115:58:48 CC Roger.

115:58:56 CC Flight Director says that's Kraft's philosophy.

115:58:59 C Okay, it's also Borman's.

115:59:01 CC Roger.

116:02:26 P Concerning some airglow phenomena, as requested by the Academy of Sciences: we are now looking out at the nighttime, practically a full moon. It is very easy to spot the earth below and the white clouds. We can see definitely the airglow, it is consistent throughout our entire range that we can see, and through prior observations have noted that there is no patchiness or inconsistency about the airglow layer. It's one band and we'll get the - one visual band that we can see when we get the measurement a little bit later of a greenish gray color. Would you agree, Frank?

116:03:11 C I agree.

116:03:13 P It's not a definite green, it's - -

116:03:15 C - - there's a star going right through it now, very dim star going right through it ...

CONFIDENTIAL

CONFIDENTIAL

116:03:21 P Could you measure the time?

116:03:23 C Time was - stand by.

116:03:26 P Well, let's see, maybe we can get a colored star here.

116:03:31 C I just got ... star.

116:03:33 P 116:03:34. Star passed - dim star passed through the airglow and did not ...

116:03:38 C I don't see how the airglow could be used for horizon measurements.

116:03:40 P No, definitely not. The bright band, I say "bright", just as relatively speaking for the rest of the airglow.

116:03:47 C Now look, there's a dim star coming up right out there now, Jim.

116:03:49 P Yes.

116:03:52 C See it? Very dim, coming right through the airglow, following it all the way through, not occulted at all. Right through the airglow.

116:04:03 P You can see through the bright bands, which is - -

116:04:05 C Right through the bright bands. Right. And it's a very dim star.

116:04:07 P I'm sure you can't use the airglow, the top airglow layer that we see as a - as a navigation mark, since it is too fuzzy. A much better one is the horizon of the earth, which is probably a bright airglow, and we just don't notice the difference of that and the end of the clouds. That is probably much better - horizon - to use than anything else.

116:04:38 C I'm - I'm struck with the clearness of the clouds in this full moon.

116:04:41 P Yes. A full moon makes a big difference.

116:04:44 C You might think you're just in daytime - -

CONFIDENTIAL

CONFIDENTIAL

333

116:04:47 P Right.

116:04:48 P And now I can see just - just barely coming up - now the sun, the first glimmer here. It starts out with a light blue. The clouds are sort of a grayish color -

116:04:57 C ..., Jim.

116:04:59 P I'll take a check here as we go along if the space-craft manages to stay just the way it is.

116:05:07 C Want to pulse it over that way a little bit? This might be worthwhile.

116:05:09 P Okay.

116:05:10 C Give you some power.

116:05:11 P Okay. Shine the light over here.

116:05:16 C Okay.

116:05:21 P Pulse of the spacecraft ...

116:05:23 C ...

116:05:28 P Okay. We pulsed it once. All right?

116:05:35 P Okay. We're looking at the sunrise. It starts out as sort of a blue - a light blue - as distinguished from the grayness of the blue-mist clouds.

116:05:47 C Now you notice the stars are starting to go right through the airglow again. Can you pulse it down a little?

116:05:55 P Yes. Coming now, coming down now.

116:05:59 P Right beneath this blue there is a thin band of orangish red.

116:06:04 C Right.

116:06:06 P And between the blue and the orangish red there is a dark thin band. See that, Frank?

CONFIDENTIAL

CONFIDENTIAL

116:06:11 C Yes, and you notice now this light blue layer of the sunrise is still below the airglow layer?

116:06:14 P Oh, yes.

116:06:15 C You see that?

116:06:16 P Yes.

116:06:19 C Yes, the - almost it looks like two airglows, if we didn't know it was the sun coming up.

116:06:21 P That's right. There's a dark band through - between the - -

116:06:23 P ... dark light coming up there now. It is!

116:06:26 P You got it?

116:06:28 C Yes, I can see it. Right now you can see a shaft of light coming up, dim light, looks almost like the Milky Way, coming up.

116:06:35 P Whereabout?

116:06:38 C Right straight ahead. Right up above where the sun is coming up, tilted to the right slightly.

116:06:43 P ... light ...

116:06:44 C Yes.

116:06:47 P Yes. That it?

116:06:48 C See it?

