

MAC Control  
No. C-115883

# MICROFILMED

MAR 17 1988

(Title Unclassified)

GEMINI X VOICE COMMUNICATIONS

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

"This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U. S. C. section 793 & 794. The transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law."

COPY #1

GROUP - 4  
DOWNGRADED AT 3 YEAR INTERVALS,  
DECLASSIFIED AFTER 12 YEARS

STATION- <u>MAC</u>	GEMINI 10
REVS- <u>LCH- TREENTY</u>	C. M. D. F.
TYPE- <u>VC</u>	ACCESSION NO.
ORIGINAL- <input checked="" type="checkbox"/> -COPY---	30-1140

# CONFIDENTIAL

1

CC MARK.

CC T minus 1 minute and counting.

CC SAM on TC station. Stage 2 fuel valves coming open in 5 seconds.

CC Minus 30 seconds. Adios!

CC Minus 20.

CC 10, 9, 8, 7, 6, 5, 4, 3, 2, 1,

CC IGNITION.

C 1, 2, 3.

00:00:00 CC LIFT-OFF.

00:00:03 C I got it.

00:00:06 C There's no doubt about it!

00:00:07 P No doubt about lift-off!

00:00:08 C Yes.

00:00:09 P And we have a fuel cell DELTA-P which is normal.

00:00:11 C We're at 4-Gamma fine as - -

00:00:12 C Roll Program has started.

00:00:13 CC Roger. On Roll.

00:00:22 C Roll Program complete.

00:00:24 CC Roger. Complete.

00:00:25 C Pitch Program has started.

00:00:26 CC Okay.

00:00:28 P Sun in the window. Ah, beautiful!

00:00:31 CC Lift-off 22:20:26 - -

# CONFIDENTIAL

## CONFIDENTIAL

00:00:33 P And here come the clouds.

00:00:34 CC Roger. Zero.

00:00:35 CC - - lift-off 22:20:26.

00:00:40 P Nice ride.

00:00:50 CC 50 seconds.

00:00:52 P 50 seconds. How's the cabin pressure?

00:00:54 P Yes.

00:00:55 C All are zero.

00:00:56 C Forward to delay.

00:00:57 CC Roger.

00:00:59 P Roger. Cabin seal 5.9.

00:01:00 C 5.9. Roger.

00:01:09 P There, she's getting a little smoother. Must be supersonic there, John.

00:01:12 C Yes. That's it.

00:01:18 P And into blue sky.

00:01:19 C Look at that sky! Looks really great!

00:01:25 P Picking up a little g. Right?

00:01:26 C Yes.

00:01:27 P Real good.

00:01:32 C 1 plus 30.

00:01:40 P 1 plus 40.

00:01:41 C Roger. Mode 2.

00:01:42 CC Roger.

CONFIDENTIAL

# CONFIDENTIAL

3

00:01:47 C Update received.

00:01:48 CC Roger. Update.

00:01:49 P Good update.

00:02:08 P How many g's are we pulling?

00:02:09 CC Roger. Roger, Gemini X. You're GO for Staging.

00:02:11 C Roger. Gemini X is GO for Staging.

00:02:13 CC Roger.

00:02:23 C 02:32.

00:02:26 P Yes.

00:02:28 C Update received.

00:02:30 P Roger on update.

00:02:34 P A nice little flight!

00:02:35 CC ...

00:02:36 C Good BECO. Good BECO.

00:02:38 CC Roger.

00:02:39 P Roger. Got a bright flash over the nose, just instantaneously.

00:02:45 CC Guidance looks good from here.

00:02:46 C Yes. Looks good from here. Good gravy!

00:02:50 P Okay. Guidance Initiate, John, and the - -

00:02:52 CC Gemini X, we will not update your data these - -

00:02:56 P It's starting to come back in.

00:02:58 P Okay. My guidance looks good, John.

00:03:02 C Roger. The guidance looks good.

# CONFIDENTIAL

## CONFIDENTIAL

00:03:04 CC Roger.

00:03:14 C I'll be! Here comes the world! Isn't that beautiful!

00:03:21 P Gosh darn, that really is!

00:03:26 P I promised no swearing, didn't I?

00:03:28 CC Everything looks good from here.

00:03:30 C Can't hear you. ... Yes, it's beautiful here.

00:03:31 P Yes. It looks beautiful here.

00:03:33 P It's right on the line, too.

00:03:34 CC Yes. You're right on the line there.

00:03:51 C That's affirmative, C.C.

00:03:56 C We're showing slow buildup. It's okay now. Looks good.

00:04:17 CC Gemini X, Houston CAP COM. You're GO from here.

00:04:18 C Gemini X is GO.

00:04:21 CC Roger. Looks mighty pretty!

00:04:23 C Oh, my! Look at that ... isn't that something?

00:04:26 P It really is.

00:04:28 C That makes it worth it, doesn't it, Babe?

00:04:29 P Boy, that is incredible! Look at that!

00:04:33 P Say again, John.

00:04:35 C Put your head back in that cockpit.

00:04:37 C & P (Laughter)

00:04:38 P Okay.

00:04:41 P Everything looks good over in this side of the

CONFIDENTIAL

# CONFIDENTIAL

5

cockpit.

00:04:43 C Same here.

00:04:45 P Apparently, these good gages are saying what they should say.

00:04:50 P What's our g now?

00:04:52 CC It's a - 3.

00:04:54 P 3! Feels more like - -

00:04:55 C This is going to start building pretty good here in about 5 minutes.

00:04:57 P Yes, I know that. I just forgot what it was like.

00:05:01 CC Everything still looks good here.

00:05:09 CC Stand by for V/V<sub>R</sub> .8.

00:05:11 C Roger. We're at V/V<sub>R</sub> .8.

00:05:14 CC MARK. .8.

00:05:16 C Roger.

00:05:21 C Okay. Number 1; Abort Handle to ABORT.

00:05:31 P Read .8, didn't you?

00:05:33 C Yes.

00:05:34 C Yes. We got it.

00:05:35 CC Okay.

00:05:43 C SECO! Good SECO!

00:05:46 CC Roger.

00:05:54 P And look at all those white things going by.

00:05:56 C Yes. Whee! Wish we had a camera for that.

00:06:02 C See those bumps? See those bumps?

# CONFIDENTIAL

## CONFIDENTIAL

00:06:03 CC Gemini X, you're GO. And GO for IVAR. Looks good.

00:06:06 C Roger.

00:06:11 C Don't forget to separate now.

00:06:14 P There she went. 27 underspeed.

00:06:18 C This is Gemini X. Still looking good.

00:06:22 CC Very good.

00:06:26 C Address 95 reads 27 underspeed.

00:06:33 C Did you get that, Houston?

00:06:36 C We're climbing now. It's 26 forward. All on the forward window.

00:06:39 CC Okay. That looks good.

00:06:41 P Okay. When you burn Attitude, John, give me a Mark.

00:06:45 C Okay.

00:06:46 P I'll read you numbers.

00:06:47 C 25 forward.

00:06:49 P 25?

00:06:50 C Yes.

00:06:52 P Now it's 2 right.

00:06:53 C That's correct.

00:07:00 CC All personnel. We're going to debrief in the Ready Room.

00:07:04 C & P (Laughter)

00:07:05 C Hope they have a good debriefing Ready Room.

00:07:06 P Yes. Sorry we're going to miss that debriefing down there.

CONFIDENTIAL

# CONFIDENTIAL

7

00:07:10 C Yes. Well, look at this. Isn't this beautiful?

00:07:13 P Yes.

00:07:14 CC Yes. We'll stop this and go debrief.

00:07:23 C Okay. We're reading 1 right. Zero right and 1 aft. We're going to PRELAUNCH.

00:07:26 CC Roger.

00:07:27 C 1 right and 1 aft. Computer to PRELAUNCH.

00:07:42 P 07:42 we're reading and a - -

00:07:50 P Okay, John. 80's reading out.

00:07:52 C Okay.

00:07:54 P 80 is minus 9/10ths. Do you want to do anything about that? 81 is reading out plus 9/10ths.

00:08:10 C Okay. What's the Address 82 reading, do you know?

00:08:12 P Add 82 - not yet. I haven't done any of that stuff yet. I'm just flipping through the check list. 82 is reading out zero.

00:08:17 CC Gemini X, this is Houston CAP COM. Your burn looks good from here.

00:08:20 C ...

00:08:21 CC The 1-Alpha is nominal. Over.

00:08:22 P 72 is 25742. And 94 reads out 7, John.

00:08:28 CC Gemini X, Houston.

00:08:32 C Okay.

00:08:33 P That's a 7.

00:08:34 CC Roger. We're not reading you, but your 1-Alpha is nominal, if you're reading us.

00:08:35 C Okay.

# CONFIDENTIAL

## CONFIDENTIAL

00:09:16 C Okay. The D-Ring is stowed.

00:09:18 P Okay.

00:09:26 C Booster-Insert, SAFE; Retrorockets 1, 2, 3 and 4.

00:09:30 P Maneuver Controller, OFF.

00:09:33 C Roger.

00:09:37 P Maneuver Controller, STOW.

00:09:52 C Sequence Light test.

00:10:02 P I tell you this is great.

00:10:04 C Okay. Sequence Light test on ...

00:10:24 CC Houston standing by.

00:10:28 C Here goes my window cover - and it went!

00:10:33 P Okay.

00:10:49 C Okay. We're doing this.

00:10:59 P Okay. Sequence Light test now is stowed.

00:11:01 C Are you loading Module 6? Load 6, do you? Did you load Module 6? Is 6 being loaded? Mike, has 6 gone in?

00:11:23 C Did you load 6, Mike? Okay?

00:11:30 CC How are you reading us now, Gemini X?

00:11:32 C ...

00:11:35 C Are you on Reentry on the computer?

00:11:49 C Houston, this is Gemini. Do you read? Over.

00:12:09 C ... what do you hear?

00:12:21 C Module 6 loaded. It already went, too.

00:13:59 P Okay, Babe.

CONFIDENTIAL

# CONFIDENTIAL

9

00:14:12 C Okay. Look at all these things floating around in here.

00:14:16 P I noticed.

00:14:23 P Yes. I do.

00:14:25 C Mike, isn't it great? Isn't it great?

00:14:37 C I thought I saw Number 1 out there, but it's dark.

00:14:45 C Turn off another light, I guess, is what we'd better do.

00:41:51 P Okay.

00:15:01 P Wow. I thought they would turn them off but they didn't.

00:15:04 C Is that right, the suit fan did?

00:15:21 C Oh man, this feels great!

00:15:40 C Feel thrusters firing.

00:15:57 C Oh boy!

00:17:24 C Okay. No sweat.

00:17:35 C If ... and everything is correct, remember that water boiler.

00:18:13 P Okay. I'm back on.

00:18:15 C Okay.

00:18:18 P All right. Now, as near as I can figure, report check list - complete.

00:18:23 P You can report that check list complete and we got one tape position where it went 20.

00:18:28 C Yes.

00:18:29 P ATM is going to STAND BY and to OFF.

00:18:33 P All right. I'm ready to start on the Orbit

# CONFIDENTIAL

## CONFIDENTIAL

Determination, as soon as I unstow this sextant.

00:18:38 C Okay. We're at 18:38; we're way ahead.

00:18:43 P Okay. I think everything is all right. I'll take a quick check of the electricals if we're ahead. I already checked the batteries and turned them off.

00:18:57 C ...

00:18:58 P These gosh darn circuit breakers are ... You know there's two of them extra now, all right?

00:19:04 P I turned that other one on - that Evaporator Heater, I turned that on.

00:19:06 C Okay.

00:19:08 P It wasn't on the check list any old way.

00:19:09 C Okay. Now, Sequence Light test.

00:19:23 P Hello, sextant!

00:19:24 P I hope you are a good one!

00:19:28 C Okay.

00:19:39 P Okay. John, how about - can I do that for flight for awhile?

00:19:41 C Yes.

00:19:45 P I see stars. I can see the horizon poorly.

00:19:52 P Yes.

00:19:53 P You can leave me. I'm going to have to turn some light on for a second and get this sextant set up.

00:19:55 C That doesn't help any either.

00:20:09 C 75 and 10-B.

00:20:13 P Okay. I'm going to be fooling with this sextant for awhile.

CONFIDENTIAL

# CONFIDENTIAL

11

00:20:14 C Okay.

00:20:22 CC Gemini X, Houston standing by.

00:20:24 C Roger. First Check List complete. This is Gemini X. Over.

00:20:29 CC Okay.

00:20:52 P Can you get me a little light up here?

00:20:57 C Something down there looks like the horizon, Babe.

00:21:05 C Okay. Now - when I get - -

00:21:09 P It's light downthere! The sun is shining.

00:21:11 C Okay. Now this ... right there.

00:21:13 P I got it.

00:21:35 C Have you got all the stuff in there?

00:21:37 P No, I haven't. I'm going to do that right now. I wanted to get these things down as best as I can.

00:21:47 C Okay.

00:21:49 P Verify T/M in STAND BY OFF; Computer in ORBIT DETERMINATION. Computer is ORBIT DETERMINATION. I'm entering 99: 90004 - Enter. Start Comp. J-92 for shuteye is 07429 - Enter. 93: 05635 - Enter. I'll put in another 90. 90: 00200 - Enter. Okay - 93. All right. Where's my print ... ?

00:23:04 C You're going too far away from it.

00:23:08 P Okay. Yaw around is right.

00:23:09 C Right. Okay.

00:23:13 P And, John, I hate to be pessimistic, but I think this is going to be sort of bad.

00:23:18 C Sorry. One time I didn't - -

00:23:40 P Well, do the best you can.

# CONFIDENTIAL

## CONFIDENTIAL

00:23:42 P That's all you can do.

00:23:47 P Okay. Ready?

00:23:54 C Yes.

00:24:06 CC Gemini X, Houston. 1-4 reentry data is good.

00:24:13 C Gemini X. Go.

00:24:21 P Real horizon isn't good enough, John. I'm going to have to stop the airglow, Babe. Doesn't it look that way to you?

00:24:25 C I can't tell. I can't focus out there very well.

00:24:33 P We'll, let's try it.

00:24:47 P Are you ready?

00:24:49 C Yes.

00:24:50 P Mark it.

00:24:51 C Oh, darn, I missed it! With all the lights turned out, I had my hands off the button.

00:25:09 P Ready?

00:25:10 C Yes.

00:25:11 P Mark it.

00:25:12 C Okay. 445.

00:25:22 P 445. Enter. Start Comp. Readout: minus 3.62 - reject that. 88: 99999 - Enter.

00:25:49 C Gosh darn water boiler is really driving me out of my mind. Lost them again for you.

00:26:06 P Got everything in sight, Babe. Doing all right.

00:26:09 C I'll get it back.

00:26:11 P Roger. Yaw around to the right. All right, John, now I - you can tell from that residual, that's no

CONFIDENTIAL

# CONFIDENTIAL

13

good. You can stop the airglow. How are we doing on time, by the way?

00:26:28 C 26 minutes.

00:26:29 P We have to quit at when? 33?

00:26:30 C 33.

00:26:32 P Do you want me to try to use the natural horizon here?

00:26:34 C Whatever you want to. I can't see a darn thing out here.

00:26:36 P All right. I'll give that a try this time to get that residual set. Okay?

00:26:59 P Now it's no good, up here ...

00:27:01 C Now I'll try it.

00:27:05 P Okay? Ready? Mark it.

00:27:12 P 8.75.

00:27:14 C That sounds a little better.

00:27:16 P Yes. It's better as far as the math goes. I'm not sure whether it's repeatable though. Enter. Start Comp. Readout: minus .37. Okay?

00:27:30 C Yes.

00:27:31 P 88: 99999 - Enter. All right, I'll try doing that again.

00:27:46 P Okay. Give me my old friend, shuteye, back.

00:28:01 P Ready?

00:28:02 C Yes.

00:28:06 P Mark it.

00:28:09 P 909.

# CONFIDENTIAL

## CONFIDENTIAL

00:28:11 C I should clear it.

00:28:16 P 83: 00909 - Enter. Start Comp. Readout: residual is minus .59. 88: 99999 - Enter. Okay.

00:28:54 C The water boiler yaw is what's getting to me. I'm going to stop and calculate. I'm sorry.

00:28:59 P That's all right.

00:29:18 P Ready?

00:29:21 C Yes.

00:29:22 P Mark it.

00:29:24 C Okay. 985.

00:29:25 P 985?

00:29:27 C Yes. Check that.

00:29:28 P 985. Right.

00:29:29 C Okay.

00:29:35 P Enter.

00:29:36 C Okay.

00:29:37 P Start Comp. Don't let me go overtime, John; check the time. Readout: all right; it says minus .56.

00:29:44 C That's pretty good.

00:29:47 P Yes. I'll tell you though, it's ill-defined. It's very poorly defined. It's just like guessing, darn it. I mean, it's not like "Oh ho; there's that line!" It's sort of like I'm getting close to where that line should be.

00:30:00 C Okay. How much?

00:30:08 P Good. Your ... this.

00:30:09 C Yes.

CONFIDENTIAL

# CONFIDENTIAL

15

00:30:20 F Ready?

00:30:21 C Yes.

00:30:22 P Mark it.

00:30:23 C 30.23.

00:30:26 P 1061.

00:30:33 C Okay.

00:30:34 P 1061 - Entered. Isn't this about the last one?

00:30:36 C Yes, it's 35 now.

00:30:39 P Okay. It's 35.

00:30:40 C Got time for another one?

00:30:41 P All right. I'll do one more now. Readout: residual is minus .44.

00:30:52 C 30's off the peg. Oh, gosh darn!

00:31:06 P Okay. Young, you're on to the right a bit, Babe.

00:31:09 C Yes. I'm sorry.

00:31:10 P That's all right.

00:31:13 C We'll lose valuable time doing this.

00:31:16 P No. That's all right. I have to do this. Okay. Ready?

00:31:31 C Yes.

00:31:32 P Mark it.

00:31:34 C Okay. 31.

00:31:35 P 1157.

00:31:51 P Minus .20. I'm sorry about that one. I'd give that last one less weight. For some reason that seems to be not quite as good a point.

# CONFIDENTIAL

## CONFIDENTIAL

00:31:58 C Okay. That's about all.

00:32:00 P Yes.

00:32:06 C Roger. Make it 345002 - -

00:32:17 P Wait a minute! Wait a minute! I've got to put in 88 here. Just one second before I forget that, or we're all wiped out. Okay, and it's entered.

00:32:25 C Zero.

00:32:28 P Okay.

00:32:29 C 00275.

00:32:33 F 00275. Okay?

00:32:37 C Yes.

00:32:38 P Ascension entered, and now we go to Systems Check. I'll check the systems while you go look for Hamal. Okay?

00:32:45 C Okay.

00:32:46 P The ideal time on Hamal is 35:30. In other words, - -

00:32:52 C We've got to - -

00:32:53 P - - we're running fairly tight on time. Mind if I turn FC-1 ON?

00:32:57 C I wouldn't turn that on; I don't need it here anyway.

00:32:58 P Okay. Fine.

00:32:59 P You'll find Hamal. It's on the lower left area.

00:33:04 C Yes.

00:33:05 P See it?

00:33:09 C Oh, heck!

00:33:13 P 90: 55964.

CONFIDENTIAL

# CONFIDENTIAL

17

00:33:19 C I can't see anything with this blind eye.

00:33:22 P How about that? Is that better?

00:33:23 C Yes, that's better.

00:33:30 P Okay. 09596 for Hamal.

00:33:32 C Okay. There's Hamal. Got the ... .

00:33:33 P Good head.

00:33:34 C See?

00:33:35 P I'm not looking. I've got my head in the books here. 93 for Hamal - 02330 - he's entered.

00:34:11 P Okay. Hamal is in the lower left window area. Do you see it?

## TANANARIVE

00:34:16 P I've got it! I've got you, Hamal!

00:34:28 C Houston, this is Gemini X. Over.

00:34:34 CC Gemini X, Houston standing by.

00:34:37 C Roger. We're still going along. First Check List complete, and everything is doing all right now.

00:34:47 CC Okay.

00:34:59 P Can't make this darn thing split, John.

00:35:01 C You can't. ... past a point you can't.

00:35:09 P No, it's not that. I don't know what it is.

00:35:11 C Move your arm around a bit.

00:35:29 P See if you can make it split. You can't even do any of that.

00:35:34 C Oh, gosh, what a mess!

# CONFIDENTIAL

## CONFIDENTIAL

00:35:40 P Got the filters out of the way? It's not that. See the star? I can see the star clearly. I've got Hamal. I've got it on zero. Now what could be wrong with this thing?

00:36:11 C I don't know.

00:36:21 P Look, I see it clear as a bell and they won't split! The image will not split!

00:36:25 C Look to the right and to the left. I can always pitch down a little bit. Do you want me to pitch up to it a little?

00:36:32 P No, I can see it. On it. It's just that the image won't split!

00:36:39 P Here, hold this a second, will you?

00:36:40 C Okay. Want to try the other one?

00:36:43 P Don't have any choice.

00:36:51 C Try it on the other stars out there.

00:37:04 P Are you ready?

00:37:05 C Yes.

00:37:15 P Ready?

00:37:17 C Yes.

00:37:25 P Don't Mark it. It's awful. Notice it came off and nothing happened there. The light didn't respond. Do you reject the last one?

00:37:32 C Yes. I sure do.

00:37:42 P No. Since putting it in 11 - the light didn't come on.

00:37:45 P I thought maybe we could go through and do a whole sequence and see what happens. Reads out something ridiculous. Okay. 8267 is what it reads out, for the record. 88: 99999 - Enter.

CONFIDENTIAL

# CONFIDENTIAL

19

00:38:04 C When do we turn this light out?

00:38:05 P I don't know. Okay. Let's try it again.

00:38:13 C When does this light go out though?

00:38:16 P I don't know, John. Where is it now? I've lost Hamal. Okay. Got to yaw to the right and pitch up.

00:38:24 C Yes.

00:38:27 P John, I don't know what's wrong with this sextant. I'm sorry, but this thing - I cannot put the image through it. I look through it and - -

00:38:32 C Yes.

00:38:33 P - - there must be something wrong with this thing. I think if you can do it on one star you can do it on any star.

00:38:37 C How about taking a look at another star up there? Why isn't that darn light going out? What's the - you didn't hit it again, did you?

00:38:49 P No.

00:38:50 C Were you supposed to?

00:38:52 P No, I should be okay now. Right?

00:38:54 C That's the light that was supposed to be out.

00:38:55 P Well, push it and it may go out. Okay. Maneuver around and get me Hamal.

00:38:59 C We had already checked it.

00:39:00 P We checked that last time.

00:39:08 P Okay. Pitch up a little bit and let me get Hamal, will you?

00:39:12 C Okay.

00:39:15 P Sure is absurd!

# CONFIDENTIAL

## CONFIDENTIAL

00:39:16 P You've got to pitch up some. Okay? Pitch up and find me Hamal. We're splitting quick.

00:39:31 C Okay.

00:39:36 P Where is it? I've lost it!

00:39:40 C You did?

00:39:42 C It's right here to the right.

00:39:44 P Where?

00:39:47 C Right there.

00:39:48 P Okay.

00:39:49 C Got it?

00:39:50 P No. Just a second.

00:39:54 P Yes. I've got it. Okay. Now pitch me down so I can find that darn horizon. Okay?

00:39:59 C Okay.

00:40:16 C Okay. Dummy it. We've got to go to this next one. We're already behind.

00:40:20 P Wait a minute. Wait a minute. Stand by.

00:40:22 C Okay.

00:40:25 P Mark it!

00:40:26 C Okay.

00:40:27 P All right. That was a good one!

00:40:28 C Okay.

00:40:29 P 3267, 03267 - Enter. Start Comp. Readout. You might make a note where that's subject to Start Comp.

00:40:44 C Okay.

CONFIDENTIAL

# CONFIDENTIAL

21

00:40:45 P I read minus .02.

00:40:49 C Okay. Accept it.

00:40:51 P Okay. 88: 11111 - Enter.

00:41:01 C Okay. Now put in the jolly stuff!

00:41:04 P Do we have time to do the - another one?

00:41:05 C No.

00:41:06 P - - other one?

00:41:07 P Okay.

00:41:08 C We've got to Vega.

00:41:09 P Okay. Go ahead. 99 - go ahead. While you're doing that, I'll be doing this.

00:41:13 C Okay.

00:41:14 P 00006 - Enter it.

00:41:20 P 3935?

00:41:21 C Yes. 41 something.

00:41:24 P 90 - is there any way we can fool that?

00:41:27 C No, don't sweat it. Just put it in.

00:41:28 P 06270 - Enter. ... Okay. We can hit the Start Comp. Hit it again. It's back out.

00:41:56 C Did the light come on?

00:42:01 P Yes. 83: 00000 - Enter. 88. Okay. That's all - Enter.

00:42:25 P Okay. You can use Hamal or Vega. You can use either one you want. So tell me which one you want and I'll put through the numbers in 1.

00:42:30 C Okay. Let's use Vega.

# CONFIDENTIAL

## CONFIDENTIAL

00:42:32 P All right. Let's use Vega - 92: 34360 - Enter.  
93: 03875 - Enter.

00:43:11 C Hey! There's Vega!

00:43:13 P Yes. Just like that!

00:43:18 C Occasionally we have a good smooth ...

00:43:23 P Vega splits like a charm. Only trouble here, I can't find the ruddy horizon, if you can believe that. I tracked right through the horizon without seeing it, John. Maybe that's the problem. The horizon here looks different. I hope the voice is getting all this, because the horizon here looks different. Seems like the airglow is a thinner line and a better defined line and the airglow obscures the real horizon.

00:43:56 C Yes.

00:43:57 P Did you note that?

00:43:58 C I guess the voice tape is getting all this. I hope it is.

00:44:02 P Well, anyway, I can get Vega loud and clear and it's splitting and I'll do the best I can with that little horizon, but where that thing is, I don't know.

00:44:08 C Okay.

00:44:11 P All right. Stand by.

00:44:13 C Roger.

00:44:16 P Mark it.

00:44:17 C Okay.

00:44:18 P Okay. 36: 00536 - Enter. Start Comp. Readout: 83 reads minus 7676 - 73, correction.

00:44:43 C Okay. You'd better put in the - ... we got the right star.

00:44:49 P Sure doesn't. Got Altair? Hey, I got Altair!

CONFIDENTIAL

# CONFIDENTIAL

23

Let's try Altair.

00:44:54 C Let's try Altair.

00:44:55 P I rejected that Vega and I'm going to put 80, and 93. 90 - Gee, I'm going to have to turn the lights on. Light - 92 on Altair. Okay.

00:45:06 C Let's turn them on red and then I can see them out there.

00:45:08 P Okay. I'm sorry. 92 is 00194 - Enter.

00:45:20 C Was that Altair?

00:45:22 P Yes. That's Altair. 92: 00194; 93: 00878 - Enter.

00:45:35 C Okay.

00:45:36 P Okay. Now we'll do old Altair.

00:45:37 C Okay. All you have is a centerline here to turn these radiators to FLOW.

00:45:41 P Sure. Go right ahead.

00:45:42 C All right. I will do.

00:45:44 C Radiator to FLOW. I'm reading it normal.

00:45:52 P Okay.

00:45:53 C There's Altair.

00:45:54 P All right. I've lost it. ... Where is Altair?

00:45:57 C Okay. We'll put them out there.

00:46:00 P I've got the Milky Way out here something fierce.

00:46:04 C Is that Altair right there? It's practically on the horizon.

00:46:06 P Yes. That's old Altair. Whip her right around a little bit more here.

00:46:10 C Okay.

# CONFIDENTIAL

## CONFIDENTIAL

00:46:11 P I hope that's Altair. I saw him loud and clear a little while ago.

00:46:13 C That's he.

00:46:18 P Okay. Ready?

00:46:20 C Yes.

00:46:21 P Mark it. 497.

00:46:26 C Should be Altair.

00:46:27 P Now 497 - Enter. Start Comp. Readout: 83 reads minus .13. We'd better reject that.

00:46:42 C ...

00:46:43 P ... what I'm trying to say. 88 - -

00:46:46 C Ole!

00:46:47 P - - 02345.

00:46:52 C Minus .13. Right?

00:46:53 P Enter.

00:46:54 C Okay.

00:46:55 P Roger.

00:46:56 P All right. Now then, we're going in.

00:47:01 C Okay. Now put your C-Band Adapter to COMMAND and your C-Band Reentry - C-Band Reentry in COMMAND and C-Band Adapter to CONTINUOUS.

00:47:11 P Okay. That's done.

00:47:13 C Okay. Now we're just about to come up on Carnarvon.

00:47:17 P Okay. Now we can forget this section.

00:47:19 C Somewhere in there.

00:47:20 P No.

CONFIDENTIAL

# CONFIDENTIAL

25

00:47:21 P Watch those breakers. It's just up there loose and that other ... box floating around here somewhere along with that little thing that fits in it, and I'm going to put that whole thing away. Dog-gone it! If I can find that again.

00:47:47 C That was on the real horizon there?

00:47:49 P Yes. And I tell you it's poorly defined. It is, in fact, very poorly defined. And, John, I'm sorry I muffed it on that ... - -

00:48:04 C Oh, move away.

00:48:05 P - - I tell you there's nothing you can do.

00:48:12 C Do the best you can - what the heck! You want a break? You want a break?

00:48:23 P ... see if you can find this thing. ... I'm going to loosen this thing just like it has always been.

00:48:40 C Okay. Now, what do we do? We pull out of Carnarvon and we go to PRELAUNCH, right?

00:48:47 P Let's see. It says here at 02:56:07 - which I don't have to do.

00:48:52 C Let's get the lights on and see what's going on.

00:48:53 P And let's go to the RENDEZVOUS first. Is that what I do?

00:48:58 C Okay.

00:49:11 C And we go to PRELAUNCH right at Carnarvon.

00:49:13 P I guess we do. It doesn't hurt anything. (Laughter)

00:49:17 C We'll go to PRELAUNCH. ... Carnarvon. Don't pop the control sticks.

00:49:20 P Okay. I'll try not to.

00:49:28 C You know we're still getting water boiler on. I wonder if that doesn't influence the darn Accelerometer Bias Check. No, I think we're starting to

# CONFIDENTIAL

## CONFIDENTIAL

cool down. Feel that?

00:49:42 P What's that? The sun come up?  
00:49:43 C Yes.  
00:49:44 P Look at that! That's amazing!  
00:49:46 CC Gemini X. Carnarvon.  
00:49:47 P Holy mackerel!  
00:49:49 C Gemini X. Go.

## CARNARVON

00:49:50 CC Roger. Standing by for your GO.  
00:49:52 C Roger. Agena is GO.  
00:49:54 CC Roger. And we have you GO on the ground to go for 16-1.  
00:49:59 C Roger. We're at PRELAUNCH for Accelerometer Bias Check.  
00:50:02 CC Roger. I'll give you a Mark on SGET.  
00:50:06 C Roger.  
00:50:08 CC Give you a Mark at 50:15.  
00:50:09 P PRELAUNCH - Enter.  
00:50:13 CC 3, 2,  
00:50:14 CC MARK.  
00:50:16 CC Make that 50:15. Let's try that all over again. Okay?  
00:50:18 C Okay.  
00:50:23 CC I'll give you a Mark on 50:30. 3, 2, 1,

CONFIDENTIAL

# CONFIDENTIAL

27

00:50:30 CC MARK.

00:50:31 C Roger. I was counting 1 second ahead.

00:50:34 CC Okay.

00:50:35 C Okay. I thank you.

00:50:37 CC Do you want me to set it up?

00:50:39 C No, it's okay like it is.

00:50:41 CC Okay. I've got your Agena Vector update for you.

00:50:42 C Roger. We're ready to copy.

00:50:47 CC GET State Vector: 01:38:00; 13, 00708; 14, 65505;  
75, 32108; 76, 82396; 17, 09143; 18, 16707.

00:51:08 P 05, is that it?

00:51:46 C Okay. 13 is 00708; 14: 65505; 75: 32108; 76:  
82396 - do you copy?

00:51:56 C Affirmative. We will have the Tf before you leave.

00:52:01 P Okay. We got that.

00:52:02 CC Roger.

00:52:05 C Like 138 laughs.

00:52:06 CC We'll be standing by. We have nothing else for you.

00:52:16 P Isn't that beautiful.

00:52:17 C Don't even tell me about it, Babe. I'll look tomorrow. (Laughter)

00:52:20 C 00708.

00:52:26 P 13: 00708 - Enter.

00:52:31 C Oh boy, oh boy, oh boy!

00:52:32 P 14: 65505 - Enter. Okay. 75: 32108 - Enter.  
76: 82396 - Enter. 17: 09143 - Enter. 18:

# CONFIDENTIAL

## CONFIDENTIAL

16707 - Enter. Okay. What time is it now? It's 53 minutes?

00:53:48 C Yes.

00:53:49 P This is at 55.

00:53:52 C 54 minutes on that.

00:53:53 P Okay. That's all right. 00 and that's 5 and 3 is 8. 8 and 5 is 13. 08300. That's 138. Okay. That's Address 12: 08300 and I do not push until the time. Okay. Address 12 is set up on 08300, so at this time I'm going to push the Enter button.

00:54:28 CC Gemini X, Carnarvon.

00:54:30 C Gemini X. Go.

00:54:31 CC Roger. Your O<sub>2</sub> tank pressure is dropping a little bit. Try to keep an eye on it.

00:54:35 P Put the heater on it.

00:54:36 C Roger. Will put the minor heater ON.

00:54:40 CC Okay.

00:54:44 P Okay. At 55 minutes I'm going to push the Enter button. 7, 8, 9.

00:55:01 P Mark it. Computer to PREDICT NAV. It is. Enter 99: 90004 - Enter. 99: 00005 - Enter.

00:55:39 CC Gemini X, Carnarvon.

00:55:42 C Gemini X. Go.

00:55:43 CC Take a look at your stack currents for us, will you?

00:55:52 P Yes, I will. Just a second.

00:55:54 C Okay. We're just 3 minutes away from LOS on it.

00:55:56 P Okay. Stack currents run: 1-Able is 8; 1-Baker - Baker, 8 1/2; 1-Charlie, 9 1/2; 2-Able, 8 1/2; 2-Baker, 10; 2-Charlie, 11.

CONFIDENTIAL

# CONFIDENTIAL

29

00:56:10 CC Roger.

00:56:17 CC That's about what we're seeing here.

00:56:18 C That sounds good.

00:56:19 C Okay, Carnarvon?

00:56:22 CC Gemini X. Are Accelerometer Bias checks over?

00:56:23 C Negative.

00:56:56 P Okay. What's the nominal time?

00:57:20 CC Gemini X, Carnarvon. We are through with Accelerometer Bias.

00:57:23 C Roger.

00:59:24 P Get this elephant off me, John! (Laughter)

00:59:27 C Okay.

00:59:29 C Oh, that's beautiful!

00:59:32 P Hey, I see stars! No, I see a bogey. Look out here, John.

00:59:36 C You get your head back in that cockpit!

00:59:37 P Look! There's a light up there. John, can you see - can you yaw around, there's a light - -

00:59:43 C We don't have any trouble - we don't have any time to fool with it now.

00:59:48 P I see a big bright light out there, I tell you! John! Mark the time. Is the voice tape running?

00:59:55 C Yes.

00:59:56 P Okay. Whatever time it is here.

00:59:59 C You don't have to even look at it.

01:00:00 P Where I am, at 1 hour GET we got a bright object. Looks like a planet or something - looks like it's

# CONFIDENTIAL

## CONFIDENTIAL

in orbit with us. Looks like it's in a higher orbit and going the same way.

01:00:11 C It's the booster.

01:00:12 P Now it's just - now it's still ahead of us; it's ahead of us slightly.

01:00:17 C Well, if the booster is lower than we, it's off -

01:00:20 P ... cause you know John is a meany and won't let me look, but it's out at high, 1 o'clock high, ahead of us and higher than we are.

01:00:28 C Okay.

01:00:29 P And all I'm doing is pushing 95 on voice track.

01:00:32 C Okay.

01:00:33 P It went up to about 145. Now it's back down.

01:00:36 P Oh golly, that's incredible! I can't get over the beauty of it.

01:00:41 C Don't you look out the window!

01:00:42 P (Moan) What a slave-driver, John.

01:00:45 P Sun's in my eyes. I need the window shade, that's what I need, believe it or not. ... I say. The sun's in the eyes and you can't push out the ...

01:01:04 C I love the ... Coming back down to a 100. See, it went up - started at ... went up to 145.

01:01:12 P It did?

01:01:13 C Yes, so beautiful. ... it looks like until we get ...

01:01:19 P Yes. Baloney to me.

CONFIDENTIAL

# CONFIDENTIAL

31

01:01:21 C Wow ... 8840, 8701, 8662. Okay. 8662 was the lowest.

01:01:45 P My golly, look at that world down there! Hello, world!

01:01:46 C Get your head in that cockpit!

01:01:49 P (Laughter) Hello, world! Sure looks nice. It's known in the trade as euphoria, John.

01:02:00 C Sure is, Boy! Everything slows up just like Gene said.

01:02:04 P Everything goes forward to me today.

01:02:14 C ... Collins, looks like instead of going up it goes forward.

01:02:22 P How's the heater - I mean that oxygen. It's doing pretty good isn't it?

01:02:25 C Yes. It is. Yes. It's getting back up there. We'll shut it off now. The Comp light is ON.

01:02:32 P Well, give me a Mark when that Comp light goes out, will you?

01:02:35 C Did you happen to notice it?

01:02:36 P Yes.

01:02:37 P Should be about out 143.

01:02:38 C It's out.

01:02:42 C Okay. The last number was 144 on 78. That's a pretty good number.

01:02:50 P Okay. Monitor 95, then read 85. 85 (mumbled) reading.

01:02:55 C Can't believe it, but we've already flipped our gimbals.

01:03:11 P Oh boy!

# CONFIDENTIAL

## CONFIDENTIAL

01:04:23 P As soon as the light goes out, let me know.

01:04:24 C Okay. It's out.

01:04:27 P Okay. 394.

01:04:34 C Are you opening your vent - ...

01:04:40 P Okay. I'm going to shut this thing back off.

01:05:13 P Get it out quick!

01:05:14 F Is it out?

01:05:17 C Yes.

01:05:23 P Okay.

01:05:27 P 1, 3.

01:05:34 C Okay.

01:06:16 P Delta-V, N<sub>c</sub>-1, 58.

01:06:20 C Okay.

01:06:37 P And that was GET nominal. N<sub>c</sub>-1 was 01:38:00, wasn't it?

01:06:43 C Yes.

01:06:47 P Okay. We're still in hours and minutes. What the heck is that? That's 60 - that's 02:18:00 even. Right?

01:06:51 C Roger.

01:06:54 P About 20, so it would be 02:18:00 - I'm adding 02:20 to it - 02:20:20. Want to look at these here?

01:07:02 C Okay. 02:20:20 ...

01:07:15 C Added 2 minutes to it. Right?

01:07:17 p Yes. 2 1/2 minutes I added to it. I had to subtract 10 seconds.

CONFIDENTIAL

# CONFIDENTIAL

33

01:07:19 C Okay.

01:07:21 P Next table. Delta-V,  $N_C-1$  on previous page.

01:07:30 C Previous page (mumbled)

01:07:32 P ... 95 ... 37 (Calculating)

01:08:13 P Okay. Delta-V  $N_{SR}$  is 46 feet per second.

01:08:18 C Okay.

01:08:20 P Now you did a time on Delta-V,  $N_{SR}$ . Roger?

01:08:23 C Yes.

01:08:24 P Okay (mumbling) Delta-V.

01:08:27 C You go ahead and do the ... change.

01:08:30 P All right. Very good.

01:08:32 C Delta to the  $N_{SR}$  is 46 then. You got that?

01:08:35 P Yes.

01:08:38 C Okay.

01:08:42 C Let's see, that makes it 122, 2.1.

01:08:50 P How we doing on time? Have any idea?

01:08:58 C Yes. We're way ahead. You're only 8 minutes and 57. We get to Hawaii in 15 minutes.

01:09:06 P 1 (Calculating) - 12924; (Calculating) 3 - (Calculating) 2454, 34943 - 46; 30 seconds, 34913 (Calculating).

01:11:12 C ... I'll be awhile.

01:11:18 P This time I got minus 1.2; and minus 4.5, so I just shifted the decimal point over at Z-12, minus Z-12 shifted this decimal point over Z-dot minus 4.5, Z-dot minus, that should be 4.0 closer to there.

01:11:34 C Heck, that means no change at all. That's 4.5 feet.

# CONFIDENTIAL

## CONFIDENTIAL

01:11:37 P Right.

01:11:39 C We're not going to fool with that.

01:11:42 P Okay. Well, I got the time a little bit wrong. I should have put it in a little different there, but that's all right. Okay. I'll wait until that Comp light goes out and I'll read ...

01:11:49 C Okay.

01:12:06 P Go out!

01:12:13 F How are the oxygen pressures? Good, right?

01:12:15 C Yes.

01:12:19 C You know I want to keep looking ...

01:12:20 P Sure does .. isn't that great?

01:12:35 P Don't go out!

01:12:38 C Trying to keep my hat on.

01:12:47 P You're looking better.

01:12:49 P Hello, world! Look, man, we're moving! Look at that thing! It moves out.

01:12:56 C ... Comp ... readout.

01:13:01 P Okay. Plus 0510 was 18 readout.

01:13:18 P Okay. Z-dot plus 10.0 - -

01:13:27 C Okay.

01:13:30 P - - Z-dot is plus 10.0.

01:13:37 C What did you do, push the decimal place over?

01:13:39 P I used the real decimal places this time.

01:13:42 C Okay.

01:13:44 P 10 1/2. That's ... that's 5 minutes.

CONFIDENTIAL

# CONFIDENTIAL

35

01:13:51 P Okay.

01:13:54 P I go up in here and I get 5 minutes.

01:14:01 P Okay. You believe that?

01:14:03 C Yes.

01:14:42 C Comp light's out.

01:15:06 P 8.0 ... Okay. That's Z-dot less 8.0. That's Z-dot plus 8.

01:15:32 P (Calculating)

## HAWAII

01:15:48 CC Gemini X, Hawaii CAP COM.

01:15:51 C Hawaii CAP COM, Gemini X.

01:15:52 CC How are you all doing up there?

01:15:54 C Just fine!

01:15:56 CC Okay. We're showing you looking real good here on the ground. You've got some data from the ...

01:16:03 C Roger, we got a ... when we were at 02:19:52 and 58 feet per second, 03:49:13, 46 feet per second ...

01:16:17 C N<sub>SR</sub> Maneuver 03:49:13, 46 feet per second ...

01:16:27 CC Okay. It's very hard to read you up - one moment -

01:16:35 CC Let's switch over to UHF 2. If you don't read me in 20 seconds, come back to UHF 1.

01:16:41 C Roger. Can you read me now? That's okay. Over.

01:16:44 CC Okay. It's a lot better now. Will you give me the Phase-Adjust again?

01:16:56 CC Gemini X, Hawaii. You're loud and clear. Now will

# CONFIDENTIAL

## CONFIDENTIAL

you try it again, please?

01:16:59 C Roger. 02:19:52 and 58 feet per second Posigrade; and for the NSR 03:49:13 at 46 feet per second, Posigrade.

01:17:11 CC Okay. I copied that okay.

01:17:17 CC Okay. And it looks like your Cryo O<sub>2</sub> pressure's up pretty well. Now you're in good shape.

01:17:21 C Roger.

01:17:23 C What did you say?

01:17:25 P This time for this Plane-Change isn't coming out right. I'm searching all over the place.

01:17:27 C That's what I say; there is no Plane-Change at all, practically.

01:17:30 P Yes.

01:17:32 C How much is the feet-per-second of it?

01:17:35 C Now let's see. Beats the heck out of me. What is it?

01:17:45 C 18.

01:17:47 P Okay. It's 8 feet per second, apply.

01:17:51 P That's 8/10ths right there. No, that's 8 feet per second. Yes, yes. Right.

01:17:59 P That's our top, chasing all over in time, that was my problem.

01:18:03 C Yes.

01:18:11 P There, it went out okay. I should be able to read 15. 4/10ths and 18.

01:18:25 CC Gemini X, Hawaii.

01:18:27 C Okay. Go.

CONFIDENTIAL

# CONFIDENTIAL

37

01:18:30 CC Okay. I've got some data for you.

01:18:32 C Roger. Go.

01:18:35 CC Okay. The first one is your Phase-Adjust.

01:18:38 CC 218 - Correction. I'm sorry. Delta-V is 56.2.

01:18:47 C ...

01:18:48 CC Yaw and pitch are zeros.

01:18:53 CC Address 25 is 00562.

01:19:01 CC The thrusters, aft; maneuver, Posigrade.

01:19:04 C Roger.

01:19:08 CC And the next one's your Plane-Change. Should be Delta-V of 9.5.

01:19:15 C ... Okay. Go ahead.

01:19:16 CC Wait a minute, we're supposed to tell you first.

01:19:25 CC You are 90. Right?

01:19:28 CC Maneuver south. Thrusters, aft.

01:19:30 C Roger.

01:19:36 CC And for the next one. The Coelliptic will be Delta-V of 48.7.

01:19:42 C Roger.

01:19:50 CC Yaw of 0, pitch 1, up; Posigrade, up; thrusters, aft. Over.

01:19:57 C Roger. ...

01:20:00 CC Say again. You're hard to read.

01:20:02 P ...

01:20:15 P What was the GET B for those maneuvers?

# CONFIDENTIAL

## CONFIDENTIAL

01:20:19 CC Okay. The GET B of the Phase-Adjust is 02:18:09; GET B of the Plane-Change is 02:30:22 and the Coel-  
liptic, 03:47:34.

01:20:42 C Roger.

01:20:47 P John, this keeps skipping. I can never get this  
residual less than 2/10ths, whatever it is.

01:20:54 P When in Address 15, I can never get it down to  
1/10th. It's gone to 4/10ths, 9/10ths, to 5/10ths  
and every kind of tenths, so I don't know what the  
heck we do on that.

01:21:11 P Let's see 18 - last one is 4.2. Plus 4.2. Before  
it was plus 8; before it plus 10. The last one is  
plus 4.2 and the time is 02:12:20, which is 180;  
180 is 33220. Believe that?

01:21:42 C Yes.

01:21:47 C ...

01:21:48 C Okay.

01:21:54 C I don't know.

01:21:59 P Stupid, lousy chart.

01:22:02 P Let's start back here at the beginning. Okay?  
We went in with an 85; 13255 and added 30 minutes  
to it. Right?

01:22:06 C Right.

01:22:08 P All right, and we came out with 16320, and from then  
on things just went to worms, so let's just take this  
one. Okay?

01:22:11 C Okay.

01:22:18 P See what I keep doing is adding time. Let's take  
this residual switch - -

01:22:23 C Negative. Microphone position. Over.

01:22:30 P 02:48:20. All right. That's what that says.

CONFIDENTIAL

# CONFIDENTIAL

39

01:22:35 C Let's see.

01:22:39 P Well, let's use that one. Okay? I'm sorry, John, it just isn't coming out. These darn residuals are not getting down there.

01:22:47 C ...

01:22:51 P If you can make any sense out of that, it beats me. GET of  $N_c-1$  was 01:32:55.

01:22:59 C Okay.

01:23:03 P Now, what's the GET on  $N_c-1$ ? Give ...

01:23:15 P Okay. Delta-V, 15.

01:23:16 C No, wait a minute. Are you on the track?

01:23:19 P No, that's all right. That's all right. That's fine.

01:23:23 P Delta-V of 15 ... That's 3, that's 4. So you add those and get 25, you get 8, you get 168. Okay?

01:23:30 C Yes.

01:23:34 P All right. This is plus 5 minutes. I'll add that in there. (Calculating) 23, 8 and 5 are 13 - 173 and 12: there were another 36 minutes and I'm not going to play with that one. I'm going to use this time right here.

01:23:47 C Okay.

01:23:51 P The time is 120, 2 hours, 02:53:25. Believe that?

01:23:59 C Okay.

01:24:03 P Okay. That's it. Now the feet per second have to be, - heck if I know. The first number is 15 I read, 18 is the - okay, 18 has read everything from the first time I read it, it was 4.5; the second time it was 10.2; the next time it was 8.0.

01:24:35 C ...

# CONFIDENTIAL

## CONFIDENTIAL

01:24:40 P This one here, that was 8 - -

01:24:47 C ... solution on the ...