116:06:49 P Yes, but our eyes are well ...

116:06:50 C Very dim.

116:06:55 P Yes. Pulse it back a little.

116:06:57 C Now we can still see the whole sphere where the sunrise is occurring and it's a brilliant blue, an electric blue.

116:06:59 P Yes.

CONFIDENTIAL

CONFIDENTIAL

335

116:07:00 P And then beneath it, where the sun is probably going to come up, the band of reddish orange is now increased in diameter. Do you agree?

116:07:09 C I agree, increasing and you see the - and you can also now pick out clouds on the horizon.

116:07:14 P Yes.

116:07:16 P And the blue band now is sort of washed out to a little bit - -

116:07:19 C Toward the top?

116:07:21 P Yes. Toward the top.

116:07:23 P It's still beneath what I say would be the thickness of the airglow, would you say?

116:07:24 C Oh yes, it is. It certainly is. As a matter of fact, from horizon to horizon you can see the sunrise.

116:07:40 C Yes.

116:07:45 C Now as the sun comes up the airglow seems to vanish in that area.

116:07:48 P Yes, just about now the airglow is just about vanished, but away from the line of light coming up, the airglow is ...

116:07:57 C ... see it.

116:07:59 P Right.

116:08:02 C It's obscured by the brightness of the sun - the sunlight. We still can't see the middle of the sun.

116:08:07 C Now the reds close to the earth are getting more vivid, giving way to yellow. Right, Jim?

116:08:11 P Yes.

116:08:14 C And you can see bumps of an occasional cloud in there. You notice it's not a uniform horizon any more.

CONFIDENTIAL

CONFIDENTIAL

116:08:19 P No. No, there's cloudiness breaking up in there someplace.

116:08:21 C And there is some green coming in. Either end of the little wedge. You see the green coming in at the edges?

116:08:28 P Yes. Yes, there is! There's a little green at the bottom there.

116:08:33 C Right.

116:08:35 P Right. And now there's a deep red, a deep red over on one side. How far over does it go on your side, Frank?

116:08:43 C You know, now it's patchy. We have it because the clouds are breaking it up and obscuring it.

116:08:47 P Yes. You think that's where the sun's going to come in?

116:08:52 C I hope it is.

116:09:14 C Now you notice there's a bright star rising. I can't identify that star. See it off to the left there?

116:09:19 P Don't see it just yet.

116:09:21 P Definitely see the clouds now.

116:09:22 C Yes.

116:09:23 C This wedge is getting bigger and bigger. Now you get almost a 3-D effect, like a cave - like looking into a cave where the mouth is red, the top is yellow and then the exterior part of it is blue.

116:09:33 P Yes.

116:09:35 P There's still a definite band, though, above the yellow and red that is, that separates the blue from the reddish.

116:09:47 C Yes, it is; sort of a mustard color.

CONFIDENTIAL

~~CONFIDENTIAL~~

337

116:09:50 P Yes, that's where your greens come from too, I think.

116:09:55 C Yes.

116:09:59 C Now looking at the horizon you see, very vividly, clouds.

116:10:04 C Not a smooth horizon - it would be very difficult to make a reading on that horizon, too.

116:10:07 P Yes. That's right. As a matter of fact, the horizon which we were making readings on at night is probably that lower airglow air above the earth.

116:10:21 C Now you notice the blue is getting even brighter. You can really see daylight out there now; a thin-shafted blue sky.

116:10:28 P As a matter of fact, Frank, I think there's more yellow over on your side than there is on mine. I bet the sun's going to come up over there.

116:10:38 P What do you say the length of this whole light is now - the left part - what degree?

116:10:45 C Almost 180 degrees now. I can't see the edge of it over here on my side.

116:10:47 P You can't see the edge of it?

116:10:50 C Just barely.

116:10:51 P Okay. I can see the edge of it. I think if we point towards the middle, we'll be able to - she's blotting out quite rapidly now.

116:10:59 P Yes. Now the blue area has increased. Toward the top it's lightish purple; it goes into a very light purple to blue. There's that band area that was orange and red. ... cloud forms.

116:11:33 C Fantastic sight! Isn't it?

116:11:35 P Yes.

116:11:36 P Notice the blue.

~~CONFIDENTIAL~~

1

2

CONFIDENTIAL

CONFIDENTIAL