01:24:54 P - - I'd used 5.

01:24:56 C Doesn't look right.

01:24:59 P 5 - it starts from 18, it goes from minus to plus to plus to minus, so you can take your choice. The time with that is minus; I used minus 5 feet per second, Spacecraft nose to north.

01:25:10 C ... they get Spacecraft nose to south.

01:25:15 P ... it goes to plus; we better ...

01:25:20 C All right.

01:25:23 P All right. Then it's plus 8.

01:25:29 C ... that's it.

01:25:35 P That's this time, I guess. What did they get?

01:25:42 P We're coming up on the States.

01:25:47 C Yes.

01:25:49 P See, that's the confusing thing. It jumps all over. But the first time - all right, let's use this one. 8 feet per second, Spacecraft nose to south.

01:26:39 P Don't know why this thing would go to residual when ...

01:27:16 P Yes. That's right; that's the right time; 02:53:25, John.

01:27:18 C 02:53:25?

P 02:53:25; 8 feet per second; Spacecraft nose south.

01:27:40 P Okay.

01:27:41 C Yes.

CONFIDENTIAL

# CONFIDENTIAL

41

01:27:54 P 01:27:00. We should have USA, AOS.

01:27:56 C Yes. We're coming up on it right now, as a matter of fact.

01:27:59 P Oh, golly, it's beautiful!

01:28:01 C Okay. Oxygen pressures ... heater a little bit here and we should unpack the camera boxes.

01:28:28 C You back up on the manual, right?

01:28:29 P Man, this camera box comes out of here.

01:28:47 C Pretty nice.

01:28:49 P What do you want out of here?

01:28:51 P Want the Maurer? Don't you want the Maurer?

01:28:54 C No.

01:28:56 P You don't?

01:28:58 C Yes. I do.

01:29:42 P Surprised I haven't heard from them already.

01:29:56 P Okay. Want a 16mm?

## GUAYMAS

01:29:59 C Houston, this is Gemini X. Over.

01:30:07 CC Go ahead, Gemini X. Houston here.

01:30:08 P We're over the States. Should be able to raise them. Giving them radio trouble, maybe?

01:30:15 CC Gemini X, Guaymas CAP COM.

01:30:16 P There he is.

01:30:18 C I read you loud and clear, Guaymas.

# CONFIDENTIAL

## CONFIDENTIAL

01:30:20 CC Roger.

01:30:23 CC Roger. Would you check your Cryo O<sub>2</sub> and H<sub>2</sub> Reg circuit breaker, please?

01:30:27 P That's over there on that side, isn't it?

01:30:28 C Yes.

01:30:30 P O<sub>2</sub> and H<sub>2</sub>. I had the heater ON, circuit breaker OFF. Cryo O<sub>2</sub> and H<sub>2</sub> Reg circuit breaker was ON.

01:30:38 C Roger. It was ON.

01:30:42 C Roger. The circuit breaker was open.

01:30:53 C Say again. Over.

01:30:54 CC Radiator position. Give me the position of your switch.

01:30:58 C Roger. It's in FLOW.

01:31:01 C The Plane-Change is 02:53:20; it's 8 feet per second; the nose is south. So small that we can't get the residuals down to - find a good place for it.

01:31:20 C Roger. I'd like you to go through them though, because we were in a hurry in here when they were talking to us.

01:31:30 C Roger. Go ahead.

01:32:30 P Roger.

01:32:32 C Okay.

01:32:38 CC Okay. Gemini X, you're looking pretty good here.

01:32:44 C Okay. I'm going to go off of that auto heater. Right?

01:32:46 P Yes.

01:32:54 C Zero plus 22.

CONFIDENTIAL

# CONFIDENTIAL

43

01:33:10 P Oh, that ...

01:33:12 C Don't swear. What is it? Got problems?

01:33:28 P They changed my chart on me and I can't find anything on it anymore. Thought he was being so smart. Pardon my language.

01:33:44 C Let's just take pictures of the States here. I don't know.

01:33:56 C 16mm at 1 frame per second.

01:34:03 P Man, that was the States.

01:34:15 C If it's cloudy, isn't worth it.

01:34:16 P What?

## TEXAS

01:34:32 CC Gemini X, Houston here.

01:34:33 C Gemini X. Go.

01:34:36 CC Roger. We're standing by here. You got your maneuver load all right and your pressure seems to be coming up on your hydrogen all right.

01:34:45 C Say again. Over.

01:34:46 CC All right. Your pressure seems to be coming up on your hydrogen now that you've got your breakers back in.

01:34:54 C Roger.

01:34:58 CC You got your maneuver load okay from Guaymas. Is that affirm?

01:35:03 C Yes. Could you say again the Delta-V of the time of the Phase-Adjust? Over.

01:35:13 CC Okay. GET B. Do you want the GET B or the burn time?

# CONFIDENTIAL

## CONFIDENTIAL

01:35:21 C The GET B. Over.

01:35:23 CC Roger. For the Phase-Adjust, GET B: 02 plus 18 plus 09.

01:35:34 C Roger. We've got it.

01:35:35 CC Okay.

01:35:44 CC You might watch that Hydrogen Heater circuit breaker - that Cryo Heater circuit breaker. See if it comes out again.

01:36:01 P The sunset's coming up here pretty quick, isn't it?

01:36:03 C Yes.

01:36:13 P 01:41:00, so I go to 99: 90004 ...

01:36:27 C Roger.

01:36:34 C That's affirmative.

01:36:46 P Well, it's just about getting dark.

01:38:18 P Okay. 01:44:00 when we push Start Comp. So don't push it before I pick it up.

01:38:20 C Okay.

01:38:22 P They're all set up at that stage of the game.

01:38:27 P First star ... I have two beautiful stars right out my window. You have two?

01:38:30 C No, I don't have any. Those are - -

01:38:39 P What the heck are they? Did you see that?

01:38:44 C - - I bet those are the Agenas.

01:38:45 P What?

01:38:48 C Yes. Those have to be the Agenas. We're in the same orbital path with them.

CONFIDENTIAL

# CONFIDENTIAL

45

01:38:49 P Well, man, look at those! They're beautiful! What's that flashing on the right? Is that the Agena? See it flash? What? John, do you see what I see?

01:39:01 C Yes.

01:39:03 P What the heck is that?

01:39:05 C I don't know.

01:39:13 P I see - is this tape recorder still running?

01:39:14 C Yes. I don't know what those are.

01:39:28 P Okay. They're at 12 o'clock; the time on it is 01:39:00 and they are directly ahead. They appear to be coalatitude and there are two extremely bright stars - I'd say about 1 degree apart. The one on top is slightly to the left of the one on the bottom, and about a degree below those two there is a flashing light, a smaller magnitude light which is visible all the time and which periodically flashes. There went flash, Mark; flash, Mark!

01:39:49 C Oh, I can't - there's no telling what they are.

01:39:53 P It's really weird. And when I first saw those I could see sunlight; I could see the earth lit by sunshine down in the lower right of the windows and the Spacecraft nose is still in the light. And I see these two bright objects deadahead. See those, John?

01:40:11 C Yes. Think we ought to report to the ground? No, let's not.

01:40:14 C Those aren't stars. Can't be.

01:40:18 P Why don't you report it? Tell them what you see. See what they say.

01:40:20 C This is Gemini X, Houston. We have two bright objects up here in our orbital path. I don't think they are stars; they look like we are going right along with them.

# CONFIDENTIAL

## CONFIDENTIAL

01:40:32 CC Roger.

01:40:34 CC Gemini X, Houston.

01:40:36 C Gemini X. Go.

01:40:40 CC Roger. Your ascent solution is NO-GO. The TPI's about 9 seconds early - 9 minutes early. And co-ellipticity is approximately 9 miles.

01:40:42 C Roger. The ascent solution is NO-GO.

01:40:44 CC Roger.

01:40:46 C TPI is about 9 minutes early and the Coellipsis is approximately 9 miles.

01:40:52 C Roger.

01:41:00 CC Where are the objects from you?

01:41:02 P What did he say?

01:41:06 C I don't know.

01:41:07 CC If you can give us a bearing, maybe we can track them down.

01:41:11 P John, you want - -

01:41:13 C They just disappeared. I guess they were - they were satellites of some kind.

01:41:19 P ... Sun is shining - -

01:41:20 C Satellites of some kind.

01:41:21 CC Roger.

01:31:24 P Want to try this thing again.

01:41:27 C Oh, don't tell me!

01:41:29 P Yes.

01:41:31 C Did you get it?

CONFIDENTIAL

# CONFIDENTIAL

47

01:41:32 P No.

01:41:37 C You're kidding!

01:41:46 P Something is bound up someplace.

01:41:50 C Heck, we can't stop to fool with it. We have to do this Orbit Determination.

01:41:54 P That's right. All right. I want to get this in the center of my desk.

01:42:01 C Okay. At 01:44:00 it's a dummy star.

01:42:06 P Yes. It's all set up, all you do is push the Start Comp.

01:42:10 C See anything that glows?

01:42:12 P No.

01:42:15 P Now we are going to look for a ...

01:42:29 C Oh.

01:42:46 P Look at that horizon, John, that's fast! See what I mean with that under there?

01:42:51 C Okay. Don't let me miss 01:44:00.

01:42:53 P Okay.

01:43:08 P You can be looking for ... whatever that is. That's 01:47:00, ideal.

01:43:13 C Okay. It hasn't come up yet.

01:43:15 P Yes. All right.

01:43:49 P It's not exactly cool inside this thing, is it?

01:43:50 C No.

01:43:52 P Are you comfortable?

01:43:54 C Yes.

# CONFIDENTIAL

## CONFIDENTIAL

01:43:54 C Yes.

01:43:56 P Or are you hot?

01:43:58 C I'm okay.

01:44:01 P Okay. Start Comp at 01:44:00; Start Comp again.  
Roger. 83 - -

01:44:37 C That has to be it over here at the right. It's  
just coming up.

01:44:42 P - - Did they give you some point commands for it?

01:44:43 C Yes.

01:44:49 P The water boiler really yaws you around, doesn't  
it?

01:44:51 C Yes. It's still yawing.

01:45:32 P Right. Here it is.

01:45:40 P Okay. Well, I'll be ready in a jack to get there.

01:46:58 P Shoot! I ran that thing right through the horizon,  
John.

01:47:06 C There isn't any horizon.

01:47:30 P Okay. You ready?

01:47:32 C Ready.

01:47:34 P Mark it.

01:47:35 C Okay.

01:47:37 F 47: 00909 - Enter. Start Comp. Readout: minus  
.15. We'd better accept that.

01:48:06 C Okay. It's accepted.

01:48:08 P Okay. Now we want Arcturus.

01:48:13 C Arcturus.

CONFIDENTIAL

# CONFIDENTIAL

49

01:48:15 P We've got until 01:55:00 and you get Arcturus.

01:48:19 C Now I have to get us around there.

01:48:24 P Plane 2, 27782.

01:48:39 P What do you suppose that ... is NO-GO.

01:48:44 C What? Oh, the times were too far off.

01:48:46 P Is it a Plane-Change?

01:48:48 C No, because of the time.

01:48:52 P I wonder why, though. Got any idea?

01:48:56 C Times were too far off. What did we do wrong?

01:49:03 P Didn't do anything wrong.

01:49:09 C I don't know whether you did anything wrong or not, I was busy finding the water boiler.

01:49:18 P Yes. Okay. Ready for Arcturus.

01:49:27 C Actually, all the residuals in here have been pretty low. The ones we've accepted, 02:13:15.

01:49:42 P Yes. We'd be all right if it hadn't been for that Hamal, wouldn't we?

01:49:46 C Right.

01:49:48 P Even Hamal looked good.

01:49:50 C No, but I mean missing the ... Start Comp.

01:49:51 P How much do you think that will foul us up by? Think that's the whole ball game right there?

01:49:54 C I don't have any idea.

01:49:56 P We have it!

01:49:58 C Have what?

01:50:00 P We have Hamal in there.

# CONFIDENTIAL

## CONFIDENTIAL

01:50:03 C Yes, but we got that dummy star late. That will mess us up, see.

01:50:08 C Oh, I don't know. Have no idea.

01:50:13 P Okay. This sextant doesn't want to go anywhere but I'll let it go.

01:53:54 CC Gemini X, Houston.

01:54:43 CC Gemini X, this is Houston.

01:54:46 C Gemini X here.

01:54:47 CC Roger. I have an updated Catch-Up and Plane-Change for you.

01:54:55 C ... Say again. Over.

01:54:57 CC Roger. I have an updated Phase-Adjust and Plane-Change for you.

01:55:06 CC You ready to copy?

01:55:08 C Roger.

01:55:10 CC Phase-Adjust: GET B, 02:18:09. That's the same GET B as before. 25 is 00559; burn time is 1 plus 15. Plane-Change: 02:30:49; Core 27 is 90096; burn time is 0 plus 13. That's aft thrusters and maneuver Posigrade.

01:56:04 C Roger. Say again the time on the Plane-Change.

01:56:08 CC The time is 02:30:49. ... copy ... 15 second Plane-Change ...

01:56:17 C 27, 90096; 13 seconds.

01:56:35 CC Roger.

01:57:01 C Okay. Time is 01:57:01.

01:57:08 P John, I cannot flip these cards.

01:57:10 C Okay.

CONFIDENTIAL

# CONFIDENTIAL

51

01:57:13 P I don't have any explanation for it.

01:57:16 C You have the filters off?

01:57:18 P Yes. I have the filters off. I can see the stars just as clear as a bell.

01:57:19 CC Gemini X, what did you get for 25 on the Phase-Adjust?

01:57:23 C Say again. Over.

01:57:25 CC What did you get for Core 25 on Phase-Adjust?

01:57:30 C Roger. 25 is 55.5.

01:57:35 CC 00559.

01:57:40 C 00559. Roger.

01:57:43 CC Roger.

01:57:51 P Gosh, I'm losing my mind!

01:57:54 C Okay, Babe.

01:57:56 P Yaw right, will you, and pitch up about 10 degrees. Just point that thing right - where'd that rudder go - right to Arcturus. Will you do that for me?

01:58:03 C Yes.

01:58:13 P There it goes. Now this time I can split it. Okay. Don't do anything different.

01:58:30 P Stand by. Ready. Mark it!

01:58:32 C Okay.

01:58:34 P 1802 - Enter. Start Comp. Readout: plus .35 accepted.

01:58:54 C We're behind.

01:59:03 P Accepted.

# CONFIDENTIAL

## CONFIDENTIAL

## HOUSTON

01:59:04 CC Gemini X, Houston standing by.

01:59:06 C Okay. If I can find the ...

01:59:08 P Roger. The Orbit Determination Vector was NO-GO, even though the residuals were all ...

01:59:13 P Okay. 30 to 40 seconds; that makes it beyond.

01:59:15 C Yes.

01:59:20 P And when it goes down I'm on Input 88: lllll. Going to predict ... on another one. If I could figure out how to close that darn box! I see the problem. It's butting up against the camera lugs - don't know how those darn things ...

01:59:28 P They didn't get any bigger Orb ... Over.

01:59:31 CC Roger. I read Orbit Determination Vector NO-GO and you were blurred after that.

01:59:42 P Okay. Light went out - okay, 88.

01:59:51 C Enter.

01:59:58 P Computer - PREDICT NAV.

02:00:00 C Affirmative.

02:00:03 C Enter.

02:00:04 P Okay.

02:00:49 P Okay. What's the GET of N<sub>c</sub>-1? Nominal?

02:00:52 C 02:18:00.

02:00:58 P 02:18:00 even. Right - right. 20: 00138. All right; 2 hours 31 minutes. Okay. Let's get the lights back on. Okay. 02:02:00 switch Start Comp. Oh!

02:02:29 C What's the matter?

CONFIDENTIAL

# CONFIDENTIAL

53

02:02:32 P ... reading out all kind of crazy numbers.

02:02:46 C Heck! That ends that.

02:02:49 P Sure does.

02:02:51 C The light went out.

02:02:56 P Okay. Read 95.

02:03:20 C 891 seconds. I can't do it.

02:03:22 P You see the problem?

02:03:26 C Yes. I don't understand that.

02:03:28 P No, neither do I. Switch back through it - I'm in PREDICT now. I have 99: 90004 - Entered. I have 99:00005 - Entered; GET of N<sub>c</sub>-1 nominal is 02:18:00 and convenient future time is 02:05:00; coming up on 02:05:00.

02:04:06 C I think you are doing a tremendous job.

02:04:09 P Oh shoot! I'm doing a lousy job.

02:04:12 C What the heck! If you can't see the stars, you can't see them. I've been telling you this for 6 months.

02:04:18 P TTRE - Enter. Okay. Guess it's 02:05:00. I'm trying to get here.

## CARNARVON

02:24:47 CC Gemini X, Carnarvon. All systems are GO here on the ground. We're standing by.

02:24:51 P Roger. Our residuals on the last one were minus 1/10th on 80, 81 was plus 4/10ths, and 82 was plus 1/10th. Understand that Plane-Change time is 02:30:49. Is that affirm?

02:25:06 CC That's affirmative.

# CONFIDENTIAL

**CONFIDENTIAL**

02:25:07 P Roger.

## HAWAII

02:49:47 CC Gemini X, Hawaii CAP COM.

02:49:51 C Gemini X. Go.

02:49:53 CC How you doing?

02:49:55 C Just fine.

02:49:56 CC Okay. You're looking pretty good here. I'd like some data on how you did with your Plane-Change.

02:50:10 C Roger. 80, minus 1/10th; 81, plus 1/10th; 82 was minus 5/10ths.

02:50:20 CC Okay. I've got that all right. I'd like a Prop Quantity readout please.

02:50:23 C Roger. Reading 83 percent.

02:50:27 CC Roger.

02:50:31 CC Okay. All your constants look good. They're going to give you a NSR solution over the States.

02:50:35 P Roger.

02:50:50 CC What module do you have loaded?

02:50:53 C Roger. Modules.

02:50:55 CC Okay. Thank you.

02:52:03 CC Gemini X, we will be standing by. If you need anything just give us a shout.

02:52:08 C Gemini X. Roger.

## GUAYMAS

03:02:28 CC Gemini X, this is Guaymas CAP COM. You're looking

**CONFIDENTIAL**

# CONFIDENTIAL

55

good on the ground. We have nothing for you.  
We'll be standing by.

03:02:41 C Gemini X. Roger.

03:05:24 C Houston, this is Gemini X. We're getting intermittent locks and we read a range of 240.7 right now.

03:05:30 CC Roger. We copy.

03:05:36 C We'll be staying on from now on.

03:05:38 CC Okay.

03:09:19 CC Gemini X, Houston here.

03:09:22 C This is Gemini X. Go.

03:09:25 CC Roger. I'll have a little data here shortly. Your constants are all good and don't use your orbit rate torque compensation. It looks like you're doing all right on the range there. We had calculated 180 at 3 plus 18.

03:09:44 C Roger. Light's been on solid since 02:34:43.

03:09:48 CC Very good. I'll have an NSR update for you shortly.

03:09:53 C Roger.

03:09:54 CC Have you purged already?

03:10:22 CC Gemini X, I have an Agena sunrise time for you.

03:10:27 C Gemini X. Go.

03:10:29 CC 05:17:09.

03:10:39 C I understand. 05:10:09.

03:10:42 CC It's 05:17:09.

03:10:46 C Roger.

03:12:03 CC Gemini X, could you go to H<sub>2</sub> on your Cryo Readout switch?

# CONFIDENTIAL

## CONFIDENTIAL

03:12:09 C Roger on H<sub>2</sub>.

03:12:11 CC Roger.

03:12:44 CC Gemini X, I have your Coelliptic NSR data.

03:12:48 C Roger. Go.

03:12:50 CC Roger. GET B: 03:47:34; 25, 00479; 26 is 90065; 27 is zeros; thrusters, aft; Posigrade, up; and the pitch - yaw is 0, pitch is 8 up; Delta-V, 48.4; burn time, 1 plus 05.

03:13:48 C Roger. We copied.

03:13:51 C 03:47:34, time; Address 25, 00479; 26, 90065; 27 is all zeros; Posigrade, 8 degrees up; Delta-V, 48.4.

03:14:11 CC Roger.

03:15:13 CC You can go back to O<sub>2</sub> on your Cryo Read switch, Gemini X.

03:15:18 C Roger.

03:16:12 CC Gemini X, this is Houston. The Agena is TDA north. All the loads are nominal and checked out. SPS is disabled and it's all ready for you.

03:16:23 C Roger.

## ROSE KNOT VICTOR

03:23:53 CC Gemini X, RKV.

03:23:55 P Gemini X. Go.

03:23:57 CC Roger. We have nothing further for you at this time. We're just standing by. We show you GO.

03:24:02 P Understand. Roger.

03:27:24 CC Gemini X, RKV. You'll have an update on the NSR and you'll be updated over Ascension.

CONFIDENTIAL

# CONFIDENTIAL

57

03:27:31 C Roger.

03:28:20 CC Gemini X, this is Houston. Roger. Gemini X, Houston. I have a Coelliptic update for you.

03:28:31 C Roger. Go ahead with the information.

03:28:33 CC Roger. GET B: 03:47:34; 25, 00481; 26, 90076; 27 is zeros; aft thrusters; Posigrade, up 1 plus 05.

03:29:21 C Roger.

03:29:22 CC And that's yaw 0 and 9 up on pitch.

03:29:27 C Roger. Gemini X. We got it.

03:29:33 CC Okay.

03:29:47 CC Houston standing by.

## TANANARIVE

03:44:12 CC Gemini X, this is Houston standing by at Tananarive.

03:44:16 C Gemini X. Roger.

03:49:51 CC Gemini X, Houston standing by for whether your burn was Radar and NSR, or Ground Solution and Residual.

03:50:01 C Roger. The Radar and NSR were practically the same numbers ... We are doing a combination of the two of them because there's something wrong with the Address 26 here. We ... visual ... not supposed to be there.

03:50:21 CC Roger. Understand. Could you give us some estimate as to what the burn was.

03:50:26 C Roger. We burned 6 feet per second up and 48 forward.

03:50:42 CC Roger. Understand 6 feet per second up and 48 forward.

# CONFIDENTIAL

## CONFIDENTIAL

## COASTAL SENTRY QUEBEC

04:08:22 CC Gemini X, CSQ.

04:08:23 C CSQ, Gemini X. Over.

04:08:25 CC Roger. We have you GO here on the ground.

04:08:30 C Roger. We are going up here.

04:08:32 CC Okay. I have a procedure for you on your problem on the Address 26.

04:08:37 C Roger. Go.

04:08:39 CC Okay. We would like for you to enter in the Address 99, 00001. We would like the value of the residual in Address 26.

04:08:57 C Roger. You want me to do that right now?

04:09:03 CC Well, I will read the next line of the procedure to you. Then we would like for you to enter all zeros in Address 26 and attempt readout. Depress Start Comp and see if IVI's zero.

04:09:18 C Roger. Out. ...

04:09:21 P Are you sure you want to do that now?

04:09:27 CC Stand by.

04:09:36 CC Just enter the value into Address 99.

04:09:40 C All right.

04:09:44 CC I have the Terminal Phase back-up for you when you are ready to copy.

04:09:48 C Roger. Go.

04:09:51 CC ..., 48 plus 08; 34.0, 0 plus 45; Address 25, 00306, Address 26, 90148; Address 27, 90012; 34.0 forward, 0.6 down, 1.0 right; range 38.5, Range-Rate 155; 0.2 right, 26.7 up. Range and Range-Rate are valid at 2 minutes 10 seconds prior to TPI.

CONFIDENTIAL

# CONFIDENTIAL

59

04:11:29 C Roger. We copy.

04:11:31 CC Roger.

04:12:06 CC Gemini X, CSQ.

04:12:09 C This is Gemini X. Go.

04:12:11 CC Okay. The reason we are putting this 99 in at this time is to make sure you don't have the Orbit Rate Compensation in.

04:12:18 C Roger. No. We never entered that.

04:12:20 CC Roger.

04:12:36 CC Gemini X, CSQ. Your Cryo O<sub>2</sub> pressure is down about 640 and dropping. You better keep an eye on it.

04:12:45 C Gemini X. Roger. We're watching it.

04:13:02 CC Gemini X, CSQ. Are you in Address 99 yet?

04:13:06 C Roger. We entered it.

04:13:07 CC Roger. Thank you.

## HAWAII

04:25:02 CC Gemini X, Hawaii.

04:25:04 C Gemini X. Go.

04:25:05 CC How are you doing?

04:25:08 C Just fine!

04:25:10 CC Okay. You are looking pretty good down here. We won't have anything for you. We'll speed up on your telemetry. That's about all.

04:25:16 C Roger.

04:25:24 C We're at the Cape. We're about 2 miles low here.

# CONFIDENTIAL

## CONFIDENTIAL

04:25:27 CC 2 miles slow?

04:25:29 C 2 miles low at Delta-H.

04:25:32 CC Okay.

04:25:43 CC They tell me they were predicting 1 mile low prior to your last burn.

04:25:47 C Roger.

04:26:10 CC It looks like you have pumped up your O<sub>2</sub> about 900 psi.

04:26:16 C Roger. We can see the target out the window now.

04:26:19 CC Very good!

04:26:57 CC Are you interrogating the Agena beacon at this time?

04:27:02 P Roger.

04:27:12 P He's about half a degree right in the reticle and he's right on the pitch. Really good.

04:27:17 CC He's really hacking it, right?

04:27:20 P Right!

04:27:27 CC Giving him all those good figures.

04:27:30 P Roger.

04:28:13 P Really holding those attitudes tight. I'll tell you that.

04:28:37 CC Pitch up about 25 degrees?

04:28:41 P Oh, about 22.

04:28:44 CC You read better than my meter.

04:28:49 P To be exact, it's 23.1.

04:30:16 CC Gemini X, Hawaii.

CONFIDENTIAL

# CONFIDENTIAL

61

04:30:18 P Gemini X. Go.  
04:30:19 CC Okay. I have a new GET B to your TPI back-up.  
04:30:22 P Roger. Go.  
04:30:23 CC 04:34:05.  
04:30:32 P Roger.  
04:30:33 CC Okay.  
04:30:58 CC Roger. Got a new GET NSR for you.  
04:31:03 P Right. Roger. Go.  
04:31:05 CC 46 plus 31.  
03:31:11 P Roger.

## CALIFORNIA

04:33:36 CC Gemini X, Houston standing by.  
04:33:39 P Roger.  
04:41:59 C Intermittent radar lock; I get an intermittent lock.  
04:42:02 P Okay ...  
04:42:16 C Okay. Tape going to CONTINUOUS at 04:42. Apply the Closed Loop solution with the exception of 15 left. I can see the target now at a range of 140K.  
04:42:38 P Okay. Coming up on 1430.  
04:42:43 C Okay.  
04:43:28 P We're going to have an aft correction ... riding about 225 feet per second.  
04:43:40 C Yes, but we're low.  
04:43:47 P Next ... Mark it.

# CONFIDENTIAL

## CONFIDENTIAL

04:44:19 C Good one! That is right in the middle of that radar screen.

04:44:59 P Countdown.

04:45:02 C Yes. 10 pounds.

04:45:33 P ... Are we climbing too high?

04:45:38 C It's possible.

04:45:40 C What does the angle look like? What does it look like on the photo plot?

04:45:42 P Just a second and I'll show you.

04:45:44 C Okay.

04:45:47 P Here are the last three plots on the photo plot. I'll put this on right now. 38 degrees, 21 miles. Yes. We're back up on. If anything, we're going a little high.

04:46:07 C Just 15 aft, and 1 right, and 22 down.

04:46:10 P 15 - say those numbers again?

04:46:13 C 15 aft, 1 right, and 22 down.

04:46:19 C Believe that?

04:46:20 P Yes. I do. I believe some part of it, but I believe my 10 down anyway. Probably all 22. I believe all 22.

04:46:26 C Okay. Let's ... Can you look back down so I can see what I'm doing? We'll do the most economical part of it.

04:46:45 P I put in ... I'd split the difference on the down, John.

04:46:49 C Okay.

04:46:50 P I'd put in the 22.

04:46:52 C Okay. Okay.

CONFIDENTIAL

# CONFIDENTIAL

63

04:47:11 P Okay. Get right on an angle because we've got another data point coming in here.

04:47:12 C Okay.

04:47:15 P You're right on.

04:47:17 C Yes.

04:47:20 P Okay.

04:47:22 C Okay. Now we put in all but 9 down at that point, too.

04:47:29 P ... Okay. Back on this other page. Tell me what we used?

04:47:43 C We used 15 aft, 8 down.

04:47:48 P 10 aft and 8 down?

04:47:51 C No. 8 minus 22, whatever that is.

04:47:55 P Okay. 22 minus 8 is 14 down.

04:48:02 C Give me the data point it went.

04:48:04 P We just got it. We need another one here in about another 20 seconds.

04:48:10 C Okay.

04:49:31 P 47 degrees at 12 1/2 miles.

04:49:33 C Okay.

04:49:40 P ...

04:49:43 C Bad?

04:49:45 P No! No! I don't think bad. I think we could use some more down. This next correction might get ... Okay. I'm coming up 16 minutes and I need a data point.

04:49:52 C Okay.

# CONFIDENTIAL

## CONFIDENTIAL

04:50:11 P 5 seconds.

04:50:14 C Good one!

04:50:18 P Got a good one. How's the ... now?

04:50:45 P Give me 10 down.

04:50:47 C 10 down?

04:50:52 P 10 down, 7 aft.

04:50:55 C Okay.

04:50:57 P Not quite.

04:50:58 C Okay.

04:51:09 P Next data point is at 19 minutes ... Coming up on this ...

04:51:40 P You're a little bit above it, John ...

04:51:45 C Yes. Okay?

04:52:02 P Coming up on 19 minutes.

04:52:04 C Yes.

04:52:14 P How do ... lights? Will it be all right for you to brake in and all?

04:52:18 C I reckon.

04:52:19 P Okay.

04:52:20 C How's the angle? Are we low on angle or high, or how?

04:52:23 P Okay. We're way high, aren't we?

04:52:26 P We're no - no, no! We're not high on angle. We're low on angle; we're riding up high.

04:52:33 C Okay.

04:52:35 P Last nominal angle was 59 degrees - 50 degrees.

CONFIDENTIAL

# CONFIDENTIAL

65

04:52:37 C Okay.

04:52:42 P At 19 minutes that should be.

04:52:44 C Okay.

04:52:49 P ... 7 aft, and 10 down that time.

04:52:55 C Seems to me like we're going to get there in the dark.

04:53:04 P Coming up on 19 minutes.

04:53:07 C Okay.

04:53:16 P Ready?

04:53:18 C Okay.

04:53:20 P MARK.

04:53:25 C Mark. Good one.

04:53:30 P You're 8 miles out. I have at this point, 88 degrees.

04:53:38 C You're high, right?

04:53:45 P Yes. That's right. That's right about 15 feet per second higher right now. 110 degrees low, right; 14 degrees left.

04:53:59 C You want the photo plots reading?

04:54:02 P No. Just verse it to nominal. ... plots. Stand by ...

04:54:23 C Okay.

04:54:26 P Next data point is 20:35.

04:54:27 C Okay.

04:54:57 P 10 miles out.

04:54:59 C Okay.

04:55:00 P I have 80, which is 9 feet per second fast.

04:55:04 C Okay.

# CONFIDENTIAL

## CONFIDENTIAL

04:55:07 P 71 at this point.

04:55:19 C Okay. Okay, what's the next time you need one?  
20 what? 20:30 or something?

04:55:23 P No. I have that. 22 minutes. Prediction at 22  
minutes, right?

04:55:27 C Yes.

04:55:29 P 22 minutes ...

04:55:31 C Okay.

04:55:33 P And then I'll have me a quick data point correc-  
tion ...

04:55:36 C Okay.

04:55:45 P Is that you?

04:55:47 C Yes.

04:55:59 P ...

04:56:01 C Okay.

04:56:19 P MARK.

04:56:21 C Good angle.

04:56:55 P 14 down.

04:56:57 C Okay.

04:57:19 P 1 degree aft.

04:57:21 C 1 degree aft?

04:57:24 P Yes. You should be getting Closed Loop here pretty  
soon.

04:57:26 C Yes.

04:57:33 P We're going way low on angle, John. We were riding  
up high that time. We should be thrusting down. Be-  
lieve that?

CONFIDENTIAL

# CONFIDENTIAL

67

04:57:40 C Yes. It's going to be a bad one - bad data point.

04:57:57 P 68 feet per second. I'm reading Range-Rate.

04:58:00 C Okay.

04:58:03 P What in the world does that ... installation have?

04:58:06 C 23:40.

04:58:08 P There it is.

04:58:10 C 145 right and 25 down?

04:58:14 P ...

04:58:16 C You do that?

04:58:20 P ... I do a lot of data, John.

04:58:23 C Okay.

04:58:26 P I believe 25 down.

04:59:16 C Where's this aft coming from? Look at it. It's saying 22 aft now.

04:59:26 P John, I wouldn't worry about the poor aft. I'd just get it down. I don't know why it did that.

04:59:40 C What the heck am I going to do? What is it? What is it?

04:59:45 P What is the reading now?

04:59:47 C Yes.

04:59:50 P I don't know. What did you put in there?

04:59:52 C 25 aft. What's R-dot now?

05:00:02 P I have, right now, 83.

05:00:07 C What should it be?

05:00:10 P Should be about 70.

# CONFIDENTIAL

## CONFIDENTIAL

05:00:14 C Okay. We'd better take out some, right?

05:00:16 P Yes.

05:00:18 C Take out 13.

05:00:24 P Okay. Now do you want me to dub the inertial needles for you?

05:00:26 C Yes.

05:00:29 P Okay. I can't give you more R-dots for the moment, right now.

05:00:33 C Okay.

05:00:35 P I have to switch out of mode to do this one.

05:00:38 C Okay.

## ROSE KNOT VICTOR

05:00:42 CC Gemini X, RKV. We have nothing for you at this time. We're standing by.

05:00:48 P Gemini X. Roger.

05:00:51 P Okay. ... inertial needle.

05:00:53 C Okay.

05:00:55 P Can I go from Rendezvous to another mode back? Now?

05:00:58 C What? Yes. Yes, go ahead and Rendezvous.

05:01:07 P Okay. Ready for it?

05:01:11 C Yes.

05:01:13 P MARK. Didn't take.

05:01:16 C No. Wait a minute. Let me get back in Rendezvous mode, that's why. Okay. Now, now Interim.

CONFIDENTIAL

# CONFIDENTIAL

69

05:01:23 P Ready?

05:01:25 C Yes.

05:01:28 P MARK.

05:01:30 C Okay ...

05:01:33 P Okay. What is your R-dot on this, John?

05:01:36 C Okay.

05:01:40 P Reads 65 right now.

05:01:42 C Okay.

05:01:45 P Range - -

05:01:46 C Gosh darn, that's supposed to be, ah ... I'm going to brake, Babe.

05:01:50 P Yes, brake. Range is 2 miles. You've got a 65 R-dot at 2 miles.

05:01:57 C Yes.

05:02:04 P 1.8 miles.

05:02:06 C Yes.

05:02:16 P R-dot 62. If the cockpit lights bother you, let me know. R-dot 49, John.

05:02:37 C Okay.

05:02:55 P 44, R-dot, and a range of 1.4 miles.

05:03:07 C Hold it.

05:03:11 P 44, R-dot.

05:03:13 C Okay.

05:03:26 P 41, R-dot. Holding about 41. 34, I jump to. Good show. And range 1.1 miles. A little over a mile.

05:03:57 C ... we're running out of gas here, Babe.

# CONFIDENTIAL

## CONFIDENTIAL

05:03:59 P No you're not. I have 29 - 30, R-dot. Okay. R-dot 29. Range .8 of a mile. I can make out the shape of the Agena just barely. What time do you want those inertial needles back? Just say.

05:05:17 C Okay.

05:05:19 P 26 feet per second.

05:05:23 CC Gemini, RKV CAP COM.

05:05:25 C Gemini X. Go.

05:05:33 P Go ahead.

05:05:35 CC Gemini X, RKV CAP COM.

05:05:39 C Go ahead, RKV.

05:05:43 CC Roger. Will you cycle your Playback switch to READ, if you please?

05:05:45 C Roger.

05:05:55 P 22, R-dot, John. Nice magical number, right?

05:05:58 C Yes.

05:06:01 P Want any more inertial needle? .6 of a mile.

05:06:16 C Okay. Oh ...

05:06:31 C Yes. Give me the inertial needles, again.

05:06:33 P Okay.

05:06:41 P Ready?

05:06:43 C Yes.

05:06:44 P Did they take?

05:06:45 C Yes - no.

05:06:48 P We were out at Rendezvous ... ready?

05:06:51 C Yes.

CONFIDENTIAL

# CONFIDENTIAL

71

05:07:02 P Did it take? Try one more time.

05:07:07 C Heck, stay out of Rendezvous.

05:07:21 P Got 86.

05:07:35 C Yes. I've got to stop that rate. What's R-dot?

05:07:38 P 11.

05:07:40 C Okay.

05:07:57 P .3 of a mile.

05:07:59 C Okay.

05:08:23 P Moving out.

05:08:27 C The R-dot is?

05:08:29 P No. The target.

05:08:32 C What's the R-dot now?

05:08:35 P The R-dot is 11, still. Holding 11. Nice number.

05:09:05 P R-dot 9. 7.

05:09:08 C Okay.

05:09:14 P 9. 9.

05:09:37 C ... right out of gas.

05:09:40 P .2 of a mile.

05:10:10 C Did you turn on the docking light?

05:10:12 P ...

05:10:21 C Still closing on the Agena.

05:10:23 P Stand by. Yes. 4 feet per second. 4 feet per second. 5 feet per second. 2 feet per second. 2 feet per second. 2 feet per second. .13 miles.

05:11:22 P Hold it.

# CONFIDENTIAL

## CONFIDENTIAL

05:11:28 P .10, about 700 feet. 660 feet. Holding 660 feet.  
600 feet. 600 feet holding.

05:12:04 C It's going away somewhere.

05:12:14 P 600 feet.

05:12:16 C Now it's opening.

05:12:18 P 600 feet. 600 feet. 600 feet. 540 feet. 480.  
430 and holding. 420. 420 and holding. 420 and  
holding. 360.

05:13:11 C Whoa, whoa, whoa, you bum!

05:13:14 P 360 and holding. 360 and holding. 300 feet.

05:13:29 C How fast are we closing?

05:13:35 P Okay. That range is 300 feet, R-dot is 4 feet  
per second. 4 feet per second. ... 50 ...  
Where's it?

05:14:18 C Gosh darn, Babe! I really missed this one! I  
don't have enough gas for you to do your ...

05:14:27 P Ah, don't worry about it. Maybe we do, maybe we  
don't. Do you know for sure we don't?

05:14:31 C No. Sorry.

05:14:42 P No. No. Holy mackerel! Don't worry about a thing.  
We're there. Okay. Keep your pants on. Docking  
condition - ... Extension lights - DOCK.

05:15:16 C Yes.

05:15:18 P Might just as well. Mark it ...

05:16:09 C I better get on in there or we never will get it.

05:16:13 P Can't get over there ... opening up 180 feet. 240  
feet, John.

05:16:28 C Okay.

05:16:32 P 180 feet. Okay, 180 feet and holding. You ...

CONFIDENTIAL

# CONFIDENTIAL

73

get right in there, John. 180 feet. 180 feet and holding. 120 feet.

05:17:14 C Got your camera?  
05:17:16 P Yes. Got it set up for daylight.  
05:17:50 C Get right in there with this one.

## TANANARIVE

05:19:21 P Is that darn thing rolling, or are we?  
05:19:23 C We are ...  
05:19:52 P How in the heck do I stop rolling around in it?  
05:19:55 C Just stopped, right?  
05:19:59 P Here comes the sun, so watch it.  
05:20:13 CC Gemini X, Houston.  
05:20:17 C Gemini X. Go.  
05:20:20 CC Want to do some Stationkeeping?  
05:20:24 C Gemini X. Go.  
05:20:29 CC Roger. Are you Stationkeeping yet?  
05:20:45 C I can't see a darn thing there, Babe. Can you see it?  
05:20:47 P Yes. I can see. You're all right! You're all right! You're all right! You're all right, John! Don't do anything! You'll see it in a second.  
05:20:59 C I got it.  
05:21:20 C Gemini X. Go ahead there, Houston.  
05:21:24 CC Roger. What's your status?  
05:21:27 C Say again. Over.

# CONFIDENTIAL

## CONFIDENTIAL

05:21:28 CC Roger. You there yet?

05:21:31 C Roger. We're there.

05:21:33 CC Okay.

05:21:38 CC You want to turn that Agena C-Band to OFF.

05:21:57 CC That's 050 and 010.

05:22:11 P I don't have it down, John.

05:22:13 C I've got it.

05:22:14 P Okay.

05:23:13 CC What's your range now, Gemini X?

05:23:16 C What time are we supposed to dock with this thing?

05:23:18 P Just a second and I'll tell you. Want your book back?

05:23:20 C Say again. Over.

05:23:22 C Yes.

05:23:31 P 05:40 to 05:50. You have a lot of time.

05:23:35 P Can we get around it and see this Status Display Panel? That's what I'd like to do next.

05:23:40 C Okay. I've got to Cage the platform here.

05:23:41 P Okay.

05:23:54 C Platform Cage BEF yet?

05:23:59 P Yes. You want to look at this Status Display Panel first, or anything like that?

05:24:01 CC What's your range now?

05:24:06 C Okay. Let's go look at it.

05:24:08 P I don't care. Whatever you prefer.

CONFIDENTIAL

# CONFIDENTIAL

75

05:24:29 C All of that goes to aline - I have to aline it at 05:40 to 05:50.

05:24:31 C Range about 40 feet.

05:24:33 P Yes. 05:40 to 05:50.

05:24:34 C Okay.

05:24:36 P You've got about 15 minutes.

05:24:38 C I was wanting to look - -

05:24:39 CC What's your range, Gemini X?

05:24:41 C - - Say again. Over.

05:24:46 CC ...

05:24:47 P Range.

05:24:48 C Range about 40 feet.

05:24:50 CC Roger.

05:25:07 P Keep down on there, John, and I'll see what it looks like.

05:25:36 CC Gemini X, did you get the Agena C-Band OFF and leave the S-Band ON?

05:25:52 C We haven't checked the Status Display yet.

05:25:56 P I had those ON here. C-Band and S-Band. I got them OFF. FDC, to date, was the only thing I got on this darn Check List. You got anything in yours?

05:26:18 C No.

05:28:09 P See the Status Display Panel?

05:28:11 C Not yet.

05:28:38 P Whoa!

05:28:40 C What?

# CONFIDENTIAL

## CONFIDENTIAL

05:28:42 P Don't go back too far on the other side when you go ...

05:28:44 C Yes.

05:28:52 C I just want to pull right around here and Aline that Platform BEF.

05:29:47 P 259. 400 pounds, darn it.

05:29:57 P Don't sweat it, John.

05:29:59 C Where did it all go?

05:30:01 P I don't know.

05:30:02 P I mean -

## COASTAL SENTRY QUEBEC

05:41:22 CC Gemini X, CSQ.

05:41:28 C ...

05:41:29 CC Roger. You look real good here on the ground. How is it going?

05:41:32 C ... we're just about ready to dock.

05:41:36 CC Roger. Understand. We'd like for you to turn the Agena C-Band OFF; the S-Band ON.

05:42:42 C ...

05:42:45 CC Say again.

05:42:47 C We turned the C-Band ON and the S-Band OFF.

05:42:51 CC They should be S-Band, ON; C-Band, OFF.

05:42:55 CC Roger.

05:42:57 CC We show a break-off at this time.

05:43:00 CC Okay. Turn the S-Band ON.

CONFIDENTIAL

# CONFIDENTIAL

77

05:43:06 CC S-Band ON and is O10.

05:43:07 CC C-Band OFF. Command is O10.

05:43:12 C Roger. We have it.

05:43:13 CC Roger. We show it.

05:43:45 C Gemini X, CSQ.

05:43:47 CC Gemini X. Go.

05:43:48 CC Roger. Everything on the ground looks good for docking. Have you started the Discharge Monitor Test yet?

05:43:56 C ... we're starting it now.

05:43:58 CC Roger.

05:48:04 P Do you want to turn your recorder on CONTINUOUS? It's 05:48:03 Mark, and we're getting ready for our first Docking.

05:48:22 CC Gemini X, CSQ.

05:48:24 C Gemini X. Go.

05:48:25 CC Roger. How's the Docking?

05:48:27 C Roger. We're still a couple of minutes away from dock. Over.

05:48:30 CC Okay. Could you give us the Propellant Quantity readout, please?

05:48:34 C We're reading 36 percent.

05:48:37 CC 36?

05:48:38 C Roger.

05:48:39 CC Thank you.

05:48:59 CC Gemini X, CSQ. We're 1 minute to LOS and standing by.

# CONFIDENTIAL

## CONFIDENTIAL

05:49:03 C Gemini X. Roger.

05:49:33 P Okay. The MAIN RED is OFF; the MAIN GREEN is ON.  
The ARMED is OFF.

05:49:41 C Hard to tell, isn't it?

05:49:42 P Yes. It sure is. It's OFF. SECONDARY LO is ON.  
I'm not sure about that.

05:50:56 C I don't know about you, but it looks okay to me  
as far as the alinement is concerned. We still  
have to get down to BEF yet to be properly alined  
at this altitude.

05:51:13 P Everything looks okay to me.

05:51:15 C Yes. See those lights at all?

05:51:20 P What lines. What lines, John?

05:51:23 C Those lights at all?

05:51:27 P Oh, lights.

05:51:29 C Yes.

05:51:33 P Okay. The Attitude is ON.

05:51:36 C See ... see if the what-you-call-its are out.

05:51:40 P The latches? Yes. They look like they are out.  
See them?

05:51:46 C Yes.

05:52:25 P The lights look good to me, John.

05:52:44 C ... RIGID.

05:52:46 C Light is ON?

05:52:47 P Yes. MAIN GREEN is ON. All ... switches ON.  
MAIN is ON.

CONFIDENTIAL

# CONFIDENTIAL

79

05:52:58 C Well, give some readouts. Stand by. Okay. Now what do we do?

05:53:10 P Now I'm looking at this docking practice, so I'm finished with this.

05:53:17 C Okay.

05:53:19 P Did you do this Bending Mode Test?

05:53:21 C Post-dock Agena Status Panel Check List. DOCK light is OFF. DOCK light is OFF. This light is ON. Our light is ON. MAIN RED is OFF. MAIN GREEN is ON. Your MAIN RED is OFF?

05:53:34 P Right. Yes.

05:53:36 C MAIN GREEN is ON? SECONDARY HI-LO is ON?

05:53:37 P Yes.

05:53:39 C ATTITUDE light is ON?

05:53:41 P ATTITUDE light is ON, yes.

05:53:45 C Verify engine start.

05:53:47 P Do you want to write down those - and all that stuff?

05:53:50 C Yes.

05:53:52 P The clock shows - I never can read - the main clock says 58 seconds.

05:53:59 C 58 seconds.

05:54:00 P Okay. The secondary clock says 3 minutes and, I believe, 3:37.

05:54:09 C 3 minutes and 27 seconds.

05:54:11 P Look yourself. Do you believe that?

05:54:12 C Yes.

# CONFIDENTIAL

## CONFIDENTIAL

05:54:14 P 3:27. The Attitude Gas reads 85 percent.

05:54:16 C Attitude Gas is 85 percent.

05:54:22 P When's the next day of rest? They're going to be anxious to - -

05:54:24 C Control power, OFF.

05:54:37 C Okay. Post-Dock Check List. Scanner, OFF.

05:54:40 P Scanner's OFF.

05:54:42 C Attitude Control to RATE COMMAND. Reticle is OFF.

05:54:45 P Reticle is OFF. Are you going to take - -

05:54:49 C Event Timer - STOP - -

05:54:54 P Might be a good thing to do now. I don't know if you need it anymore or not.

05:54:57 C No. I don't need it anymore.

05:55:00 P When's the next day of rest? Is it in here?

05:55:02 C Yes. Look. Gosh darn it. What the ...

05:55:06 P Tut tut tut! We're on tape. Hawaii AOS at 09:59; they're due in 4 minutes.

05:55:28 P Okay. Maneuver Controller, OFF. Maneuver Controller, STOW, while you'r right there.

05:55:37 C Yes. But I've got to stow the - -

05:55:39 P Yes. I'm sorry.

05:55:41 C That's all right. Could you hold this here for a second?

05:55:45 P Sure. Hold anything you like.

05:55:48 C Gosh darn it, Mike.

CONFIDENTIAL

# CONFIDENTIAL

81

05:55:50 P How about if I put these two little white gloves inside the big glove. Okay?

05:55:54 C Okay.

05:55:59 P We have arrived. It's not even midnight yet.

05:56:09 C Okay. That one's stowed. Okay. That's stowed. That's stowed, that's stowed, and this is stowed. That's stowed.

05:56:20 P As soon as that quantity comes up, back up a little bit after it's stabilized. Is it back up any?

05:56:24 C Wishful thinking. I don't know where it all went, but man it sure did. I didn't think I was losing that much.

05:56:35 P That's the way it goes.

05:56:37 C ... unstowed and installed.

05:56:38 P Maneuver Controller, STOWED; Event Timer, STOPPED. Have you done that?

05:56:40 C Event Timer is STOPPED. Okay.

05:56:47 P Maneuver Controller is OFF. Maneuver Controller, STOWED. Okay?

05:56:51 C Yes.

05:56:53 P I have Exterior lights OFF and C-Adapt to COMMAND. REAL-TIME T/M, COMMAND? What the heck does that mean? REAL-TIME/DELAY TIME, I think.

05:57:11 C Yes.

05:57:23 P Radar is ON. Can we turn that OFF now?

05:57:25 C Yes.

05:57:26 P Radar is OFF. Computer's at PRELAUNCH. Computer is in PRELAUNCH. All right. Send the following commands to the Agena: O30, MAP; O21 MAP; 250,

# CONFIDENTIAL

## CONFIDENTIAL

250, MAP; 140, MAP; K-211, ... well, well, 211  
MAP; 070, 070 MAP. All right, I think we can do  
that. Ready for Hawaii AOS and tell them we're  
docked. Okay. I have to verify the ARMED STOPPED  
position. Okay. I want to turn your Engine Arm  
to ARM. Watch that ARMED light.

05:57:41 C Okay.

05:57:42 P Now I can't see it. Doggone it. ... status display - -

05:57:44 P - - T/M. I'm going to go to 021.

05:57:57 C Okay. They're bright. Okay. Now send it.

05:57:59 P Okay. Here goes the ARM.

05:58:03 C It works. Okay.

05:58:04 P Now what was that command again? Do you want to leave them on bright?

05:58:09 C Do I want to leave them on bright?

05:58:11 P Oh heck, that's just the Check List here.

05:58:13 C Yes.

05:58:16 P All right. 211. All right. We're finished with everything I put a check mark on.

05:58:30 C Okay. We're coming on Hawaii AOS, right?

## HAWAII

05:58:40 CC Gemini X, Hawaii CAP COM.

05:58:43 C This is Gemini X. Go.

05:58:45 CC Okay. First I have a couple of questions. What's the position of your T/M Control switch?

CONFIDENTIAL

# CONFIDENTIAL

83

05:58:51 P To COMMAND.

05:58:52 C T/M Control is in COMMAND.

05:58:56 CC Okay. I'd like a readout of OAMS Source Helium pressure.

05:59:04 C Roger. The OAMS Source pressure is 1 - 1400. Over.

05:59:11 CC 1400. Okay. OAMS Prop Quantity readout.

06:00:14 C Roger. It's 37.

06:00:29 CC Okay. Got a couple other questions for you before we start.

06:00:33 C Roger.

06:00:35 CC Okay. What kind of solution did you use? And what did you think of it?

06:00:38 C We used 41 forward and 3 up. I thought it was a little swift and subsequent Closed Loop solution showed up to be the case.

06:00:49 CC Okay.

06:00:55 CC Was that your Closed Loop solution?

06:00:57 C That's affirm.

06:00:59 CC Okay. Did you send C-Band Command, ON?

06:01:04 C Roger. We turned the S-Band ON and C-Band OFF. Over.

06:01:10 CC That's correct.

06:01:12 C You want the C-Band turned ON? Over.

06:01:14 CC Negative. We'd like you to stay just the way you are.

06:01:16 C Roger.

06:01:17 CC Okay. You seem to have used a tremendous amount

# CONFIDENTIAL

## CONFIDENTIAL

of fuel - the propellant between RKV and CSQ. Did something different than ordinary happen?

06:01:26 C No. It just seemed like a tough break, I think. But it didn't seem like it used that much. Over.

06:01:32 CC Okay. We are ready for your Bending Moment Test.

06:01:36 C Roger.

06:07:18 CC How are you doing with the Bending Moment?

06:07:22 C Roger. We're through with it. We're going to Spacecraft ...

06:07:26 CC Did you have any problems at all?

06:07:30 C I didn't see any. Over.

06:07:32 CC Okay.

06:07:40 CC You're supposed to be continuing the Flight Control Mode 2 at this time.

06:07:44 C Roger. That's final. As soon as we get around, we will do it.

06:07:47 CC Okay.

ROSE KNOT VICTOR

06:32:55 CC Gemini X, RKV.

06:32:58 C Gemini X. Go.

06:32:59 CC Roger. Stand by for a TX.

06:33:01 C Okay.

06:33:15 CC Gemini X, this RKV. Would you turn the Encoder OFF so we can load the Agena, please?

06:33:21 C The Encoder is OFF and update received.

06:33:30 C Did you copy, RKV?

CONFIDENTIAL

# CONFIDENTIAL

85

06:33:32 CC That's affirmative, Gemini X. Turn your Adapter C-Band to CONTINUOUS.

06:33:37 C Adapter C-Band, CONTINUOUS.

06:33:41 CC Roger. I have an update for you. A Phase-Maneuver update.

06:33:48 C Ready to copy.

06:33:50 CC Roger. GET B of burn: 07:38:17; Delta-T, 1 plus 38; Delta-T of main engine burn, 0 plus 14; 25, 04139; the PTS, start C; Maneuver PTA, forward; Posigrade. Do you copy?

06:34:35 C Roger. I copy ... 07:38:17; Delta-T, 1 plus 38 which is 14 seconds on the main engine; 25 is 04139; the PTS, start C; PTA, forward; Posigrade. Over.

06:34:54 CC That's affirmative.

06:34:59 CC Okay. I'd also like to check on this OAMS Prop situation with you. Do you feel that the fuel was used excessively and what was it used for? Do you have any idea on this?

06:35:13 CC We'd like to get a little bit of a handle on this before we go any higher in the orbit.

06:35:18 C Roger. We got -

06:35:28 CC Gemini X, you were cut out.

06:35:37 CC Gemini X, RKV.

06:35:39 C The Closed Loop solution was 414 and we had our - we burned 414. The drift midcourse correction was 15 aft and 22 down. We burned 15 aft and 14 down. The ... direction was 1025 aft and down right. That was 25 down and 5 right. We burned 25 down and 5 right. We had no element of leakage and we weren't set up too well for the visual line-of-sight control.

06:06:38 CC Roger.

# CONFIDENTIAL

**CONFIDENTIAL**

06:36:40 CC Would you give us the actual start time of the TPI, please?

06:36:54 CC Gemini X, do you copy?

06:37:01 C Roger. It was 46 minutes after lift-off - from the lift tower.

06:37:11 CC Roger. Understand.

06:37:45 CC Is there anything else you - -

06:37:47 C ... quantity is ... 35 percent ... at 1500.

06:37:51 CC Roger.

06:37:54 CC Is that 35 percent?

06:37:56 C That's affirmative.

06:38:20 CC Gemini X, did you spend a lot of fuel on the final braking movement?

06:38:26 C Gemini X. Roger. Perhaps, but I don't think it was anywhere near that much. Over.

06:38:30 CC Roger. Understand.

06:39:47 CC Gemini X, did the PQI readout follow the Houston profile?

06:40:00 CC Gemini X, did you copy?

06:40:02 C Roger. Yes, but - I did follow this report.

06:40:09 CC Say again. You're breaking up.

06:40:19 CC Gemini X, I believe I understood you to say that you did follow the Houston profile. Is that affirm?

06:40:26 C I don't understand what the Houston profile is. Would this be ...

06:40:31 CC Roger. Stand by.

06:40:52 CC We're wondering, Gemini X, if the gage followed what the maneuver controller was indicating.

**CONFIDENTIAL**

# CONFIDENTIAL

87

06:41:02 C Does the gage follow what the maneuver controller  
- -

06:41:05 CC Roger.

06:41:21 CC Gemini X, we're trying to find out if the gage  
came down as you were using the attitude controller  
and the maneuver controller.

06:41:36 CC Do you copy?

## TANANARIVE

06:54:11 CC Gemini X, Houston here.

06:54:16 P This is Gemini X. Go.

06:54:18 CC Roger. One little reminder on the TPS burn. There  
will be a 6 foot-per-second tail-off after you get  
velocity cut off.

06:54:32 P ...

06:54:35 CC And we didn't get one of those  $V_D$  readings over  
RKV. Could you give us one?

06:54:41 P Say again. Over.

06:54:45 CC We need one of those dosimeter readings some time  
along about there.

06:54:53 P Roger. It's - it's on and it's reading nothing.  
Over. It's still on.

06:54:59 CC Okay. Very good.

06:55:05 C And the range is zero.

06:55:07 CC Roger.

06:57:14 CC Gemini X, Houston here.

06:57:17 P Gemini X. Go.

06:57:19 CC Roger. That "Houston usage" that you recall from

# CONFIDENTIAL

## CONFIDENTIAL

awhile ago is a lesser usage. We just wondered if the TPI matched what you were doing on the maneuver controller.

06:57:33 P Say again. Over.

06:57:39 CC We were just checking over RKV if your TPI matched somewhat what you were doing with the maneuver controller.

06:57:48 P That's affirmative.

06:57:49 CC Okay.

## COASTAL SENTRY QUEBEC

07:16:48 CC Gemini X, CSQ.

07:16:50 C Gemini X. Over.

07:16:51 CC Roger. I'm going to transmit you a Tx. We'd like for you to turn your color switch OFF so we can check your VM mode.

07:17:03 C Roger. VM OFF.

07:17:17 CC Okay. The VM mode looks good.

07:17:20 C Roger.

07:17:33 CC Okay. We confirm VM mode is in DIRECT.

07:17:41 C ...

07:17:46 CC Roger. We confirm the VM mode is to DIRECT.

07:17:55 C Roger.

07:17:57 CC I'm standing by for your SDP readout.

07:18:24 C Roger. Our Main is 58 seconds. The Secondary is 3 minutes and 27 seconds and Attitude Gas 85 percent.

07:18:32 CC Roger. I copy. You can turn your recorder to ON

CONFIDENTIAL

# CONFIDENTIAL

89

when you're ready.

07:18:38 C It's turned ON.

07:18:45 CC We'd like for you to watch your Primary O<sub>2</sub> tank pressure.

07:18:48 C All right. Thank you.

07:19:05 CC Gemini X, CSQ.

07:19:08 C Go.

07:19:09 CC Okay. Everything looks GO for the burn, except you're not to FC6 as yet.

07:19:14 C All right. We're going to intercept 20. Over.

07:19:17 CC Roger.

07:21:28 CC Gemini X, CSQ.

07:21:29 P Gemini X. Go.

07:21:30 CC Roger. Have you fastened your restraint harness?

07:21:33 C Roger. We're tightened down.

07:21:35 CC Roger. Understand.

## HAWAII

07:34:45 CC Gemini X, Hawaii CAP COM.

07:34:47 C This is Gemini X. Go. We're on FC7.

07:34:50 CC Okay. I'm going to send you a TX, Mark.

07:34:53 C Roger. We got it.

07:34:55 CC Okay. You're looking real good. We're giving you a GO for the burn. I'll give you a time hack at 1 minute to your GET B.

07:35:02 C Roger.

# CONFIDENTIAL

# CONFIDENTIAL

07:36:39 CC You're looking real good. You're holding the attitude real fine.

07:36:43 C Roger. The attitude has been real fine on this machine. No disturbances between ours and theirs.

07:36:48 CC Very good. Got about 30 seconds from my 1 minute Mark.

07:37:07 CC 10 seconds.

07:37:12 CC 5, 4, 3, 2, 1,

07:37:17 CC MARK.

07:40:17 CC Gemini X, Hawaii.

07:40:20 P That was really something!

07:40:22 CC Pretty wild!

07:40:25 P When that baby lights, there's no doubt about it!

07:40:30 CC You're trying to tell me something.

07:40:34 C We got a real spectacular tail-off going right now.

07:40:45 CC Okay. Don't send recorder OFF yet.

07:40:48 C Roger.

07:40:53 CC Status Display Panel looking good.

07:40:55 C Roger.

07:41:06 CC Okay. Go ahead with your Flight Control Mode 6 now and continue on down. Just don't send recorder OFF. Let me know when you get to that point.

07:41:13 C Roger.

07:41:49 CC Go ahead with your VM Disable. We got your Flight Control Mode 6.

07:41:53 C Roger.

07:42:05 CC Okay. Just hold off on your recorder OFF. We'll

# CONFIDENTIAL

get the tail-off and you can go ahead on what you have to do.

07:42:20 CC How did you feel the attitudes went on the burn?

07:42:23 P Right on. It yawed a little over to the - to the right looking ahead - to the left looking ahead, but it went right back on.

07:42:33 CC That's affirm. We showed you plus 3 degrees on yaw.

07:42:41 P Roger. Our -

07:42:43 P Address 80 is 00011. Address 81 is 00133. Address 82 is minus 008.

07:42:56 CC Okay. 80 is 00011. 81 is 00133. 82 is minus 008.

07:43:03 P 0008 on 82. Over.

07:43:06 CC Okay.

07:44:16 C The picture at 07:09:18 over a small island in the Pacific.

07:44:22 C I guess the recorder missed all - but that was really something. Did you have the recorder OFF?

07:44:28 P No.

07:44:29 C Whew!

07:44:30 C I saw sparks flying and noise, rattling, and ... It's really going off.

07:44:36 P Wow! That's right!

07:44:37 P I almost shut it down. I almost did.

07:44:39 C No, you didn't!

07:44:40 P I almost did.

07:44:41 P If you had said ... I would have shut it down. Really!

## CONFIDENTIAL

07:44:48 C I was too busy hanging on the wall.

07:44:49 P I came - that's right. I came pretty close to shutting it down. I kid you not!

07:45:05 C Just like lighting. J-57, I'll be damping. J-57 might act that way - I would jump out.

07:45:19 C Son-of-a-gun! That beauty lights off! There's no two ways about it. Gosh.

07:45:39 C If our logic charts work good, I believe we could shut it down right on the money.

07:45:51 P I guess we can get unstrapped for awhile, right?

07:45:55 C Yes. Boy, I don't know! We may have to do another one here pretty quick. At 08:25:00.

07:46:01 C At 08:09:00 we'll know.

07:46:13 P ... purge cells, fuel cells.

07:46:22 C The maneuver not required. Purge 1 and then 2 and then 1, and then power-down, and then eat and then sleep. I'm glad they let us do that even if I did foul up the Rendezvous.

07:46:37 C On voice tape 925. That should do ...

## ROSE KNOT VICTOR

08:07:45 CC Gemini X, RKV.

08:07:49 P Gemini X. Go.

08:07:51 CC Roger. Would you turn the Encoder to OFF so we can command the Agena tape dump.

08:07:56 P Roger. Encoder, OFF.

08:07:57 CC Roger.

08:07:59 P Is that the last burn for this evening? Over.

CONFIDENTIAL

# CONFIDENTIAL

93

08:08:02 CC That's affirmative.

08:08:06 P Roger. Spectacular. The tail-off was a big one.

08:08:09 CC Roger. Understand.

08:08:11 P It lasted for a good 30 seconds and right at sunset. Very, very pretty pictures. And I hope we got some of it.

08:08:19 CC Roger. Your burn looked real good on the ground. Your orbit is now 411 by 160.

08:08:26 P Roger.

08:08:29 CC Stand by for a Tx.

08:08:40 P Transmitting.

08:08:49 CC Okay. Gemini X, I would like to have a dosimeter reading, please.

08:08:57 P Roger. It reads 04 rads and the death rate is below 1/10th rad per hour.

08:09:10 CC Roger.

08:09:18 CC Okay. Could you give me that SDP meter reading, please?

08:09:23 P Roger. The Main Time reads 45.5 seconds. The Secondary Time is 3 minutes, 20 seconds.

08:09:30 CC Roger. I copy. Stand by for a Tx.

08:09:35 CC MARK.

08:09:44 P Cryo O<sub>2</sub> Pressure is 979.

08:09:51 CC Say again.

08:09:53 P The Cryo O<sub>2</sub> Quantity is 979.

08:09:58 CC You're in Flight Control Mode 6, heading 0 degrees, 0 degrees, 0 degrees.

08:10:08 CC Gemini X, I would like you to perform a VOX check

# CONFIDENTIAL

## CONFIDENTIAL

this pass if you would.

08:10:17 P Roger. Will do. Out.

08:10:27 C RKV, Gemini X. How do you read on VOX? Over.

08:10:51 P ... overhead panel about 6 inches overhead. Over.

08:10:56 CC Roger. And I would like to confirm if you are going back to O<sub>2</sub> heaters AUTO when you're through with the MANUAL.

08:11:07 P Roger. We're through with the MANUAL and we're in AUTO.

08:11:09 CC Okay. Start your fuel cell purge on Section 2 first and then Section 1.

08:11:15 P Roger. We're purging now.

08:11:46 F That's the last purge for the night. We could go ahead and put this thing in FCL. What do you think? Over.

08:11:54 CC Roger. That's all right, Gemini X. Go to FCL.

08:11:58 P Roger.

08:12:04 CC You need to get some Cryo readouts also.

08:12:08 P Roger. We'll get the Cryos.

08:12:21 F Our total turn is 45.1 amps.

08:12:27 P Do you copy?

08:14:11 CC Gemini X, RKV. Turn your Encoder OFF, please.

08:14:15 P Roger. Encoder, OFF.

08:14:45 CC Gemini X, you can turn your Encoder back to ON.

08:14:48 P Roger. Encoder is ON.

08:15:28 CC Okay. Gemini X, would you turn your Cryo switch to O<sub>2</sub> position?

CONFIDENTIAL

# CONFIDENTIAL

95

08:15:33 P Roger. In O<sub>2</sub>.

08:15:45 CC Gemini X. Cryo switch to H<sub>2</sub>.

08:15:50 C In H<sub>2</sub>.

08:16:03 CC Okay. You can turn your Cryo switch OFF.

08:16:07 C Switch OFF.

08:16:08 CC Roger. You can begin powering down your Spacecraft at this time.

08:16:13 C Roger. We're powering down now.

08:17:51 CC Gemini X, RKV. Would you confirm the Main Time on your SDP?

08:18:07 CC Gemini X, RKV. Would you confirm the Main Time, please?

08:18:11 P Roger.

08:18:15 P 45 and a half seconds.

08:18:18 CC Roger. Understand. 45 and a half seconds.

08:19:26 CC Gemini X, RKV. Would you give me another dosimeter reading, please?

08:19:40 CC Gemini X, RKV. Would you give me another dosimeter reading, please?

08:19:43 P Rad dose and the dose rate is still less than 1/10th rad per hour.

08:19:53 CC Would you give me the number of rads again, please?

08:19:57 P .18 rads.

08:20:01 CC Roger. Understand. .18 rads and rate is less than 1/10th rad per hour.

08:20:05 P That's affirmative.

08:20:07 CC Roger. We have nothing for you at this time. We're standing by.

# CONFIDENTIAL

## CONFIDENTIAL

08:20:28 CC Gemini X, RKV. We'd like to have you put the Adapter C-Band in CONTINUOUS for the remainder of the evening.

08:20:39 P Roger.

08:20:40 CC Roger. Understand.

HOUSTON

08:36:13 CC Gemini X, Houston.

08:36:19 CC Gemini X, this is Houston.

08:36:31 CC Gemini X, Gemini X, this is Houston. Do you read?

08:36:50 P Houston, this is Gemini X. How do you read? Over.

08:36:53 CC Roger. Gemini X, this is Houston. Read you loud and clear.

08:37:11 CC Gemini X, Gemini X, this is Houston. Over.

08:37:15 P This is Gemini X. Go ahead. Over.

08:37:18 CC Roger. We're wondering if your dosimeter is still snubbed.

08:37:27 P No, it's not still snubbed. It's reading .23 rads.

08:37:34 CC Understand. .23.

08:37:37 P Roger.

08:37:38 CC Okay. It looks like the decay rate is less by a factor of about 10 and there is no sweat down here on that.

08:37:49 P There's no ...

08:37:58 CC Gemini X, say again.

08:38:03 CC Gemini X, this is Houston. Say again.

08:38:07 CC Gemini X, this is Houston. I didn't copy. Would

CONFIDENTIAL

# CONFIDENTIAL

97

you say again?

08:38:11 C Hello. Roger. ...

08:38:17 CC Gemini X, Houston. Did you copy?

08:38:21 C That's a little bit better.

08:38:23 CC Roger. Understand.

08:39:07 CC Gemini X, this is Houston. Do you read me well enough to get part of a Flight Plan update? Over.

08:39:13 C Affirmative. We will give it a try.

08:39:16 CC Roger. At 17:30 gyro compass Agena to TDA south. At 19:00 gyro compass Agena, TDA aft. Dual rendezvous burn planned at the following time: NH, 20:20:57; Delta-V, 336 feet per second; Retrograde. Plane-Change: 21:50:48; 15.7 feet per second south. Did you copy?

08:40:58 C Roger. NH at 20:20:57: Delta-V, 336 feet per second; Retrograde. Plane-Change: 21:50:48; 15.7 feet per second south.

08:41:14 CC That's affirmative. NSR: 22:37:53; Delta-V, 84.4 feet per second; Posigrade. Planned to stay docked for Tweak maneuvers. Over.

08:41:35 C Roger. NH is 336 feet per second; Retrograde SPC. NSR: 22:37:53; Delta-V, 84.4 feet per second; Posigrade and docked for Tweak maneuvers.

08:41:53 CC That's affirmative.

08:42:02 CC Gemini X, Houston. 336 feet-per-second Altitude Adjust.

08:42:13 C I do 336 feet-per-second Altitude Adjust.

08:42:15 CC Roger. I think that's what you said before.

COASTAL SENTRY QUEBEC

08:57:16 CC Gemini X, CSQ.

# CONFIDENTIAL

## CONFIDENTIAL

08:57:35 CC Gemini X, CSQ.

08:57:38 C Gemini X ...

08:57:40 CC Roger. Could you turn your Recorder switch OFF so they can get Agena taped up?

08:57:45 C Roger. Recorder, OFF.

08:57:50 CC Okay. I have a PLA update for you when you're ready to copy.

08:58:15 C Okay. Roger. Go ahead when you feel like it.

08:58:17 CC Roger. 8-3: 11:55:30; 23 plus 31, 28 plus 11; 90; weather is good. 9-Echo: 13:34:10, 22 plus 15, 27 plus 42; all bank angles will be 90; weather is good. 10-Echo: 15:08:37; 22 plus 30, 27 plus 62; weather is marginal. 11-Alpha: 16:43:39; 22 plus 34, 27 plus 46; weather is poor. 12-Alpha: 18:23:24; 21 plus 19, 28 plus 17; weather is good. 13-2: 19:34:59; 31 plus 50, 35 plus 31; weather is good.

09:00:51 C Roger. Got your update.

09:00:53 CC Okay. We'd like ...

09:00:57 P O<sub>2</sub> Pressure is up to 800 psi on-board.

09:01:04 CC Roger.

09:01:09 CC The ground computation on your propellant agrees with your Spacecraft readout.

09:01:15 C Roger.

09:01:17 CC We'd like an On-board Quantity readout at this time.

09:01:20 C Roger. It reads about 32 percent now.

09:01:25 CC Roger. Can I have your SDP readout, please?

09:02:11 C Roger. We can't see the Status Display Panel clocks right now. The sun is still in the wrong direction and is too bright. Over.

09:02:23 CC Okay. We understand.

CONFIDENTIAL

# CONFIDENTIAL

99

09:02:25 C But I don't think they have changed much from last time.

09:02:28 CC Roger. Understand.

09:03:18 CC Gemini X, CSQ.

09:03:21 C This is Gemini X.

09:03:22 CC Roger. We're standing by for the crew status report.

09:03:27 C Roger. Crew status is GO.

09:03:30 CC Roger. Have you had anything to eat today?

09:03:34 C Just a couple of meals and some goodies we carried in our pockets.

09:03:39 CC Roger. Understand.

09:03:50 CC Can you give us a water gun readout?

09:03:55 C Roger. It's 195 counts.

09:03:58 CC Roger. Copy.

## CARNARVON

17:25:03 CC Gemini X, Carnarvon CAP COM.

18:13:19 CC Gemini X, Houston CAP COM.

18:13:27 C Gemini X. Go.

18:13:29 CC Roger. Good morning, John. We'd like a crew status report and a radiometer reading, please.

18:13:51 P Roger. Crew status is GO. Gun counter reads 335. We slept pretty good last night. Radiometer reads .78 rads and the dose rate is off-scale low.

18:14:10 CC Roger. Would you turn your Encoder OFF for an Agena tape dump, please?

# CONFIDENTIAL

## CONFIDENTIAL

18:14:50 CC Gemini X, Houston CAP COM. Would you turn the Encoder OFF for an Agena tape dump?

18:14:56 C Roger. Encoder, OFF.

18:15:01 CC Roger. And we'd like a fuel cell purge starting with Section 1.

18:15:07 P Roger. Fuel cell purge.

18:15:10 CC And would you switch your A Pump on Primary Loop?

18:15:20 C Roger. A Pump is ON. B Pump's OFF.

18:15:23 CC Roger.

18:16:30 CC Gemini X, Houston CAP COM. Can we have PQI, please?

18:16:36 C Roger. Same as last night. 32 percent.

18:16:40 CC Roger.

18:20:00 C Houston, Gemini X. Purge is complete. Going to O<sub>2</sub> for 10 seconds.

18:20:13 C Houston, do you copy Gemini X?

18:20:15 CC Say again, Gemini X.

18:20:17 C I say purge is completed and I'm in O<sub>2</sub> if you want to read out the quantity now.

18:20:23 CC Roger. We'd like a Cryo Quantity readout.

18:20:34 C Switching over to H<sub>2</sub>. And Cryo Select back to OFF.

18:20:52 CC Roger, Gemini X.

18:22:10 CC Gemini X, Houston CAP COM.

18:22:12 C Gemini X. Go.

18:22:14 CC Roger. After your gyro compassing, did you send 460 for the Horizon Scanner to LOW GAIN?

18:22:28 C That's negative.

CONFIDENTIAL

# CONFIDENTIAL

101

18:22:30 CC Roger. Then we'll send 76 from the ground since your Encoder is OFF.

18:22:40 C Encoder is OFF.

18:23:03 CC Gemini X, Houston CAP COM. Encoder, ON.

18:23:12 P Roger. Encoder back ON.

18:23:14 CC Roger.

## CANARY ISLANDS

18:28:57 C Gemini X. Go.

18:28:59 CC Roger. I've got a PLA update for you when you're ready to copy.

18:29:05 C Roger. Stand by.

18:29:25 C This is Gemini X. Go ahead.

18:29:27 CC Roger. Area 15-1: 22:45:05; 23 plus 50, 29 plus 06. Area 16-1: 24:13:18; 31 plus 07, 38 plus 25. Area 17-4: 27:07:24; 31 plus 07, 38 plus 45. Area 18-4: 23:44:36; 31 plus 07, 38 plus 45. Area 19-3: 30:04:51; 30 plus 58, 38 plus 27. Area 20-3: 31:42:56; 21 plus 05, 38 plus 22. Bank angle for all areas is 90 degrees. Weather in all areas is good and you have a SEP Maneuver for each area. Area 5-1 is based on a retro pitch angle of minus 20 degrees. Areas 16-1 through 20-3 are based on a pitch angle of 0 degrees. Over.

18:31:53 C Roger. We received your updates.

18:31:56 CC Roger. We've got you GO on the ground here, Gemini X, and we'll be standing by.

18:32:03 C Roger. We're GO up here.

18:33:54 CC Gemini X, Canary.

18:33:56 P Gemini X. Go.

# CONFIDENTIAL

## CONFIDENTIAL

18:33:57 CC Okay. We've seen your Cryo O<sub>2</sub> pressure drop a little bit. You may want to pump it up.

18:34:07 CC That's 450 on-board.

18:34:19 C 600 on-board.

18:34:21 CC Gemini X. I meant keep it above 450 on-board.

18:34:28 CC Gemini X, Canary's about a minute from LOS. We'll be standing by.

18:34:34 C Gemini X. Roger.

## CARNARVON

19:04:30 CC Gemini X, Carnarvon.

19:04:42 C Gemini X. Go.

19:04:44 CC Roger. Standing by for your GO.

19:04:46 C Roger. Gemini X is GO.

19:04:49 CC Roger. You're GO here on the ground also.

19:04:52 C Roger.

19:04:53 CC Would you turn your Encoder OFF?

19:04:57 C Roger. Encoder's OFF.

19:05:13 CC Roger. We sent up VM load ...

19:05:18 C Roger.

19:05:26 CC We have a Height-Adjust update for you.

19:05:39 P Ready to copy.

19:05:41 CC Okay. Height-Adjust GET B: 20:19:56. That's a time to start the computer.

19:05:57 CC Delta-T, 1 plus 35. ... 501 ... Delta-T of main engine burn, 11 seconds. Thrusters PPS. And the

CONFIDENTIAL

# CONFIDENTIAL

103

maneuver is TDA at Retrograde.

19:06:41 C Roger. We're copied.

19:06:43 CC Okay. All set to ... here on the ground.

19:07:01 C Roger, Carnarvon. What's the Delta-V of that burn? We need it for Address 25.

19:07:06 CC Okay. Delta-V, 340. And that includes ...

19:07:16 C Roger. Thank you.

19:08:17 CC Gemini X, Carnarvon.

19:08:19 C Gemini X. Go.

19:08:20 CC Okay. Let me give you that Core 25.

19:08:22 C Roger. Go.

19:08:24 CC 93331.

19:08:38 C Roger. 93331.

19:08:40 CC That's affirm. Got the L-Band ON right now?

19:08:45 C Negative.

19:08:47 CC Okay.

19:15:16 CC Gemini X, Carnarvon. We have about 1 more minute before LOS. We'll be standing by.

19:15:21 C Gemini X. Roger.

## GUAYMAS

19:46:38 CC Gemini X, Houston CAP COM.

19:46:41 P Gemini X. Go.

19:46:43 CC Roger. Request Encoder OFF.

19:46:47 C Roger. Encoder's OFF. ... TDA aft now.

# CONFIDENTIAL

## CONFIDENTIAL

19:46:52 CC Roger. Agena recommends that in the future when you gyro compass, they'd like for you to do it in FC6 instead of FC1 so there won't be any problem with this HIGH/LOW gain switching. It doesn't cost any significant additional fuel.

19:47:18 C Okay.

19:47:20 CC And have you hooked up your shoulder harness and lap belt for your PPS ... burn?

19:47:29 C Roger. I don't believe that's necessary, but it's about 1g negative, C.C.

19:47:35 CC Roger, John. I just thought I'd get a check with you.

19:47:40 CC We're standing by.

19:53:26 CC Gemini X, Houston CAP COM.

19:53:30 C Gemini X. Go.

19:53:31 CC Roger. Verify Encoder ON.

19:53:35 C Encoder is ON.

19:53:36 CC Roger. Would you send Command 271?

19:53:44 C Roger. 271.

19:53:46 CC Roger. It's now reset.

19:53:57 CC Gemini X, Houston CAP COM. Will you turn the Encoder OFF for Agena tape dump?

19:54:06 C Encoder is OFF.

19:54:10 CC All right, Gemini X.

19:57:37 CC Gemini X, Houston CAP COM.

19:57:40 C Gemini X. Go.

19:57:42 CC Roger. The ground is going to send a TVS cut-off signal to verify the valve positions. No action required on your part. I just wanted to alert you.

CONFIDENTIAL

# CONFIDENTIAL

105

19:57:53 C Roger. Encoder still OFF?  
19:57:55 CC Roger.  
19:58:31 CC Gemini X, Houston CAP COM.  
19:58:33 C Gemini X. Go.  
19:58:34 CC Roger. We show on the ground that you have your Yaw Rate Gyro ON and the Pitch and Roll OFF. Do you confirm this?  
19:58:40 C Affirm ...  
19:58:46 CC Roger.  
20:00:24 CC Gemini X, Houston CAP COM.  
20:00:28 C Roger. Go.  
20:00:31 CC Roger. Request the Encoder OFF for this tape dump and VM load verification.  
20:00:47 C Roger. Encoder is OFF.  
20:00:49 CC Roger. Encoder is OFF. I'll give you a call when we can put it back ON, John.  
20:00:57 C Roger. Thank you.

## CANARY ISLANDS

20:02:33 CC Gemini X, Houston CAP COM.  
20:02:37 C Gemini X. Go.  
20:02:39 CC Roger. You can turn your Encoder to ON. We got a VM compare. You're GO for the burn and we've got the dump complete.  
20:02:46 C Roger.  
20:04:11 CC Gemini X, Houston CAP COM.  
20:04:13 C Go ahead.

# CONFIDENTIAL

## CONFIDENTIAL

20:04:16 CC Roger. We show your Cryo O<sub>2</sub> down to about 500.  
Do you want to pump it up before this burn?

20:04:26 C Okay. Roger. Pump it.

20:04:28 CC Right.

20:10:36 CC Gemini X, Canary CAP COM.

20:10:39 P Gemini X. Go.

20:10:40 CC Roger. I'm going to send you a TX.

20:10:43 P Roger.

20:10:46 P Update received.

20:10:48 CC Roger.

20:11:18 P And another update received.

20:11:21 CC Roger, Gemini X.

20:14:20 CC Gemini X, Canary. Will you go to Flight Control  
Mode 7?

20:14:27 P ... go now.

20:15:37 CC Gemini X, Canary CAP COM. You've got a GO for your  
PPS burn.

20:15:40 C Roger on Flight Control Mode 7.

20:15:44 CC Roger.

20:16:38 CC Gemini X, Canary. You can place your Quantity Read  
switch to the OFF position.

20:16:44 C Roger. Quantity Read OFF.

20:17:59 CC Gemini X, Canary. About a minute before LOS. We'll  
be standing by.

20:18:03 C Gemini X. Roger.

CONFIDENTIAL

# CONFIDENTIAL

107

## KANO

20:19:35 CC Gemini X, Houston CAP COM. Standing by.  
20:19:43 C Roger. We're about to burn this, Flight.  
20:22:43 CC Gemini X, Houston CAP COM.  
20:22:45 C This is Gemini X. It was a good burn.  
20:22:48 C 80 is reading up 13.  
20:22:53 CC Roger. Understand. A good burn. Say again, readout.  
20:22:58 C 81 is - 80 is 60013. 81 is 00119. 82 is 00006.  
20:23:20 CC Roger.  
20:23:49 C It may only be lg, but it's the biggest lg we ever saw!  
20:23:56 C That thing really lights into you.  
20:23:58 CC Roger.

## TANANARIVE

20:31:48 CC Gemini X, Houston CAP COM. Standing by.  
20:31:52 P Roger.

## CANTON

21:06:25 CC Gemini X, Houston CAP COM.  
21:06:28 P Gemini X. Go.  
21:06:29 CC Roger. I have an update for your orbital map and oval 8 if you're ready to copy?  
21:06:33 P Gemini X. Go.

# CONFIDENTIAL

## CONFIDENTIAL

21:06:35 CC Roger. REV 13: 149.3 west; right ascension, 0528.

21:06:55 P Roger.

21:08:51 CC Gemini X, Houston.

21:08:54 P Gemini X. Go.

21:08:55 CC Roger. Did you go TDA forward at 21:20 or immediately after NHI?

21:09:14 P Say again. We're already TDA forward.

21:09:16 CC Roger. We're trying to determine when you went TDA forward for temperature constraints. Over.

21:09:27 P Roger. Flight Plan update. Over. Carnarvon told us to go TDA forward when we finished the burn.

21:09:32 CC Roger. That's fine.

21:14:52 CC Gemini X, Houston.

21:14:55 P Gemini X. Go.

21:14:57 CC Roger. Please verify your OAMS Heater circuit breaker CLOSED.

21:15:12 P It is CLOSED.

21:15:14 CC Roger.

## GUAYMAS

21:28:14 CC Gemini X, Houston.

21:28:19 C Gemini X. Go.

21:28:20 CC Roger. We've been taking a look at this Rolling Heads Down Maneuver scheduled following the early part of your EVA and especially considering the hard suit and turning off and on the Agena ACS, and we wonder what your feeling is up there.

21:28:48 C That's okay, Al.

CONFIDENTIAL

# CONFIDENTIAL

109

21:28:52 CC Roger. We'll - understand that you'll - go ahead and look at it, then as you progress through the EVA and if it looks acceptable, you'll just do it - at that time. Right?

21:29:13 C That's correct, Al.

21:30:34 P Houston, this is Gemini X. Over.

21:30:39 CC Gemini X, this is Houston. Go ahead.

21:30:41 P Roger. Is this the next burn - the last PPS burn we have scheduled? Over.

21:30:47 CC That is affirmative.

21:30:49 P Okay. Because I don't want to put up the sun bonnet if we're going to be burning that PPS anymore.

21:30:54 CC We understand. No, this is the last PPS burn.

21:30:57 P Roger.

21:31:28 CC Gemini X, Houston.

21:31:33 C Gemini X. Go.

21:31:34 CC Roger. The result of your last PPS burn: we have you at a 160 by 206 orbit. Looked real good.

21:31:43 C Gemini X. Roger.

21:32:51 CC Gemini X, Houston. Would you place your Encoder switch OFF? We'd like to perform a tape dump.

21:33:00 P OFF.

21:33:03 CC Roger.

HOUSTON

21:54:32 CC Gemini X, Houston.

21:34:36 C Gemini X. Go.

# CONFIDENTIAL

## CONFIDENTIAL

21:34:38 CC Roger. We show that the Agena has been using quite a bit of gas in Flight Control Mode 6 since Carnarvon. Could you go to Flight Control Mode 1 for the coast?

21:34:49 C Okay.

21:34:50 CC That's after we place the tape dump and encoders back on again.

21:34:56 C Okay. Give us the word and we'll send it.

21:35:00 CC Roger.

21:36:26 CC Gemini X, Houston. You can return your Encoder switch to ON at this time.

21:36:31 C ON. Roger. And we go into FC1.

21:36:33 CC Roger. We'll be talking to you again on Canary.

21:39:05 CC Gemini X, Houston.

21:39:09 C Gemini X. Go.

21:39:17 C Go ahead. Over.

21:39:19 CC Roger. We show your Cryo Pressure to be 500. Would you please increase that to about 700? Over.

21:39:28 C You show what? Over.

## CANARY ISLANDS

21:47:02 CC Gemini X, Canary CAP COM.

21:47:05 C Gemini X. Go.

21:47:07 CC Roger. I'd like to send you a Tx first of all.

21:47:12 C Okay.

21:47:18 P ...

21:47:44 CC Gemini X, Canaries. I would like to have you turn

CONFIDENTIAL

# CONFIDENTIAL

111

your Encoder OFF so I can update your VM word for the NSR.

21:47:59 C Roger. Encoder, OFF.

21:48:34 CC Gemini X, Canaries. I have your update for NSR if you're ready to copy.

21:48:40 C Roger. Gemini X is ready to copy.

21:48:43 CC Okay. Purpose is NSR. GET B: 22:36:51; Delta-V, 75.7; Delta-T, 01 plus 28; Core 25, 00689; TDA forward. PPS.

21:49:22 CC That's all I have at this time. I'll update you if I get further information.

21:49:31 C Roger. We received it.

21:50:16 CC Gemini X, Canaries. We updated your VM word. It's good for NSR. You can turn your Encoder to ON.

21:50:24 C Roger. Encoder, ON.

21:51:41 CC Gemini X, Canary. Your Delta-T of main engine burn is 4 seconds.

21:51:49 P All right. Roger. Thank you.

21:53:28 CC Gemini X, we've got about a minute to LOS and we'll be standing by.

21:53:36 P Gemini X. Roger.

22:00:53 P How about this flight tape? Do you want me to insert one of those?

22:00:55 C I just did.

22:00:56 P Okay.

22:01:00 C How about your light ... switch?

22:01:02 P Put the ... tape on for awhile here at GET of 23:21:45. We're dumping the cabin pressure down to the 2 psi mark. Can you hold her there for awhile, John, to see how everything is?

# CONFIDENTIAL

## CONFIDENTIAL

## HOUSTON

22:06:57 CC Gemini X, Houston CAP COM. Standing by.  
22:07:05 P Gemini X. Roger.

## CARNARVON

22:22:27 CC Gemini X, Carnarvon.  
22:22:31 P Gemini X. Go.  
22:22:32 CC Roger. We're looking at you down here. Everything looks very good. Now we would like you to turn the Encoder OFF.  
22:22:38 C Roger. We're in FL pitch.  
22:22:40 CC Roger ... PPS cut-off data looks good ...  
22:22:50 C Roger.  
22:22:52 CC ...  
22:22:55 C Encoder is OFF.  
22:23:28 CC Gemini X, Carnarvon. Would you turn the Encoder back to ON again?  
22:23:37 C Roger. Encoder is ON.  
22:24:31 CC Gemini X, Carnarvon. You're GO for the SPS burn.  
22:24:33 P Gemini X. Roger.  
22:24:37 CC Got all the info you need?  
22:24:40 P I believe so. Thank you.  
22:24:42 CC Roger. We will be standing by.

## HOUSTON

22:42:30 CC Gemini X, Houston CAP COM.

CONFIDENTIAL

# CONFIDENTIAL

113

22:42:33 P Gemini X. Go.

22:42:35 CC Roger. How was that last SPS burn?

22:42:42 P What was it or how was it?

22:42:45 CC How was it?

22:42:47 P Pretty nice purge.

22:42:50 C 80 was 0 - 0014 - excuse me - 80 was 00014. 81 was 00014. 82 was minus 0003.

22:43:08 CC Roger.

22:43:11 P So long.

## HAWAII

22:49:55 CC Gemini X, Hawaii CAP COM.

22:49:59 P Gemini X. Go.

22:50:00 CC How are you all doing?

22:50:09 P Great.

22:50:12 CC Okay. I'm going to send you a Tx and I've got nothing for you. I'll be standing by.

22:50:14 CC MARK.

22:50:20 P ...

22:50:22 CC Roger.

22:56:13 CC Gemini X, Hawaii.

22:56:20 CC Gemini X, Hawaii.

22:56:30 P Gemini X. Stand by. We're doing our Suit Interrogative checks right now.

22:56:34 CC Okay. I noticed the high rate. Disregard.

# CONFIDENTIAL

## CONFIDENTIAL

22:57:18 C Hawaii, Gemini X. Did you want something?  
22:57:24 CC Disregard, Gemini X.  
22:57:45 CC Gemini X, Houston CAP COM.

## HOUSTON

22:59:36 CC Gemini X, Houston CAP COM.  
22:59:41 C Gemini X. Go.  
22:59:43 CC Roger. We're standing by.  
22:59:54 C Roger. We're at TDA north now, going to SD2.  
22:59:58 CC Roger.  
23:05:21 CC Gemini X, Houston.  
23:05:25 C Gemini X. Go.  
23:05:28 CC John, this is Deke. You guys are doing a commendable job of maintaining radio silence. As soon as the French stop shooting at you, why don't you do a little more talking from here on?  
23:05:43 C Okay. What do you want us to talk about?  
23:05:48 CC Well, anything that seems appropriate. Like EVA.  
23:05:53 C All right. Mike is taking ... right now as a matter of fact.  
23:06:09 P Now we've completed our final preps and made our ... negative checks and we're just standing by for sunset at the present time.  
23:06:17 CC Good.  
23:06:33 P The Agena looks pretty normal except that Velcro patch has partially burned off. At least the cover which is plastered down on top of it matching Velcro appears to be very brown and the handle by which you remove it has disappeared. It's just a

CONFIDENTIAL

# CONFIDENTIAL

115

stub on either side.

23:06:55 CC Roger, Mike.

23:07:09 P These L-Beacons sound like jet engines.

23:07:15 CC Please repeat.

23:07:17 P When you light that thing up, it sounds like a jet engine with a rough kick that has get up and go to it.

23:07:36 P If you've got some camera experts down there, the 16mm movie camera on the right-hand side is broken. It just slowly started making strange noises and it got to the point where it would tick as if it were timing, but a little ratchet inside which advances the film is not moving.

23:07:58 CC Roger, Mike.

23:08:01 P Have you got any quick suggestions for repair? I don't mean now, but prior to the EVA tomorrow you might mention it.

23:08:08 CC We'll check into it.

23:09:00 P Agena is in ... Flight Control Mode 2.

23:09:04 CC Roger.

23:09:08 P How's everything going down there?

23:09:14 CC Just great down here, but we can't tell much about what's going on up there, though.

23:09:18 P Right. It's been pretty busy.

23:09:21 P This Agena takes a lot of talking to.

23:09:26 CC ...

23:09:51 CC Gemini X, this is Houston. You might be interested in knowing that the brave Astros dropped four straight to the hardy Mets up in New York. And tonight they're back in their home town where we hope there is greener grass.

# CONFIDENTIAL

## CONFIDENTIAL

23:10:03 P ...

23:10:07 CC They've got a new outfield and that's about all.

23:10:26 P It will be nice to get this door opened and see what the world looks like. Unfortunately, the attitude we've been in keeps us up against the wall. It looks pretty - it looks almost round up here.

23:10:43 CC Looks like we'll have to reprogram the computer again.

23:10:47 P Roger.

23:11:04 P There's also the usual film inside the glass over the right-hand hatch. It's not too bad, but I think probably just enough to decrease the quality of the pictures a little bit.

23:11:16 CC Roger. See - Keep a check on it Mike, and see if it gets any worse.

23:11:20 P Okay.

23:11:51 P Is that a small change the S-13 event timer has beefed out? I'll be pushing the button and holding it down for the 20 seconds.

23:12:02 CC Roger. Didn't break off in the shutter, did it?

23:12:06 P Negative.

23:12:08 CC Roger.

23:12:45 P Actually, there is a little piece of it still imbedded down in the shutter activate.

23:12:51 CC Roger.

23:12:55 CC Now have you tried it out, Mike, and made sure it works?

23:12:57 P I've tried it and apparently it is working. I've advanced the film one time and the shutter mechanism appears to be operating normally.

CONFIDENTIAL

# CONFIDENTIAL

117

23:13:06 CC Okay.

23:13:11 CC You are all clear on what we would like you to do on this S-13 and also the S-5 and 6 of photo rolling over if possible?

23:13:24 C Roger. We're all clear.

23:13:27 CC Okay, John.

23:16:58 CC Gemini X, Houston CAP COM. About 1 minute from LOS.

23:17:03 C Gemini X. Roger.

23:20:17 CC Gemini X, Houston.

23:20:21 C This is Gemini X. Go.

23:20:23 CC Roger. Do you think you can get Message 460 into the Agena to get the gains low? We are using an awful lot of fuel.

23:20:37 C Roger. 460 ... in Agena.

23:20:40 CC Thank you.

23:20:42 C And - -

23:21:58 P She seems to be good. I'm holding a - holding ... What do you read on your gage? I'm reading not quite 4.

23:22:06 C I'm reading past 3.5.

23:22:08 P Yes. That's right.

23:22:10 C Okay. Let's take her on down.

23:22:11 P Okay.

23:22:17 P You've got about 10 minutes with the hatch-open time, John.

23:22:20 C Right now?

23:22:21 P Yes.

# CONFIDENTIAL

## CONFIDENTIAL

23:22:25 C 9 minutes.

23:22:27 P Okay.

23:22:28 C Well, you can open it whenever you want to so we can get off together.

23:22:30 P If we can get the cabin down in pressure ...

23:22:32 C Okay. That's fine.

23:22:37 P Cabin pressure coming on down. And the old sun's getting ready to set.

23:22:47 P Who are we going to be talking to here?

23:22:48 C I don't know. Nobody.

23:22:53 P Looks to me like it isn't down to zero yet.

23:23:06 C Might take awhile.

23:23:39 C That's probably as low as it's going to get.

23:23:44 P Okay.

23:23:49 C You open it and get ready to help me with your hatch.

23:24:05 P Okay. I got it.

23:24:07 C Okay.

23:24:08 C Let it go just a tab.

23:24:10 P Okay.

23:24:12 C Man, it's gone!

23:24:14 P Okay. That's fine.

23:24:17 P Okay. It's fully resisting me, so the hatch pawls should be all the way open.

23:24:24 C Okay.

CONFIDENTIAL

23:24:27 P Hatch pawls are in LOCK.

23:24:33 P Hatch pawls are in LOCK and the handle is stowed. I can see right next to this thing still. Okay. The hatch pawls are in LOCK; handle is stowed. Vent tube is OPEN. All right. Well, I'm ready to go, John.

23:24:56 C Okay, Babe. Go to it.

23:25:03 P Nice to get rid of all of this stuff.

23:25:05 C Sure will be nice.

23:25:09 P The first thing I want to do - where do you want me to fling this? I'll fling it where you can see it. How about that? Look out your window. Okay?

23:25:14 C Okay.

23:25:16 C Oh man! I'll never get to it in time.

23:25:19 P Sure you will. Turn your 16mm on. Look at that thing go!

23:25:34 P It's pretty, isn't it?

23:25:36 C Yes.

23:25:39 P Isn't that pretty? Holy mackerel! Anybody reading Gemini X down there?

## CONFIDENTIAL

## CANARY ISLANDS

23:25:42 C Can anybody read Gemini X down there?

23:25:44 CC Roger, Gemini X. This is Houston CAP COM. Loud and clear.

23:25:49 P Okay, John. I'm going to get the old bracket up here.

23:25:51 C Okay.

23:25:53 P If I can.

23:26:15 P Okay. It's in the bracket.

23:26:16 C All right.

23:26:22 P Now then, lift your fabric handle on the hatch closing device; should be coming in to you. Can you handle that?

23:26:31 C Yes.

23:26:32 P See it?

23:26:33 C Yes. I see it.

23:26:36 P Okay. You can just about get it. Got it? This getting out at night I think is a loser, because I can't really see how my hoses and whatnot are doing.

23:26:48 C That's right.

23:26:51 CC Gemini X, Canary CAP COM. Standing by.

23:26:58 C This is Gemini X. Roger. Mike has just opened the hatch and he's stepping outside to see what's going on.

23:27:07 CC Roger.

23:27:09 C Okay.

23:27:31 P Okay, John. I had this thing; it said S-13 put in

CONFIDENTIAL

# CONFIDENTIAL

121

the bracket and the first time I shot the camera it came out. Maybe I didn't have it in very well.

23:27:41 C Can you see what you're doing, Mike?

23:27:45 P Yes. I ...

23:27:47 C Can I shine some light up there to you?

23:27:52 P No. It's all right. I'm doing fine. It's going just fine.

23:27:53 C Okay.

23:27:55 P Matter of fact, I'm going to start closing. Are you ready?

23:27:57 C Yes.

23:27:59 P Okay. Mark it. Tell me when the 20 seconds are up.

23:28:08 C Okay.

23:28:12 P That's Centauri, isn't it?

23:28:14 C Can't tell from in here. Think I had ...

23:28:21 C MARK. 20 seconds.

23:28:22 P Okay.

23:28:30 C Mike has just taken his first 20-second exposure of Centauri.

23:28:34 CC Roger. We copy that.

23:28:49 P Okay. Ready for another one, John.

23:28:50 C Okay.

23:28:53 P Mark it.

23:28:54 C Okay. That's a ...

23:28:59 P That's Number 2. I'll keep track of ...

23:29:01 C Number 2. Okay.

# CONFIDENTIAL

## CONFIDENTIAL

23:29:03 P I'll keep track of the totals. You keep track of the 20 seconds.

23:29:06 C I'll do her.

23:29:07 CC Gemini X, Houston. I'm standing by.

23:29:17 C On 40. MARK.

23:29:19 P Okay. The problem here is I feel as if something is holding me down on my left side, John, but can't see what it is so I'm just going to have to wait until sunup before I thrash around in here.

23:29:37 C Yes. I don't want you to thrash around.

23:29:38 P I'm not.

23:29:39 C Hard to hold this thing?

23:29:41 P That's right.

23:29:42 P Boy, look at the rim on that Agena! That must be phosphorescent paint or something.

23:29:44 C It is.

23:29:51 P We think the rim of the Agena is going to show up very nicely in the S-13. It's phosphorescent.

23:29:56 CC Roger.

23:30:08 C Any time.

23:30:09 P Okay. Here we go for Number 3. Stand by.

23:30:15 P Got the camera? Ready? Mark it.

23:30:18 C Mark it.

23:30:36 C Well, the cabin pressure's down a little. That's for sure.

23:30:38 C Okay. Mark it.

23:30:40 P Okay. That was Number 3.

23:30:55 C That's on CONTINUOUS isn't it?

CONFIDENTIAL

23:31:09 C Okay. You've been doing it for 3 minutes and 30 seconds.

23:31:13 P Just seems like 3 years.

23:31:28 P You know what I think it is? It's my left shoulder strap.

23:31:32 C Is it on?

23:31:33 P Yes.

23:31:37 C You didn't undo it. Right?

23:31:38 P That's right. Not that I can recall.

23:31:46 P Okay. Ready for Number 4?

23:31:47 C Roger.

23:31:51 P Ready.

23:31:52 C Okay.

23:31:54 P Mark it.

23:31:55 C 04:20.

23:32:16 C We're 04:40.

23:32:17 C MARK.

23:32:18 P Okay. That was Number 4.

23:32:49 P That was it, John.

23:32:51 C Okay.

23:32:53 P I undid it.

23:32:55 C You got it, right?

23:32:57 P Yes. That was Number 4. Right?

23:32:58 C Okay.

23:33:00 P Ready for Number 5?

## CONFIDENTIAL

23:33:03 C Yes. Go ahead.

23:33:05 P Stand by. Mark it.

23:33:07 C Roger. That's 05:30.

23:33:15 C Can you recognize any of those things out there, Babe?

23:33:18 P Yes, it's Centauri.

23:33:21 C Roger. We're right in the middle of Centauri now and taking S-13 pictures. We've completed Number 5.

## ASCENSION

23:33:22 CC Say again, Gemini X.

23:33:23 C Roger. We're ... 06 hours, 8 minutes, 13 seconds ...

23:33:31 P You should have a Southern Cross. You can't see it. Right?

23:33:35 P Are my 20 seconds up?

23:33:36 C Yes. Mark it.

23:33:39 P Okay. That was Number 5. Right?

23:33:41 C Yes.

23:33:43 P Coming up on Number 6. How are we doing on our time?

23:33:45 C Oh, we've 6 minutes and 10 seconds.

23:33:46 P Okay.

23:33:52 P I haven't cooled off any. I was warm when I got out and I'm still warm, even though it's in the nighttime.

23:33:56 C Is that right?

CONFIDENTIAL

# CONFIDENTIAL

125

23:33:59 P But I think I'm starting to cool off a little bit.

23:34:00 C Getting pretty good.

23:34:06 C Temperature down to 46; cabin temperature down to 80.

23:34:12 P Okay. Voice tape's on CONTINUOUS, isn't it?

23:34:14 C Yes.

23:34:20 P Okay. Ready for the next one?

23:34:21 C Yes.

23:34:23 P MARK.

23:34:24 C Okay. 06:48.

23:34:44 C ... MARK.

23:34:48 P Okay. That was Number 6.

23:34:49 C Okay.

23:34:51 P Stand by for Number 7. How are we doing on time?

23:34:53 C Oh, we're way ahead.

23:34:56 P Okay. Stand by for Number 7.

23:34:58 P Yes. It's really nice out here, John, though it is disappointing in one way. This visor, it just has enough tint to it that you can't really see the stars as I thought you would. I don't see them any better. I don't believe that I see them down to more than about 5th magnitude.

23:35:16 C Roger.

23:35:18 P Can I talk to ground?

23:35:22 C Sure, go ahead. Go ahead.

23:35:25 P Everything's going very well up here with this S-13 and we've gotten about 6 exposures and another 14 to go, and we're a little bit ahead on the time. One very small disappointing thing is that the visibility

# CONFIDENTIAL

## CONFIDENTIAL

through this visor is not exactly what I thought it would be. The left hand just cuts out enough of the visible sections so that the stars - I would estimate one smallest on seeing, are probably around 5th magnitude.

23:35:41 C Mike's got enough of the ... spectrum so that the stars, I would estimate, are the highest I am seeing. They are probably around 6th magnitude.

23:35:56 C Roger, Mike.

23:36:03 P Can you hear them talking?

23:36:05 C No.

23:36:06 P Maybe they are not getting us.

23:36:08 C Apparently not.

23:36:16 C Is that the False Cross?

23:36:17 P Yes.

23:36:18 C Well, if it isn't old False Cross! The only way you can find Gamma Velorum.

23:36:27 CC Understand you retrieved S-12.

23:36:32 C Gemini X. Go.

23:36:35 CC Did you say you retrieved the S-12?

23:36:41 C This is Gemini X. Say again. Over.

23:36:50 P John, 20 seconds.

23:36:51 C Okay.

23:36:52 P MARK.

23:36:53 C 09:18.

23:37:16 C Mark it.

23:37:17 P Okay.

23:37:19 P That was Number 7, I think.

CONFIDENTIAL

# CONFIDENTIAL

127

23:37:21 C Yes.

23:37:23 P Okay. Stand by for Number 8.

23:37:25 C Okay.

23:37:26 P How are we doing on the time?

23:37:27 C We're 09:50.

23:37:28 P Pretty good, right?

23:37:29 C Well, we're ahead.

23:37:35 P Houston, this is Gemini X. How do you read? Over.

23:37:39 C I'm not reading a soul.

23:37:42 C Well, this is Gemini X. Things are proceeding pretty normally up here. It's still dark as it always was. There is practically no visible horizon, but there are other constellations that are beautiful.

23:37:54 P Can you hear that?

23:37:55 C No.

23:37:58 P Okay. Stand by for Number 8.

23:37:59 C Okay.

23:38:01 P Ready. Mark it.

23:38:03 C 10:27.

23:38:24 P Mark it.

23:38:25 C Okay. 10:47.

23:38:29 P John, I don't know if you can see your helmet tie-down, but it's sure trying to come out this open hatch. Look at that, would you?

23:38:33 C Yes.

23:38:34 P How about hitting my mike button a second. Can you do that?

# CONFIDENTIAL

## CONFIDENTIAL

23:38:37 C Okay. There you go. Okay.

23:38:39 P Houston, Gemini X. If you read, we've finished 8 of 20 exposures with 12 more to go. When the hatch was closed we noticed nothing flared up or down; however, now that the hatch is open, items appear to be floating upward and out the open hatch. John's helmet tie-down, for instance is - has moved over from his chest position and, like a snake, is trying to sneak out the open hatch.

23:39:11 C Wonder if they can hear you yet?

23:39:13 P I don't know.

23:39:16 P Okay. Stand by for Number 9.

23:39:17 P Okay. Ready.

23:39:19 C Yes.

23:39:21 P Mark it.

23:39:29 C 12:06.

23:39:34 P Look at that False Cross up there, would you? It's beautiful! It's a better looking one than that other one. Mark it.

23:39:41 C Mark it.

23:39:42 C 12:07.

23:39:44 P That was Number 8.

23:39:49 P What's all that off at 11:00 o'clock, John? There's an area that looks like a great nebula or something.

23:39:56 P Is that by the ...?

23:39:58 P Don't ask me. Is that a Magellanic cloud? Could that be?

23:40:03 C That big black place.

23:40:05 P It's light.

23:40:09 C Yes. It could be a Magellanic cloud.

CONFIDENTIAL

# CONFIDENTIAL

129

23:40:12 P There are two of them over there. Okay. Number 9 coming up. Ready?

23:40:16 C Okay.

23:40:20 C Yes. We can ... at that.

23:40:21 P Mark it.

23:40:25 C Okay. 12:48.

23:40:34 C Next 13:08.

23:40:39 C I wish we could send this for real. I bet I could track these babies ...

23:40:44 P Mark it.

23:40:45 P Okay. That's Number 9 complete.

23:40:51 P Stand by for 10 and how are we doing on the time? Who are we supposed to be reading there? Do you know?

23:40:55 C On the ground?

23:40:56 P Yes.

23:40:58 P Who?

23:40:59 C I don't know.

23:41:01 C Oh, you mean down there.

23:41:03 P Yes, what station?

23:41:05 C One of those remote sites like Tananarive or ... you know. RKV or something like that.

23:41:20 P Yes. Starting to cool off just a little bit, John. But it sure isn't cold. If I had my choice, I'd like to be a bit cooler. I expect in another 10 minutes of dark, it will be just about the perfect temperature in this suit. And the CO<sub>2</sub> washout they were talking about, I don't see any evidence of that.

23:41:41 C Okay. I'll turn that light off. I just want to

# CONFIDENTIAL

## CONFIDENTIAL

beat the heaters.

23:41:45 P Yes. Go ahead.

23:41:49 P Okay. Go ahead.

23:41:51 C We'll each take one.

23:41:53 P Okay. Ready for Number 10?

23:41:55 C Yes.

23:42:01 P Mark it.

23:42:03 C 14:27.

23:42:31 P We there yet?

23:42:32 C Yes. Mark it.

23:42:33 P Okay.

23:42:34 C That was 30 seconds.

23:42:37 P That was Number 10, I think.

23:42:38 C Yes.

23:42:42 P Stand by for Number 11.

23:42:44 C Okay.

23:42:47 P You can't see that out your hatch. It's about 11 o'clock, I guess, about 8 or 10 degrees above the horizon. It looks like a Magellanic cloud, or a little chunk of the Milky Way, or great huge nebula, or something like that. I doubt if it's a nebula.

23:43:05 C Good.

23:43:08 P Nebula or what?

23:43:10 C Yes.

CONFIDENTIAL

## TANANARIVE

23:43:14 P Okay. Somebody is trying to call us down there.

23:43:16 CC Gemini X, Houston CAP COM standing by.

23:43:18 C Okay. Roger. Houston, this is Gemini X. We're through about 10 of those S-13 photos and we've seen a lot of those beautiful southern constellations. Mike's out there, old what's his name.

23:43:33 P Okay, old what's his name.

23:43:38 C Mike's got his hatch open and he's resting very easy on the seat, looking out over the Agena and viewing the southern world.

23:43:57 P How about pushing my mike button a second.

23:43:58 C Okay.

23:44:02 P Houston, if you read Gemini X - About the only thing we've noticed in the way of items floating up or down is that after we opened the hatch, several loose items, such as John's helmet tie-down, tended to float upward and out the open hatch. Something which we had not noticed when the hatch was closed. Other than that we haven't noticed anything up or down, or left or right.

23:44:26 CC Roger, Mike.

23:44:29 C Take some more pictures.

23:44:30 P Yes. Push my button.

23:44:31 C Yes. Okay.

23:44:32 P Okay.

23:44:35 P Picture Number 12. Ready.

23:44:38 P Mark it.

23:44:39 C Okay. 17:03.

## CONFIDENTIAL

23:44:40 P 17:03. Is my button still pushed?

23:44:42 C Roger.

23:44:44 P Okay. We're about 12 out of 20 through S-13 and it's all going very smoothly. Certainly is a beautiful view up here. The only small disappointment is that the left-hand visor does filter some of the light.

23:44:58 C Mark it.

23:44:59 P Okay.

23:45:00 P MARK. 20 seconds.

23:45:02 P I can't see stars down to the order of magnitude I expected. I'm guessing I'm seeing about 5th order of magnitude.

23:45:14 C Roger.

23:45:21 P Okay. Standing by for Number 13, John.

23:45:23 C Okay.

23:45:28 C Any time.

23:45:30 P Okay. Ready?

23:45:31 C Yes. Find the stupid button here.

23:45:34 P Mark it.

23:45:35 C Okay. That was 18 minutes. Should be 18 point.

23:45:45 C Look at that lightning. Did you see that?

23:45:46 P No. I missed it.

23:46:01 C It was over on my side.

23:46:02 P 18:20?

23:46:04 C Yes.

23:46:05 P Mark it. Okay. That was Number 13, I think.

CONFIDENTIAL

Give him a few extra ones, but that's probably all right.

23:46:09 P Stand by for Number 14.

23:46:20 P Are you ready?

23:46:22 C Roger.

23:46:26 P Mark it.

23:46:28 C Okay. It's marked for Number 14.

23:46:48 C MARK. 20 seconds on Number 14.

23:46:50 P Okay. It's done. See what a good friend - Scorpio out there.

23:46:59 C (Laughter) Yes. But you're not pointed at Scorpio, are you?

23:47:01 P No, No! He's way off at 2 o'clock high. I've got Scorpio - I got Dschubba, Antares, Scorpio, Shaula, and if I were a little bit taller, I could find old Zuben el Genubi and Zubeneschamali.

23:47:21 P Roger. Seems to me I could see the False Cross over there.

23:47:27 P Straight out, right?

23:47:30 P It's the one in Centauri.

23:47:34 C Yes, it's the one where - where Gamma Velorum is. It's ... Flip it.

23:47:37 P No. No. I don't think so, John.

23:47:40 C Yes.

23:47:45 C Better be or we'll really be in trouble trying to find Gamma Velorum.

23:47:47 C Isn't that right?

23:47:48 P Yes.

23:47:57 P Okay. Let's take another one here. Ready?

## CONFIDENTIAL

23:47:58 C Okay.

23:48:03 P Be Number 15. Mark it.

23:48:05 C Okay. 28:28.

23:48:13 P You know, I don't think you'll lose too much by having the Agena and me.

23:48:17 C Lose a lot in tracking, though. We're going by them at 4 degrees a minute.

23:48:23 P Yes.

23:48:24 C Okay.

23:48:26 C Although they are on the horizon, they aren't losing too much.

23:48:27 P Okay. Mark it.

23:48:38 P Okay. I'm getting up a little bit here. It's more cozy, my positioning ... like no problem, my hose is okay.

23:48:45 C We can see them down here.

23:48:47 P Can you see them?

23:48:49 C Yes.

23:48:50 P Okay.

23:49:00 P Do you want to hit my mike button again?

23:49:02 C Okay. There you go.

23:49:04 P Houston, Gemini X. So far body-positioning has been absolutely no problem. Matter of fact, I sort of have to struggle to move up or down in the hatch. The suit, when it's pressurized, just fills the available space here, so that there are plenty of points of suspension.

23:49:20 CC Okay. Thank you.

23:49:38 C What do you need?

CONFIDENTIAL

# CONFIDENTIAL

135

23:49:39 P Nothing. Just looking around. Ready?

23:49:40 C Yes.

23:49:42 P Okay. Number 16. Mark it.

23:49:44 C Okay. 22:08.

23:49:46 P Gee this is nice, John. Takes a bit of getting used to, but I'm getting to the point now where I'm starting to enjoy it out here.

23:49:54 C You nut!

23:50:01 C Okay. 22:28. Mark.

23:50:03 P MARK.

23:50:06 P Now's Number 16?

23:50:08 C Yes.

23:50:11 P I don't think - they must be reading us or they would be yakking it up. Thanks to us.

23:50:15 C Yes.

23:50:20 C Houston, this is Gemini X. Do you read? Over.

23:50:27 CC Gemini X, Houston CAP COM. Say again.

23:50:29 C Roger. Have you been reading our conversations? Over.

23:50:34 CC Yes. We've been following your conversations.

23:50:36 C Okay. Don't forget to censor them before you release them.

23:50:45 CC Say again your last.

23:50:52 P Ready, John?

23:50:53 C Roger.

23:50:54 P Mark it. Number 17.

23:50:57 C Okay. 23:15, that would be 23:37.

# CONFIDENTIAL

## CONFIDENTIAL

23:51:13 C Okay. Mark it.

23:51:14 P Okay.

23:51:18 P Push my mike button for me.

23:51:20 C Okay.

23:51:22 P Houston, Gemini X. We're coming up on Number 18 of the S-13. It takes about this long to get feeling sort of at home out here, but I do. Now I'm looking forward to the sun coming up. Everything's just going very normally. The body position is extremely simple and S-13 is coming along right like clock work.

23:51:41 CC Good show, Mike.

23:51:57 P Okay. Ready for Number 18. Mark it.

23:51:58 C Okay. 24. 24 reading 24:44.

23:52:03 P You might tell the Experiment Lab that we haven't seen anything but Gamma Velorum so far. ... Centauri.

23:52:16 C Mark it.

23:52:17 P Okay.

23:52:18 CC Roger. I understand that you have not seen Gamma Velorum.

23:52:20 C No. We haven't seen anything but Gamma Velorum.

23:52:29 P Which one's Gamma Velorum, John?

23:52:30 C That's the one he wanted.

23:52:32 P I know. Where is it? Show me.

23:52:35 C See the False Cross?

23:52:37 P Yes.

23:52:38 C Flip it if you - flip it. It runs right into it.

23:52:44 P Show me at 1 o'clock, 2 o'clock.

CONFIDENTIAL

23:52:46 C It's 12 o'clock.

23:52:51 P All right, I've got it.

23:52:52 C It's a little bitty - it's not a very big star. It's at 12 o'clock - if you take the nearest star to the False Cross.

23:53:04 P Wait a minute - wait a minute - I got ... I got.

23:53:08 C Have you got Canopus out there?

23:53:09 P Yes.

23:53:11 C Where? Over on your right? Right?

23:53:14 P Well, it's about deadahead of me. See, I'm turned in toward you about 45 degrees.

23:53:18 C Yes, yes. It's a big bright star.

23:53:21 P I've got Sirius. See, I've got Sirius and - okay.

23:53:24 C Go up from Sirius to Gamma Velorum.

23:53:26 P Yes. He's not quite up yet.

23:53:31 P Okay. I got you. I got you. Yes. I've got it. Miaplacidus, Achernar, Gamma Velorum, Zeta Puppis. I've got all four of them.

23:53:35 C Yes. Okay.

23:53:41 P But that's not the one we've been shooting. We've been shooting mostly Centauri.

23:53:47 P We better wait awhile on these remaining exposures.

23:53:49 C Okay.

23:53:50 P Let's tell them that in Houston.

23:53:51 P Can you push the button?

23:53:54 P Houston. Gemini X. We've exposed about 18 pictures. Gamma Velorum, which I think the fields experimenter is most interested in, is still a bit to our left

## CONFIDENTIAL

here. In other words, we're coming up on it. So I think I will wait for a few minutes without exposing any and try to get the last few on that complex, Miaplacidus, Achernar, Gamma Velorum, and Zeta Puppis.

23:54:20 C Over.

23:54:32 P Wonder if they got that?

23:54:33 C I don't know. Roger.

23:54:44 P Boy! You should see the Pleiades out there. They're really nice.

23:54:48 C Yes.

23:54:57 C They are nice.

23:54:59 C Where are you looking, over your shoulder?

23:55:01 P I'm looking through ...

23:55:02 C You're not supposed to look toward the north.

23:55:03 P Yes. I should count those stars in the Pleiades. That's the way to tell what you're seeing.

23:55:08 C I see one, two - one, two, three, four, five, six, seven, which is all - -

23:55:22 P You can see those on the ground.

23:55:23 C Okay.

23:55:27 P Right?

23:55:28 C Yes.

23:55:30 P But there are more now, I think.

23:55:31 C There are 12 at least.

23:55:33 P The naked eye can see 12 on the ground.

23:55:36 P Oh, with mine you can.

23:55:40 C Well, all I can see is seven.

CONFIDENTIAL

# CONFIDENTIAL

139

23:55:41 P Seven.

23:55:43 C Okay.

23:55:44 P You better let me tell all that.

23:55:46 C Let's see if they read down there. Did you push my mike button?

23:55:57 C Okay.

23:55:59 P Houston, Gemini X. Do you read us? Over.

23:56:02 P Let go.

23:56:07 P Yes, they don't read.

23:56:17 P When's sunrise, John? Do you have any idea?

23:56:20 C Sunrise is - -

23:56:21 P Looks like it's getting pretty close. I'm going to take one here. Ready?

23:56:24 C Yes. Go ahead.

23:56:27 P Mark it.

23:56:29 C 28:52, that would be 29:12.

23:56:42 P Say when.

23:56:43 C Okay.

23:56:45 P Stop?

23:56:47 C No.

23:56:49 P Mark it.

23:56:51 C Okay.

23:56:53 P I think it's starting to get light. I'm going to hit the next one. Ready?

23:56:55 C Okay.

23:56:57 P Mark it.

# CONFIDENTIAL

## CONFIDENTIAL

23:56:59 C ...

23:57:01 P Can't be getting light.

23:57:05 P Let me know in 20 seconds, John.

23:57:07 C Okay.

23:57:12 C Stand by.

23:57:15 C Mark it.

23:57:17 P Ready?

23:57:18 C Yes.

23:57:20 P Mark it.

23:57:22 C 29:44.

23:57:37 C Okay.

23:57:40 P Mark it.

23:57:42 C Okay.

23:57:44 P Ready?

23:57:45 C Yes.

23:57:46 C Doggone button!

23:57:48 P Mark it.

23:57:49 C Okay.

23:57:50 C How many are you taking?

23:57:52 P As many as there is film for. I might just as well.

23:57:54 C He just said 20.

23:57:55 P Yes.

23:58:03 C Okay?

23:58:05 P Okay.

CONFIDENTIAL

# CONFIDENTIAL

141

23:58:06 C Why don't you quit because we might get a chance to do that first scene.

23:58:08 P All right.

23:58:10 C Okay.

23:58:13 P What? I quit! What the heck is that out there? You can't see it, but there's something out there - should there be a constellation north of Sirius?

23:58:25 C North of Sirius? You mean like - yes.

23:58:30 P Orion.

23:58:32 C Orion? ...

23:58:33 P No. I mean, excuse me - I'm sorry. Let's start all over again - north of Orion, should there be a planet? Where's Saturn?

23:58:39 C Saturn is over by Alpheratz.

23:58:43 P Yes.

23:58:44 C Right square - -

23:58:46 P There sure is something bright out there. You can't see it.

23:58:48 C No.

23:58:50 P Doggone, it's bright! You don't suppose it's the old Agena, do you? I'll bet it is.

23:58:59 P Look, we're charging along - behind this object and below it. I'll bet you that's the old Agena. Suppose?

23:59:08 C I don't know.

23:59:09 P I'd pretty near bet.

23:59:13 P Okay.

CONFIDENTIAL

## CONFIDENTIAL

## CARNARVON

23:59:17 P Houston, Gemini X. If you read, the sun is just beginning to come up and we have completed the S-13. Also, to the east, we see an extremely bright object. I believe it is too bright to be a planet. It is north of Orion about - oh - 6 or 8 degrees. Right now it is approximately 8 degrees above the horizon. Could it be the Gemini VIII Agena? Over.

23:59:50 CC Roger. We copy that. Stand by.

24:00:27 P Push that mike button again.

24:00:34 P The position of this object is that it makes just about an equilateral triangle with the belt stars in Orion and with Pleiades. If you draw a line from those down, it's the third side down, close to the horizon.

24:00:50 CC Roger. Copy that.

24:00:54 P And it's starting to get light.

24:01:10 P Man, look at that sunrise! Whoosh!

24:01:12 C It gets to you?

24:01:14 P Getting to me.

24:01:22 CC Gemini X. Carnarvon. Do you notice that thing moving relative to the stars?

24:01:31 P You got my button pushed, John?

24:01:34 C All tangled up here. Okay. Go ahead.

24:01:37 P It's possible. I haven't noticed any movement so far and unfortunately the stars are disappearing. I only can see this object and one or two other 1st magnitude stars to the left and right, now. The sun's starting to come up. The sun is just - the sunlight is just clearing the horizon right now. It's really beautiful.

24:01:52 CC Roger. Copy that.

CONFIDENTIAL

# CONFIDENTIAL

143

24:02:00 P There goes my darkout adaption.

24:02:09 P John, you want me to hand this thing back in to you. Right?

24:02:13 C Okay.

24:02:19 P If I can.

24:02:22 C Okay. It's off its bracket.

24:02:24 P Coming on in.

24:02:26 C Got your sun visor down, Babe?

24:02:27 P No, not yet.

24:02:29 C Better get it down.

24:02:31 P Yes, I will. It's just a peculiar world here. It depends on which way I'm looking. Need or don't need it.

24:03:00 C Hey! Can you take MSC-8?

24:03:05 P No, not right now. Stand by.

24:03:25 P Okay. See, I'm blind down inside the cockpit because of the lighting condition.

24:03:29 C Yes.

24:03:32 P So, can you hand it to me?

24:03:34 C Well, let me get - -

24:03:37 P All I can see is the ruddy sun right now.

24:03:41 C Okay.

24:03:56 C Here you go.

24:04:01 P Okay. Thank you.

24:04:03 C Don't drop it.

24:04:05 P All right.

# CONFIDENTIAL

## CONFIDENTIAL

24:04:21 P Flight's calling, John.

24:04:22 P Never mind. I've got it.

24:04:24 C Plate fell off?

24:04:25 P Yes.

24:04:45 P Houston, this is Gemini X. Over.

24:04:47 CC Go ahead.

24:04:49 C Roger. Mike says he's putting together MSC-8. Now starting to put together the telescope to get some pictures of the plate.

24:04:57 C He almost lost it once. It floated out, but he grabbed it.

24:04:59 CC Okay. Incidentally, the VIII Agena - - we have it about - oh, a range of about 1073 at -7.8 from the local horizontal.

24:05:13 C Roger.

24:05:30 C Okay, Babe. Be careful now.

24:05:32 P Okay.

24:05:40 CC Incidentally, Gemini X, we have visual sighting of you.

24:05:55 P You might push the button again, John.

24:06:00 P Okay. The sun is up.

24:06:02 C I can't push the button. I'm taking this camera apart.

24:06:04 P All right. Never mind.

24:06:06 C Sorry about that.

24:06:44 C Okay.

24:06:56 C Hey, Mike.

24:06:57 P Yes?

CONFIDENTIAL

# CONFIDENTIAL

145

24:06:59 C Reach in and pull that snap loose or we'll never get that thing out.

24:07:03 C See that snap right there?

24:07:05 C You've got to pull it. There you go.

24:07:09 C Okay. There's the pack. It's floating out.

24:07:16 P Floating out?

24:07:23 C Think I can get a picture of it?

24:07:24 P No.

24:07:27 P Can I let it go awhile out here?

24:07:29 C Do anything you like right now.

24:07:39 C Getting in the way, isn't it?

24:07:43 CC Gemini X, Carnarvon. We have a couple of minutes before LOS. We will be standing by.

24:07:48 C Roger.

24:07:49 CC All systems look real good here and we are showing some jet activity on Agena. I guess Mike is bouncing around in the seat a little bit.

24:07:56 C I haven't noticed a thing.

24:07:58 CC That Agena is really holding up in there.

24:07:59 C That's right.

24:08:05 P I've got a problem here, John.

24:08:07 C What's the matter, Babe?

24:08:09 P Well, - as soon as the sun came up, my eyes started watering and I'm not sure whether it's this compound that's on the inner surface of the light band or what it is. But my eyes are really watering like crazy, to the point where it's real difficult to keep them open to see what the heck I'm doing. I'm curious.

# CONFIDENTIAL

## CONFIDENTIAL

24:08:28 C Don't look at the sun.

24:08:29 P Well, I'm not. I don't think it's a function of the sun. I haven't been looking at the sun. ... on the end of my - I've got my eyes closed right now. And I've got my - you know I can tuck my head in like a turtle and get down inside the suit so the sun's in the - my head is in the shadow from the sun.

24:08:46 C Mine have been watering too, Babe, the whole time.

24:08:49 P Is that right?

24:08:51 C Yes.

24:08:53 P I think it's got something to do with this - maybe with this defrost compound or something. It's really bad.

24:09:00 P I mean I'm crying, literally, copious tears.

24:09:03 C Yes, me too.

24:09:06 P I think we better tell them about that. Like I can't really see to set this thing on this camera.

24:09:19 C Can't. Right?

24:09:20 P No.

24:09:23 P When I had to back into my - -

24:09:27 C - - felt good.

24:09:28 P Okay. Here comes the camera by itself.

24:09:30 C Okay. I can't - -

24:09:32 P Can you reach it?

24:09:35 C Put it down in front of me.

24:09:37 C There you go.

24:09:38 P Got it?

24:09:39 C Yes.

CONFIDENTIAL

# CONFIDENTIAL

147

24:09:41 P Okay. By golly, I've got to junk this color plate, John, right now - -

24:09:43 C Okay.

24:09:44 P - - and get some water.

24:09:47 C Did you get the pictures?

24:09:49 P Can you - I got some at f:8.

24:09:51 C Okay.

24:09:52 P Let me talk to Houston.

24:09:53 C Okay.

24:09:56 P Got my button pushed?

24:09:58 C Okay.

24:09:59 P You got my button pushed?

24:10:00 C I can't push your button and hold the camera at the same time.

24:10:02 P Okay.

24:10:05 C Okay. But now - go ahead.

24:10:07 P Okay.

24:10:08 P Am I on the air?

24:10:10 P Hey, Houston, Gemini X. We have a wee small problem here. When the sun came up, I put my visor down, but nonetheless my eyes have started watering and it feels like it's almost some compound - some element inside the helmet with me. I'd sort of be inclined to suspect maybe it's our anti-frost stuff. But at any rate, my eyes are watering extremely, to the point where it is difficult to see, and I can't change the setting on the MSC-8 camera. I took a couple of pictures of the plate at f:8 and, instead of going to f:16 and f:11 and taking a couple more, I'm going to junk that right now and get rid of the plate. I don't think it's getting any worse, but

# CONFIDENTIAL

## CONFIDENTIAL

it is quite a hindrance to my vision and I think that what I'd better do is take some general S-5, S-6 pictures and call it a day. John has the camera inside now. He's changing the settings and he can see it clearly; so there's no problem there. Over.

24:11:19 P Hey, John.

24:11:20 C Yes?

24:11:22 P You turn your movie picture camera on and I'll heave old - I'll heave this S-13 packet. Okay?

24:11:31 P Is it on?

24:11:35 C I can't turn it on right now.

24:11:36 P Okay.

24:12:00 P My eyes are watering.

24:12:02 C Mine are too, Mike. I can't see a gosh darn thing.

24:12:06 P Okay.

24:12:08 P I'm going to heave this bracket. It's gone.

24:12:10 C Okay.

24:12:12 C Come on back in. Let's close the hatch.

24:12:14 P All right.

24:12:39 P I can see all right down here.

24:12:40 C I can't see a thing.

24:12:42 P Can you see?

24:12:43 C No.

24:12:46 C Okay. Here comes the hatch, Babe.

24:12:53 C Having trouble?

24:12:54 P No.

CONFIDENTIAL

# CONFIDENTIAL

149

24:12:56 P The last ...

24:12:59 P Okay. Here we go.

24:13:08 C Are you over-center?

24:13:10 P Yes.

24:13:23 C Okay.

24:13:30 C Looks good here.

24:13:34 C Okay to Repress. Cabin Vent is closed. Are we in REPRESS?

24:13:40 P Yes, I can get it.

24:13:42 C Okay. Good.

24:13:47 P Okay. And get the O<sub>2</sub> Oxygen.

24:13:50 P Heater's on MANUAL.

24:14:28 C I can't see anything.

24:14:31 P Just close your eyes, John. It goes away after awhile, if you close your eyes.

24:14:34 C Can you see what the caps -

24:14:36 P Yes. I can see fine. You just don't sweat a thing, buddy.

24:14:41 P Cabin pressure's just lovely. It's coming back up - cabin locks - door locks easily and all that.

24:15:35 C Just all of a sudden, Mike. It must be something in the oxygen circuit.

24:15:39 P Yes. I'll bet you it's this stuff they rub on the inside of the visor. Or something in lithium hydroxide maybe, or - -

24:15:47 C I don't know, boy, it really hurts. I'll bet that's what it is, lithium hydroxide.

24:16:17 P Okay. Pressure's up to 2 psi and the oxygen pressure's holding good.

# CONFIDENTIAL

## CONFIDENTIAL

24:16:22 C Okay. I'm sorry, Mike, but I can't see a thing.

24:16:25 P You just sit there and don't sweat it.

24:16:28 C Can you see anything?

24:16:29 P Yes. I can see pretty well now.

24:16:32 P Houston, Gemini X. Over.

24:16:37 P Yes. They'd be calling ...

24:16:45 P Houston, Gemini X. If you read, we're back in and the hatch is closed. Pressure's up to 2 1/2 psi and we'll talk about it later.

24:17:31 C How does that feel?

24:17:34 P Good. Just leave it alone, it's fine.

24:17:37 C Suppose it'd be okay to bypass ... 38.

24:17:41 P They never did decide on that. Let's try it.

24:18:22 P Okay, John. You can open up, if you like. We're coming up on 4 psi.

24:18:36 C Have you got that thing fully locked?

24:18:38 P Yes.

24:18:58 P Any better here?

24:19:23 P Houston, Gemini X.

24:19:40 C An hour, anyway.

24:19:48 P Started when the sun came up, didn't it?

24:19:50 C No. It started when - something to help it. I can smell it.

24:19:53 P What does it smell like?

24:20:05 C It smells funny.

24:20:21 C What color's that?

CONFIDENTIAL

24:20:24 P Lithium hydroxide. What would cause it to do it at EVA? What's the link between lithium hydroxide and EVA?

24:20:28 C I don't know ... eyeballs.

## CANTON ISLAND

24:22:42 CC Gemini X, Houston CAP COM. Standing by.

24:22:45 P Hi, Houston CAP COM, Gemini X. We're back here, the hatch is closed, and we're repressurizing. Did you get what our problem is? Over.

24:23:00 P Houston ... Did you read us?

24:23:02 CC Roger. I understand you're back in and the hatch is closed.

24:23:08 P Yes. ... the hatch is back up. The problem is some - something in the ECS System which has caused our eyes to water to the point where we couldn't see. It actually smells. I don't know whether it's lithium hydroxide, or what it may be.

24:23:27 CC Roger. Understand something in the ECS made your eyes water and it smells.

24:23:35 P That's right. Neither John nor I could see anything, so we came back in and closed the door.

24:23:40 CC Roger.

24:23:46 P I thought at first it might be the coating on the inside of the visor because that is the only thing I could think of which is new. But now, I'm fairly sure it's not that. It appears to be something in the ECS System and it seems to have cleared out a little bit after we repressurized to the 45-degree position.

24:24:06 CC Roger.

24:24:09 P It was that much. It's still with us, whatever it is.

## CONFIDENTIAL

24:24:13 CC Roger.

24:24:16 CC We understand it happened to both you and John.  
Is that correct?

24:24:23 P Say again. You're garbled.

24:24:25 C That's right. I stopped the thing. When it gets  
so bad you can't see what you're doing, the experi-  
ment is called off. ...

## HAWAII

24:25:45 P Houston, this is Gemini X. We can both see again  
all right now. Whatever it is, it's fairly potent  
though. Our eyes are both bloodshot and swollen.

24:25:55 CC Roger, Gemini X. This is Hawaii. How do you read?

24:25:59 C I read you loud and clear.

24:26:01 CC Okay. I notice your cabin is up good and solid.  
Do you have your faceplate open or shut?

24:26:08 C Say again, Hawaii.

24:26:10 CC Are your faceplates open or closed at this time?

24:26:12 C They are open.

24:26:13 CC They are open. Okay.

24:27:54 CC Gemini X, Hawaii.

24:27:58 C Gemini X. Go.

24:27:59 CC Okay. I have some good comm with you now. Can you  
give me a little more data on the odor inside the  
cabin?

24:28:11 C I don't know what it is. It smells sort of pungent  
and it really makes your eyes water.

24:28:17 CC Okay. Does the smell remind you of anything else  
we can relate it to?

CONFIDENTIAL

24:28:24 C Not that I can relate it to.

24:28:26 CC Okay.

24:28:28 P It seems - the nearest I can remember, I did smell some lithium hydroxide a couple of years ago. It might be the power of suggestion, but it appears to smell something like that lithium hydroxide.

24:28:40 CC Okay. Stand by.

24:29:07 CC Gemini X, do you see any kind of flakes around your eyes at all? On the other man's eyes?

24:29:18 P Negative. They are just slightly red and slightly swollen. They seem to be getting a little bit better.

24:29:25 CC Okay.

24:31:13 CC Gemini X, Hawaii.

24:31:16 C Go ahead.

24:31:17 CC Okay. We would like to cut down on some of this ACS gas usage. I would like you to send Command 451: ACS Dead-Band-Wide and Command 460: ACS Gain Level.

24:31:52 P Yes, that's affirmative. Primary Pump A and Secondary B, that's the configuration we have been in for the last hour or hour and a half.

24:32:00 CC Okay. Very good.

24:32:15 CC Okay. Would you verify to me that the Radiator is in FLOW?

24:32:20 C Roger. The Radiator's GO to FLOW.

24:32:22 CC Okay. Any change on the odor?

24:32:35 P Negative. It sort of appears to get better and worse in ways. Our eyes are not watering as badly as they were while I was EVA. They are apparently getting better, but there is definitely still an odor with us.

## CONFIDENTIAL

24:32:49 CC Okay.

24:34:40 CC Gemini X, Hawaii.

24:34:43 C This is Gemini X. Go ahead.

24:34:44 CC In which position do you have your Cryo O<sub>2</sub> Heater?

24:34:46 C Roger. It's in AUTO.

24:34:48 CC Okay. You're reading a little bit high here. It might be bending even.

24:34:53 C Roger. We pumped it up on MANUAL and turned it to AUTO about 2 minutes ago.

24:34:57 CC Okay. It was up, reading about 990 on the ground, which would be about 830 in the Spacecraft.

24:35:03 C Yes. Our gages are actually reading about 780 or 790.

24:35:08 CC Roger.

## CALIFORNIA

24:35:44 CC Any change at all, Gemini X?

24:35:50 CC Gemini X, Houston CAP COM.

24:35:53 C This is Gemini X. Go.

24:35:54 CC Roger. We recommend you close your faceplates and go to O<sub>2</sub> HIGH RATE. You'll bypass your lithium hydroxide filters and get direct O<sub>2</sub> flow.

24:36:03 C Roger. ...

24:38:09 CC Gemini X, Houston CAP COM.

24:38:11 P Gemini X. Go.

24:38:13 CC Roger. I would like to clarify the position of your Radiator switch. Did you go to FLOW when we mentioned it, or were you in FLOW when we called you?

CONFIDENTIAL

# CONFIDENTIAL

155

24:38:22 C We went to FLOW. We were in BYPASS when you ...

24:38:26 CC Roger. Have you noticed any improvement in O<sub>2</sub> HIGH RATE?

24:38:31 C Yes. I think so. It's pretty slow, gradual. Once we got back in and got our faceplates open we stopped - we got where we could see what we were doing.

24:38:49 CC Roger. When did you first notice the problem, John?

24:38:53 C Just about sunrise. It was good all through the night. I was crying a little through the night, but I didn't say anything about it because I figured I was just being a sissy. You know my eyes were watering, but I just figured that was oxygen flowing. Then Mike said he couldn't see anything at all. So right after he said that, I got where I couldn't see anything at all. I guess we had to call it off.

24:39:19 CC Right, John. I think it was a wise move.

24:39:20 C ... daybreak. It didn't have anything to do with the sunlight because Mike was the only one in the sunlight. I was inside.

24:39:26 CC Roger.

24:39:29 CC Did you ever roll inverted?

24:39:33 C No, we never tried that.

24:39:35 CC Okay.

## GUAYMAS

24:43:29 CC Gemini X, Houston CAP COM.

24:43:31 C This is Gemini X. Go.

24:43:33 CC Roger. Recommend you leave your faceplates closed, turn off the O<sub>2</sub> HIGH RATE, turn the Suit Fan switch to 1 and 2, and open the Suit Fan 1 circuit breaker.

# CONFIDENTIAL

## CONFIDENTIAL

24:43:57 CC Reason we are doing this, John, is to check out the suit fans individually. We will check out Suit Fan 2 in just a minute.

24:44:13 P Roger. We have done that, C.C. We have opened the Suit Fan 1 circuit breakers.

24:44:17 CC Roger. You've got the Suit Fan 1 and 2 OFF?

24:44:21 P That's affirmative.

24:44:22 CC Okay. Notice any improvement or degradation?

24:44:27 P ... it's sort of a long term thing. It's hard to tell right off.

24:44:34 CC Roger. After you have been there long enough to satisfy yourselves that it has not changed significantly, we would like for you to turn Suit Fan switch to the No. 1 position and close the No. 1 Suit circuit breaker.

24:44:52 P On this configuration, we are starting to smell it again and it's worse now than when we were on O2 HIGH RATE.

24:44:58 CC Okay. Then switch to Suit Fan No. 1 and turn on Suit Fan No. 1 circuit breaker.

24:45:04 P Okay. That's done.

24:45:33 CC Gemini X, Houston CAP COM. You might try a quick O2 HIGH RATE flush ... to clean it out before you check it in the second configuration.

24:45:48 CC You might try quick-purging the suit by going to O2 HIGH RATE and then back into this Suit Fan No. 1 configuration.

24:45:58 C Okay.

24:47:20 CC Gemini X, Houston CAP COM.

24:47:23 C Loud and clear.

24:47:25 CC Roger. How's it doing on the No. 1 Suit Fan?

CONFIDENTIAL

# CONFIDENTIAL

157

24:47:29 P We are still in O<sub>2</sub> HIGH-RATE, C.C., to give it a fair shake. Let me get out of O<sub>2</sub> HIGH RATE and we'll try it on No. 1.

24:47:35 CC Okay. No rush. Make sure you have it good and purged first, Mike.

24:47:41 P Yes. I think we have. We're out of O<sub>2</sub> HIGH RATE now and we're on Suit Fan No. 1.

24:47:46 CC Roger.

24:48:33 P We still smell it at this configuration. About the only thing we can say for sure is that things are a lot better now than they were half an hour ago. The eye watering and whatnot is very definitely decreasing.

24:48:49 CC Roger, Mike.

24:49:20 CC Gemini X, Houston CAP COM.

24:49:21 C Go.

24:49:22 CC Have you noticed an excessively high or low humidity in the cabin prior to this problem?

24:49:30 C Negative.

## ANTIGUA

24:49:37 CC Understand you have noticed neither moist nor dry cabin.

24:49:42 C Yes. If anything, it seems to be on the dry side, but I don't really know how you tell. It definitely is not saturated with water.

24:49:49 CC Okay.

24:50:04 CC Gemini X. Request Encoder OFF.

24:50:07 C ... Encoder, OFF.

# CONFIDENTIAL

## CONFIDENTIAL

## HOUSTON

24:53:34 CC Gemini X, Houston CAP COM.

24:53:37 C Gemini X. Go.

24:53:40 CC Roger. Has the condition improved or held about the same?

24:53:42 C It's about the same, C.C.

24:53:45 CC Roger. We're still looking at it.

24:53:49 P What do you think it is?

24:53:52 C Well, as long as it doesn't make us cry so bad we can't see, okay. But when it gets that way, we're going to have to do something about it.

24:54:00 CC Roger. We're with you.

24:54:52 CC Gemini X, Houston CAP COM.

24:54:55 C Gemini X. Go.

24:54:57 CC Roger. We recommend that you open your faceplates, wipe your face and eyes off with those wet wash pads you've got, and be careful not to get any in your eyes. Use the eye drops in the medical kit, if required, and put the Recirculation valve to the 45-degree position. If you notice an increase in irritation, close up and go to O<sub>2</sub> HIGH RATE and we'll watch it for awhile.

24:55:20 C Roger.

24:55:24 CC John, have you noticed any nose irritation at any time during this process?

24:55:33 P A little bit of stuffiness, but nothing acute.

24:55:37 CC Roger.

24:56:51 P By the way, Houston, this is sure a good right

CONFIDENTIAL

# CONFIDENTIAL

159

hatch. It closes very, very easily. The hatch ... are very low and all the adjustments are just like they should be.

24:57:01 CC Very good. You didn't have to use the ovakeel, right?

24:57:44 CC Gemini X, Houston CAP COM. Request Encoder, ON.

24:57:47 C Roger. Encoder is ON.

24:59:06 CC Gemini X, Houston CAP COM. We've got about a minute to LOS.

24:59:12 C Roger. About a minute to lunch time.

25:07:08 CC Gemini X, Houston CAP COM.

25:07:10 C Gemini X. Go.

25:07:13 CC Roger. How are you doing there now?

25:07:16 C Okay.

25:07:18 CC Roger.

25:07:19 CC We recommend you continue with faceplates open and cabin in Recirculation and use O<sub>2</sub> HIGH RATE with faceplates closed as necessary, if the irritation comes back.

25:07:34 C Roger.

25:07:36 CC We also recommend that you gyro compass around to TDA forward configuration.

25:07:42 C Roger. Want to go TDA forward?

25:07:46 CC Roger.

25:07:47 CC And after you TDA forward go Flight Control Mode 1.

25:07:59 C Okay. Forward to FCL..

25:08:53 CC Gemini X, Houston CAP COM.

25:08:58 CC Have you started your fuel cell purge yet?

# CONFIDENTIAL

## CONFIDENTIAL

25:09:12 CC Gemini X, Houston CAP COM.  
25:09:41 C Go.  
25:09:51 C Did we get a ...  
25:09:53 CC Say again, Gemini X.  
25:09:55 C A GET time hack on ... clock.  
25:10:02 CC Roger. GET time hack will be 25:10:15 on my Mark.  
25:10:12 CC 4, 3, 2, 1,  
25:10:16 CC MARK. 25:10:15.  
25:10:19 C ...  
25:10:23 CC Say again, Gemini X.  
25:11:34 C Do you have a Mark at your 25:18:10? Over.  
25:11:45 CC Stand by.  
25:12:32 CC Gemini X, Houston CAP COM.  
25:12:34 C Go.  
25:12:37 CC Roger. We don't have anything scheduled at 25:18:10.  
25:12:42 C ...  
25:12:46 CC Say again. I'm not reading you.  
25:12:48 C Roger. Like a power pack at 25:18:10 ... pass.  
25:12:53 CC Roger. We'll give it to you over Tananarive.  
25:12:57 C Okay.  
25:21:37 CC Gemini X, Houston.  
25:21:54 CC Gemini X, Houston.  
25:22:13 C This is Gemini X. Go.  
25:22:17 CC Roger. I'd like to give you a Flight Plan update.

CONFIDENTIAL

25:22:20 C Stand by.

25:22:41 C Ready to copy.

25:22:42 CC Roger. First, have you completed fuel cell purge?

25:22:47 C That's affirmative.

25:22:48 CC Roger. I understand you have completed the purge.

25:22:54 CC Update follows. First one concerns the upcoming dock D-5 procedures.

25:22:57 C Roger.

25:22:58 CC We recommend that you set up the Agena in Flight Control Mode 6, TDA forward. Once this is accomplished, send Agena Command 420. Now in this basic configuration, if yaw right is anticipated, send Command 411, then yaw on and off as necessary. If yaw left is anticipated, Command 410, followed by yaw on and off as required. When D-5 is completed, send gyro compassing ON and go to Flight Control Mode 1. As a note, leave the horizon sensors and ... rate ON during the yaw maneuvers during D-5 and it will aid your keeping the horizon in the window. Have you copied this much of the update so far, Gemini X?

25:25:03 C Roger. Indeed we have.

25:25:04 CC Roger. I'll continue. At 25:55:00, power up Spacecraft platform and computer, and load Module 6. At 26:20:00, cage platform to the Agena. At 26:25:00, platform ... and set up the Agena for D-5, Mode A. 26:29:43, perform D-5, Mode A. This will be local sunset time. 27:25:00, at CSQ you will receive Spacecraft Vector update for D-5, Mode D, which will be taking place on the following night pass. Time: 27:45:35, we have an N<sub>c</sub>-1 Manuever and will be passing you additional information on it later. At 28:01:41, perform D-5, Mode D. This is sunset time also. At time 28:40:00, fuel cell purge Section 1 then 2, followed by Spacecraft power-down. 28:40:00 to 29:40:00 is an eat period. 29:00:00, at CSQ, we'll be passing you a PLA block update and Flight Plan update. 29:20:00, at - at

## CONFIDENTIAL

Hawaii, the crew status report, Flight Plan update.  
Sleep period will begin at 29:40:00 and end 39:30:00.  
Did you copy, Gemini X?

25:29:37 C Roger. Like to get a time hack. We knocked our digital clock off the line when we ...

25:29:45 CC Roger. On my Mark the time will be 25:30:00. That's about 8 seconds from now. Can you make it?

25:29:55 C No our ... should be at 25:32. Over.

25:30:01 CC Roger. I'm afraid we'll have LOS before then, but we'll try.

25:30:06 C 25:31.

25:30:07 CC Roger. We'll try it.

25:30:15 CC Roger. How do you feel now, John?

25:30:21 C I feel okay. Our eyes are still watering a little.

25:30:25 CC Roger. Are you still - are your eyes still watering at all or have they stopped?

## CARNARVON

25:37:37 CC Gemini X, Carnarvon.

25:37:43 C Carnarvon, Gemini X.

25:37:44 CC Roger. We'd like to get an Agena tape dump and send a Reset Timer, so if you'll turn off encoder, we'll do all that.

25:37:51 C Encoder, OFF.

25:37:52 CC Okay. Thank you. We also need a Cryo Quantity readout.

25:37:58 P Gemini X. You have O<sub>2</sub> now. Going to H<sub>2</sub>.

25:38:09 CC What do you read up there?

CONFIDENTIAL

# CONFIDENTIAL

163

25:38:13 P On the H<sub>2</sub> we read about 76 percent. On the O<sub>2</sub>, 73 percent.

25:38:24 CC Okay.

25:38:33 CC Copy. O<sub>2</sub>, 73 percent. Say again Hydrogen.

25:38:37 CC 76

25:38:38 CC Roger.

25:38:42 CC You want to mark an elapsed time?

25:38:45 C Yes, please. How about 25:39? Can you do that?

25:38:51 CC It's about 10 seconds.

25:38:55 C Okay.

25:38:56 CC 5, 4, 3, 2, 1,

25:39:01 CC MARK. 25:39:00.

25:39:10 C Thank you.

25:39:17 C One more Mark at 25:39:30, please.

25:39:18 CC Will do.

25:39:34 CC Let's make that 40, okay? I missed it.

25:39:37 C Okay.

25:39:41 CC MARK.

25:39:45 C Thank you.

25:39:48 CC Is it counting?

25:39:50 C Right. Counting through 50, Mark.

25:39:52 CC Okay.

25:44:17 CC Gemini X, Carnarvon.

25:44:21 C Gemini X. Go.

# CONFIDENTIAL

## CONFIDENTIAL

25:44:22 CC Roger. Check your Tone Vox circuit breaker, please.  
25:44:29 C Roger. It's closed.  
25:44:31 CC Roger. Thank you.

## HAWAII

26:03:36 CC Gemini X, Hawaii.  
26:03:58 CC Gemini X, Hawaii CAP COM.  
26:04:23 CC Gemini X, Hawaii.  
26:04:31 CC Gemini X, Hawaii.  
26:04:33 C Gemini X. Go.  
26:04:34 CC Okay. I had a little UHF problem here on the ground. How are you doing?  
26:04:39 C Okay.  
26:04:40 CC Okay. How about your eyes? Any change in the irritation or anything in that area?  
26:04:44 C No.  
26:04:46 CC You feeling okay?  
26:04:48 C Yes, feeling fine.  
26:04:50 CC And it's not bothering you too much?  
26:04:53 C No.  
26:04:55 CC Okay. I'd like you to turn your recorder OFF. I want to make a new time for the Agena.  
26:05:01 C Roger. Recorder, OFF.  
26:05:04 CC Okay. And what position is your T/M Control switch?  
26:05:08 C I turned it to REAL TIME ... awhile back in preparation for this experiment.

CONFIDENTIAL

# CONFIDENTIAL

165

26:05:12 CC Okay.

26:05:23 CC Now they said they wanted to leave it there in REAL TIME ...

26:05:24 C All right.

26:05:31 CC We're showing your Cryo O<sub>2</sub> Tank Pressure down about 665. You can pump it up a bit.

26:05:36 C All right.

26:05:53 CC Can Mike say a few words to me? I would like to hear his voice.

26:05:57 P Yes. What can I do you for?

26:05:59 CC Okay. Thank you.

26:06:04 C ... is gradually getting better.

26:06:05 CC You think it's clearing up, do you?

26:06:10 C It's still with us, but it's better than it was an hour and a half ago.

26:06:16 CC All right.

26:06:19 CC Okay. You can put your Encoder back ON.

26:06:23 P Encoder, ON.

26:10:06 CC Gemini X, they suggest you use both A pumps, both Primary and Secondary A pumps, to the powered-up configuration.

26:10:14 C Both A pumps ON.

26:10:15 CC Okay. That confirms it here on the ground.

26:11:02 CC Okay. What are you reading on your Cryo O<sub>2</sub> right now?

26:11:08 C Reading 750.

26:11:10 CC Okay. Mark that 750, which is about 912 on the ground. Go back to AUTO. And you can use the 750

# CONFIDENTIAL

## CONFIDENTIAL

as a mark to go to whenever you want to pump it up alone.

26:11:20 C Okay. Thank you.

26:11:57 CC When they get the overshoot, that will put you up to about 920 which is a good level-off point on that O<sub>2</sub>.

26:12:07 C Roger.

26:12:20 CC I'll have LOS in about a minute. Stand by.

## GUAYMAS

26:15:49 CC Gemini X, Guaymas CAP COM. You're looking good on the ground. We're standing by.

26:15:54 C Gemini X. Roger.

26:18:50 P Roger. Go ahead.

26:19:18 CC Still look good, Mike.

26:19:19 P Roger, Guaymas.

26:21:03 C Houston, Gemini X. Over.

26:21:07 CC Gemini X, Houston. Go ahead.

26:21:10 C Roger. I don't think these yaw commands are going to work well because we hit such a big overshoot to come back. We'll try it and see, though.

26:21:18 CC Roger.

26:27:39 CC Gemini X, Houston.

26:27:44 C Gemini X. Go ahead.

26:27:45 CC Roger. Would like you to send S-Band, OFF. That's Address 050.

26:27:52 C Roger. 050 ...

CONFIDENTIAL

# CONFIDENTIAL

167

26:27:55 CC Roger. Did you use the pads around your eyes and, if so, did they have any appreciable effect?

26:28:06 C Use the what over it?

26:28:08 CC The water pads to wipe around your eyes following the eyes watering and irritation.

26:28:18 C Yes. That seems to help some.

26:28:20 CC Roger. Did that help or what?

26:28:23 C Say again.

26:28:26 CC What effect did that have?

26:28:32 C I don't think it had any effect. I think the thing is clearing up somewhat.

26:28:36 CC Roger. We're still a little puzzled exactly what it is. We're wondering if you recognize this as a distinct odor or rather as just an irritation to the eye that caused a problem.

26:28:52 C Seems to me it was an odor.

26:28:55 CC Roger. Odor. Also did you notice any sort of throat irritation or experience any coughing?

26:29:03 C No. No coughing.

26:29:04 CC Roger. We're trying to pin the possible source of these irritations down and I think those two, as to definite odor and irritation, are two of our best clues right now.

26:29:16 C Roger.

26:29:19 CC Roger. Stand by for a DCS update.

26:29:29 CC Roger. This will be the Spacecraft State Vector for use in the D-5, Mode D experiment next night pass.

26:29:38 C Roger.

26:30:06 CC Gemini X, Houston. We have MAPS here indicating load received.

# CONFIDENTIAL

## CONFIDENTIAL

26:30:12 C ... update I received.

26:30:15 CC Roger.

26:32:06 CC Gemini X, Houston.

26:32:21 C Gemini X. Go.

26:32:22 CC Roger. Was that wetting agent applied to both visors prior to flight and also just prior to EVA?

26:32:29 P Say again. Over.

26:32:30 CC Roger. Was that wetting agent applied to both visors just prior to going EVA?

26:32:36 C Affirmative.

26:32:37 CC Both visors?

26:32:41 C Both. The wetting agent smells in no way like the irritation which we're smelling.

26:32:45 CC Thank you.

## ROSE KNOT VICTOR

26:38:36 CC Gemini X, RKV CAP COM.

26:38:39 C Gemini X. Go.

26:38:41 CC Roger. When you have a few minutes we'd like to load the Agena. Let us know when you're free to turn Encoder OFF, please.

26:38:49 C Roger. I wanted to add that right now ...

26:38:59 CC Roger. Would you turn the Encoder OFF so we can load for the Catch-Up Maneuver?

26:39:02 C Roger.

26:39:11 C It's OFF.

26:39:12 CC Roger.

CONFIDENTIAL

# CONFIDENTIAL

169

26:39:39 CC Gemini X, you can turn your Encoder back ON.

26:39:43 C Roger.

26:39:44 CC Okay. Stand by to copy your pad.

26:39:59 CC Are you ready to copy, Gemini?

26:40:01 C Roger. Go ahead.

26:40:02 CC Okay. The purpose, Catch-Up Maneuver. GET B: 27:45:36; Delta-T, 0 plus 09; Core 25, 00077; thrusters, PTS-2; Maneuver, TDA forward, Posi-grade. Do you copy?

26:40:40 C Roger. Understand. ... 27:45:36; Delta-T, 0 plus 09; and Address 25, 00077; ...

26:40:52 CC Roger.

26:40:56 CC We have nothing further for you at this time. We are standing by.

26:47:31 CC Gemini X, Houston.

26:47:36 C Gemini X. Go.

26:47:37 CC Roger. Are you able to perform this D-5?

26:47:41 C Not by yawing the Agena. Every time we turn it over there ... it's coming right back again.

26:49:01 C Houston, Gemini X. We've got good readings on the two stars so far. Alioth and Alkaid ...

26:49:11 CC Gemini X, Houston. Did you call?

26:49:16 C Say again.

26:49:18 CC Did you call?

26:49:21 P Roger. I say again on D-5. We are getting good measurements on Alioth and Alkaid. Those are the only two we have been able to hold the Agena on so far.

# CONFIDENTIAL

## CONFIDENTIAL

26:49:33 CC Understand you had good measurements out on Alioth and Alkaid. We want to inquire if you have the Gyro Compassing OFF. That would be Command 340 during this maneuver.

26:49:52 C Negative. We will give it a try.

26:49:56 CC Roger. With Gyro Compassing OFF, it should remain at any of these yaw headings you maneuver to.

26:51:20 CC Gemini X, Houston.

26:51:23 C Gemini X. Go.

26:51:24 CC Roger. In the event 340 doesn't eliminate the problem and it continues to come back to BEF, you might try it with sending 300, which is Horizon Sensors OFF. Perhaps that will allow you to remain at an off-marginal heading.

26:51:40 C This is Gemini X. You are unreadable. Say again. Over.

26:51:43 CC Roger. In the event Command 340 does not allow you to stabilize at off-marginal headings, try 300, which is Horizon Sensors OFF. This may allow you to do so.

26:52:00 C Roger.

26:59:49 CC Gemini X, Houston.

26:59:53 C Gemini X. Go.

26:59:54 CC Roger. Did turning Gyro Compassing OFF or Horizon Sensors OFF help the problem any?

27:00:02 C At this time it's working.

27:00:07 CC Say again.

27:00:09 C I say it's working okay.

27:00:11 CC Very good. Thank you.

27:00:21 CC Gemini X, Houston. Did turning the Gyro Compass-

CONFIDENTIAL

# CONFIDENTIAL

171

ing OFF eliminate the problem or was it the Horizon Sensors OFF that did it?

27:00:30 C ... off.

27:01:22 CC Gemini X, Houston.

27:01:50 C Gemini X. GO.

27:01:51 CC Roger. Understand you had the Horizon Sensors OFF at this time.

27:01:59 C Maybe we don't have the right switches off.

27:02:00 CC Roger.

## COASTAL SENTRY QUEBEC

27:26:02 CC Gemini X, CSQ.

27:25:05 C Gemini X. Go.

27:26:06 CC Roger. Could you turn the Encoder OFF for just a second so we can check the VM.

27:26:15 C Roger.

27:26:21 CC Okay. Looks good. You can turn it back ON.

27:26:23 C Very good.

27:26:31 C Eye problem seems to be getting better.

27:26:33 CC Say again?

27:26:36 C The eye problem is getting better.

27:26:41 CC Roger. We copy.

27:28:24 C Flight CSQ, this is Gemini X.

27:28:25 CC Go, Gemini X.

27:28:26 C I'd like a time hack.

# CONFIDENTIAL

## CONFIDENTIAL

27:28:27 CC Say again.

27:28:31 CC You'd like a time hack?

27:28:32 P Roger.

27:28:34 CC I'll give you a time hack at 27 hours, 29 minutes.

27:30:41 CC Gemini X, CSQ. We have about 45 seconds until LOS. We're standing by.

27:30:45 C Okay. Roger.

27:31:42 CC Gemini X, CSQ. We would like for you to go to FC1 and not use any more gas until we look at this a little bit better.

27:31:51 C Roger. We'll go to FC1.

27:31:53 CC Roger.

27:31:55 C We are less than 20 percent and we don't think we should do these maneuvers any more, either.

## HAWAII

27:42:04 CC Gemini X, Hawaii CAP COM.

27:42:06 C Gemini X. Go.

27:42:08 CC Okay. We'll get you set up for this SPS burn. We'd like you to go to FC7.

27:42:13 C Roger.

27:42:15 CC Do you need the command numbers?

27:42:17 C Negative.

27:42:18 CC Okay.

27:43:00 C Hawaii, this is Gemini X. I don't know if CSQ told you, but we just noticed a big drop in gas pressure after that D-5.

CONFIDENTIAL

# CONFIDENTIAL

173

27:43:08 CC Roger. We've got all that. They want to stop doing any more D-5's and we'll keep a close look on your ACS. Are you all squared away with your Flight Control Mode 7?

27:43:17 C Roger. I think it's squared away.

27:43:20 CC Okay. I'll give you a time hack 1 minute prior to GET B.

27:43:26 C Roger.

27:43:27 CC Have you looking real good down here.

27:44:25 CC Okay. Minus about 1 minute time hack in about 9 seconds. We're showing you GO for the burn. 5, 4, 3, 2, 1,

27:44:36 CC MARK.

27:44:42 CC And we'll be standing by.

27:45:00 C Roger.

27:46:02 CC Okay. Gemini X, Hawaii.

27:46:04 C Gemini X. Go.

27:46:06 CC Real good here. How'd you do?

27:46:09 C We indicate we made 10 feet per second instead of 7.

27:46:14 CC Roger. We'll check out the burn time here on the ground and we'll work it out for you.

27:46:31 CC Okay. Will you turn T/M OFF and back ON again, and then go back to Flight Control Mode 1.

27:46:39 C Roger.

27:47:34 C This is Gemini X. 80 was 00023; 81 was 0005 - -

27:47:41 CC That's negative.

27:47:43 C 81 - minus 0005; and 82 was minus 0007.

# CONFIDENTIAL

## CONFIDENTIAL

27:47:49 CC Okay. 80 is 00023; 81, 0005; 82 was minus 000 -  
was that 7?

27:48:01 C Roger. 0007.

27:48:03 CC Okay. I got that.

27:48:06 C And 81 should be negative, also.

27:48:08 CC Negative. Okay.

27:48:12 CC And you're going to Flight Control Mode 1 now?

27:48:15 C Roger. That's where we're going.

27:48:16 CC Roger.

27:48:26 CC Will you turn your encoder up? I'd like to in-  
terrogate your velocity meter.

27:48:55 CC Okay. Put your Encoder back ON.

27:48:56 C Roger.

## CALIFORNIA

27:52:12 CC Gemini X, Houston.

27:52:15 C Gemini X.

27:52:16 CC Roger. We've been looking at your gas consumption  
down here on D-5 and we decided to discontinue  
further D-5. Over.

27:52:26 C Yes. We concur. Also our eyes seem to be getting  
better and we don't think looking into the sun  
caused the problem. It started while on the ELSS,  
O<sub>2</sub> High Rate.

27:52:39 CC Understand. Another question. What do you read  
in your SDP for Attitude Gas now?

27:52:48 C I can't give it to you right now, Al. The sun's  
shining in such a manner that I can't read the  
panel. Stand by. I'll give it to you when I can.

CONFIDENTIAL

# CONFIDENTIAL

175

27:52:55 CC Roger. We confirmed your information about the burn. It's slightly greater than 7.7. If we come up on Guaymas, they'll call for a fuel cell purge, and then following that, there will be Spacecraft power-down and some block updates, CSQ. And you have kind of a rest period here.

27:53:19 C Very good.

27:53:21 CC Roger. We're still wondering about this ECS configuration you're in right now. Is it faceplates open, No. 1 Suit Fan ON and Recirculation valve at 45?

27:53:34 C All three are good.

27:53:36 CC Roger. And then, please keep us advised in the event you decide to change anything.

27:53:44 C Okay. We'll tell you, Al.

27:53:45 CC Roger.

27:54:31 CC Gemini X, Houston.

27:54:40 C Gemini X. Go.

27:54:42 CC Roger. We would like you to save the pads that you wipe your eyes with and bring them back for analysis. Over.

27:54:56 C Roger.

## GUAYMAS

27:57:08 CC Gemini X, Guaymas CAP COM.

27:57:11 P Guaymas go.

27:57:12 CC Okay. Gemini, we're standing by for your fuel cell purge at this time.

27:57:15 P Roger.

27:59:55 CC Gemini X, Guaymas CAP COM.

# CONFIDENTIAL

## CONFIDENTIAL

27:59:59 P Gemini X. Go ahead.

28:00:00 CC Okay. Over the RKV on this same revolution, you'll have a PLA update and then following on to the CSQ, you'll have a Flight Plan update and a crew status report.

28:00:14 P Roger.

28:00:16 CC You're looking real good.

28:00:20 C Yes. We feel real good, too. Sorry about having to stop that this afternoon, but I didn't see any way out of it.

28:00:27 CC Yes. We agree.

## ROSE KNOT VICTOR

28:15:11 CC Gemini X, RKV.

28:15:15 C RKV, Gemini X. Go.

28:15:17 CC We have a PLA update for you when you're ready to copy.

28:15:20 C Stand by.

28:15:52 C Ready to copy.

28:15:53 CC Roger. All the times of this update are based on a SEP Maneuver of an OAMS burn of 100 feet per second, 20 minutes prior to Retrofire. The Retro pitch angle is 20 degrees and we recommend that you use Catch-Up Mode for the OAMS burn. Area 21-3: 33:32:52; 20 plus 39, 26 plus 18; weather is good. Area 22-3: 35:13:39; 20 plus 34, 26 plus 33; weather, marginal. Area 23-Delta: 36:10:38; 20 plus 23, 25 plus 04; weather, marginal. Area 24-2: 37:48:15; 20 plus 22, 25 plus 13; weather, good. Area 25-2: 39:25:05; 20 plus 20, 25 plus 28; weather, good. Area 26-2: 41:03:25; 20 plus 30, 25 plus 50; weather, good. Bank angle for all areas, 90 degrees. SEP Maneuver required on all areas. Do you copy?

CONFIDENTIAL

# CONFIDENTIAL

177

28:19:09 C Roger. We received very good. Thank you.

28:19:15 CC We have nothing further for you on this pass. I guess this will be our last wake pass with you, so we'll wish you all a good night.

28:19:25 C Thank you. Happy dreams.

28:19:35 CC We'll be watching you while you sleep.

## COASTAL SENTRY QUEBEC

29:00:30 CC Gemini X, CSQ.

29:00:51 C Gemini X. Go ahead, CSQ.

29:00:53 CC Roger. We've got a little information for you.

29:00:58 C Roger. Go ahead.

29:01:00 CC Okay. The Flight Plan for tomorrow will be just like it is laid out on your plot that you have on-board. And the exact times for the maneuvers will be updated to you in the morning. They are still tracking the VIII Agena and they plan to have all the right information for you.

29:01:18 C Gemini X. Thank you.

29:01:21 CC And also, about an hour or two after you get up in the morning, or somewhere along in there, they plan to run an ECS Test prior to your doing EVA to make sure that everything is like it should be.

29:02:11 CC Gemini X, CSQ. This ECS Test for tomorrow is to find out where they stand in respect to the problem you had with irritation today.

29:02:21 C Okay. Roger.

29:02:22 CC And also, we'd like a little information on the weight so we can keep up with our ground computations. I'd like to know whether you retrieved the S-12.

29:02:35 C No S-12 retrieved.

# CONFIDENTIAL

## CONFIDENTIAL

29:02:37 CC What about the cover on the command pilot's window?

29:02:42 C Negative.

29:02:44 CC Okay. Do you have any estimate on the number of pounds probably jettisoned during the EVA?

29:02:58 P Well, let's see. There was one waste bag, the S-13 bracket, the MSD plate and the MSD pod. I guess about 3 pounds.

29:03:09 CC Roger.

29:03:24 CC Okay. We'd like an On-board Propellant readout, please.

29:03:32 C Roger. 30 percent.

29:03:34 CC Roger. Have you got anything you'd like to get underway on the Flight Plan report?

29:03:54 C I think we're doing pretty good up here today.

29:04:01 CC Roger. Understand.

29:04:10 CC What kind of food and water report do you have for us?

29:04:18 C Water gun is half-full and we're eating the third meal of the day right now.

29:04:23 CC Roger.

29:04:58 C That was the idea back during D-5 that we'd have a little more attitude control gas in the Agena. I think we could have whipped through another sequence without any trouble on the thing when the update was working properly.

29:05:09 P The trouble with the thing it - it - the ... up here is working properly.

29:05:13 CC Roger. It was sure using up the gas.

29:05:15 P Yes. I know. On the EVA, I think I matched up most of the things except coming back in the cockpit, you know, the related equipment involving getting back in, are all working very well. The

CONFIDENTIAL

# CONFIDENTIAL

179

thrusters are very low and everything works very smoothly.

29:05:32 CC Very good.

29:06:05 CC Gemini X, CSQ.

29:06:06 P Go ahead.

29:06:07 CC Okay. You can lock the door on the S-12 now.

29:06:09 P Okay. S-12 door is locked.

29:06:11 CC And I have a Tx to transmit you.

29:06:13 P Roger, the Tx. We locked that S-12 door when we got up this morning.

29:07:01 CC Go ahead.

29:07:03 CC Gemini X, CSQ.

29:07:05 P Gemini X. Yes, go ahead.

29:07:07 CC Okay. We're showing your O<sub>2</sub> Tank Pressure to be down a little bit. Won't you boost it up to about 700 on-board?

29:07:11 P Will do.

29:07:13 CC And we're going to have RESET TIMER reset over the Guaymas this time, so we need your Encoder OFF during the Hawaii pass.

29:07:20 P All right.

29:09:28 CC Gemini X, CSQ. We have 1 minute to LOS. Standing by.

29:09:30 C Roger.

29:09:35 P How is the water down there?

29:09:36 CC Real nice today. The seas are calm.

29:09:37 P Say again.

29:09:45 CC I said the seas are real calm today.

# CONFIDENTIAL

## CONFIDENTIAL

29:09:47 P Oh, that's nice.

29:09:56 CC You can turn your Heater OFF anytime now. Place it in IDLE.

29:10:00 C ...

HAWAII

29:19:45 CC Gemini X, Hawaii.

29:19:51 P Gemini X. Go ahead.

29:19:52 CC How are you all doing?

29:19:56 P Just fine.

29:19:58 CC Getting all squared away to go to bed?

29:20:01 P Roger. We've got decoder OFF for your pleasure.

29:20:04 CC Okay. We're going to send a couple of commands and then I'm going - I'll send you a Tx right now and we'll get you squared away here.

29:20:14 P Okay. You're sending a Tx.

29:20:15 CC Okay. I have a couple of questions for Mike.

29:20:19 P Speak.

29:20:20 CC Did you happen to notice whether the boom or MSC-3 was extended when you were standing up outside?

29:20:25 P Negative. I did not notice.

29:20:27 CC Did you happen to notice whether the MSC-6 door was open?

29:20:31 P Negative. I didn't notice that either. I had just a couple minutes of sunlight before I came back in and I was looking at the MSC-6 or, excuse me, the MSC-8 equipment exclusively.

29:20:43 CC Okay. We're all done commanding. You can turn your

CONFIDENTIAL

# CONFIDENTIAL

181

Encoder to ON.

29:20:50 P Okay.

29:21:24 CC Okay. They've got a real good hack on the Gemini VIII orbit and they shouldn't have any trouble getting up there tomorrow.

29:21:32 P That sounds good.

29:21:36 C Where are they going to drop us off?

29:21:38 CC Well, we're going to see about all that tomorrow.

29:21:41 P Okay.

29:21:43 CC Tomorrow's day should be pretty close to a nominal Flight Plan.

29:21:45 P Yes. That's what we heard.

29:23:19 CC Gemini X, Hawaii.

29:23:31 C Gemini X. Go ahead.

29:23:32 CC Okay. We'll be shutting you down now. You're looking real good. All your systems are squared away and we'll be running quiet for the rest of the evening.

29:23:41 C Roger. Thank you very much.

29:25:05 CC Okay. Gemini X, Hawaii. You need not acknowledge, but put your T/M Control switch in the REAL TIME/ACQ-AID position and leave it there while you sleep.

ROSE KNOT VICTOR

29:59:24 CC Gemini X, RKV CAP COM.

29:59:41 CC Gemini X, RKV.

29:59:59 CC Gemini X, RKV.

30:00:02 P Go ahead, RKV. Gemini X. Go.

# CONFIDENTIAL

## CONFIDENTIAL

30:00:04 CC Roger. Hate to wake you up there, but we'd like to have you turn your Primary A Pump ON, please.

30:00:10 P Roger. Primary A Pump coming ON.

30:00:14 CC Roger.

30:00:26 CC Roger. That's all we have, Gemini. You're free to go back and try to sleep.

30:00:30 P Roger. Thank you.

## COASTAL SENTRY QUEBEC

38:50:56 CC Gemini X, CSQ CAP COM.

38:51:05 CC Gemini X, CSQ CAP COM.

38:51:16 CC Gemini X, CSQ CAP COM.

38:51:26 CC Gemini X, CSQ CAP COM.

38:51:30 C CSQ, this is Gemini X. Over.

38:51:33 CC Roger. Good morning.

38:51:34 C Roger. Good morning.

38:51:35 CC Good morning.

38:51:37 CC We would like you to place your Adapter C-Band to CONTINUOUS.

38:51:47 C Okay. It's done.

38:51:49 CC Roger. Everything is looking real good here on the ground. The US pass - I have you there in about 45 minutes and I think they will have a Flight Plan update for you when you get there.

38:51:59 C Okay. Fine.

CONFIDENTIAL

## HOUSTON

39:39:38 CC Gemini X, Houston CAP COM.

39:40:04 CC Gemini X, Houston CAP COM.

39:40:11 C Gemini X. Go.

39:40:12 CC Roger. Good morning, John. How are your eyes this morning?

39:40:17 C Everything's fine this morning C.C.

39:40:20 CC Good. We'd like for you to start fuel cell purge, starting Section 2, then Section 1.

39:40:28 C Okay, C.C. Grand.

39:40:30 CC Roger. John, on these burns we have to date, to save propellant during the Agena burns, we'd like for you to go to Flight Control Mode 7, 30 seconds prior to SPS READY instead of 3 minutes prior to it, as we have been.

39:40:51 C Roger. I'll do that.

39:40:53 CC Okay. And we'd also like to use Flight Control Mode 1 for all Gyro Compassing and you'll have to send Command 460 after you have stabilized on the new heading to put the horizon sensors back in LOW GAIN.

39:41:10 C Roger. Use FC1. Set 460 to get the horizon sensor to LOW GAIN.

39:41:15 CC Roger.

39:41:18 CC I've got a Flight Plan update for you, if you're ready to copy.

39:41:38 P Okay. Ready to copy.

39:41:40 CC Roger. 39:51 over Canaries; power-up your platform; give a crew status report and they will give you a PLA update.

39:41:56 CC They would also like a Cryo Quantity readout.

## CONFIDENTIAL

39:42:02 CC They will load the velocity meter for the Plane-Change Maneuver. We'd like for you to load Module 3, Gyro Compass to TDA forward; Spacecraft, 0-180-0 degrees. When the platform warms up, go to Flight Control Mode 2 and Cage to Agena. That's Cage BEF. Then to ALL BRAKE and go to Flight Control Mode 6.

39:42:40 CC Then Gyro Compass Agena, TPA north. That's Spacecraft 0-90-0 degrees at 40:45.

39:43:04 CC Gemini X, this is Houston CAP COM.

39:43:07 P Gemini X. Go ahead.

39:43:08 CC Roger. To correct my last statement. They - we don't want you to Gyro Compass in Mode 6; we'd like for you to Gyro Compass in Mode 1.

39:43:26 P Okay.

39:43:27 CC Roger. At 41:03:49, you have a Plane-Change Maneuver; an SPS burn; 15.1 feet per second north. Immediately after you complete that maneuver, Gyro Compass, TDA aft; Spacecraft 0-0-0 degrees. At 41:13, we'll give you a GO/NO-GO for a 441. At 41:20, go to Flight Control Mode 2 and Cage to Agena. Then return to Flight Control Mode 6.

39:44:25 C Do I go to FC6 or FC1?

39:44:27 CC I'm sorry. FC1.

39:44:31 CC At 41:35:51: Phase-Adjust Maneuver; and SPS burn, 4.1 feet per second; Retrograde. Immediately after this Phase-Adjust, Gyro Compass to TDA forward; Spacecraft, 0-0-0 degrees. Do this in two steps: two, 90-degree Gyro Compassings, and you'll be in a Flight Control Mode 1. Then purge fuel cells, Section 1 first, then 2. Perform the initial ECS test preparations which we'll pass up to you later, John, on this ECS Test we're going to run today.

39:45:21 C Okay.

39:45:22 CC At 42:21:53, you have a Height-Adjust Maneuver; an SPS burn of 9/10ths feet per second; Posigrade.

CONFIDENTIAL

39:45:36 CC - - Immediately after this burn, go to Flight Control Mode 1 and power-down the platform and at this time we'll run this ECS Test. At 43:25, the ECS Test should be complete and you can start your preliminary EVA preparation. At 45:00, power-up platform. From 45:15 to 46:00, you can eat and install the 18mm lens on the movie camera at 1 frame per second. At 46:00, Gyro Compass to TDA forward; Spacecraft, 0-180-0 degrees and Cage to Agena. That's Cage BEF. At 46:12:27, we've got an NSR burn. It will be an SPS burn of 6.0 feet per second. When you have completed this NSR burn, we'd like to run S-26, modified Mode A as follows: start the Agena recorder, that's Command 041; undock; record the time; separate to 5 feet from the Agena and stabilize for 30 seconds; minimum thruster firing. Then maneuver down 15. That's 15 feet from the TDA axis at approximately 2/10th feet per second, maintaining 5-foot separation. Holding this 5-foot separation distance, maneuver up with - to the TDA axis at 2/10th feet per second. Then translate aft along the TDA axis at 2/10th feet per second to 50 feet. Turn the radar on at 20 feet. When you reach 50 feet, increase the separation rate from 2/10th feet per second to 2 feet per second. When you reach 200 feet, turn the Agena recorder OFF, maneuver to SEF and pick up the VIII Agena. That's about all the time I have, John. Have you got that?

39:48:34 C You're fading out. We can't read you.

39:48:38 CC Roger. When did you ... miss out on it and we'll try to pick you up over Canaries.

39:48:46 C You're fading out C.C.

38:48:49 CC Roger. Canaries will pick you up and give you rest of this Flight Plan, John.

## CANARY ISLANDS

39:50:42 CC Gemini X, this is Canary CAP COM.

39:50:46 C Gemini X. Go.

39:50:47 CC Good morning. Okay. We'd like to have you turn

## CONFIDENTIAL

your Encoder OFF and we're going to update your VM load and reconfigure the Agena.

39:51:00 C Load is up.

39:51:09 CC Okay. Like to get a few status reports from you, Gemini X.

39:51:18 C Roger. Gun count is 639. We're eating our breakfast now and we're both GO.

39:51:24 CC Roger.

39:51:26 CC Okay. I have a lot of information for you to copy here. I have a PLA update and your Plane-Change update.

39:51:37 C Okay. Stand by.

39:51:52 CC Okay. Could you move your Quantity Read switch to the O<sub>2</sub> position for us, please?

39:51:58 C Roger. Ready to copy.

39:52:00 CC Okay. Which one do you want first? The Plane-Change or the PLA?

39:52:07 C Plane-Change, of course.

39:52:08 CC Roger. Okay. Purpose is Plane-Change. GET B is 41:04:26; Delta-T, 17 seconds; that's the actual length of burn; 427 is 00148; thrusters, SPS Unit 2; maneuver, TDA north.

39:52:55 CC Copy, Gemini X?

39:52:58 C Roger. We got it.

39:52:59 CC Okay. I've got your PLA update here.

39:53:04 C Ready to copy.

39:53:10 CC Okay. Would you move your Cryo Quantity switch to H<sub>2</sub> position for us, please?

39:53:19 C Okay. That's done. Ready to copy the PLA.

CONFIDENTIAL

39:53:21 CC Okay. Area 27-1: 42:30:32; 20 plus 17, 25 plus 21; weather is good and you need a SEP Maneuver. Area 28-1; 44:08:10; 20 plus 27, 25 plus 50, weather is marginal; SEP Maneuver required. Area 29-1: 45:45:43; 20 plus 36, 26 plus 09; weather is marginal and a SEP Maneuver is required. Area 30-1: 47:23:43; 20 plus 42, 26 plus 19; weather is good; SEP Maneuver required. Area 32-4: 51:56:17; 21 plus 44, 27 plus 37; weather is good; SEP Maneuver required. Area 33-3: 53:13:13; 25 plus 00, 30 plus 01; weather is good; no SEP Maneuver. Area 34-3: 54:51:19; 23 plus 30, 28 plus 33; weather is good; no SEP Maneuver. Bank angle for all areas is roll left 90, roll right 90. Your SEP Maneuver is 100 feet per second, 20 minutes prior to Retrofire. Retro pitch angle is 20 degrees. We recommend that the Catch-Up mode be used for your OAMS burn. Over.

39:56:46 C Roger. We've got those. Thank you.

39:56:52 CC Okay. You can turn your Cryo Quantity switch OFF now.

39:57:02 CC Okay. You can turn your Encoder to ON. We got a good T/M word in these.

39:57:09 C Encoder's ON, Quantity OFF.

39:57:12 CC Okay. Where did you lose Houston CAP COM on your Flight Plan update? I can finish it off for them.

39:57:19 C You better start with S-26.

39:57:22 CC Okay. S-26. That was at time 46:12:27: start Agena recorder, that's Command 041; undock; record time; separate to 5 feet and stabilize for 30 seconds; minimize thrusters firing. Maneuver downward for 15 feet from TDA axis at approximately .2 feet per second, maintaining 5-foot separation. Holding SEP distance, maneuver upward to TDA axis at .2 feet per second. Translate aft along TDA axis at .2 feet per second to 50-foot separation. Radar ON at 200 feet. At 50 feet, increase SEP rate to 2.0 feet per second. At 200 feet, Agena recorder OFF. Maneuver SEP to acquire Agena VIII. Okay. At 46:15, Aline Platform for 15 minutes.

## CONFIDENTIAL

At 46:58 at Carnarvon, you'll have an Orbit Rate Compensation Vector update - a Dual Rendezvous update; first the fuel cells Section 2 then Section 1. At 47:24:03, Rendezvous TPI. 48:00, final umbilical EVA prep. At 48:36, sunrise; start an umbilical EVA.

40:00:06 CC At 51:38:51: Height-Adjust Maneuver; 100 feet per second, Retrograde; immediately followed by D-10, D-10 Mode A; control Spacecraft to 0-0-0 degrees; attitude control, platform SEP. 51:40 to 52:30, eat period. And at 52 hours at Carnarvon, you'll get a full Flight Plan update; purge the fuel cells Section 1, then 2 at Cryo Quantity readout. That completes the Flight Plan update.

40:01:05 CC Did you copy?

40:01:09 C Roger. We copied.

## KANO

40:01:58 CC Gemini X, Houston CAP COM. Standing by.

40:02:03 C Go. Roger.

40:02:08 CC It looks like you got the full update there, John. For your information, if you add 25 minutes to all the times in the time value, Section 3 of the Flight Plan, it will adjust it to your present orbital condition.

40:02:24 C All right. Roger. Thank you.

## CARNARVON

40:30:07 CC Gemini X, Carnarvon.

40:30:10 P Gemini X. Go ahead.

40:30:11 CC Good morning to you. I have a nodal update for you.

40:30:18 P Roger. Go.

CONFIDENTIAL

40:30:20 CC 49:39:39: Rev 25, 71-3; right ascension, 05:06:00.

40:30:41 C Roger.

40:30:42 CC Okay. Do us a favor. Would you have Mike send up 460 - I mean a 340 for us? We want him to REGATE the velocity meter and get a readout.

40:30:57 C Understand. 370.

40:30:59 CC Negative. 340.

40:31:02 C Roger. 340.

40:31:06 C 340 MAP received.

40:31:08 CC Roger. Out.

40:31:50 CC Okay. Gemini X, this is Carnarvon. We checked the velocity meter. All systems are GO for SPS burn.

40:31:56 C Roger.

40:31:57 CC Okay. Have a little troubleshooting procedure for you on that 16mm camera, if you want to listen to it.

40:32:02 C Yes. Go ahead!

40:32:03 CC Okay. It says your general directions for the troubleshooting of the camera are: set up the camera and try all camera speeds; change the magazine and try all camera speeds again. It says it may be possible for the camera to work in 16 Frames-Per-Second mode only.

40:32:25 C I've already tried that and it doesn't seem to do any good. Furthermore, it might help you to know that in the TEST position, the camera should work only when the button is held. But this one will also work when the button is released in the TEST position.

40:32:44 CC Okay. I copy that.

## CONFIDENTIAL

## HOUSTON

41:15:37 CC Gemini X, Houston CAP COM.

41:15:48 C Gemini X. Over.

41:15:52 CC Roger. Gemini X, Houston CAP COM requesting Encoder OFF for a T/M dump.

41:15:59 C Encoder, OFF.

41:16:01 CC Roger. How was your last burn, John?

41:16:06 C It was okay.

41:16:09 CC Okay. I've got a maneuver update for you. You ready to copy?

41:16:15 C Roger. Ready to copy.

41:16:17 CC Roger. Purpose is Phase-Adjust. GET B: 41:35:50; Delta-V, 3.5 feet per second; Delta-T, 5 seconds; Address 25, 90035; thrusters, SPS; TDA, aft; Retro-grade Maneuver.

41:17:02 C Roger. Out.

41:17:08 CC I've got this ECS Test that we'd like to run, if you're ready to copy what we want to do on it, John.

41:17:21 C Roger.

41:17:23 CC Okay. The preliminary preparations will take place after the Phase-Adjust Maneuver and the fuel cell purge.

41:17:31 CC The preliminary preparations will be to close up both suits and perform Suit Integrity Check - for both pilots. The ECS Test will occur after the Height-Adjust Maneuver, if there is one, and after you've powered-down the Spacecraft. The configuration for the test will be: both Suit Flow Control valves, FULL-OPEN; Circ valve, CLOSED; both face-plates closed; Suit Fan, No. 1. What we want you to do is decompress the cabin to 3.0 to 3.4 psi, then just continue in this configuration for 1 hour

CONFIDENTIAL

and repressurize the cabin. Repressurization should be around 43:25 into the mission. If you get any eye irritation or odor during this test, initiate O<sub>2</sub> HIGH RATE and, if the problem doesn't clear within 15 minutes, repressurize the cabin.

41:19:17 CC That's all the test, John. It's just to check to make sure that we've got no problem, using just a single suit fan, before we think about this EVA. Okay?

41:19:30 C Roger.

41:19:42 CC All right. John, can you give me the residuals from your last burn, if you have them?

41:19:48 C Roger. I'm looking for them now.

41:19:51 C Okay. While you're looking, we'd like for you to check each other's eyes to see if you've got any redness or swelling. We'd like to know if you got any relief from the eye drops, if you used them.

41:20:07 C We haven't used - as far as redness or swelling goes there's very, very slight amount of swelling and negligible redness. We do still occasionally get a whiff of this stuff.

41:20:21 CC Roger. We'd like for you to save any of the wipes that you used on your face as wet wipes; also, the defogging wipes for the faceplates of your suits and any chewing gum that you may use during the flight. We'd like for you to bring that back, so we can check to make sure it's lithium hydroxide.

41:20:46 C Okay. The wet wipes that we originally used we've already thrown away during the first cabin depress, but we'll save all subsequent wet wipes and we are saving the towels we wiped our eyes with. We haven't used any chewing gum.

41:21:01 CC Okay. Real fine.

41:21:06 CC On this camera, Mike. It looks like you've had a microswitch fail you and there's nothing we can do about it.

41:21:28 P What microswitch are you talking about, C.C.?

**CONFIDENTIAL**

41:21:30 CC It's the microswitch in the camera, Mike.

41:21:34 P Roger. Understand. Thank you.

41:21:36 CC What is your suit fan configuration at this time?

41:21:39 C Suit Fan No. 1.

41:21:41 CC Roger.

41:22:02 CC Gemini X, Houston CAP COM. We've got a VM compare. It looks like a good load.

41:22:08 C Very good.

41:22:09 CC And I notice that you have your Encoder back to ON.

41:23:08 CC This is Houston CAP COM. Standing by for the residuals on your burn, if you find them.

41:23:19 C Roger, C.C. We're - -

41:24:08 CC Gemini X, from Houston CAP COM. For your information, the Astros beat the Phillies 8 to 2 in the Dome last night and Frank and Mia got married in Las Vegas.

41:24:20 C Well that's one triumph at least.

41:24:35 C Here are the residuals on that burn.

41:24:38 CC Ready to copy.

41:24:39 C 80 was 00010. You can't put too much faith in 81 and 82 because I didn't Cage to the Agena, but it was 0005 and - 0003.

41:24:57 CC Roger. What was 80 again?

41:25:00 C 00010.

41:25:01 CC Roger.

41:25:02 C 1 foot per second, left.

41:25:11 CC In other words we got it.

**CONFIDENTIAL**

# CONFIDENTIAL

193

41:25:18 C In IVI's, we had an extra foot. It went from aft to 4 plus 1.

41:25:23 CC Roger, John.

41:25:33 CC Gemini X, Houston CAP COM. I'd like to confirm that you're TDA aft, now.

41:25:39 C Roger. We're TDA aft, now.

41:25:41 CC Roger.

41:26:15 CC Gemini X, from Houston. We have about 1 minute to LOS. Standing by.

## CANARY ISLANDS

41:29:22 CC Gemini X, Canary CAP COM.

41:29:24 C Gemini X. Go.

41:29:26 CC Roger. I'd like your GO or NO-GO status.

41:29:32 C It is GO.

41:29:34 CC Roger. You are GO on the ground for 44-1.

41:35:12 CC Gemini X, Canary CAP COM. You are GO for your SPS burn.

41:35:16 C Roger.

41:36:35 C Canaries, this is Gemini X. 80 is 0007 - 80 is 00007; 81 is 00001; 82 is minus 0001.

41:36:54 CC Roger. Copy.

41:36:56 C This thing is still overshooting a little. That was 7/10ths over there and I guess we probably shut it down.

41:37:01 CC Roger.

41:38:52 CC Gemini X, Canaries. We're about at LOS. We'll see you around next pass.

# CONFIDENTIAL

## CONFIDENTIAL

41:38:56 C Gemini X. Roger.

KANO

41:39:40 CC Gemini X, Houston CAP COM. Standing by.

41:39:51 C Roger. We're in Flight Control Mode 1 and we're gyro compassing the TDA to north.

41:40:01 CC Roger. And you got a fuel cell purge and then a power-down.

41:40:07 C Roger.

41:40:21 CC Gemini X, Houston CAP COM. Negative on that power-down. That's not until 42:21:53.

41:40:33 P Roger. Is this 150 feet?

41:40:38 CC We're looking at it right now. Try to get it to you before LOS.

41:40:54 P Okay.

41:42:24 CC Gemini X, Houston CAP COM.

41:42:27 P Gemini X. Go ahead.

41:42:29 CC Roger. No Height-Adjust Maneuvers required.

41:42:35 P Roger. Then should I go ahead and power-down now?

41:42:38 CC Stand by. We're talking about it.

41:42:58 CC Gemini X, Houston CAP COM.

41:43:01 P Go ahead. Over.

41:43:02 CC Roger. ECOM would like you to stay powered-up for the time being. You can start your ECS Test at this time, if you'd like.

41:43:14 P Roger.

CONFIDENTIAL

# CONFIDENTIAL

195

## CARNARVON

42:05:21 CC Gemini X, Carnarvon.

42:05:23 P This is Gemini X. Go.

42:05:26 CC Roger. You can start powering-down your platform.

42:05:29 P Roger. Powered-down.

42:05:30 CC Okay. We want to send a VM interrogate and also get an Agena tape dump, so will you turn your Encoder to OFF?

42:05:40 P It's OFF.

42:05:41 CC Thank you.

42:10:06 CC Gemini X, Carnarvon. We've got the tape dump. You can turn your Encoder to ON again.

42:10:12 P This is X. Roger.

42:10:13 CC All systems are GO on the ground. We'll be standing by.

42:10:21 P Roger. ... ECS Test now.

42:10:25 CC Roger.

42:14:27 CC Gemini X, Carnarvon.

42:14:31 P Gemini X. Go ahead.

42:14:32 CC Roger. In the event you might have to use HIGH RATE you might keep an eye on that O<sub>2</sub> Tank Pressure.

42:14:37 P Gemini X. Wilco.

42:14:39 CC Okay. All systems are GO on the ground and we're about to lose you.

42:14:44 P Roger. I hope not. We'll see you next pass.

CONFIDENTIAL

2

2

## CONFIDENTIAL

## HOUSTON

42:52:52 CC Gemini X, Houston CAP COM.

42:52:53 CC Gemini X, Houston CAP COM.

42:52:57 C This is X. Go ahead.

42:52:59 CC Roger, John. How's your ECS Test coming? You still in the suits?

42:53:04 C We are 31 minutes in the test and everything is very normal.

42:53:09 CC Roger. You haven't noticed any smarting of the eyes or odor. Right?

42:53:13 C No.

42:53:14 CC Did you wipe your visors with that anti-fogging compound prior to closing up?

42:53:21 C No. We didn't.

42:53:23 CC Okay.

42:53:31 CC Gemini X, Houston CAP COM. Would you turn your Encoder to OFF for an Agena tape dump?

42:53:36 C Roger. Encoder's OFF.

42:53:38 CC Roger.

42:54:12 CC Gemini X, Houston CAP COM.

42:54:15 C Gemini X. Go ahead.

42:54:17 CC Roger, John. We're looking at the possibility of combining Phasing-Maneuver with the Separation. We'll give you further word on that later. I guess Mike is probably going to look forward to getting that elephant off of him, isn't he?

42:54:32 C He sure is.

42:54:36 C Yes. It's like driving down the road with a truck and you're looking out. You're like a railroad

CONFIDENTIAL

# CONFIDENTIAL

197

engine driving down the road with a big freight train and all you can see is the freight train.

42:54:50 CC Roger.

42:54:52 CC I'd like to advise you that your friend Cecilia has redeveloped into a hurricane out in the Atlantic. If you're separated, you may have a chance to look at it on REV's 28 and 29. The coordinates are 32.6 north, 70 west.

42:55:15 P Roger. I think I got a picture of it yesterday.

42:55:19 CC That right? They didn't know it was a hurricane yesterday.

42:55:23 P Looked like one to me.

42:55:30 C It looked like a bunch of big thunderstorms out there.

42:55:33 CC Roger.

42:55:34 C Couldn't see that there was any central vortex development.

42:55:38 CC You might keep an eye out for it on 28 and 29.

42:57:17 P Houston, Gemini X. When we are coming up on an advantageous position to see Cecilia, how about giving us a call?

42:57:26 CC Roger, Mike. Will do.

42:57:30 P Okay.

42:57:36 CC Looks like you should be just about there right now.

42:57:40 P Yes. That's what I was thinking. We don't see it.

42:57:49 CC It should be a good bit to the north of you yet.

42:57:53 P Okay.

42:58:24 CC Mike, from Houston. Do you plan to retrieve S-12 and the window cover on your EVA?

# CONFIDENTIAL

## CONFIDENTIAL

42:58:33 P S-12 is affirmative. The window cover negative. We plan to get the window cover so John will have good visibility for the Rendezvous and just not attempt to bring it back.

42:58:46 CC Good head, Mike. That sounds like a fine plan.

42:59:05 CC This is Houston with about a minute and 30 seconds to LOS. We're standing by.

42:59:15 P Okay. I'm taking some pictures out to the north, just about as far as this camera can see. I don't really see anything myself. Maybe the Hasselblad can tilt at a better angle than I can.

42:59:26 CC All right.

42:59:30 CC Gemini X, Houston CAP COM. You can put your Encoder back ON.

42:59:36 P Roger. Encoder's ON.

42:59:40 CC Roger. We're standing by.

43:01:05 CC Gemini X, Houston CAP COM. We've got about 3 more minutes to LOS. We'll be standing by.

43:01:13 P Okay. C.C.

43:01:17 P What do you guys think about this smell we have up here?

43:01:24 CC We think it's lithium hydroxide, Mike. The test we're running now is to see if using just one fan won't keep from picking any of it up and bringing it into the suit loop.

43:01:40 P Yes, I see.

43:01:42 CC If this test works okay, we'll do the EVA using just Suit Fan No. 1 rather than No. 1 and No. 2.

43:01:50 P Roger. Understand, Bill. We can still smell it, but it's very mild and we don't have any eye irritation to speak of.

43:01:58 CC Roger. Understand.

CONFIDENTIAL

# CONFIDENTIAL

199

43:02:16 P Sure got a good night's sleep last night. I imagine better than you guys down there.

43:03:21 CC I'm glad to hear it.

## CANARY ISLANDS

43:06:29 CC Gemini X, Canary CAP COM. We have nothing for you this pass. We'll be standing by.

43:06:34 P This is Gemini X. Roger.

43:15:42 CC Gemini X, Canaries. We've got you GO on the ground. Have a minute to LOS.

43:15:48 C Gemini X. Roger.

43:17:12 CC Gemini X, Houston CAP COM.

43:17:17 C Gemini X. Go ahead.

43:17:18 CC Roger. How's your ECS Test coming, John?

43:17:22 C It's coming all right. We have less than 4 minutes to go.

43:17:26 CC Roger. If it continues okay, you'll have a GO for - for EVA. But on the EVA, when you apply this anti-fogging compound to the visor, make sure that you wipe it good with a tissue, to leave only a thin film.

43:17:44 C Roger.

43:17:46 CC They suspect that this - detergent may be reacting with the lithium hydroxide to cause the odor, so we just want a real thin film on the visor.

43:17:56 C Roger. You still want me - inside man to put that on the visor? Over.

43:18:04 CC No. Not the inside man.

43:18:07 C ...

# CONFIDENTIAL

## CONFIDENTIAL

43:18:08 CC On your Separation Maneuver, John. It looks like about 44:40. We'll use a 1.8 Posigrade Maneuver, using the forward-firing thruster. We'll - you'll need a - bring up your platform in Cage to the Agena. And as far as 5-26 goes on this Separation Maneuver, we'd like to get the Agena recorder on prior to undocking. Turn the radar on at 20 feet and try to keep in view of the Agena as long as you can, or 20 minutes, whichever comes first. And then turn the Agena off before you go SEP and start looking for the VIII Agena.

43:19:06 C Roger. Before I do this, in preference to the S-26 that we discussed earlier.

43:19:14 C Roger.

43:19:15 C Okay.

43:19:20 CC And after this Separation Maneuver, John. We'll give you NCC and SR to really tweak it up. We'll advise you more on this SEP Maneuver later, but it looks right now 1.8 at 44:40.

43:19:35 C Roger.

43:20:14 CC Gemini X, this is Houston. That's all we have for you at this time. We have about 2 minutes to LOS. We're standing by.

43:20:23 C Roger. And our cabin ECS is over with. We have repressurized it.

43:20:29 CC Roger. Understand your cabin ECS Test is complete. You're repressurizing the cabin and everything is GO from your end.

43:20:37 C Roger.

CARNARVON

43:43:38 CC Gemini X, Carnarvon.

43:43:40 C Gemini X. Go.

CONFIDENTIAL

# CONFIDENTIAL

201

43:43:41 CC We got you in. All systems are GO here on the ground and we'll be standing by.

43:47:52 CC Gemini X, this is Carnarvon. Just a reminder. You have platform power-up shortly.

43:47:59 C Gemini X. Roger. We're ... remembered.

43:51:50 CC 1 minute till LOS. Standing by.

43:51:53 C Gemini X. Roger.

## CANTON

44:04:31 CC Gemini X, Houston CAP COM.

44:04:34 C Gemini X. Go.

44:04:36 CC Roger. I have an update for you on the Separation and Phase-Adjust burn.

44:04:55 C Roger. Go ahead with it.

44:04:56 CC Roger. Purpose is Separation and Phase Adjust. GET B: 44:40:15; Delta-V, 1.5 feet persecond; burn time 03 seconds; yaw, that's the Spacecraft yaw, is 180, pitch 0; Address 25, 00015; 26 and 27 are zeros; thrusters will be the forward-firing thrusters; Posi-grade. You should use Address 55, all 9, for selection of forward-fire thrusters logic. Over.

44:04:57 C Roger. We are ... GO.

44:06:03 CC Roger. And on that Separation, John. Are you clear on the S-26 Maneuver that I gave you over Kano, instead of what we gave you on the Flight Plan this morning?

44:06:17 C You just want us to back out at 1.8, right?

44:06:20 CC That's right. Rig your 18mm lens and the 16mm camera at 1 frame per second; turn the Agena encoder ON prior to undocking at - that's at 041; undock and then burn on time; turn the recorder ON, 20 feet out. Maintain radar lock for as long as you can, or 20 minutes, whichever comes first. Then turn

# CONFIDENTIAL

## CONFIDENTIAL

the recorder OFF. That's 030 and 021 prior to going SEF and after the VIII Agena.

44:07:19 CC Gemini X, did you get that?

44:07:22 C Roger. We understand.

44:07:24 CC Okay. And that burn is 1.5 instead of 1.8. 1.5 burn.

44:07:31 C Roger. Understand.

44:07:41 CC That's all I've got for you right now, John. We'll be standing by and we'll pick you up over the States. We have about 4 minutes to LOS.

44:08:25 C Roger. I just gave the snake to Mike.

44:08:29 P It feels real great to stretch your legs out.

44:09:00 CC Gemini X, how does it feel to stretch your legs out, John?

44:09:04 C Boy, I didn't know they put so much room in these cockpits. Feels wonderful!

44:09:08 CC Right. (Laugh)

## GUAYMAS

44:21:59 CC Gemini X, Houston CAP COM.

44:22:02 C Gemini X. Go.

44:22:03 CC Roger, John. We don't have anything for you this pass over the States. You can get ready for your Separation Maneuver there. After Separation, next thing we have for you is a NCC Maneuver, which will be over Canton at 45:54 and the NSR tweak at 46:09 over States.

44:22:32 C Roger.

44:29:35 CC Gemini X, Houston CAP COM.

CONFIDENTIAL

# CONFIDENTIAL

203

44:29:39 C Gemini X. Go.

44:29:41 CC Roger. If you're going to Cage to the Agena, John, recommend you go to FC2 to get out of that deadband. You are about 4 degrees off, now.

44:29:52 C Roger. That's where we're going right now.

44:29:54 CC Roger.

## CANARY ISLANDS

44:44:28 C Houston, this is ...

44:44:31 CC Gemini X, this is Canary Island.

44:44:33 C Canaries, could you turn the L-Band on the Agena? We just turned it off by mistake. Over.

44:44:39 CC Roger. Will do.

44:46:35 CC Gemini X, Canary CAP COM.

44:46:38 C Gemini X. Go.

44:46:39 CC Okay. Did you send Command 041 to the Agena?

44:46:44 C Roger. We did.

44:46:48 C We sent the command. Over.

44:46:49 CC Roger.

44:46:58 C Canaries, that's the first command we sent before we undocked.

44:47:04 C Gemini X. On the commands that we sent, if you like, we'd like to correlate.

44:47:10 CC Yes.

44:47:15 CC Roger. Will you give it to me?

44:47:17 CC Roger. Gemini X, can you give it to me?

# CONFIDENTIAL

## CONFIDENTIAL

44:47:23 C Standing are 041, 460, 370, 451, 271, and 140.  
44:47:32 CC Okay. Could you send 041 one more time, please?  
44:47:45 C 041 in the back play.  
44:47:47 CC Roger. We got it all this time.  
44:52:52 CC Gemini X, Canary CAP COM. We have a minute until LOS. We'll be standing by.  
44:52:56 C Roger. We've lost the Agena in the sun - sunset there.

## KANO

44:54:16 CC Gemini X, Houston CAP COM.  
44:54:18 C Gemini X. Go.  
44:54:19 CC Roger. How does it feel to be rid of that flight thing you had in front of you?  
44:54:23 C It's a mighty good change.  
44:54:25 CC It sure was, John. You've - do you still have it in sight and radar lock-on?  
44:54:32 C We still have radar lock-on. We're about 1100 feet. We can't see it; the sun is setting right now.  
44:54:38 CC Roger. You're about 20 minutes from the time you got your recorder ON so - well, you can turn it to OFF by sending 030 and then 021.  
44:54:50 C Do I have to do that now? Over.  
44:54:55 CC You can wait a few more minutes.  
44:55:12 CC Gemini X, Houston CAP COM. We'd like to know when you jettison your window cover.  
44:55:20 C Roger. I think now would be a good time. Over.  
44:55:23 CC Roger.

CONFIDENTIAL

# CONFIDENTIAL

205

44:56:25 C This is Gemini X. I don't think this foul-up has much to do with the window covers. Over.

44:56:35 CC Roger. We just wanted to know for flight analysis purposes, John.

44:56:38 C Roger.

44:56:48 C We - jettisoned it. It looks the same looking out through it.

44:56:52 CC Roger.

44:57:01 CC How does it compare with yours, Mike?

44:57:07 P I don't know. I can just look through one of them.

44:57:13 P Right now I have a burn coming up. I'll try looking through them at an angle to see if it makes any difference. Mine is smudged. It's smudged. It's smudged primarily on the inner surface of the outer beam. It's just a thin film.

44:57:27 CC Roger.

44:57:46 P Gemini X. C.C., what were those three Alinements again, one more time?

44:57:51 CC Say again.

44:57:56 P Houston, Gemini X. Over.

44:57:59 CC This is Houston. Go ahead, Gemini X.

44:58:02 P When were those two Alinements - three Alinements - to complete the burn.

44:58:07 CC Roger. You've got an NCC at 45 plus 54 and an NGR tweak at 46:09.

44:58:21 P Thank you.

44:58:22 CC And I think you can probably turn that recorder OFF, 030 and 021 now.

44:58:30 C Roger.

44:58:35 C We're about 1500 feet out now.

# CONFIDENTIAL

## CONFIDENTIAL

44:58:38 CC Roger. Understand 1500 feet.

44:58:51 CC For your information, at the time you separated from the Agena, your VIII Agena was 138 miles away from you.

44:59:03 C Roger.

44:59:11 C What's my Delta-H?

44:59:15 CC 7 miles.

44:59:18 C We're right on it. Aren't we ...?

44:59:30 CC We're going to sweeten everything up with these two tweak burns, John.

44:59:34 C Roger. That's fine.

45:00:15 CC We're about a minute from LOS. We'll be standing by.

45:00:22 C Roger.

45:00:27 C It sure was a good Agena.

45:00:30 CC It sure was.

45:00:31 CC Let's go find the other one now.

45:00:35 C You're right.

## TANANARIVE

45:04:49 CC Gemini X, Houston CAP COM.

45:04:52 C Gemini X. Go.

45:04:54 CC Roger. From the data we have right now, John, it looks like we'll hit TPI within 3 minutes of nominal. FIDO is still very optimistic about getting there. These tweaks even will sweeten it up better.

45:05:12 C Roger. Sounds great.

45:05:16 CC And we'll have an update on these tweaks over Carnarvon.

CONFIDENTIAL

# CONFIDENTIAL

207

45:06:11 CC Gemini X, Houston CAP COM. We have nothing further for you at this time. We'll be standing by.

45:06:18 C Gemini X. Roger.

45:12:42 CC Gemini X, Houston CAP COM. We're about a minute and a half from LOS. Standing by.

45:12:49 C Roger. We're having lunch. Would you join us?

45:12:53 CC I'd love to.

45:21:06 CC Gemini X, Carnarvon.

45:21:09 C Gemini X, go ahead.

45:21:11 CC Roger. All systems are GO here on the ground and I have a couple of updates for you for the NCC and NSR.

45:21:24 C Roger. Go ahead.

45:21:26 CC Okay. Purpose is Corrective Combination. GET B: 45:54:01; Core 25: 00011; Core 26: 90038; 27: 00014; Maneuver is Posigrade, Up and north.

45:22:07 CC For your Coelliptic Maneuver, GET B: 46:09:28; Core 25: 00009; Core 26: 00098; 27, all zeros; Posigrade and Down.

45:22:38 C Roger. 26 will be NSR with 9.8 down. Over.

45:22:46 CC That's affirmative.

45:22:51 C Okay.

45:23:14 CC Gemini X, Carnarvon. You want the pitch and yaw for that?

45:23:18 C No. That's all right.

45:24:42 CC Gemini X, Carnarvon. You need the L-Band for anything?

45:24:47 C Negative.

45:24:50 CC Okay. We'll turn it OFF.

# CONFIDENTIAL

## CONFIDENTIAL

45:24:51 C Roger.

45:38:09 C Going FC2, now.

45:38:11 P Mark it.

45:38:12 C At 4:29:16.

45:38:14 P Pitch.

45:38:15 CC Okay. Don't forget to put it on voice tapes.

45:38:17 C 45:38. First sighting of Gemini VIII Agena by John Young. At this minute it's blurry.

45:38:31 P Is it pretty?

45:38:32 C Yes.

45:38:33 P Stand by. (Laughter)

45:38:37 C It is. It's BEF.

45:38:38 P TDA down.

45:38:53 C 45:38. Let's see if I lose it when we turn over.

45:39:40 P We're low.

45:39:46 C Look at that ground!

45:39:49 P Where do you see it?

45:39:51 C I see it deadahead.

45:39:55 P I don't see it.

45:40:28 C I think I'm going to see it all the way in.

45:40:32 P Think you are?

45:40:34 C Yes.

45:40:56 P I see it.

45:40:57 C I see it too, don't you?

45:40:58 P Yes.

CONFIDENTIAL

# CONFIDENTIAL

209

45:41:01 C Big ... isn't it?

45:41:02 P Yes.

## CANTON

45:41:06 CC Gemini X, Houston CAP COM.

45:41:08 C Roger. We have the VIII Agena in sight. We've been watching it for about 5 minutes.

45:41:14 CC Roger. Good news.

45:41:17 CC Those updates we gave you for your burns are good. Were you satisfied with them? You can get there within 11 seconds of nominal TPI.

45:41:28 C Gosh darn! There's even some size to it!

45:41:31 P Yes. Looks like it's wobbling, doesn't it?

45:41:36 C I can't see any wobble.

45:41:42 P Looks to me like it's wobbling. We shall see.

45:41:55 CC Gemini X, Houston CAP COM.

45:41:59 C Roger. Go.

45:42:00 CC You seeing it in sunshine or earthshine or combination?

45:42:06 C It's hard to tell, C.C. It's one or the other.

45:42:10 CC What's the sun angle, John?

45:42:12 C The sun is just barely up.

45:42:14 CC Roger.

45:42:18 P It's about 40 degrees above the horizon. I think we see it mostly in sunshine.

45:42:24 CC Right, Mike.

# CONFIDENTIAL

## CONFIDENTIAL

45:42:42 CC Gemini X, from CAP COM. Can you reference it to a star?

45:43:09 P It's changing its intensity with a very slow period, so I think it has some kind of small body close to it.

45:43:21 CC Roger. Understand.

45:43:30 CC Your range right now, Gemini X, is 95 miles.

45:43:39 C Roger. 95.

45:43:49 P It doesn't look like a point source from the way it shines. It looks ...

## HAWAII

45:49:51 CC Gemini X, Hawaii CAP COM.

45:49:53 C Gemini X. Go.

45:49:54 CC How are you doing this morning?

45:49:55 C Fine.

45:49:56 CC Okay. You're looking real good here. We'll stand by and watch you burn.

45:50:00 C Roger.

45:54:37 CC Gemini X, Hawaii.

45:54:41 C Gemini X. Go.

45:54:42 CC Got your residuals?

45:54:44 C Roger. Wait a second.

45:54:45 CC Okay.

## GUAYMAS

45:58:31 CC Gemini X, Houston CAP COM.

CONFIDENTIAL

# CONFIDENTIAL

211

45:58:33 C Gemini X. Go.

45:58:35 CC Right. You look like a good maneuver, John. With any luck at all we'll hit TPI within 4 seconds.

45:58:41 C Roger.

45:58:46 CC That Agena you saw, was that the VIII Agena or the X Agena?

45:58:51 C Is the X Agena ahead of us?

45:58:53 CC That's affirmative. About 3 miles.

45:58:56 C Well, that's what we're looking at then.

45:59:13 CC John, I'd like to go over some mission rules for your EVA. You got a GO for your EVA at your convenience here during your stateside pass. Do you want to talk about it now or wait until after your next maneuver?

45:59:26 C I'd like to wait until after the maneuver. Over.

45:59:29 CC Okay, fine. We're standing by, then.

46:01:03 C That's too bad, C.C. I thought we were really seeing something.

46:01:06 CC Yes. I thought so too, John. You'll get it.

46:01:16 CC 95 miles is pretty long range.

46:01:19 C You have to have real good eyesight for that.

46:01:31 CC John, while we have a minute here, I'd like to talk to you about the camera.

46:01:37 C Roger.

46:01:40 CC You can use that right-hand camera in the left-hand window in the TEST position. It runs all the time in TEST, I understand, but you can turn it off by turning off your utility light power.

46:01:56 CC And just control it from there; run it at 16 frames per second.

# CONFIDENTIAL

## CONFIDENTIAL

46:02:03 P Are you talking about the right-hand camera which is broken?

46:02:07 CC That's right, Mike.

46:02:09 P No. That's one of the characteristics of it, that it does make noises continually in TEST, whether your finger is on the button or not. It makes the same wearing noises that it does in the other mode. However, it is not working in any mode. The little ratchet inside which advances the film inside the magazine is not working.

46:02:31 CC Okay, I got you then. Are you going to use the left-hand camera with the bug-eye for your EVA?

46:02:38 P We planned to use the left-hand camera, shooting out through the left-hand hatch with the 18mm lens for the EVA. Do you prefer the bug-eye for EVA?

46:02:48 CC We'll talk about that and I'll give you a call later.

46:02:51 P Okay.

46:06:04 C This is X. We're right over Corpus right now. Is that correct?

46:06:09 CC Say again, John.

46:06:11 C I say we're over Corpus Christi right now. Is that correct?

46:06:13 CC That's what it looks like from here.

46:07:40 C This is the first time we've ever been pitched over. It's really great to see the world.

46:07:45 CC Right. Get a picture of it.

46:07:50 C Yes, we are. We're taking quite a few at the primary speed.

46:10:08 C 80 reads minus 1/10th, 81 all zeros and 82 is minus 1/10th.

46:10:25 C We burned the last one ... and we burned this one right down the angle.

CONFIDENTIAL

# CONFIDENTIAL

213

46:11:03 CC Gemini X, Houston.

46:11:07 C Gemini X. Go ahead.

46:11:08 CC Roger. Request you go to PRELAUNCH Computer, please.

46:11:13 C PRELAUNCH on Computer.

46:11:17 CC Roger. PRELAUNCH. And we'll be sending you a load and you'll receive a DCS light.

46:13:31 C Houston, Gemini X. On this camera bit, we're still to do it as we said. I shoot the camera out the left-hand window. If you'd like to change that, please let us know as soon as possible. We've got a lot of restowing to do.

46:13:44 CC Roger. Our recommendation is this. For the left-hand camera, use it in your EVA position with the bug-eye 5mm lens. The right-hand camera would then be in the left-hand mount with the 18mm lens and periscope set at 16 feet-per-second, correction, frames per second TEST position. This is our recommendation only, and we'll stand by for your decision.

46:14:16 P This is X. You realize one camera is completely inoperative?

46:14:20 CC Roger. We realize that.

46:14:24 P The only question remains. Which would you rather have - the bug-eye shooting out the right-hand open hatch, or would you rather have movies of certain selected time-shooting out the left? And we thought with the capability to change magazines, it might be better to shoot a couple of magazines out through the left.

46:14:58 CC Gemini X, Houston. We concur. Change that to read: use the workable left-hand movie camera out the left-hand window where you can change the magazines, et cetera.

46:15:10 P Okay. Fine.

46:15:34 CC Gemini X, Houston.

46:15:42 C Gemini X. Go.

# CONFIDENTIAL

## CONFIDENTIAL

46:15:44 CC Roger. We're almost LOS here. But I've got some mission rules for you. Your fuel cutoff to stop the Rendezvous, stop what you're doing at that point, is 133 pounds or 7 percent on the gage. 133 pounds is 7 percent on the gage corrected. If you arrive at the Rendezvous with greater than 170 pounds, which is an indicated 10 percent on the gage, you're okay to go ahead with Stationkeeping.

46:16:35 CC Gemini X, Houston. Did you copy those?

46:16:38 C Roger.

46:16:39 CC Roger. 7 percent cutoff, Rendezvous 10 percent for Stationkeeping. Also, would like to give you some recommendations for EVA. The conditions are first - the electrical load should be a minimum of 40 amps, that's four zero amps. The Primary Coolant Loop should use the A Pump and in the Secondary Loop the B Pump should be used. If this is impossible, alternate would be the Primary B and the Secondary A Pump. The Suit Fan to Number 1 and the ELSS valve either MEDIUM or HIGH-FLOW.

46:17:45 CC I've got some additional rules concerning the possibility of eye irritation for John, and they're as follows: if eye irritation is experienced, select O<sub>2</sub> HIGH-RATE and just continue with EVA. Now if the ELSS is on MEDIUM or HIGH during this time, this rule applies. However, if you must go to HIGH and BYPASS, then you'll have to discontinue the EVA.

46:18:33 C Roger. Understand.

46:18:39 CC Roger. And also MEDIUM and BYPASS is okay. In other words, either MEDIUM or HIGH, or MEDIUM and BYPASS is okay. However, HIGH and BYPASS is terminate.

46:18:49 C Roger. I see.

46:18:50 CC Roger. And realize that those rules we just gave there apply only to the condition where John is experiencing eye irritation.

46:19:02 C Roger.

CONFIDENTIAL

# CONFIDENTIAL

215

46:22:42 CC Gemini X, Canary CAP COM.

46:22:46 C Canary, go.

46:22:47 CC Okay. That mode they gave you up over the States - was that your Vector Update? And one thing that we want to remind you is that the time will not be valid until after 46:45:00 ground elapsed time.

46:23:55 CC Gemini X, Canary. At elapsed time of 46 hours, 27 minutes and 30 seconds, Agena VIII was 55 miles in front of you and 6.8 degrees up.

46:24:09 C Roger.

46:25:20 C Canary, this is Gemini X. We'd like to know the position of the X Agena when we are at TPI, relative to us.

46:25:29 CC Stand by.

46:25:43 CC We're running it now. It's going to take a couple of minutes yet.

46:25:45 C Say again.

46:25:46 CC We're running the Agena X position now - it's going to take a couple of minutes.

46:25:52 C Roger.

## CANARY ISLANDS

46:26:00 CC Gemini X, Canary. Houston's working on that data right now but they will give it to you as soon as possible.

46:26:05 P Say again.

46:26:06 CC Houston is working on the Agena X position and will get it up to you as soon as possible.

46:26:14 P Gemini X. Roger. Thank you.

46:26:18 CC Roger.

# CONFIDENTIAL

## CONFIDENTIAL

46:28:42 CC Gemini X, Canary. 30 seconds to LOS. Have a good EVA. I'll see you tomorrow.

46:28:49 P Gemini X. Roger.

46:30:21 CC Gemini X, Houston. We're standing by.

46:30:28 C Gemini X. Roger.

46:34:48 C Houston, this is Gemini X. Over.

46:34:53 CC Houston, Gemini X, go ahead.

46:34:55 C Have you got the update of the parameters yet? Over.

46:35:01 CC We're working on those right now. We're trying to get some late tracking and we will get them to you as soon as we can.

46:35:07 C Okay.

46:35:09 CC Right now our feeling is that you'll probably be about 3 minutes early to TPI.

46:35:17 C Roger. Okay.

46:35:19 CC And we'll pass it on just as soon as we can get it.

46:35:36 CC The Agena is presently in about a 215.7 by 216.4 orbit, so it looks good.

46:35:45 C Roger.

46:35:47 CC And, of course, these Left-Right, Up-Down Maneuvers that we pass up to you will be relative to you as you sit in the cockpit.

46:35:57 C Roger.

## TANANARIVE

46:41:53 CC Gemini X, Houston.

46:41:55 P Gemini X here.

CONFIDENTIAL

# CONFIDENTIAL

217

46:41:57 CC Roger. We're still working on your update quantities. Right now we have your Delta-H at 7 miles and it's so close that we can't see any coellipticity at all.

46:42:14 P Gemini X. Roger.

46:50:36 CC Gemini X, Houston.

46:50:40 P Gemini X. Go.

46:50:42 CC Roger. We've got some range and elevations of the VIII Agena and X Agena at TPI for you.

46:50:51 CC For the VIII Agena it will be approximately 15.3 miles at an elevation of 27 degrees. The X Agena will be at 4.5 miles minus 19 degrees, and this is all relative to your local horizontal.

46:51:17 P Roger. The X Agena is 19 degrees below us.

46:51:21 CC That is affirm. Additionally at sunrise, you'll see the VIII Agena at a range of about 29.4 miles and the elevation should be 13.5 degrees.

46:51:42 P Roger. Understand.

46:51:44 CC And finally we'll be giving you your information for the Rendezvous over Carnarvon.

## CARNARVON

46:58:18 CC Gemini X, Carnarvon.

46:58:21 C Gemini X. Go.

46:58:22 CC Roger. Would you place your Quantity Read switch to O<sub>2</sub>, please?

46:58:27 C O<sub>2</sub>.

46:58:29 CC Roger. We would like a Propellant Quantity leadout.

46:58:33 C Roger. We've got 31 percent. We need the Agena sunrise time.

# CONFIDENTIAL

## CONFIDENTIAL

46:58:41 CC Okay. I got a Back-up update for you if you're ready to copy.

46:58:46 C Go ahead.

46:58:48 CC GET B: 47:27:20; GET Agena sunrise 47:04:03. Okay. Would you place your Quantity Read to H<sub>2</sub>? Elapsed time for Agena sunrise to TPI, 23:17; 24.9 forward, 1.1 up, 3.3 left; target azimuth is zero, target elevation 32.9. Elapsed time TPI range at 2 nautical miles, 16 plus 16. Range-Rate 44.4. Delta-H, 7 nautical miles and the direction of the Left-Right, Up-Down is relative to the crew in the cockpit.

47:00:27 P Roger. Thank you.

47:00:29 CC Roger.

47:00:32 CC Have you started your purge yet?

47:00:38 P Negative.

47:00:40 CC Okay. Let's do it. Okay?

47:00:47 CC For your information, the TPI will be about 1-1/2 minutes earlier than nominal, minus the 3 minutes passed up earlier.

47:00:56 C Roger.

47:01:22 CC Gemini X, Carnarvon. A little more information. The variation around Delta-H is 7 nautical miles, plus or minus 2/10ths of a nautical mile.

47:01:37 P Roger.

47:02:43 CC Give me a Mark, X, when you are through with your purge.

47:02:47 C Gemini X. Roger.

47:06:56 CC All through with the purge?

47:07:00 C Roger. I believe I see the target up here. The nose is up. It's about 3 feet to the left. ...

47:07:12 CC Roger.

CONFIDENTIAL

# CONFIDENTIAL

219

47:07:18 CC Okay. How about O<sub>2</sub> on the Quantity Read switch?  
47:07:37 CC Okay. You can place the Quantity Read to OFF if you'd like.  
47:07:46 CC Your telemetry is solid as a rock and you look great!  
47:07:52 C Roger. Thank you.

## CANTON

47:19:57 CC Gemini X, Houston.  
47:20:01 C Go ahead, Houston.  
47:20:03 CC Roger. John, do you see it yet?  
47:22:26 C Okay. Tape JT-4722.  
47:22:32 P You still got him?  
47:22:34 C Yes.  
47:22:35 P Keep him in sight. Don't lose that rascal! Okay. I'm reading now 59 of 26.6 degrees, 18.5 minutes. It should be high and your reticle should be about 23 degrees.  
47:22:54 C I've got it. Got it on.  
47:22:55 P Okay. Good. All right. Fine. We'll probably keep you right on. Want to get Theta-1 here?  
47:23:01 C Yes. Well, I don't want to go before 32.9. What angle are you reading?  
47:23:09 P 27.7.  
47:23:11 C Okay.  
47:23:14 P Okay. Let's take Theta-1 right now because you're right on it.  
47:23:16 C Okay. I'm right on it.

# CONFIDENTIAL

## CONFIDENTIAL

47:23:19 P Okay. That was 1950.

47:23:53 P You want to go, you said. Theta-2 ought to be 28.3.

47:23:56 C Yes.

47:23:57 P Remember that? We're coming up on 28.3. As long as we have them in sight, do you want to just keep on or wait? Wait for awhile, Right?

47:24:01 C Yes.

47:24:02 P All right.

47:24:06 P We're 28.5.

47:24:21 P Maybe we should use this as Theta-2, John. What do you think?

47:24:24 C Yes.

47:24:25 P Want to use this as Theta-2?

47:24:30 C Yes. ... up to Theta-2 to get to this 28.5. Yes.

47:24:33 P All right. Ready?

47:24:34 C Going, going.

47:24:35 P Okay. We'll get right on him. Did you get on him?

47:24:41 C Mark it.

47:24:42 C Mark it.

47:24:44 P Okay. 24:40, 29.5.

47:25:10 P Okay. 25 forward, John.

47:25:11 C Okay.

47:25:14 P And 1 up.

47:25:18 C Okay. When?

47:25:21 P At 22:40. I'll tell you when.

47:25:24 C Okay. ...

CONFIDENTIAL

# CONFIDENTIAL

221

47:25:36 C Hard to see?  
47:25:39 P Keep your eyes on it. 25 forward. And I put that  
in Address 25. All right?

## HAWAII

47:25:45 CC Gemini X, Hawaii.  
47:25:48 C Gemini X. Go.  
47:25:51 C Yes.  
47:25:53 P All right, and 1 - good show - 1 up.  
47:25:56 CC Gemini X. We'll be standing by watching your burn.  
47:25:58 C Roger. We have him in sight now.  
47:26:05 P Okay. 22 minutes. TPI's in 40 seconds, John.  
47:26:07 C Okay.  
47:26:11 P I'll count you down, John. 25 forward - good -  
and 1 up, John.  
47:26:32 P 10 seconds to go, John.  
47:26:42 P 3, 2, 1,  
47:26:44 P Controller, ON. Burn it.  
47:27:11 C Oh shoot! How many seconds was that?  
47:27:15 P 30 seconds.  
47:27:16 C It'll burn 30?  
47:27:17 P Yes - I don't know, John. Go ahead. It didn't  
work on the IVI.  
47:27:21 C Put it to START COMP.  
47:27:23 P Okay. Just a second and I'll tell you. Forward -  
don't panic, we'll get it. 25, 30 seconds - stop.  
Don't thrust anymore.

# CONFIDENTIAL

## CONFIDENTIAL

47:27:33 C Okay. I don't know how much I thrust.

47:27:37 P Oh shoot, just a little over 30.

47:27:39 C You sure?

47:27:40 P Yes. You thrust continually until you said shoot, didn't you?

47:27:43 C Yes.

47:27:44 P All right.

47:27:58 C I don't think we got ...

47:28:00 P Yes. Yes. You did it for 30 seconds, John.

47:28:05 C I don't think so.

47:28:07 P Well, if you had your hand on it for the whole length of time, you did.

47:28:09 C Okay.

47:28:11 P You had your hand on it, didn't you?

47:28:14 C I had my hand on it ...

47:28:16 P But what?

47:28:17 C I don't think I was thrusting.

47:28:26 C I didn't know it the first ...

47:28:28 P Okay. That's Theta-3, 37.2.

47:28:37 C I want to reset my clock here.

47:28:39 P I gave you - set it up on 4 minutes. Okay?

47:29:07 CC Gemini X, Hawaii.

47:29:09 P Gemini X. Go.

47:29:10 CC You got some residuals for me?

47:29:12 P Negative. Not at this moment.

CONFIDENTIAL

# CONFIDENTIAL

223

47:29:14 CC Okay. Standing by; got plenty of time.

47:30:31 C Criminy, what a ... on this thing.

47:30:37 P Okay. 5 seconds to go ... 3, 2, 1,

47:30:44 P MARK. 4 minutes.

47:30:45 C Roger. Thank you.

47:30:47 P Terminal angle is going to be 93 degrees.

47:30:50 C Okay.

47:30:57 C Go to 5 minutes.

47:31:00 P What?

47:31:01 C 5 minutes.

47:31:02 P Okay. Set it on 5 minutes.

47:31:06 C Okay.

47:31:24 C What a stupid, gosh darn thing!

47:31:32 P 10 seconds to go to 5 minutes. I have it out there.

47:31:33 C Okay.

47:31:34 P Ready?

47:31:35 C Yes.

47:31:43 P 3, 2, 1,

47:31:44 P MARK.

47:31:45 C Okay. You wanted 6, right?

47:31:50 P Yes. I need Run 6. Your reticle's not on it, is it?

47:31:55 C Yes it is.

47:31:56 P Is it? Looks to me like it's high and to the right.

47:32:05 C It is high and to the right, but my reticle is on.

# CONFIDENTIAL

## CONFIDENTIAL

47:32:07 P Yes. I'll get it lined up better.

47:32:09 C Very good.

47:32:14 P 6 minutes. The next data falls straight on in.

47:32:17 C Okay.

47:32:30 P Okay. 15 seconds. Are you right on it?

47:32:32 C Yes.

47:32:39 P 5 seconds.

47:32:40 C Okay.

47:32:43 P Ready?

47:32:44 P MARK.

47:33:14 C How's it doing?

47:33:16 P Fine.

47:33:59 P 4 up.

47:34:00 C 4 up?

47:34:01 P Yes.

47:34:04 C Okay.

47:34:08 C First strike, it's 4 up. We burn it now.

47:34:12 P Say again?

47:34:25 C I say it was 4 up. He's already burned it.

47:34:28 P Okay. Do they measure burn duration down there?

47:34:37 C I don't know.

47:34:39 P Want to ask him?

47:34:40 C Okay.

47:34:43 C No. When it's 4 up, it can't be too bad. It's no play.

CONFIDENTIAL

# CONFIDENTIAL

225

47:34:51 P No. Okay. When I said Mark, did you put your hand on the handle there?

47:34:59 C Yes.

47:35:00 P Okay. Well, do you think you took it off for awhile?

47:35:02 C No.

47:35:04 P Well, then, we had a good plus 30 seconds in there, John. We had, I'd guess, 28 feet per second rather than 25 feet per second.

47:35:12 C Okay.

47:35:13 P If that means anything to you - okay. Coming up in 9 minutes for your next data point.

47:35:17 C Okay.

47:35:23 P Prop Quantity is holding good.

47:35:25 C Yes.

47:35:28 P About 25 percent - no, 30 percent. Darn near.

47:35:33 C Son of a gun, starting to get bright now.

47:35:34 P Yes.

47:35:36 C Wait a minute. I'm not on.

47:35:39 P Okay. Get right on and as soon as you get on, let me know.

47:35:41 C Okay?

47:35:42 P Standing by.

47:35:46 C MARK.

47:35:48 P Okay. Right on the time. That was 9 minutes, exactly. 2.5.

47:36:41 P Hey! Don't bump that thing accidentally. You've got the switch ON.

47:36:45 C Yes. I know it. Boy! I tell you this ... in the

# CONFIDENTIAL

## CONFIDENTIAL

Spacecraft and out of the Spacecraft is rough.

47:37:08 P How's your Out-of-Plane, can you tell?

47:37:11 C It's a little bit left.

47:37:17 P So you're not making corrections for that yet?

47:37:19 C No, not yet.

47:37:20 P Yes.

47:37:42 P Okay. 11 minutes. Now TPI is - you have 1 more minute to the next data point.

47:38:31 P Okay. Get right on it, John.

47:38:32 C Okay.

47:38:35 P 10 seconds.

47:38:36 C Yes.

47:38:41 P Right on?

47:38:42 C Yes.

47:38:43 P Okay. Ready?

47:38:45 P MARK.

47:38:46 C Okay.

47:39:53 P 1 down, John.

47:39:55 C 1 down?

47:39:56 P Yes. This is 4 up. This is 1 down. That makes sense. It's starting to make noise, but I'd put put it in anyway.

47:40:03 C Right.

47:40:13 C Okay. Inertial needles?

47:40:17 P Okay.

47:40:24 P Out of the mode and in?

CONFIDENTIAL

# CONFIDENTIAL

227

47:40:26 C Yes.

47:40:27 P Okay. Whenever you say.

47:40:28 C Just a second.

47:40:39 C Okay. Stand by. ... Stand by.

47:40:50 C MARK.

47:40:53 C Is it good?

47:40:56 P Yes. That was ... up in the air and they took. Inertial needles, you got.

47:41:07 P Okay. I got 99, 90002. Sent in again, John. So anytime you want it again, let me know. I'll whip from NAV to RENDEZVOUS and back to NAV and punch the Enter button.

47:41:17 C Okay.

47:41:19 P Meantime, I think I'll fool with this sextant and see if I can get any good out of it.

47:41:29 C Okay. Now the range for 1 mile is 16/16, right? For 2 miles?

47:41:33 P Stand by and I'll tell you.

47:41:34 C For 1 mile?

47:41:42 P 2 miles and 16/16 according to the ground. We're 15 minutes right now.

47:41:49 P They say the R-dot at 2 miles was 47.8. I'd call that an even 50, John, because I think we put in a little more.

47:41:55 C Yes.

47:41:56 P Okay?

47:41:57 C Yes.

47:42:00 P Prop Quantity holds good, John. You still have darn near 30 percent.

# CONFIDENTIAL

## CONFIDENTIAL

47:42:06 C Roger.

47:42:07 P I'll tell you when 16/16 comes. Don't worry. I'll just look out the window. I'll read these numbers to you when it comes on.

47:42:30 C Hey. That up/down is perfect. It hasn't moved.

47:42:32 P Okay. Good.

47:42:38 P That Out-of-Plane is moving, isn't it?

47:42:40 C Yes. Better give it some.

47:42:46 P Turn it to the left?

47:42:47 C Yes.

47:42:49 P Okay.

47:43:06 P Okay. 2 miles, John. 16/16. Your R-dot is in the vicinity of 50 feet per second.

47:43:12 C Okay.

47:43:30 C Okay. We're going to brake.

47:43:32 P Yes. Brake.

47:43:33 C 30.

47:43:37 P Okay. Brake.

47:43:44 P Your IVI's working?

47:43:46 C Yes.

47:43:48 P Okay.

47:44:15 C Going to have to pay off.

47:44:19 P Okay.

47:44:30 P Now we have a minute to go to 1 mile, according to this thing.

47:44:33 C Okay.

CONFIDENTIAL

# CONFIDENTIAL

229

47:44:57 P Okay, John. I'm reading on this sextant, for whatever it's worth, slightly less than a mile now.

47:45:05 C Okay.

47:45:07 P Don't do anything with that information until I try it again.

47:45:13 P Yes. I'm reading about a half a mile on the sextant, John.

47:45:16 C Okay.

47:45:17 P And time is such that we should be at 1 mile. So I'd say we're between a mile and a half a mile.

47:45:23 C Okay.

47:45:27 P Okay. I'm still reading a half a mile with the sextant.

47:45:29 C Okay.

47:45:31 P I wouldn't pay too much attention to the sextant data.

47:45:39 P Half a mile with a sextant.

47:46:02 P Half a mile and holding with the sextant.

47:46:03 C Okay.

47:46:05 C Holding.

47:46:12 P Now it's getting bigger, John. It's getting bigger, Babe. My sextant tells me you're probably - oh, 3/10ths of a mile. Something like that - 4/10ths of a mile, excuse me.

47:46:37 P Okay. .35 miles, John, with the sextant.

47:46:42 C Okay.

47:46:52 P 3/10ths of a mile, John.

47:46:55 C Okay.

47:46:56 P I start believing this data. I think it is pretty

# CONFIDENTIAL

## CONFIDENTIAL

good on the sextant.

47:46:59 C Okay.

47:47:14 P 3/10ths of a mile, John. You're plus 3 slowly, I guess. I think you can probably see the Agena from here, can't you?

47:47:21 C Yes.

47:47:25 P Looking darn good to me. 17. Stand by.

47:47:30 P All right. You look about a quarter of a mile, John.

47:47:33 C Okay. Give the inertial needle again, Mike.

47:47:35 P Okay. Inertial needles, Mark it.

47:47:38 C Okay.

47:47:40 P And he took.

47:47:51 P The ... it stood up again. All right.

47:47:57 C I can make him out now.

47:47:59 P Yes, I can make him out with this sextant just fine. He's not changing much. I wouldn't brake anymore for awhile.

47:48:09 C Yes. Brake an inch.

47:48:44 C How far away do you think he is?

47:48:47 P About a quarter of a mile.

47:48:52 C See it move?

47:49:01 P I'd thrust toward him, John.

47:49:35 P I wouldn't do anything for awhile, until we see what's happening.

47:49:38 C I think we can get closer.

47:49:47 P You want to know what our angle is? You don't much care about that, do you?

47:50:11 P Okay. We're closing on him very slowly, John.

47:50:14 C Okay.

CONFIDENTIAL

47:50:16 P But we are closing.

47:50:18 C Darn right. Now I can see him.

47:50:29 P Okay. I'm going to look up those rules again on the gas. We're looking good to me.

47:50:44 P You look like you're fat on gas, John. You don't go by the look on the gage, but you have over 20 percent.

47:50:50 C Yes.

47:50:52 P And the rule is to - is to stop trying to Rendezvous at 7 percent. So we're all right.

47:51:01 C Yes.

47:51:02 P Don't brake any yet. I want to get a hack on this guy. We're closing pretty slowly, but we are closing.

47:51:07 C We're closing. We're closing pretty fast.

47:51:30 P I don't believe we're closing, John.

47:51:32 C Yes. We are.

47:51:33 P Are you sure we are?

47:51:34 C Yes.

47:51:38 P All right. We are. Take good - -

47:51:40 C Give me the inertial needles again.

47:51:42 P Okay. Whatever you say.

47:51:44 P Ready?

47:51:45 C Ready.

47:51:46 C MARK.

47:51:47 P Mark them.

47:51:48 C Oh heck!

47:51:50 P They took short.

47:52:08 P John, can I help you anymore with this sextant?

47:52:10 C I don't think so.

47:52:11 P - - I don't - -

## CONFIDENTIAL

## GUAYMAS

47:52:12 CC Gemini X, Houston.

47:52:13 P - - I don't think I can.

47:52:14 C This is Gemini X. Go.

47:52:15 CC See anything of the Agena VIII around?

47:52:18 C We're about, I guess, 700 to 800 feet out.

47:52:22 CC Fantastic, John!

47:52:24 C Yes, I don't believe it myself.

47:52:26 CC We do.

47:52:37 CC What's your Fuel Quantity, John?

47:52:39 C 20 percent.

47:52:44 P You go ahead and fly, Babe. I'll do the talking to those guys. Okay?

47:52:46 C Okay.

47:52:54 P Fuel Quantity is over 20 percent, Al. A little over.

47:52:57 CC Good show.

47:52:59 P Yes. We're starting to get a nice rate, I think. Nothing to worry about. Looks pretty good to me. Looks like a feature out of a picture book.

47:53:25 P You can have your inertial needles anytime you want them.

47:53:34 C Heck. Where's he going?

47:53:36 P That's all right. Keep pitching. I've got him in sight. You got him?

47:53:38 C Yes.

CONFIDENTIAL

# CONFIDENTIAL

233

47:53:41 P Keep right with him. It's just like the doggone simulator.

47:53:53 P Keep right on with him, John, Babe. You have him in sight?

47:53:56 C Yes.

47:53:57 P Okay. Stick with him.

57:54:00 P Don't let him get off in the rough too much. Stick right with that rascal.

47:54:09 P ... in there running. I'd get right on up next to him. Stick right with him.

47:54:26 P Stick right with him, John. ... that old right hand. Get right on him.

47:54:36 P Thrust right toward him. Go ahead. Get right next to him.

47:54:46 P Okay. You've got him against the clouds. Now you know that line of sight and get right up next to him.

47:54:57 P He's moving up and to the left.

47:54:59 C Yes.

47:55:00 P Up and to the left. Get right on in there next to that rascal. You've got good gear. Don't worry, you have plenty of gas. Stick right in there with him. He's moving up and to the left. Get right on with that son-of-a-gun.

47:55:24 P Still moving up and to the left. Pitch up so you can keep right on him. That's it, Babe.

47:55:41 P Keep moving up and to the left. Keep right with him. Keep right on in there with him.

47:56:14 P Okay, John. Darn nice, Babe. Don't give up here. Stick with him till we've gotten everything completely dabbed and we're right next to him; otherwise that rascal will get away again.

47:56:30 C Okay.

# CONFIDENTIAL

## CONFIDENTIAL

47:56:34 P Don't let it get in the sun.

47:56:38 P That's the way to go, John. Once you get down below him a bit so you won't - in case you throw thrusters on him. Now you can pitch up a little to keep him out of the sun. It doesn't matter which end we're at right now, as long as we have him. Very nice, John. Okay. Watch that - watch that sun. Don't give up here for awhile because that's going to be bad for us. Just a little bit. I've got the Docking Light ON so - if the sun goes down - -

47:57:09 CC Gemini X, Houston. We indicate somewhere around 140 pounds.

47:57:16 P You're awfully garbled. We're Stationkeeping just about now. Stand by.

47:57:24 CC Roger. When you get a chance, give us a feel for the Agena attitude and also your Propellant Quantity remaining.

47:57:31 P Do it.

47:57:38 P Al, we're Stationkeeping, the Docking Light is ON and the Propellant Quantity - John, can you read that out?

47:57:44 C It's 12 percent.

47:57:48 CC Roger.

47:57:50 C It's more than that.

47:57:51 C It's about 15 percent.

47:58:01 P What is the other information that you wanted? I didn't copy.

47:58:03 CC Roger. What is the attitude of the Agena? And what's it doing?

47:58:09 P You're unreadable.

47:58:12 CC What is the Agena attitude?

47:58:18 P Which Agena attitude, John? Could you tell?

CONFIDENTIAL

# CONFIDENTIAL

235

47:58:20 P Roger. He says engine down.

47:58:26 CC Roger. Is it pretty well stabilized?

47:58:30 P Solid as a rock.

47:58:32 P Looks to me like it's rotating a little bit on it's - maybe not. We'll see.

47:58:39 P John. Good. ...

47:58:41 C Okay.

48:03:15 CC Gemini X, Houston.

48:03:22 C Go ahead.

48:03:24 CC Roger. Could you give us another Fuel Quantity reading, and also would like to remind you to keep your Cryo O<sub>2</sub> above 665.

48:03:40 P Cryo O<sub>2</sub> Pressure, 740; the Manual Heaters are ON. I'll turn them OFF soon.

48:03:46 CC Roger. We're standing by for your Propellant Quantity reading.

48:03:59 P 15 percent PQI, 15.

48:04:03 CC Roger. 15 percent.

## TANANARIVE

48:20:05 CC Gemini X, Houston.

48:20:22 CC Gemini X, Houston.

48:20:27 C Gemini X. Go ahead.

48:20:28 CC Roger. We're taking a close look at your Fuel Quantity on the ground here. Could you give us another reading of your Propellant Quantity?

48:20:54 C Roger ... I read it out to be 15 percent. Over.

48:20:59 CC Roger. Understand you're still reading 15 percent.

# CONFIDENTIAL

## CONFIDENTIAL

48:21:03 C Affirm.

48:21:06 CC How's the Stationkeeping going and do you think you are using much fuel in performing that operation?

48:21:14 C ... Platform mode ... I'd say it's about 6 feet below us right now. We are going down for S-10.

48:21:40 CC Roger. Say again your remarks about S-10.

48:21:43 C We're looking right at it.

48:21:46 C ... Platform.

48:22:08 CC Gemini X, Houston. Discontinue your EVA prep and then we'll look at you again over Carnarvon. Over.

48:22:16 C Roger.

48:22:53 C Would you believe that the MAIN RED is OFF on the Status Display Panel?

48:23:06 CC Gemini X, Houston. Say again the information about the Status Display Panel.

48:23:11 C Yes. For some reason the MAIN RED is, the light is OFF. Although the proper reading between those two tanks must be pretty low.

48:23:21 CC Roger.

48:23:40 CC Roger. Did you say that light was ON or OFF?

48:23:43 C OFF, of course.

48:23:44 CC Roger.

48:28:16 C Houston, this is Gemini X. Over.

48:28:19 CC Houston. Go ahead.

48:28:23 CC Gemini X, Houston. Go ahead.

48:28:34 CC Gemini X, Houston. Go ahead.

48:28:36 C Roger. What's the approximate time of sunrise? Over.

CONFIDENTIAL

# CONFIDENTIAL

237

48:28:49 CC Roger.  
48:29:09 CC Roger. Sunrise time will be 48:36:00.  
48:29:15 C Roger.  
48:29:18 CC Roger. We've been looking at your fuel down here and it looks real good.  
48:29:24 C Roger. It looks good to me too. And it looks good to Mike.

## CARNARVON

48:37:04 CC Gemini X, Carnarvon.  
48:37:06 C Gemini X. Go.  
48:37:07 CC Roger. We're showing - give us a reading on Squib Bus voltage, please.  
48:37:13 C Roger. We're busy right now with things. What's the matter with the Squib Bus voltage?  
48:37:17 CC Looks like you turned it OFF. We're showing zero down here.  
48:37:24 C Back ON.  
48:37:25 CC Thank you much.  
48:37:33 CC We got it back.  
48:38:11 CC Roger. We'd like a Propellant Quantity when you get a chance.  
48:38:15 C Roger. It looks like around 14 percent. I can't get over there to read it anymore.  
48:38:18 CC Roger.  
48:39:19 CC We'd like to know if you feel whether or not you are using excessive or reasonable amount of fuel for your Stationkeeping.

# CONFIDENTIAL

## CONFIDENTIAL

48:39:28 C Roger. It's a reasonable amount, I think.

48:39:31 CC Okay.

48:42:13 CC Gemini X, Carnarvon. You have a GO for the rest of the Stationkeeping.

48:42:18 P Roger. How about the EVA? You want it?

48:42:21 CC That's what we mean.

48:42:23 CC That's what we mean exactly.

48:42:35 C Glad you said that because Mike's going outside right now.

48:42:40 CC Good luck, Mike.

48:43:02 CC Gemini X, Carnarvon. Go MANUAL on your O<sub>2</sub> Heater. Pump it up a little bit.

48:43:08 C Roger. The O<sub>2</sub> Heater is on MANUAL.

48:47:21 P Watch that thruster there, Babe. All right, don't translate down. I'm by it.

48:47:24 C Okay.

48:47:27 C I'm going to have to translate down here in a second, Babe.

48:47:28 P Okay. Go ahead.

48:47:31 C Okay. Just one little punch.

48:47:33 C Okay?

48:47:37 P Okay. Can I have your S-12?

48:47:39 C Yes.

48:47:52 C Where are you? You have it?

48:47:56 P I've got it. Don't translate down, by the way.

48:57:58 C Okay.

CONFIDENTIAL

# CONFIDENTIAL

239

48:48:00 P I have it, but I don't know how to get it into you right now.

48:48:04 C Well, Babe, if I don't translate soon we're going to run into that buzzard.

48:48:06 P Okay. Is that right?

48:48:08 C What?

48:48:10 P Okay. Translate down.

48:48:12 C Okay. I've got to do it one more time.

48:48:16 P Wait! Okay. Go ahead.

48:48:18 P Go ahead.

48:48:20 C Okay.

48:48:23 C There we go. Okay?

48:48:26 P Okay. You have a place for S-12?

48:48:28 C Yes. Give it to me.

48:48:30 P Okay. I'll try.

48:48:32 P Don't translate down.

48:48:37 P S-12.

48:48:40 C Yes. Wait a minute. Did you drop it?

48:48:41 P No. Not yet.

48:48:48 C There you go.

48:48:51 P Don't translate down.

48:48:53 C Okay. We're going to hit this thing if - -

48:48:57 P Okay.

48:48:58 C - - we can't translate down pretty soon.

48:48:59 P Go ahead. Translate down now. You're pretty clear.

# CONFIDENTIAL

## CONFIDENTIAL

48:49:02 C Okay.

48:49:08 C Okay.

48:49:16 P Okay. Don't translate down.

48:49:17 C Okay.

48:49:43 P Okay. How about pushing my mike. Can you do that?

48:49:48 C Yes.

48:49:50 P This is me outside here. Everything is going well. It's taking a lot more time to do each item than I had anticipated. And right now I'm trying to get the nitrogen line connected. I've retrieved the S-10 and we've spent a lot of time simply holding the Spacecraft relative to the Agena.

48:50:18 C Hey!

48:50:29 C Can we back out a little?

48:50:32 P Yes. Go ahead. You want to go down?

48:50:35 C No. I want to back out.

48:50:37 P Okay. Back out.

48:50:39 P Okay. Don't go down until I tell you.

48:50:40 C Okay.

48:51:41 C Boy, Mike! Those thrusters are really firing.

48:51:44 P Okay.

48:51:45 C Take it easy back here, right?

48:51:47 P Okay. I'm hooked into the nitrogen.

48:51:48 C Okay.

48:51:50 P You know what you have to do?

48:51:51 C No.

48:51:52 P All right. I'll tell you in just a second.

CONFIDENTIAL

# CONFIDENTIAL

241

48:51:54 P I'm coming back into the cockpit area for just a second here.

48:51:56 C Okay.

48:51:58 C I have to translate up. Okay?

48:52:00 P All right. Just a second. Okay. Go ahead. Translate up. That's all right. See that loose nitrogen line? You're going to have to snub that down some place. Can you do that?

48:52:06 C Where is it?

48:52:08 P See it?

48:52:10 C Yes.

48:52:11 P Got it?

48:52:12 C Yes.

48:52:14 P Good boy! Okay. I'll watch the Agena, while you take care of the nitrogen line. Okay?

48:52:17 C Okay.

48:52:34 C Okay. I've got it secured.

48:52:36 P Okay.

48:52:49 C I'm going up.

48:52:51 P Okay. Fine, John.

48:52:52 C How was it to get in there, Mike?

48:52:54 P It wasn't hard. It's a body positioning just like they said.

48:52:57 C Listen, I have to stay in PLATFORM. I think we can get you close enough to do this thing like that. I wouldn't be any good to you in RATE COMMAND. I can't hold it.

48:53:04 P All right.

# CONFIDENTIAL

## CONFIDENTIAL

48:53:09 P Okay. You go ahead and do whatever you want.

48:53:10 C Okay.

48:53:23 C Got it, I think.

48:54:01 C Okay. I'm going to go toward it just a little.

48:54:02 P Okay.

48:54:12 C What I'm trying to do is put you right next to it. Okay?

48:54:18 P Okay.

48:54:28 C Houston. This is Gemini X. Over.

48:54:34 C Hawaii, Hawaii, this is Gemini X. Over.

48:54:49 C Is that - is there a pigeon on it?

48:54:50 P No I did that. I'm squirting it with my gun. Maybe - I don't know what you're talking about. A pigeon? But I'm not a pigeon.

48:54:56 C Okay.

48:55:02 C Okay. If I got in closer to it, I won't be able to see you or it. I won't be able to see it.

48:55:10 P Okay, John.

48:55:12 C I'll tell you what. Let me go to RATE COMMAND and see if we can fly up to it.

48:55:14 P Okay. I can almost leap right now, but I'd rather not if you can get a little bit closer. I'll give you directions, John.

48:55:18 P John?

48:55:20 C Okay.

48:55:22 P Okay. You go forward just a bit.

48:55:26 C Wait a second.

48:55:30 P Okay?

CONFIDENTIAL

# CONFIDENTIAL

243

48:55:31 C Okay. Forward?

48:55:33 P Forward.

48:55:35 P Okay. Better stop right there, John. Aft.

48:55:38 C Okay.

48:55:41 P Translate aft. Okay, you're in a good position. I'm going to leap for her, John.

48:55:44 C Take it easy, Babe.

48:55:45 P Okay.

48:55:52 P Hey. How about taking some pictures, John?

48:55:54 C Okay.

48:55:57 P You see what's happened here?

48:55:59 C What? All that stuff there?

48:56:04 P John, back out. Back out, John.

48:56:06 C Okay.

48:56:08 P You're about to touch it. Back out.

48:56:33 C Where are you, Mike?

48:56:34 P I'm up above. You don't want to sweat it. Only don't go any closer if you can help it. Okay?

48:56:40 C Yes.

48:56:47 P I'm back behind the cockpit, John. So don't fire any thrusters.

48:56:50 C Okay.

48:56:52 C We have to go down, if we want to stay with it.

48:56:55 P Don't go down right now. John, do not go down.

48:56:57 C Okay.

48:57:00 C Can - can I fire the attitude thrusters?

# CONFIDENTIAL

## CONFIDENTIAL

48:57:04 P Yes.

48:57:07 C Okay.

48:57:23 P Okay, John. Do not fire that one bad thruster, okay?

48:57:25 C What one bad one?

48:57:27 P You know, the one that squirts up.

48:57:29 C Okay. 16.

48:57:35 P How about running the camera? I'm coming across the front of you.

48:57:37 C Okay. Oh heck!

48:57:46 P Is it working?

48:57:47 C Yes.

48:57:48 P Okay.

48:57:55 C You stay out of all the stuff, okay?

48:57:58 P Yes.

48:58:03 P Okay, John. Want to give it a new try over there?

48:58:06 C Yes.

48:58:35 P Okay. Let's try it one more time.

48:58:38 C Okay.

48:58:55 P Don't forget to take some pictures when you get a chance.

48:58:57 C Can you - can you stay out of there?

48:59:00 P Out of where?

48:59:02 C Out of - suppose I come into them like this. How would that be?

48:59:08 P Okay. That's fine. You taking pictures of it?

CONFIDENTIAL

# CONFIDENTIAL

245

48:59:10 C No.

48:59:12 P All right.

48:59:22 C How close do you want me to get, Babe?

48:59:25 P Can you get down below it?

48:59:27 C Yes.

48:59:33 P Translate straight down, in other words.

48:59:41 P Can you see my - where my gun is?

48:59:43 C No.

48:59:44 P Okay.

48:59:54 P John, I'm going to try the gun this time. I'm not having much luck without it.

48:59:57 C I know it.

48:59:58 P It seems to work well.

49:00:06 P Okay.

49:00:07 C Okay.

49:00:11 C Still a lot of the garbage on there now.

49:00:13 P All right.

49:00:34 P Can you see that?

49:00:36 C Yes.

49:00:37 P Taking pictures?

49:00:39 C I've got pictures.

49:01:01 P Where - am I going the right way?

49:01:03 C Are you coming back here?

49:01:04 P No. I'm looking for that a - -

49:01:06 C It's around on the other side.

# CONFIDENTIAL

## CONFIDENTIAL

49:01:09 P Okay.

49:01:10 C Keep running.

49:01:23 C See that you don't get tangled up in that fouled thing.

49:01:26 P Yes. I see it coming.

49:01:38 C If you could come down and go up on the other side of it you would be all right.

49:01:43 P Okay. Taking some pictures of this?

49:01:46 C Yes.

49:01:47 P All right.

49:02:35 C Don't get tangled up in that thing. It's going on behind you now.

49:02:40 P Okay.

49:02:42 P How's your light back there?

49:02:45 C Oh - it looks okay.

49:02:47 P If it starts to look bad, let me know. I'm going to press on up here.

49:02:50 C Okay.

49:03:02 C Did I get it? Come on back. Get out of all that garbage.

49:03:09 P That's all right. I see it.

49:03:27 C Okay. You're free.

49:03:28 P Thank you.

49:03:35 C Just come on back, Babe.

49:03:37 P Okay. I am.

49:03:40 P Don't worry. Don't worry. Here I come. Just go easy.

CONFIDENTIAL

# CONFIDENTIAL

247

49:04:06 C You want me to turn around to meet you?  
49:04:08 P No. Don't do a thing.  
49:04:10 C Okay.  
49:04:16 P Don't fire any thrusters if you can help it. I'm getting back that way.  
49:04:18 C Okay. You want me to turn them off?  
49:04:21 P That's all right. I'm coming.  
49:04:24 C Okay.  
49:04:38 C You don't see the Agena anywhere, do you?  
49:04:40 P No. Yes, I see it. Okay.

## HAWAII

49:04:43 CC Gemini X, Hawaii CAP COM.  
49:04:46 C This is Gemini X. Go.  
49:04:47 CC Yes. How you doing up there?  
49:04:49 C Well, old Mike went over there and picked up that S-10 all right.  
49:04:56 CC Okay.  
49:04:57 C Boy, that's a little bit incredible!  
49:04:59 P John?  
49:05:00 C Yes.  
49:05:01 P Grab that, will you?  
49:05:02 P Get it?  
49:05:03 CC Okay. Did you put the new S-10 on?  
49:05:04 P No, and I'm not going to.

# CONFIDENTIAL

## CONFIDENTIAL

49:05:09 C No. And we're not going to. It's rotating at a pretty good rate.

49:05:11 CC Roger.

49:05:12 P Okay, John. A - -

49:05:14 C Also, a piece of the TDA has come off and Mike sort of got tangled up in it. So we think we'd better not fool with it anymore.

49:05:23 CC Okay. We concur with that.

49:05:26 P Right, John. Where the Agena is - is right behind you to your left. So if you want to translate to your right - -

49:05:34 C Do you want me to go back to her?

49:05:35 P Translate to your right.

49:05:36 C What? Do you want to go back?

49:05:37 CC What's your position on your heater?

49:05:41 C I just went back to AUTO.

49:05:43 CC Okay. You should be just about to vent point. You're okay. You should be good for most of the rest of the EVA.

49:05:47 P John, yaw left. Yaw left, or do you want to stay in PLATFORM?

49:05:52 C Okay. I'll go left.

49:05:53 P Okay. Yaw left.

49:05:56 CC Gemini X. You can disregard saving fuel any more, staying with the Agena.

49:06:01 CC Save the fuel. Stay away from the Agena.

49:06:02 C Understand stay with the Agena or ...

49:06:05 CC No disregard that. We don't want you to stay with the Agena. Just save fuel.

CONFIDENTIAL

# CONFIDENTIAL

249

49:06:09 C Okay.

49:06:16 C We can forget it, Mike.

49:06:18 P Okay. Fine.

49:06:20 C Unless it bumps you.

49:06:21 P All right. Let me - let me look here just a second. I'm trying to release this umbilical.

49:06:40 P Okay.

49:06:41 C Gemini X. We're not - -

49:06:42 P I released it.

49:06:43 C - - saving much fuel. We're still in RATE COMMAND with Mike out there by the thing.

49:06:50 C I'll tell you what, Mike.

49:06:52 P Just stand by.

49:06:54 C Let me go to SEF on the Platform. Okay?

49:06:57 P All right. Just a second. Let me make sure you don't hit this Agena.

49:07:00 CC Use any mode you can to save as much fuel as possible.

49:07:04 C Roger.

49:07:05 P Would you believe I lost my Hasselblad?

49:07:09 C You're kidding!

49:07:10 P No.

49:07:16 C Roger. Let's don't go to ...

49:07:32 C We're not going to hit the thing, are we?

49:07:34 P No. We're clear. I'm watching it. We're good and clear.

# CONFIDENTIAL

## CONFIDENTIAL

49:07:35 C Okay.

49:07:49 P Okay. How about pushing my mike button. Can you do that?

49:07:54 C Yes. Go ahead.

49:07:55 P Okay. Houston, this is Gemini X. Everything outside is about like we predicted, only it takes more time. The body positioning is indeed a problem, although the nitrogen line got connected without too much of a problem. I - when I translated over to the Agena, I found that the lack of hand holds is a big impediment. I would - I could hang on, but I couldn't get around to the other side, which is what I wanted to do. Finally, I did get around to the other side and I did get both the S-10 package and the nose fairing off. John now has them. However, there is a piece of the shroud hanging - or part of the nose of the Agena that came loose and I was afraid I was going to get snarled up in that. So did John and he told me to come on back. So the new S-10, which I was going to put on the Agena, I didn't and I just now threw it away. Also, I lost my EVA Hasselblad inadvertently, I'm sorry to say. I'm getting ready now to do some gun evaluations. Okay, John, you can let go.

## HAWAII

49:09:06 CC Gemini X, Hawaii.

49:09:10 C Gemini X. Go ahead.

49:09:11 CC Okay. We don't want you to use any more fuel. No more fuel. Over.

49:09:16 C Well, then he'd better get back in.

49:09:18 CC Get back in.

49:09:19 CC Okay. Get back in.

49:09:21 C Come on back in the house then.

CONFIDENTIAL

# CONFIDENTIAL

251

49:11:36 P Okay, Houston. Gemini X. I've disconnected the nitrogen line and I'm standing up in the hatch here. John's not firing the thrusters anymore. We're just going to take a little rest here and make sure we both know what we're doing before we press on with the ingress.

49:11:52 CC Roger. This is Hawaii. Take your time and get all squared away and they'll pick you up over the States shortly.

## CALIFORNIA

49:12:50 CC Gemini X, Houston.

49:13:15 CC Gemini X, Houston.

49:13:23 C This is Gemini X. Go.

49:13:24 CC Roger. Just wanted to confirm that you're not using any more fuel.

49:13:30 C Roger. We've got everything shut off.

49:13:34 CC Roger. Is it possible for you to read the Propellant Quantity at this time?

49:13:39 C Get serious ...

## GUAYMAS

49:18:36 CC Gemini X, Houston.

49:19:01 CC Gemini X, Houston.

49:22:33 CC Gemini X, Houston. We're standing by for your status.

49:30:55 CC Gemini X, Houston.

49:31:16 CC Gemini X, Houston.

49:32:07 CC Gemini X, Houston.

# CONFIDENTIAL

## CONFIDENTIAL

49:33:50 C Houston, this is Gemini X. Over.

49:33:52 CC Gemini X, Houston. Go ahead.

49:33:54 C Roger. We can't believe what we just ... but what all it is - turned off the radio we just found out.

49:34:07 CC Roger. That's what we suspected. We also noticed you turned off your Yaw Rate Gyro and your C-Band Beacon circuit breaker.

49:34:21 C Well, we can't even get to those things right now. We'll have to pick those up later.

49:34:28 CC Roger. I don't know whether this is possible or not now, but as soon as you get the opportunity you might check the VIII Agena and, if it's possible, put in a 1 foot-per-second Retro-burn.

49:34:41 C I have no idea where it is.

49:34:45 CC Roger. And when you make that burn, write it down, would you?

49:34:51 C Yes, sir.

49:35:32 CC Gemini X, Houston. How was the hatch closing?

49:35:40 C It was, to put it mildly, "a piece of cake".

49:35:45 CC Good. We'll be LOS in about 1 minute.

49:35:54 C I was pulling on it and I didn't have any trouble.

49:35:59 CC Roger. We'll be LOS in about 1 minute.

49:36:08 C He's down in the seat because there is about 30 feet of hose wrapped around him. We may have difficulty getting him out.

49:36:13 CC Roger.

ROSE KNOT VICTOR

49:38:21 CC Gemini X, RKV. We have nothing further for you at

CONFIDENTIAL

# CONFIDENTIAL

253

this time. You're looking real good. We're standing by.

49:38:35 C Roger. RKV. This is Gemini X. We feel real good too.

49:38:41 CC Great.

49:38:45 CC We'll just monitor you here while you're cleaning up.

49:38:52 C Gemini. I heard you say something to ... it may take awhile.

49:38:55 CC I understand.

49:45:43 CC Gemini X, Houston.

49:45:56 C This is Gemini X. Go.

49:45:58 CC Roger. We wondered if the ELSS performed satisfactorily. And if it did, we give you GO to jettison it with the rest of the equipment.

49:46:10 CC Roger.

49:46:16 P ELSS worked fine, Al. I worked it on MEDIUM FLOW for awhile. I got slightly warm and it went to HIGH FLOW, but I felt it was all right as far as pressure went. As far as all the tones and lights and whatnot, it worked perfectly so I don't have any complaints at all on that. It worked perfectly.

49:46:37 CC Good. How are you coming as far as getting untangled from the umbilical?

49:46:44 P We're about half-way there.

49:46:46 CC Good.

49:46:49 C This place makes the snakehouse at the zoo look like a Sunday school picnic.

49:46:54 CC Roger.

49:50:14 CC Gemini X, Houston.

# CONFIDENTIAL

## CONFIDENTIAL

49:50:18 C Go.

49:50:19 CC Roger. We're about 1 minute to LOS here. For your information we plan to have you reduce your altitude in two separate burns. The first depleting your fuel, all except the Volkswagon tank, and then the second utilizing it. We'll be talking with you more about that later.

49:50:38 C Roger. We're still trying to stow this stuff up here. Over.

49:50:43 CC Roger. We're not in any hurry; just wanted to keep you informed.

49:50:54 C We're reading 7 percent on the PQI - no, 8 percent.

49:51:02 CC Roger.

49:51:07 C ... when I get down there and take out the parallax we're reading about 9 percent.

49:51:13 CC Roger. Understand when parallax is removed, you read about 9 percent.

49:51:17 C Good.

49:59:11 CC Gemini X, Houston. We're standing by.

49:59:16 P Okay, Houston, we're still cleaning up our mess here.

49:59:23 CC Roger.

49:59:27 P How about giving us the rundown on the next altitude ... while we're ... everything again.

49:59:35 CC Roger. Wait one.

50:00:25 P Houston, Gemini X.

50:00:32 CC Gemini X, Houston. Go ahead.

50:00:35 P Could you give us a brief rundown on ... on the next two burns you mentioned that we have scheduled to ...

50:00:42 CC Roger. We will. I'll call you back in about 1 minute.

CONFIDENTIAL

# CONFIDENTIAL

255

50:00:46 P Thank you.

50:01:03 CC Houston, Gemini X. Go ahead. We do not copy that.

50:01:07 P I said, it sounds as if we ... papers ... or vice versa.

50:01:23 CC Gemini X, Houston.

50:01:26 C Gemini X. Go.

50:01:29 CC Roger. It looks like your first burn will take place about 51:39, which is roughly an hour and a half from now. The second burn will take place at 53:11. We'll be talking with you about these two burns later on. By spreading the Height-Adjust into two separate burns, we hope to get a better handle on your final parameters. The open hatch time was scheduled at 50 plus 30 which is about 30 minutes from now, if you're prepared to do it then.

50:04:34 CC Gemini X, Houston. Did you copy that last?

50:04:37 C Let's work toward it and if we don't unlock it we'll let you know.

50:04:41 CC Roger. We'll be standing by.

50:06:39 CC Gemini X, Houston. We're about a minute and a half from LOS.

50:06:46 C Roger.

## CARNARVON

50:16:27 CC Gemini X, Carnarvon. Standing by. Check your DCS circuit breaker. Thank you.

50:16:38 C Roger. We're GO.

## HAWAII

50:41:50 CC Gemini X, Hawaii CAP COM.

# CONFIDENTIAL

## CONFIDENTIAL

50:41:53 C Gemini X. Go.

50:41:55 CC How are you doing?

50:41:57 C We're back up to the ... release pressure and we're closing the Repress valve.

50:42:02 CC Okay. You ready to start to go down for jettison?

50:42:06 C We've already jettisoned, Dave. We've opened the hatch, jettisoned everything and the cabin pressure is back up again.

50:42:12 CC You're a little too swift for me. You cabin's holding real fine.

50:42:16 C Roger.

50:42:18 CC Looks like you're pretty well squared away. You're showing about 900 on your Cryo O<sub>2</sub> which is real fine. Tubes look good and your cabin's good.

50:42:26 C Okay. Thank you. You sound good.

50:42:34 C Will this burn be with the aft firing thrusters?

50:42:39 CC Aft or the forward thrusters? Over.

50:42:40 C Aft firing thrusters.

50:42:46 CC Did you get that?

50:42:48 C Roger.

50:42:51 C We'll go BEF now.

50:42:54 CC Okay. I'm showing you - you've got your own Power Control switch OFF, haven't you?

50:42:59 C Yes, sir.

50:43:00 CC Okay.

50:43:11 CC Gemini X, Hawaii.

50:43:13 C Gemini X. Go.

CONFIDENTIAL

# CONFIDENTIAL

257

50:43:14 CC Okay. You picked up the S-10 and then did you jettison everything according to schedule or did you let something else go or did you keep something extra?

50:43:23 C The only thing we kept that wasn't on the list was the EVA camera ... which is down in the lower left-hand box.

50:43:34 CC Okay.

50:43:35 C We have a fairing off with the S-10, too.

50:43:41 CC Roger.

50:43:46 CC Okay. That should give them a good hack on your weight.

50:43:48 C We have the Agena now. We're almost BEF and it's got a - oh - I estimate 3000 feet in the sunlight. It's beautiful.

50:43:59 CC Roger.

50:44:01 C If Houston wants a really close check on our re-entry c.g. and weight, they might give us a call later and check the individual items, the heavy ones that they're in doubt about.

50:44:12 CC Might just do that. You close your Power Control switches?

50:44:17 C Roger.

50:44:18 C That's affirm.

50:45:01 CC Gemini X, can you give us a few comments on what the AID of Agena attitudes looked like prior to your EVA?

50:45:10 C Roger. It's in a - it was in a very, very low-limits-cycle tumble rate. It wasn't tumbling at all. The only way you could tell it was tumbling was by being in Platform mode and watching it go round.

50:45:28 CC Roger.

# CONFIDENTIAL

## CONFIDENTIAL

50:45:31 C It's very stable. It's rolling a little now - excuse me, it's not even rolling. It looks like it's got an Inertial Guidance System, is what it looks like.

50:45:45 CC Okay. Thank you.

50:45:55 C Looks to be TDA-down part of the time and engine-down part of the time and very, very slow rate. Flying formation on part of it, you didn't even notice that it was moving.

50:46:09 CC Roger.

50:46:57 C Hawaii. Can you update us on these burns?

50:47:01 CC Stand by one, Gemini X.

50:47:10 CC Say again, Gemini X.

50:47:14 C Roger. Could you update us on these burns?

50:47:17 CC We've got that here at the States in about ... they're making them up now.

50:47:22 C Roger. I just wondered if we need a Platform Alinement before we get in the States.

50:47:32 CC Okay. ...

50:47:33 C We stopped our digital clock during the jettison.

50:47:39 CC Okay. We'll give you the GET time hack if you want it.

50:47:41 C Roger. What's the nearest minute?

50:47:45 CC Okay. Set up 50:48. You got about 15 seconds.

50:47:51 C I'll never make it.

50:47:52 CC Okay. Make it 50:49.

50:47:55 C Okay.

50:48:34 CC Is the Agena above you, below you, or about the same altitude?

CONFIDENTIAL

# CONFIDENTIAL

259

50:48:44 C It's above us.

50:48:46 CC Okay.

50:48:47 CC Time hack in about 15 seconds.

50:48:56 CC 4, 3, 2, 1,

50:49:01 CC MARK.

50:49:09 CC Did you get that time hack?

50:49:14 C No. We missed it.

50:49:16 CC Okay. Set up 50:50:00.

50:49:42 C That's what happens when you let the Copilot play with the gages when he's not supposed to play with them.

50:49:46 CC Okay. I sent you a Tx.

50:49:49 C We got it.

50:49:50 CC Okay.

50:49:54 C Okay. Set up on 52.

## CALL FORNIA

50:50:51 C This is Gemini X. Are we at ... yet?

50:51:35 CC Gemini X, Houston.

50:51:51 CC Gemini X, Houston.

50:51:53 C Gemini X. Go.

50:51:55 CC Roger. We have a maneuver for you: 1 foot per second Out-Of-Plane at 51 plus 16, to separate you from the Agena that's presently ahead of you. Over.

50:52:14 C Do what Out-Of-Plane? Over.

50:52:16 CC Roger. We are trying to give you separation -

# CONFIDENTIAL

## CONFIDENTIAL

lateral separation from the Agena for the burn that's going to take place at 51:38:51 and we're suggesting a 1 foot-per-second lateral burn at 51 plus 16. Over.

50:52:40 C Roger. 51 plus 16 plus what?

50:52:57 CC Gemini X, Houston. That time would be 51:16:00 and would be 1 foot-per-second to the south. Do you think that would then give you lateral separation from the Agena?

50:53:14 C This is Gemini X. I think we already have SEP. Think there's a possibility of hitting him at this point. We'll go remote at the ...

50:53:26 P ... would you give us a time hack when you get a chance at GET?

50:53:31 CC Roger. It's about 29 seconds until 50:53, pardon me, 50:54:00. We'll give you a Mark there.

50:53:43 C Okay. I'm looking for it.

50:53:51 CC 10 seconds.

50:53:56 C Now you got to remember it.

50:54:06 CC Roger. You'll set up on elapsed time 54:30. I'll give you a hack there.

50:54:21 C Set up on Mark.

50:54:26 CC Roger. 5 seconds, 3, 2, 1,

50:54:31 CC MARK.

50:54:32 CC That was time 54 plus 30.

50:54:36 C Thank you.

50:54:37 CC Roger. We have a burn for you if you're ready to copy.

50:54:45 C Ready to copy.

50:54:46 CC Roger. It will be an Orbit Shaping Manuever. GET of 51:38:51; 100.0 feet per second; burn time 1

CONFIDENTIAL

# CONFIDENTIAL

261

plus 57; yaw 180, pitch 0; 25 is 91000; thrusters, aft; maneuver, Retrograde.

50:55:42 C Roger. Do you want this Lateral Separation Maneuver? Over.

50:55:46 CC That is affirm. 1 foot per second to the south. The time 51:16:00.

50:55:56 C Roger.

50:55:58 CC On this Orbit Shaping Maneuver at 51:38:51, the logic is to completely deplete your main OAMS tank only in this burn. We have scheduled you for 100 feet per second but expect the OAMS Regulator Pressure will drop below 250 psi when you indicate only 75 feet per second or so; and this is the cut-off point of the burn. That is, we want to completely deplete the OAMS tank and it will accept the feet per second that you incur during this.

50:56:47 C Roger.

50:56:48 CC Roger. The maximum would then be 100 if you could get there. But whatever it is, when the regulator pressure drops to 250, that is what we will accept and then we will be standing by for your readings on 80, 81 and 82.

50:57:02 C Roger.

50:57:03 CC And are you satisfied with the time hack?

50:57:09 C Yes, sir.

50:57:10 CC Roger. Did you get your Yaw Rate Gyro back ON?

50:57:14 C Right.

50:57:17 CC Roger. And then at this point you're Alining your Platform?

50:57:23 C Yes.

GUAYMAS

51:00:38 CC Gemini X, Houston.

# CONFIDENTIAL

## CONFIDENTIAL

51:00:40 C Gemini X. Go.

51:00:41 CC I've got a short Flight Plan update for you.

51:00:44 C Roger. Wait a minute.

51:01:12 C Ready to copy, Al.

51:01:22 C Gemini X. Ready to copy.

51:01:23 CC Roger. Time: 51:45:00. It will be a D-10, Mode A, and in this D-10 no maneuvering. If the Horizon Scanner Ignorer light will not bother you during the sleep period, we would like to have you leave that on. 51:45:00 to 52:45:00 will be an eat period. 52:00:00 at CSQ, purge fuel cells 1, then 2. At 52:50:00 at RKV, we'll have a PIA update, crew status report.

51:02:52 CC Right now the second of the two burns looks like it will take place somewhere near 53:11:06. So we will be sending you a power-down Spacecraft after that time. But we'll have more information on that later.

51:03:11 C Didn't read you at all.

51:03:13 CC Roger. Right now it looks like the second Orbit Shaping Maneuver will take place at 53:11:06. We'll be then sending you some information on Spacecraft power-down, but we'll cover more of that later.

51:03:40 C Okay, Al. Your radio is loud and clear one minute and then gone the next. I copied down to 52:00 and then I picked up again at 53:11 and lost everything in between.

51:04:13 CC Gemini X, Houston. Because of the communications right now, we'll contact you over another station and pass this information up then.

51:04:23 C That's a good idea. Thank you.

51:04:24 CC Roger.

CONFIDENTIAL

# CONFIDENTIAL

263

## ROSE KNOT VICTOR

51:14:41 CC Gemini X, RKV. We're standing by for your burn. You are GO.

51:14:46 P Roger.

51:16:56 C That was 1.3 feet per second to the south and we decided not to round it off.

51:17:03 CC Roger. Understand. 1.3 feet per second, south.

51:17:08 C Affirm.

51:17:10 CC We'd like to have some information on the - on your Rendezvous with VIII Agena. How close do you think you maneuvered your Spacecraft to the VIII Agena?

51:17:19 C Oh, a couple of inches.

51:17:21 CC A couple of inches. Roger. Understand.

51:17:27 CC Okay. I have the rest of this Flight Plan update for you when you're ready to copy.

51:17:37 C Okay. ...

51:17:39 CC Okay. I believe I'll start out at 52:00:00 at the CSQ; purge fuel cells 1, then 2; Cryo Quantity readout. At 52:50:00 at the RKV, PLA update, crew status report. At 53:11:00, Second Orbit Shape. Do you copy?

51:18:25 C Al, can't hear you. All you have to do is say Flight Plan update and the radio goes out. Let's give it one more try.

51:18:32 CC Okay. What is the last item that you have?

51:18:37 C Let me read back to you what exactly I have and then you fill me in.

51:18:42 CC Roger.

51:18:43 C I've got 51:45:00 ..., no maneuvering; Horizon Scanner light, leave ON all night; 51:45:52 eat.

# CONFIDENTIAL

**CONFIDENTIAL**

52 hours even over the CSQ, purge 1 and then 2;  
Cryo Quantity readout. 55:00:00, PLA update and at  
53:11:06, an Orbit Tweak Maneuver.

51:19:16 CC Okay. That PLA update over the RKV is at 52:50:00.  
51:19:27 C Roger. 52:50:00.  
51:19:30 CC And your last time is 53:11:00 Second Orbit Shape,  
and that's it.  
51:19:38 C 53:11:00: Orbit Tweak. Thank you.  
51:19:42 CC Roger.  
51:19:46 CC Still looking good here on the ground and we're  
standing by.

**TANANARIVE**

51:37:12 CC Gemini X, Houston CAP COM. Standing by for your  
burn.  
51:37:18 P Roger, Houston. We finally had some ... trouble so  
we switched over to UHF 2.  
51:37:25 CC Roger. I'm reading you loud and clear.  
51:37:28 P Reading you loud and clear now. Receive me?  
51:37:30 CC Right.  
51:38:02 P Houston, Gemini X. Do you read us now on UHF 1?  
51:38:06 CC Gemini X, Houston CAP COM. I read you loud and  
clear on UHF 1.  
51:38:12 P Roger. If you say - -  
51:40:56 C Houston, this is Gemini X.  
51:40:58 CC Go ahead, Gemini X.  
51:41:00 C Roger. We turned RCS to SECONDARY and we still got  
fuel.

**CONFIDENTIAL**

# CONFIDENTIAL

265

51:41:06 CC Roger. I understand you burned 100 feet a second and you still got fuel.

51:41:11 C Roger. ... 0 ...

51:41:22 CC Gemini X, say it again. You were unreadable that time.

51:41:52 P The residuals on that line 30 are 00005, 00027; 82, 00020 and what John said was the Propellant Quantity is now indicating - Source Pressure is steady on 300 - -

51:42:18 P Correction - our Regulated Pressure.

51:42:21 CC Roger.

51:42:24 P And our Source Pressure is about 7029.

51:42:27 CC Roger.

51:44:45 CC Gemini X, Houston.

51:44:52 C Gemini X. Go.

51:44:54 CC Roger. We're going to take a look at you over the CSQ. We may not have to make another burn tonight, John, and you can go to bed early. What are you going to do with all the room in the Spacecraft?

51:45:05 C Well to tell you, I feel like it's bigger than a three-room apartment in here now compared to what it was an hour ago.

51:45:13 CC Right.

51:45:14 C ... feels good.

51:45:27 CC We've got about 1 minute to LOS. Standing by.

51:45:31 P Right.

51:45:32 C Say, about the few other things we didn't want to let go of - like the Hasselblad EVA camera and the ...

51:45:38 CC Roger. I understand.

# CONFIDENTIAL

## CONFIDENTIAL

51:45:39 C Another small item: we lost the Flight Plan out the window, so you might bear that in mind in the rest of your planning and keep us abreast of what's going on. We've got that abbreviated copy of the Flight Plan procedures. I saw it down on the back of my Rendezvous Book, but that's all.

51:46:07 CC Okay. We'll update you over the CSQ.

51:46:10 C Okay. We got all the other complications. We got the system working and whatnot.

## COASTAL SENTRY QUEBEC

52:01:03 CC Gemini X, CSQ.

52:01:07 P Gemini X. Go.

52:01:08 CC Roger. You're looking real good here on the ground. We're ready for your fuel cell purge Section 1, then 2 anytime you're ready.

52:01:19 P I purged the hydrogen and oxygen on Section 1 and oxygen on Section 2. The ...

52:01:27 CC Okay.

52:01:47 CC Okay.

52:01:59 C Roger. We're purging now.

52:02:00 CC Okay. Fine. We don't see it on the ground.

52:03:02 CC Gemini X, CSQ. When you've completed ... let me know so we can get our Cryo readout.

52:03:11 C Gemini X. Roger. We will.

52:03:33 C Purge is complete, turned it OFF.

52:03:37 CC Roger.

52:06:38 P CSQ, Gemini X.

52:06:40 CC Gemini X, CSQ.

CONFIDENTIAL

# CONFIDENTIAL

267

52:06:42 C ... eyesight problem or whatever that problem was, is a lot better since EVA. It's not noticeable and our eyes are clearing now.

52:06:52 CC What problem was that?

52:06:56 P The fumes we had seem to have gone away.

52:07:08 CC Okay. We understand. Thank you.

52:07:11 P Yes. We're still on Suit Fan 1 and intend to stay there.

52:07:15 CC Okay.

52:08:17 CC How's your purge going?

52:08:20 P Purge complete. I guess you must not be reading me. I called you when I stopped, when I turned the Cock Lever valve OFF. I completed it about 2 or 3 minutes ago.

52:08:28 CC Okay. I read a transmission about that time and it was a little garbled. Could you put your Quantity Read to CRYO O<sub>2</sub>?

52:08:34 C Yes, my mistake. Cryo Quantity O<sub>2</sub>.

52:08:55 CC H<sub>2</sub> please.

52:09:28 C Please go back to O<sub>2</sub> for a minute.

52:09:32 CC What have you got?

52:09:37 C We're reading about 40 percent and about 730 on the pressure.

52:09:44 CC Roger.

52:09:51 CC Okay. You can place it back to the OFF position.

HAWAII

52:20:22 CC Gemini X, Hawaii CAP COM.

# CONFIDENTIAL

## CONFIDENTIAL

52:20:25 P Go ahead.

52:20:26 CC How are you doing?

52:20:30 P Doing fine, Bill.

52:20:32 CC Okay. Stand by 1 second. Okay. You can put the T/M Control Switch in the REAL-TIME and ACQ-AID position.

52:20:47 P Done.

52:20:48 CC Okay. Why don't you leave it this way for the rest of the night and your Adapter C-Band in the CONTINUOUS position?

52:20:57 P Okay, and ... in COMMAND.

52:21:00 CC Okay. I've got some questions I want to ask you. I'm going to lead you through a check list on the jettison and see if we can get everything you got.

52:21:13 C Okay.

52:21:14 CC Okay. I want to know if you jettisoned the following items. The umbilical bag.

52:21:22 C The umbilical, 50-foot umbilical, yes there's the great big bag, yes.

52:21:29 CC Okay. The HHMU.

52:21:32 C It's gone.

52:21:35 CC The ELSS straps.

52:21:37 C They're gone.

52:21:40 CC The 18 to 24-inch stand-up hoses.

52:21:42 C They're gone.

52:21:44 CC Both Y connectors.

52:21:46 C They're gone.

52:21:48 CC Suit hose interconnect.

CONFIDENTIAL

# CONFIDENTIAL

269

52:21:54 C Yes, it is gone.

52:21:56 CC The EVA visor.

52:21:57 C Gone.

52:21:59 CC The EVA CB and light assembly.

52:22:02 C Yes, it's gone.

52:22:04 CC The dry waste container.

52:22:07 C Yes, couple of those.

52:22:10 CC The Velcro straps.

52:22:13 C Yes, it's gone.

52:22:15 CC The glare shield.

52:22:17 C Gone.

52:22:18 CC The ELSS.

52:22:20 C Gone.

52:22:21 CC The 50-foot umbilical.

52:22:22 C Gone. Thank God.

52:22:25 CC And the S-12 fairing.

52:22:29 C The S-12 fairing from the Gemini VIII Agena we have with us; the S-12 fairing from our Spacecraft we threw away. Correction, I'm sorry. The S-12 we jettisoned. The S-10 from the old Agena we have with us.

52:22:46 CC Okay. Now what else did you throw away besides the Flight Plan?

52:22:53 C We threw away the S-13 bracket, but I think you got those items before ... the S-13 bracket, the MSC-8 color plate and extension rod.

52:23:04 CC Okay. The MSC-8 color plate and extension rod, and the Hasselblad are gone.

# CONFIDENTIAL

## CONFIDENTIAL

52:23:09 C Yes. We didn't exactly throw it away, but it is gone.

52:23:13 CC Maybe it'll take a picture of itself. Anything else?

52:23:16 C Yes. We had an S-12 in the cockpit and we can't find it now, so either we stowed it some magic place or else it floated back out somewhere during the EVA sequence. We'll let you know if we find it, but if we don't find it or don't tell you, you better assume that it's gone also, the S-12 package itself.

52:23:36 CC Okay. Anything else?

52:23:38 C Negative. Everything else is straightforward.

52:23:40 CC Okay. Thank you.

52:24:09 C We're taking inventory right now of how much film we have left. When we get it all added up, we'll give you a rough hack on it for your S-5, S-6 and other planning.

52:24:20 CC Okay.

52:24:35 CC The jettison must have been a real ball.

52:24:40 P Yes. It was good to get rid of all that, John.

52:24:44 C Our biggest problem was trying to figure how to put it so we could get rid of it. The bag was as big as my body.

52:24:52 CC Roger.

52:24:56 P And I decided not to use the stand-up hoses, so I was just on the Spacecraft hoses without any extension. What I did was get my body position down in the right-hand footwell prior to pressurizing the suit, so that when I pressurized the suit I was wedged in down there with "beaucoup" head clearance so that it was a simple matter to get the hatch closed again for the final time.

52:25:24 CC You had the hatch open - let's see - three times in the past two days with no real problem. That's pretty good. That hasn't happened before.

CONFIDENTIAL

# CONFIDENTIAL

271

52:25:31 C Yes, we'd like to try for five on the water.

52:25:36 CC Well, we'll see what we can do here tomorrow morning.

52:25:39 C Okay. One's to the left and one's to the right. No more, thank you.

52:25:43 CC Okay.

52:26:28 CC About how many pounds do you think were in those two dry waste bags you threw away?

52:26:34 C There probably wasn't very much weight in them, but just a - packets - you know packets that the food comes in.

52:26:43 CC Okay.

52:26:44 CC Okay.

52:26:45 C Roger.

52:26:53 C You can take those packages in the first five or six meals and weigh them and multiplying them by two, then add the weight of a traveling storage bag and that'll give it to you.

52:27:05 P No good for anything. Why bother?

52:27:08 CC Okay.

52:27:09 CC All right.

## CALIFORNIA

52:30:29 CC Gemini X, Houston.

52:30:42 CC Gemini X, Houston.

52:31:16 CC Gemini X, Houston.

52:31:47 CC Gemini X, Houston.

52:32:05 CC Gemini X, Houston.

52:32:41 CC Gemini X, Houston.

# CONFIDENTIAL

## CONFIDENTIAL

## GUAYMAS

52:32:44 P This is Gemini X. Go ahead.

52:32:46 CC Roger. I got a couple items for you here. Your orbit now is 216 by 158. Looks real good for tomorrow. Looking at it on the ground here, it looks like you may be fairly low on fuel even though you've got a full Volkswagon oxidizer tank; so we expect you to keep a close watch on that one.

52:33:14 C We promise not to use any more.

52:33:16 CC Roger. We'd like for you to put the Antenna Select to REENTRY for the night operation when you get ready to go to bed.

52:33:29 C Roger.

52:33:32 CC Right. In fact, you can do that right now if you'd like to.

52:33:36 C Roger. Just adjusting now.

52:33:38 CC Roger. I've got the short Flight Plan update for you here. Ready to copy?

52:33:54 C Go ahead.

52:33:56 CC Roger. 53:00:00 to 63:00:00 is sleep period. During this time we'd like for you to do D-10, Mode G and as we mentioned earlier, if the Scanner Ignore light doesn't bother you while you sleep, we'd like to have you leave the Scanners ON at night because it helps them correlate some of the drifting flight data they get. If it does, you might - -

52:34:28 C ... Say, the mode number is G-George?

52:34:32 CC All right. That's affirmative. Also we'd like you to leave the Scanners ON during this period so that we can correlate some of the data better.

52:34:44 C Okay. I got that, correlation of the data better ...

52:34:54 CC Roger. You copy correlating some of the data better,

CONFIDENTIAL

# CONFIDENTIAL

273

and suggestion was to leave your Scanners ON during the night sleep period.

52:35:06 C Okay. I got that. I thought you said something in between there. Excuse me.

52:35:10 CC Roger. We're about 1 minute to LOS here. We'll pass you some more information over RKV, but we'd like to let you know that we're pretty doggone happy down here. It was a real great day today and we feel just about as happy about it as you do, I guess.

52:35:30 C Yes. We feel like everything is going just great. We'd like to keep it that way.

52:35:34 CC Yes. I think it will be. We're all pretty happy about the way everything went.

52:35:38 C Say, we've got a lot of film left for your planning purposes on S-5, S-6. We've got about six magazines of 16mm color, two magazines of black and white and we have about two and a half mags of 70mm Maurer left.

52:35:52 CC Roger. We copy. We'll be doing some thinking about that tonight and since we're just about LOS, once again it was a great job today. It was fabulous.

52:36:06 C I tell you it was a tremendous thrill. It was really incredible. I didn't believe part of it myself.

52:36:13 P Hope these pictures come out.

ROSE KNOT VICTOR

52:53:26 CC Gemini X, RKV.

52:53:31 C Gemini X. Go ahead.

52:53:32 CC Roger. I have a PIA update for you.

52:53:35 C Roger.

52:53:36 CC Okay. Since you've lost your book I'll give you

# CONFIDENTIAL

## CONFIDENTIAL

the headings from the columns as I'll relay them.

52:53:41 C Sounds good.

52:53:44 CC Okay. Very good. 35-3 - -

52:53:47 C Stand by. Stand by.

52:53:50 CC Roger.

52:54:03 C This is Gemini X. Ready to copy.

52:54:05 CC Okay. Area at 35-3: 56:29:44; 21 plus 47, 27 plus 05; weather, good. Area 36-3: 58:05:49; 21 plus 12, 27 plus 01. Area 37-Delta: 58:55:19; 30 plus 12, 35 plus 32; weather, good. I believe I forgot to give you the weather in 36-3. The weather is marginal. Area 38-2: 60:33:56; 28 plus 29, 33 plus 06; weather, marginal. Area 39-2: 62:13:01; 26 plus 36, 28 plus 47; weather, good. Area 40-2: 63:52:48; 24 plus 37, 29 plus 24; weather, good. Area 41-1: 63:17:47; 26 plus 08, 31 plus 01; weather, good. Bank angles for all areas, roll left 90. No SEP maneuvers required. Did you copy?

52:57:03 C Roger. Read 35-3 for us again, the first one.

52:57:07 CC Area 35-3: 56:29:44; 21 plus 47, 27 plus 05; weather, good. Did you copy?

52:57:30 C Roger. Copied.

52:57:32 CC Roger. I would like to have your crew status report.

52:57:37 C Roger. Crew status is GO.

52:57:40 CC Roger.

52:57:44 C ...

52:57:46 CC Say again, Gemini X.

52:57:47 C 804 on the counter.

52:57:50 CC That's 804 on the counter.

52:57:52 C Affirmative.

CONFIDENTIAL

# CONFIDENTIAL

275

52:57:53 CC Roger.

52:57:56 C Pilot missed lunch today. That's the only meal we've missed so far.

52:57:59 CC Roger.

52:58:03 CC Okay. I guess this will be our last wake pass with you, so I guess you can power-down your Spacecraft and get ready for your sleep period. We'll be watching you while you're sleeping and we'll see you back at the ranch.

52:58:15 P And a couple more besides.

52:58:18 CC Say again.

52:58:19 P I said just because I missed lunch, don't think I'm not going to make up for it.

52:58:22 CC Okay.

52:58:27 C Do you want us to stay powered-up awhile longer or should we power it down? Should we leave the platform on for let's see - will it help out to leave the platform on for S-10?

52:58:37 CC You can power-down at your convenience as far as I know. Stand by and I'll check.

52:58:46 C ...

52:58:47 CC Negative. Power it down.

52:58:48 C All right.

52:58:50 CC Houston confirms that you can power-down as far as they're concerned, Gemini.

52:58:54 C Okay. We'll leave it down on Primary.

52:59:00 CC And leave the pumps on Primary A, Secondary Bravo.

53:12:43 C Don't tell me things that I - -

53:12:45 P Okay.

# CONFIDENTIAL

## CONFIDENTIAL

53:12:46 C Okay. Because when we debate on the - because of the Dual Rendezvous when I first rolled over ... hoping the ... better. But for some reason or other, there was sun shining on the ... shield so - well, it just gave me one big ball of fire. This time I lowered the nose a couple of degrees too much ...

53:13:07 P Yes. Same thing over on the right side. It was coming in and bouncing off the nose.

53:13:09 C It stopped till we got to an angle of about 25.6 degrees, which was getting pretty marginal toward the IVI. Then, right after that we never lost it. It got brighter and brighter.

53:13:24 C That run was the first nominal, first truly nominal - -

53:13:31 C - - Dual Rendezvous that we've ever done.

53:13:36 C It was a good one.

53:14:04 P Take off, gosh darn it! ...

53:14:08 C Boy, that was hard work!

53:14:10 P What?

53:14:12 C You look nervous and never did anything.

53:14:13 P Yes, I'm glad to hear that. Let's turn the tape back around so you can tell how accurately you've done it.

53:14:21 C ... Yes, but it was down to where there was only one of them. ...

53:14:26 C It was incredible ...

53:14:43 C We ought to figure out some way ...

53:14:45 C Does a change in your ...

53:14:57 P ... I want to remind myself of something. The two RCS thrusters, right out in front of me, both the A-Ring and the B-Ring. I don't recall which thruster numbers they are. But - -

CONFIDENTIAL

# CONFIDENTIAL

277

53:17:12 C ...

53:17:13 P You know that stuff that looks like asbestos, it's white and fibrous, that they stuff around the edges of it. It's coming loose. ... yes, I've got a big piece of it out of there. Something else. Up on the nose, I don't know if you can see it or if you have the same size - same - -

53:17:33 C ... that one on your side?

53:17:38 P No. This is right up on the nose of the Spacecraft. I thought it was a shingle, but it was flapping all during launch. Did you notice that? Did you have one of those?

53:17:48 C ...

53:17:50 P Why didn't somebody tell us about that? I thought that thing was going to break loose and come back through this windshield at me. I was really sweating.

53:17:56 C ... everybody, nobody so far has had any difficulties.

53:18:00 P Not in the debriefing.

53:18:02 C Well, yes! ...

53:18:06 P Well, those rotters!

53:18:07 C Boy, that sounds great ... look at that flame ...

53:23:28 P Something else for the record here. The handrail, which you punch the button to raise, came up normally when I pushed the button; but the handrail, which is automatically sequenced, did not pop up in the rear. It only popped up in the front, so that it was unsatisfactory as far as putting the nitrogen line through. I hooked the nitrogen through the front handrail. That's why I told you to make sure and cinch down -

53:23:58 C How did you put it - how did you put it on there? There is nothing to grab hold of if it popped up.

53:24:03 P I held onto the other handrail.

# CONFIDENTIAL

## CONFIDENTIAL

53:24:06 C Oh, did you?

53:24:07 P Yes. I held onto the one - well no, wait a minute, I couldn't - no. Wait a minute. Let me make that clear. I could get my fingers under the forward part of the aft handrail, but I couldn't get the nitrogen line in. I didn't even try. I could see that the dimension was too small to do any angling down. Also, there was a bow in it. You see, with the back being locked down, the top was sort of bowed up. There wasn't room enough to get the nitrogen line, so I hooked the nitrogen line underneath the forward handrail. That's why I mentioned to you to be sure and cinch that nitrogen line down, see. It was slacker than we had planned on it being.

53:26:40 P I have a leaky food bag. One of the little holes through which you insert the - the water gun, leaks. It's butterscotch pudding - butterscotch pudding in the little hole that's under there.

53:26:56 P It's not as bad as what happened yesterday when I accidentally snipped the tang and had tang flakes all over the cockpit.

53:27:34 P Apparently the CO<sub>2</sub> cartridge in the Maurer has given out. It seems to be working okay, but it is making just a "click" instead of the "thump" that indicates the CO<sub>2</sub> is working. The CO<sub>2</sub> cartridge is starting to make a little noise again. On a couple of exposures, there was nothing. Then it popped sort of weakly and now it seems to be making pretty healthy noises.

53:29:51 P We've got Magazine C in the Maurer. On the exposures right around the middle of the roll, where it says 25 to 30 remaining, there are some pictures of some very unusual cloud patterns. Cirrus banding one way and lower clouds in rows roughly 90 degrees to the pattern of the Cirrus.

53:30:16 P I'm hungry. This is a good meal, butterscotch pudding.

53:33:19 C I tell you the soup is outstanding, the best I have ever eaten!

CONFIDENTIAL

53:40:32 P Maurer Magazine C pictures of Formosa, the mainland of China, Quemoy and Matsu, and whatnot. Those are the latter part of Magazine C.

54:00:54 C The trouble with these food bags is that you can't get that little spout, through which you eat the food, to open up. Right where the spout joins the bag, where it is sealed under the bag itself, it lies flat and it's very difficult to get the thing to open up three-dimensionally. You can bend it back and forth and push the ends of the spout in toward one another to force it open. Sometimes it doesn't work and you can't get the food out, short of sticking a pencil down inside it.

54:15:02 P On the EVA, I don't recommend opening the hatch at night and going anywhere. If you want to open the hatch at night, just stand there without moving. That's fine. But when I was moving around, with the hatch open at night on the first EVA, trying to get up a little higher, I was aware that I was bound up on something. It wasn't possible to see what, and that's not a very good way to do business. If you're going to do anything other than just the most simple stand-up or hatch-opening maneuver, it ought to be done in the daytime.

54:16:28 C ... negative and 2nd stage cut-off is what gives ... and there is one of the prettiest sights ...

54:26:58 P And taking a you-know-what with the first guy who took a you-know-what, in this case, is sort of like having Wilbur Wright looking over your shoulder while you're trying to solo an airplane.

ROSE KNOT VICTOR

54:33:40 C Canary, Gemini X. Over.

54:33:43 CC Gemini X, RKV. Can I help you?

54:33:46 C Roger. What's our present position right about now?

54:33:51 CC You're somewhere over us at this time. Stand by.

## CONFIDENTIAL

54:34:07 CC Your longitude is about 40 degrees west.

54:34:14 CC Roger. And around 25 degrees south.

54:34:25 C Roger. Could we get a Flight Plan update for our REV chart?

54:34:29 CC Roger. Stand by.

54:34:31 C You got us on this - ... false schedule and it's not our bedtime yet.

54:34:41 CC Gemini X, you're breaking up. Would you repeat, please?

54:34:48 C Roger. There is a request for Flight Plan of a trajectory update.

54:34:53 CC Roger. I'll get one for you. Stand by.

54:35:57 CC Gemini X, RKV. They're working on the nodal update. Your present orbit is 158 by 216.

54:36:09 C Roger.

54:36:11 CC And as soon as they give me the node, I'll pass it to you.

54:36:16 C Roger.

54:37:26 CC Roger. I understand. Gemini X, RKV. I have your node.

54:37:31 C Roger. Go ahead.

54:37:34 CC 54:49 hours: REV 34; 53.7 east; 4 hours and 48 minutes; right ascension.

54:37:56 C Roger. Thank you very much.

54:38:07 CC Gemini X. Are you going to leave your Scanners ON this evening or OFF?

54:38:11 C Roger. Primary Scanners are ON.

54:38:14 CC Roger.

54:38:24 CC We show your Scanners as being OFF here, Gemini.

CONFIDENTIAL

55:06:12 P In my opinion the - it's going to be very difficult to find the horizon, even in the daytime. In places, it is very distinctive - through the cloud decks. For other places, the clouds seem to blend into the ocean or other time features. In those cases, the horizon is just hard to see, tell where the horizon - where the atmosphere leaves off and the horizon starts. That's going to shoot down the start of horizon measurements in the daytime. For that kind - for eyeball measurements.

55:12:34 P Okay. 55:12. We think we're around Ceylon and we've got negative - -

55:12:39 C No, we're not.

55:12:40 P This is Burma.

55:12:42 P Burma, rather. That sounds more like it and it looks like - yes, it looks like Burma. We're over India and I'm shooting Magazine D, the beginning of it.

55:13:02 C 55:13. We're right in the middle of Hanoi.

55:13:07 P Shoot it, Babe.

55:13:09 P We're about to go over Hanoi. If you see a town down there, get it.

55:13:21 C Yes. That populated area there. That's what we're fighting over.

55:13:25 C There has to be a town down there some place.

55:13:54 C The river's plain as day.

55:14:01 P There aren't any SAM's coming on patrol.

55:14:08 C ...

55:14:15 P Hey, I'm coming.

55:14:17 C To part of it.

## CONFIDENTIAL

55:14:18 P Hey, hey, give me the camera!

55:14:25 P ...

55:14:27 C Formosa again.

55:14:33 P Gosh darn!

55:14:37 C Look at that! Rolled and inverted right over the world. Looks like we're reentering.

55:14:44 P Looks like we're diving.

55:14:47 P Okay. 55:14 over - John, couple of pictures - Would you believe Quemoy and Matsu on the pictures? They were a day early on the ... there's John Young.

55:24:09 C Bet the old master would go for this situation, never fear. (Laughter)

55:24:12 P You can't laugh, John. RECORD for the voice tape is ON.

55:24:33 C Oh, come on.

55:24:34 P ...

56:09:24 P If there are clouds on the horizon in the daytime, you can see the horizon. But there are certain places not too ... I've seen so far, where it's impossible to define where the horizon is. I can't tell whether I'm seeing - for example, in one place I'm looking, appears to be the real earth horizon; but there seems to be a great, huge dip in it, a scalloped-out place in the true horizon. If that's a mountain, that's a huge mountain. I doubt it it's a mountain. The horizon, in other words, as I'm looking at it does not seem oval-shaped - too regular.

56:10:10 P And I got a picture of that horizon. I don't know if it will come out or not, but it's in Magazine D Maurer, toward the beginning of the magazine.

56:10:29 P At a GET of about 55:32 to 34, I'm getting a whole slew of weather photos out over the ocean, now. Seems there are some interesting cloud formations here on Magazine D.

CONFIDENTIAL

56:14:36 P The star formations are right in the vicinity of Hawaii. I'm coming up on Hawaii right now, but I'm afraid I'm going to be pitched-up and not be able to see it.

56:14:55 P ... down to Hawaii.

56:15:36 P I tried ...

56:15:38 P No you didn't.

56:15:40 P ... completely.

56:15:50 C Doing real good.

56:15:55 P ...

56:16:30 C ...

56:16:35 P Yes, real good.

56:16:37 P What do you say?

56:17:35 C Yes. 55:37:37. The sun is just going down and I see an object - just one object in the sky off to my right - that would be west to northwest - which is brighter than a 1st magnitude star. Appears to be above me quite a ways - above or below. It's hard to tell just where it is in flight when I'm pitched up quite a bit. Okay. Here we go with GET of 63:13:35. There is some object in orbit. But the thing is - there it is again. Okay. I have it out my window. If I can find the constellation, I'll see what it is. Wait a minute till I find it.

CANARY ISLANDS

62:45:29 CC Gemini X, Canary CAP COM.

62:45:32 CC Gemini X, Canary CAP COM.

62:45:35 C Canary, this is Gemini X. How do you read? Over.

62:45:37 CC Read you loud and clear. Good morning. How are you all feeling this morning?

## CONFIDENTIAL

62:45:41 C Great. Real good.

62:45:44 CC Could I have you move your Cryo Quantity switch to the O<sub>2</sub> position for us, please?

62:45:49 C Roger. Will do.

62:45:55 CC Okay. I'm going to send you a Tx.

62:46:02 C Roger.

62:46:05 CC I've got a small Flight Plan update for you when you're ready to copy. When you get your eyes open.

62:46:38 CC Gemini X, Canary. Would you move your Cryo Quantity switch to the H<sub>2</sub> position? Thank you.

62:46:43 P Roger. Ready to copy the update.

62:46:46 CC Okay. At 63 hours: power-up platform; purge fuel cell, Section 2, then Section 1; load Module 6 for D-5 Orbit Determination; Aline the Platform as soon as warm-up is complete; then Platform SEF. From 63:00 to 64:00: eat period. And from 64:05 to 64:40: D-10, Node Easy. That's all I'm going to give you. They have some they'll update you on later.

62:47:52 P Roger. Thank you.

62:47:54 CC You're looking real good down here on the ground.

62:48:00 C Roger. We're coming up over the African coastline right now. We can see little islands up there.

62:48:06 CC Roger.

62:50:09 CC Gemini X, Canary.

62:50:11 C Gemini X. Go ahead.

62:50:13 CC Okay. We'd like to have you move your Cryo Quantity switch to O<sub>2</sub> for about 10 seconds and then switch it OFF.

62:50:18 C Roger. Will do.

CONFIDENTIAL

62:52:34 CC Gemini X, Canary CAP COM.  
62:52:49 CC Gemini X, Canary CAP COM.  
62:53:07 C Gemini X. Go ahead.  
62:53:09 CC Okay. We have about a minute to our LOS here.  
We'll be standing by.  
62:53:14 C Roger.  
63:15:03 P You have any constellations out your window ...?  
63:15:05 C Okay.  
63:15:09 P Roger?  
63:15:10 C Yes.  
63:15:22 P Oh, it's too late. Never mind. It didn't do it  
anyway.

## CARNARVON

63:25:22 CC Gemini X, Carnarvon. We have nothing for you.  
We're looking at your systems. All systems are GO.  
We're standing by.  
63:25:29 C Roger. We're loading Module 6 and bringing up the  
platform.  
63:25:32 CC Roger.  
63:27:27 CC Gemini X, this is Carnarvon. We've been informed  
to pass on to you not to look at the ground between  
our LOS and the stateside pass.  
63:27:42 CC Do you copy, Gemini X?  
63:27:43 C Roger. We copy.  
63:27:45 CC Okay.  
63:27:48 C Only thing we don't understand is why we can't look  
at the ground between Carnarvon at 63:20 something  
and the stateside pass.

## CONFIDENTIAL

63:27:58 P Why we can't look at the ground and have ... for 10 - minute data.

63:28:02 C Good for the ground. Something to do with Hawaii, I think, and maybe it's a laser ...

63:44:16 P On this D-10, when we first turned it in the FDI position, the vertical needle was back to the left ... bottom. When John fired the thrusters, the horizontal needle jumped up nearly half-way between the bottom and 0, then immediately dropped down to the bottom again. Starts an instantaneous blackout.

63:46:06 P Okay. It's been swinging around closer to Alinement. The vertical needle is coming in ... John's vertical needle is hunting - oscillating back and forth.

63:46:18 C We're Alined, Babe - we're Alining.

63:46:21 P When you fire the thrusters, the vertical needle gives a tremendous jolt and bounces nearly full-scale. Okay. Right now, are we Alined, John?

63:46:31 C Just about. I mean as far as ... we're not level yet.

63:46:36 P Okay. We're not level, John said. Horizontally, we're still pegging on the bottom. The vertical needle is quite sensitive. I have it on HIGH. Of course that's low sensitivity, but even with the FDI on HIGH - Range on HIGH - the vertical needle is very sensitive.

63:47:12 C I think you're right.

63:48:05 C ...

63:48:12 P Yes. I agree.

63:48:17 P Vertical needle is holding pretty constant. About - oh, let's see - 1, 2, 3 units right of center. When John fires the thrusters, it jumps back just about to 0.

63:51:41 P Okay. D-10 is calibrating for itself.

63:52:55 P Darn! It's right on the money, Babe.

CONFIDENTIAL

63:52:57 P You know it!

63:53:05 C Oh heck! I lost my little sun shield. ...

63:53:10 C ...

63:53:36 P Did it go up or did it go left?

63:54:12 P Incredible! Look at that thing, would you!

63:55:32 P ... go to the right.

63:56:17 C I wonder ...

63:56:21 P Okay. Eyeball out at 63:56:26.

63:59:22 P There's a difference between the D-10 yaw needle and the FDI Fine Line Mode. FDI wants us to go one way and the D-10 needle wants to yaw the other way. Pitch needle seems to agree pretty closely.

63:59:37 P Right now the - John's right on - following the FDI Fine Line and the yaw needle is off just about full-scale to the right. Then, when we center the yaw needle in the D-10, the back one wants to go off to the left.

64:00:00 C Pitch is in agreement though, isn't it?

64:00:05 P Pitch is very close.

64:00:07 C ...

64:02:53 P Okay. John is Alined now - 64:05:40 - and this time the yaw needle agrees with the Alinement.

64:05:50 C Yes, because it was right all along.

64:05:55 P Apparently the yaw needle, D-10 yaw needle, was correct all the time. So it looks darn good over here in the right-hand FDI. The pitch needle is maybe a half-unit above 0; the yaw needle is maybe a quarter of a unit right of 0.

64:06:09 C See, that's the part bungled because this thing could be off in - if I'm off the slightest bit in roll with a couple ... yaw - but I don't think I was off in roll. I probably had a big yaw error when

## CONFIDENTIAL

I started because it's hard to pick up yaw. Like you were saying about being so darn precise with this funny looking machine out the window.

64:06:31 P ...

64:06:33 C Yes. Let's go.

64:06:36 C ...

64:06:41 C Yaw over to the right 20 degrees.

64:06:45 C Okay. Go into Orbit Rate on the ball.

64:06:50 C Okay. Drop the Computer Rate.

64:07:41 P ... yaw back 60 degrees all the way over, 40 degrees left. I want to use 1/10th of a ... per second rate. Okay. Here you are at 20 degrees ...

64:07:56 C Okay. Yaw back. Yaw 10 degrees.

64:07:58 P Yaw left at 1 degree per second.

64:08:02 C What degree was that?

64:08:03 P 1/10th of a degree per second.

64:08:05 C Excuse me. 1/12th.

64:08:06 P 1 degree per second.

64:08:09 C Okay. Here we are starting to yaw left.

64:08:11 P Right.

64:08:12 C Right. Full-rate.

## HOUSTON

64:08:56 CC Gemini X, Houston CAP COM.

64:09:00 C Gemini X. Go.

64:09:01 CC Roger. Good morning, John. How'd you sleep in your spacious quarters?

CONFIDENTIAL

# CONFIDENTIAL

289

64:09:07 C Great.

64:09:08 CC Fine. I'd like to give you a brief rundown of what we plan to do today as far as using the remaining fuel we've got. We decided last night to burn everything we've got in our OAMS system, use the VW tank when required, and it appears you'll probably be fuel-critical with plenty of oxidizer. We plan to burn it all out if it's required and we'll use the RCS for alining for Retrofire. Does that meet with your approval?

64:09:51 C That's fine.

64:09:54 CC Okay. You ready to copy a continuation of today's Flight Plan?

64:10:20 P Ready to copy.

64:10:29 CC Roger. At 64:22 over Canaries, you'll get a PLA Block update and we'd like a crew status report at that time. At 64:46 is sunset, and from 64:46 to 65:23, we'd like to run D-5, Mode D. On this Mode D, Mike, we'd like to track the stars with the photometer until it disappears. You can press Start Comp when it's superimposed on the horizon, but track it until it disappears completely. If you're too pressed for time, just drop the computer off the term process and do a plain Mode A. Do you understand that?

64:11:29 P Yes, I read you, C.C.

64:11:30 CC Roger.

64:11:33 CC At 65:25 to 65:55: D-10, Mode E. At 65:55 to 66:10: D-10, Mode C - Charlie. At 66:10 to 66:40: D-10, Mode D - Delta. 66:40 to 67:25 we have a stowage period. You can load Module 4, bring the Spacecraft SEF in Platform mode. We'd like to leave D-10 Ion Sensor switch ON until your Retro Check List. At 67:20 we'll give you a Reentry update. We'd like a fuel cell purge 1, then 2; a Cryo Quantity readout and activate the H<sub>2</sub> Tank Squib. At 67:25 to 68:10, eat period. At 68:10 until T<sub>R</sub> you can go through your Retro preparation. At 68:55, we'll give you a Reentry update and at 70:10 is your

# CONFIDENTIAL

## CONFIDENTIAL

Retrofire time; at least our best guess at this time for 44-1. Did you copy?

64:13:34 P Roger, I copied. You faded out for a couple of things. Going back to the first D-5. Understand that takes place from 64:40 through that one night pass. Is that affirmative?

64:13:46 CC That's right. That's 64:46, Mike.

64:13:50 P Okay. And then after that D-5 dash D, I've got a blank spot between it and 65:55. What did you say in there?

64:14:01 CC Roger. 65:25 to 65:55: D-10, Mode Easy.

64:14:13 P Okay. Copied that, and I have another blank spot. Just stand by.

64:14:23 CC Go to PRELAUNCH, please.

64:14:25 P Load Module 4, go SEF Platform. David D-10 on to Retro Check List. Then what comes between that and the fuel cell purge?

64:14:35 CC Roger. At 67:20 we'll give you a Reentry update, then purge the fuel cells.

64:14:45 P Okay. Got it all, thank you.

64:14:47 CC Roger. Will you go to PRELAUNCH?

64:14:50 C We're in PRELAUNCH.

64:14:51 CC Roger. We're sending you an update, State Vector and Tx.

64:15:04 P Update received.

64:15:05 CC Roger. Weather looks good, Mike, for 44-1, and we'd like for you to check on some of the items that you jettisoned for weight and balance on this Retro. Is it S-12 or S-10 that you have missing?

64:15:25 P S-12 is missing. We still have not found it, so we better assume that it got out of the cockpit, but finally came back in.

CONFIDENTIAL

# CONFIDENTIAL

291

64:15:33 CC Roger. Well, that's a pretty big one, hard to lose.

64:15:37 P You're not kidding.

64:15:38 CC Did you jettison or lose any of your Hasselblad magazines after you lost the camera?

64:15:44 P Negative. There was one magazine on the camera, of course, that went with it, but the other Hasselblad magazines are still here.

64:15:51 CC Roger. Understand you still have them.

64:15:53 CC I've got a Flight Plan node update if you're ready to copy that.

64:16:03 P Okay.

64:16:04 CC Roger. For REV 39, 63.0 west; right ascension is 04 hours, 39 minutes.

64:16:20 P Got that. Thank you.

64:16:25 C At 0, yaw 0, the needles were going right through the middle. Boy, this thing worked like a charm!

64:16:37 P Okay. We're pitched about 8 degrees up and the yaw needle indicates we're pitching up about 8 degrees.

64:16:40 CC Roger, Mike. That's all we have at this time. We've got about 2-1/2 minutes to LOS. We'll be standing by.

64:16:45 P Okay. We're doing a D-10 right now.

64:16:47 CC Roger.

64:16:49 P This D-10 is really something. Gives you instantaneous yaw and pitch pickup using for this ... Platform Aline and it's a pretty dark spark.

64:16:58 CC Excellent. Glad to hear it.

64:17:01 P It's a great thing.

64:18:21 C Yes, I can tell ...

# CONFIDENTIAL

## CONFIDENTIAL

64:18:37 P Yaw 0, pitch down 5 degrees. Okay. We're starting back at 330, starting back to 000 at 1/10th of a degree per second.

64:18:52 C Here we are back at 0.

64:18:54 P The needle is 0, isn't it?

## CANARY ISLANDS

64:21:18 C Houston, Gemini X.

64:21:19 CC Gemini X, this is Canary CAP COM.

64:21:21 C Okay, Canary. In our Flight Plan update I don't notice an S-1. I'd like to confirm that with Houston and suggest to them that maybe some night here we can take some S-1 pictures with the S-1 camera even though we won't have the star patterns and pointing directions as briefed. At least we can get something. We can do this simultaneously with D-10 for instance.

64:21:47 CC Sure. Go ahead.

64:21:54 CC Roger. Houston concurs; says go ahead if you can.

64:21:57 P Okay.

64:22:00 CC Okay. I'd like to get a crew status report on you all.

64:22:05 C Okay. Crew status is GO and stand by for the drink counter.

64:22:28 C Counter is 01022 and we're both just finishing up breakfast.

64:22:35 CC Roger.

64:22:36 CC Okay. Would like to have you make a note of Ground Elapsed Time when you hit the VW tank.

64:22:46 C Okay.

CONFIDENTIAL

# CONFIDENTIAL

293

64:22:55 C Our Regulator Pressure is up 300 and our Source Pressure down about 60.

64:23:03 CC Roger. Copy.

64:23:07 CC Okay. Have a PLA Block update for you when you're ready to copy.

64:23:10 P Stand by.

64:23:40 P Go ahead when you're ready.

64:23:42 CC All right. Area 42-1: GET RC 66:55:05; RET 400K is 24 plus 44; GET RB is 29 plus 34. Area 43-1: 68:33:25; 23 plus 12, 28 plus 07. Area 44-1: 70:11:12; 22 plus 01, 27 plus 17. Area 45-4: 73:03:02; 24 plus 11, 29 plus 10. Area 46-4: 74:41:09; 22 plus 46, 27 plus 58. Area 47-4: 76:18:54; 21 plus 43, 27 plus 09. Bank angle for these is roll left, 90 and roll right, 90. Weather is good in all areas except 43-1. And no SEP Manuever is required. All these are based upon a 20 - on a 20 degree pitch angle.

64:25:54 C Over.

64:25:59 C Say again 42-1 and say again 47-4, please.

64:26:04 CC Roger. 42-1 is 66:55:05; 24 plus 44, 29 plus 34. 47-4 is the other one you wanted?

64:26:25 P Yes. I got 47 for 76:16:54.

64:26:30 CC Roger. 21 plus 43 and 27 plus 09.

64:26:35 P Thank you much.

64:26:38 CC Okay. Sending you a Tx.

64:26:41 P Got it.

64:27:10 CC Gemini X, Canary.

64:27:12 C Gemini X. Go.

64:27:13 CC Okay. You were saying your OAMS Source Pressure was indicating 60. Is that correct?

# CONFIDENTIAL

3

3

## CONFIDENTIAL

64:27:19 C Well, you'll have to multiply that by 10.  
64:27:23 CC Roger. Okay. We're reading 687 on the ground.  
64:27:28 C Okay. Understand that.

## CANARY ISLANDS

64:27:45 CC Gemini X, Canary.  
64:27:50 C Gemini X. Go.  
64:27:52 CC Okay. I'd like to have you put your C-Adapter to the COMMAND position.  
64:28:04 C C-Adapter in COMMAND and Cryo 1 is in Q2.  
64:28:07 CC Okay. And would you put your C-Reentry to CONTINUOUS?  
64:28:12 C C-Reentry, CONTINUOUS.  
64:28:14 CC And your Antenna Select to REENTRY.  
64:28:17 C Antenna Select to REENTRY.  
64:28:20 CC Roger. Thank you.  
64:28:22 C We've been playing with that Antenna Select. You have been fading in and out on both of them.  
64:28:27 CC Roger.  
64:29:56 CC Gemini X, Canary will be standing by. We've got about a minute to LOS here.  
64:30:00 C Gemini X. Roger. Thank you.  
64:30:38 C Canary, Gemini X.  
64:30:42 CC Canary. Go Gemini X.  
64:30:45 C Canary, Gemini X.  
64:30:52 CC Did not copy, Gemini X.

CONFIDENTIAL

# CONFIDENTIAL

295

64:30:57 C Canaries, Gemini X. Was that last update you sent us the DCS Vector for D-5, Mode D?

64:31:02 C Affirm. Yes.

64:31:12 C ...

64:31:16 P No.

64:31:19 C ...

64:31:28 P One thing. You Start Comp to the end of those things, do you?

64:31:31 C Yes. I Start Comp.

64:31:35 C 992.

64:31:38 P See, we're all fouled up here.

64:31:40 P What time are we starting this ... Babe?

64:31:42 C Right away. Soon as you get through.

64:31:44 C No, but I've got a BBEN to do yet.

64:31:46 P I know you do.

64:31:48 C Just a second. I'll give you time ...

64:31:52 CC Gemini X, Houston CAP COM.

64:31:55 C Gemini X. Go.

64:31:57 CC Standing by. Do you have anything you want to say?

64:32:01 C Negative. Except D-5 is working like a charm. We needed that thing on the Spacecraft a long time ago.

64:32:33 P What was that value for 90? 00275?

64:32:36 C Yes.

64:32:37 P Sure, that was it?

64:32:38 C Yes.

64:32:43 C It's written in blood.

# CONFIDENTIAL

## CONFIDENTIAL

64:32:48 C If you see another food bag floating around - -

64:32:57 P Okay now. Give me some time and I'll get you some ... Okay?

64:33:04 P All right. It's going to be 64:46 in sunset. Another 13 minutes to go, just as soon as you get through with this Mickey Mouse ...

64:33:14 C Okay. I'm through.

64:33:16 P Okay. This - -

## CARNARVON

64:57:50 CC Gemini X, Carnarvon standing by.

64:57:55 C Roger. We're right in the middle of D-5, Mode D. We just encountered Regulus and now ...

64:58:01 CC Roger.

65:06:05 CC Gemini X, this is Carnarvon. We have a minute before LOS. Standing by.

65:06:09 C Gemini X. Roger.

65:44:54 CC Gemini X, Houston CAP COM.

65:44:57 P Gemini X. Go.

65:44:59 CC Roger. Mike, how did the D-5 go? Were you able to do Mode D or did you have to switch over to A?

65:45:05 P Roger. We did Mode D. Our residuals, except for one, were less than 2/10ths of a degree and not more than 15/100ths of a degree. The one was due to an error in procedure which we can check back on, trace back on.

65:45:23 CC Roger. Sounds real good.

65:45:27 CC Are you doing the D-10, Mode E at this time? Is that right?

CONFIDENTIAL

# CONFIDENTIAL

297

65:45:31 C Roger. You want a Mode E or do you want a pitch spreading? We've already done one Mode E.

65:45:42 CC Flight Plan calls for an E, John. So why don't you go ahead with that?

65:45:46 C Okay.

65:45:50 CC I'd like to confirm at this time whether or not you lost your Flight Plan book. Can you do that?

65:45:58 C Yes. We still have a Flight Plan book.

65:46:01 CC You do have it?

65:46:07 CC I've got nothing else to pass up to you at this time. The weather still looks good in the recovery area and we'll be standing by.

65:46:18 P Roger.

65:54:40 CC Gemini X, Houston CAP COM. 1 minute to LOS. Standing by.

65:54:45 C Roger. We're on D-10 now, Mode E, and it looks real good.

65:54:50 CC Roger. John.

65:54:51 C The needles are off a little at pitch. Just need another Platform Alinement. If the platform gets off we will try to Aline the Platform again.

65:55:03 CC Roger.

65:55:05 C But it still looks like, except for a minor calibration problem, it really is something.

65:55:10 CC Roger. Your range looks real good down here. Looks like you're doing a real good job of flying it.

## CANARY ISLANDS

65:59:05 CC Gemini X, Canary CAP COM. We have nothing for you this pass. We'll be standing by.

# CONFIDENTIAL

## CONFIDENTIAL

65:59:10 C Gemini X. Roger. We're rolling right now.  
65:59:19 C In Mode C of D-10.  
65:59:22 CC Roger.  
66:06:32 CC Gemini X, Canary. We're about 1 minute to your  
LOS. We'll be standing by.  
66:06:37 P Gemini X. Roger.

## KANO

66:08:08 CC Gemini X, Houston CAP COM. Standing by.  
66:08:14 C Roger. We're doing the pitch study on D-10.  
66:08:18 CC Right, John.  
66:08:21 C Our space gear looks very good.  
66:08:24 CC I'm glad to hear it.  
66:08:38 CC Is Cecil B. DeCollins taking the pictures of the  
FDI?  
66:08:43 C Roger. Mike got some inside black and white  
pictures. We also got some pictures of some objects  
floating around the cockpit that might be inter-  
esting. We don't find anything moving up-down,  
sideways, or any way for that matter.  
66:08:56 CC Roger.  
66:08:59 P Same thing on EVA as near as I can tell. I think  
it's just the question of the dynamics of it.  
Nothing is static EVA ... it. It gives you the  
illusion of going away from whatever you've grabbed  
hold of.  
66:09:15 CC Right. Then Mr. Newton was right.  
66:09:17 P I'm afraid so.  
66:11:42 CC Gemini X, Houston CAP COM. We're just about 1  
minute from LOS. We're standing by.

CONFIDENTIAL

# CONFIDENTIAL

299

66:11:47 P Gemini X. Roger.  
66:12:45 C Houston, Gemini X. We're loading Module 4 now.  
66:12:51 CC Roger.  
66:12:56 C It won't mess up this D-10, will it?  
66:13:00 CC Negative. It won't have anything to do with it.  
66:13:03 C Think so?

## CARNARVON

66:35:37 CC Gemini X, Carnarvon.  
66:35:40 P Gemini X. Go.  
66:35:41 CC Okay. Why don't you take a look at that O2 Tank Pressure and pump it up a little bit until you get about 670?  
66:35:50 P Roger.  
66:38:18 C Carnarvon. Gemini X. What time is sunrise?  
66:38:20 CC Stand by.  
66:39:01 CC Gemini X, Carnarvon. Sunrise time, 66:54:41.  
66:39:06 P Gemini X. Roger.  
66:39:39 CC You can go back to AUTO on your heater.  
66:39:49 CC We're showing about 810 on the ground. You should have about 675.  
66:39:53 P Roger.  
66:43:07 CC 1 minute to LOS. Standing by.  
66:43:19 P Roger, Carnarvon. Thank you ...

# CONFIDENTIAL

## CONFIDENTIAL

## CANTON

66:56:32 CC Gemini X, Houston CAP COM.

66:56:38 P Go. Gemini X.

66:56:42 CC Roger, Gemini X. This is Houston CAP COM standing by.

66:56:50 P Roger, Houston. We are still showing 300 plus on the regulated pressure. OAMS circuit breaker is ...

66:57:16 CC Roger, Gemini X. You are nearly unreadable. I'll pick you up over the States a little bit later. If you can read me, I request you hold any comment you may have on D-5 and D-10 until we are over Florida.

66:57:34 P Gemini X. Roger.

## GUAYMAS

67:15:31 CC Gemini X, Guaymas CAP COM. You're looking good on the ground. We'll be standing by.

67:15:38 P Okay, Guaymas. Thank you. We're still restowing.

67:15:41 CC Roger.

67:15:45 P And a fuel cell purge is in progress; just about complete.

67:15:48 CC Okay. Let us know when it is completed, Gemini X.

67:15:51 P Sure will. I'll go to O<sub>2</sub>, read for 10 seconds, and then H<sub>2</sub> when I've finished.

67:15:56 CC Okay. Real fine.

67:16:49 CC Gemini X, Guaymas.

67:16:55 C Gemini X. Go ahead.

67:16:56 CC Okay. Houston advises they want you to wait until you get over the ETR before blowing the Hydrogen Tank Squib.

CONFIDENTIAL

# CONFIDENTIAL

301

67:17:09 CC Did you copy, Gemini X?

67:17:11 P Roger.

67:17:12 CC Okay.

67:17:14 P Purge complete.

67:17:15 CC Roger, Gemini X.

67:18:32 CC Could we get your Quantity Read to H<sub>2</sub>, Gemini X?

67:18:48 P Sorry about that, I'm turned around backwards in the seat.

67:18:51 CC Okay.

67:18:60 P I won't tell you what John's doing.

67:19:02 CC Roger.

67:19:07 CC We're trying to guess that.

67:23:57 CC Gemini X, Houston CAP COM.

67:24:00 P Gemini X. Go ahead.

67:24:01 CC Roger. We'll have a partial Reentry update for you over Carnarvon this next pass at about 68:10. We'll give you your nominal IVI's and weather and so forth.

67:24:16 P Roger.

67:24:17 CC And during your next pass over the States at approximately 68:55, we'll give you your Reentry computer load, TX, and all that good stuff.

67:24:31 P Roger.

67:24:47 CC Gemini X, Houston CAP COM. I request you go to H<sub>2</sub> on your Cryo Quantity and leave it there.

67:24:57 P Roger. H<sub>2</sub> and leave it there.

67:26:01 CC Mike, I guess you're going to have to start coming

# CONFIDENTIAL

## CONFIDENTIAL

down pretty soon. You're about to start eating your last meal.

67:26:07 P ...

67:26:15 P ...

67:26:21 C Shoot, you should see him; he's eating my last meal too.

67:26:25 CC Roger.

67:27:18 CC Gemini X, Houston CAP COM.

67:27:20 P Gemini X. Go ahead.

67:27:21 CC Roger. We're ready for that Hydrogen Tank Squib. Would you move your Hydrogen Tank Vacuum switch from SAFE to VENT?

67:27:32 CC And you have to arm your experiment bus before you do that.

67:27:37 P Yes. We already did that Bus Arm Experiment and we heard it blow when we put it to VENT.

67:27:44 CC Roger.

67:28:07 CC Gemini X, Houston CAP COM. I'm standing by for a DCS light. We'll send you a load.

67:28:13 C Gemini X. Roger.

67:28:19 C Received it.

67:28:20 CC Roger.

67:28:23 C I guess it might have - vented something because the Platform mode sort of jumped up and down when it vented.

67:28:33 CC Roger, John. Understand.

67:28:40 C But I don't know what it could have been.

67:28:44 C We're reading now about 28 percent Hydrogen Quantity and about 560 on the pressure.

CONFIDENTIAL

67:28:52 CC Roger.

67:29:02 CC Gemini X. That last DCS load was an accelerometer update.

67:31:14 CC Gemini X, Houston CAP COM. We have 1 minute to LOS. Standing by.

67:31:22 P C.C. Thank you.

67:31:27 P How's the weather in 44-1?

67:31:30 CC It looks real good. We'll have a weather report for you over Carnarvon.

67:31:34 P Good show.

67:31:40 P ...

## CANARY ISLANDS

67:36:12 CC Gemini X, Canary CAP COM.

67:36:14 C Gemini X. Go ahead.

67:36:16 CC Okay. We'd like to have you move your Quantity Read switch to the OFF position for a moment, and then put it back to H<sub>2</sub>.

67:36:24 C Roger.

67:36:29 C OFF and then back to H<sub>2</sub>.

67:36:31 CC Roger. We got that.

67:36:36 CC We've got nothing else for you. We'll be standing by.

67:36:44 C Splendid!

67:43:10 CC Gemini X, Canary CAP COM. About a minute to LOS. We'll be standing by.

67:43:15 C Gemini X. Roger.

## CONFIDENTIAL

## KANO

67:44:39 CC Gemini X, Houston CAP COM. Standing by.  
67:44:46 C Gemini X. Roger.  
67:45:00 C Read your mode and input ...  
67:45:04 CC Roger.  
67:46:12 CC Gemini X, Houston CAP COM.  
67:46:15 C Gemini X. Go ahead.  
67:46:16 CC Roger. Can we have an OAMS Reg Pressure readout, please?  
67:46:26 C Roger. 315.  
67:46:29 CC Roger.  
67:49:52 CC Gemini X, Houston CAP COM. 1 minute from LOS standing by.  
67:49:57 C ...

## TANANARIVE

67:55:56 CC Gemini X, Houston CAP COM. Standing by.  
67:56:01 C Roger. Read you loud and clear.  
67:56:04 CC Roger. Read you the same.  
68:02:33 CC Gemini X, Houston CAP COM. 1 minute to LOS. Standing by.  
68:02:40 C Roger.

## CARNARVON

68:11:18 CC Gemini X, Carnarvon.

CONFIDENTIAL

# CONFIDENTIAL

305

68:11:22 C Go.

68:11:23 CC Roger. Would you place your T/M Cal switch to No. 2 position for about 10 seconds.

68:11:31 C Roger.

68:11:42 C OFF.

68:11:52 CC Okay. I have some Reentry parameters and some weather for you when you're ready to copy.

68:12:00 C Roger. Stand by.

68:12:14 CC That main summary may not have gotten out ... -

68:12:16 C Okay. Ready to copy.

68:12:19 CC Okay. Nominal IVI, aft 304, down 114. Bank Angle initial deflection at 0204 up, at 55 degrees 49 up, and at 90 degrees 84 down. Pitch gimble at 400K, 100. You have a lighted horizon at Retrofire and a lighted horizon at 400K. Elapse time to begin blackout, 24 plus 14. End blackout 29 plus 05. Drogue 30 plus 50. Main at 32 plus 24. Retro pitch angle is minus 20 degrees. Weather: cloud cover, 2000 scattered; visibility, 15 miles; wind, 224 at 8; wave height, 2 to 3 feet; altimeter setting, 30.06. There's a few showers in the area. Some recovery call signs are aircraft, Air Boss 1. It's on station and the ship Guadalcanal is on station. And that's all we have for you at the present time.

68:14:30 P ...

68:14:42 C See you next time around. Sure have enjoyed working with you.

68:14:46 CC Thank you very much. Enjoyed it down here also.

68:14:49 C Roger. You guys got us out of a tense situation into a pretty good one toward the end.

68:14:54 CC Okay. Fine. Thank you.

# CONFIDENTIAL

## CONFIDENTIAL

## CANTON

68:31:31 CC Gemini X, Houston CAP COM.

68:31:39 C Yes. Go ahead, Houston.

68:31:45 C This is Gemini X. Go ahead, Houston.

68:31:47 CC Roger. Gemini X, this is Houston. We'll have a Retro update just passed over the States at EPR.

68:32:24 C All right. Roger. I guess we'd better come in. We've run out of food.

68:32:28 CC Roger, John. How're you coming with your house cleaning?

68:32:32 C Oh! Just fine.

68:32:35 P Really not much to clean up anymore.

68:32:37 CC I guess not.

68:32:40 C That sure is the way to handle housekeeping in space.

68:32:50 CC I've got nothing for you this pass over Canton. We'll be standing by. We've got about 8 minutes until LOS.

68:39:59 CC Gemini X, Houston CAP COM. We're about 1 minute from LOS. Standing by. We'll pick you up over the States in about 10 minutes.

68:40:08 C Gemini X. Roger.

## GUAYMAS

68:50:10 CC Gemini X, Guaymas.

68:50:11 P Gemini X. Go.

68:50:13 CC Roger. Your RCS looks real good. We'll be standing by.

CONFIDENTIAL

# CONFIDENTIAL

307

68:50:16 P Roger. The Pre-Retro Check List is complete.  
68:50:20 CC Roger. We copy.

## HOUSTON

68:58:15 CC Gemini X, Houston CAP COM.  
68:58:18 C Gemini X. Go.  
68:58:19 CC Roger. Would you switch your computer to PRELAUNCH and we'll give you a load.  
68:58:25 C Computer's in PRELAUNCH.  
68:58:27 CC Roger. I have a Retro update for you. You ready to copy?  
68:58:36 C Roger. Go ahead.  
68:58:38 CC Roger. GMT RC: 20:30:51. GET RC: 70:10:25. RET 400K, 22 plus 12. RET RB: 27 plus 46. Bank left, 55. Bank right, 55.  
68:59:23 C Roger. We got it.  
68:59:25 CC Okay. Here comes your load up.  
68:59:41 C Load received.  
68:59:43 CC Roger. Here comes the T<sub>R</sub>.  
68:59:48 C ...  
68:59:51 CC Roger. Have your MDIU values if you'd like to copy them.  
68:59:56 C Go ahead.  
68:59:57 CC Roger. Address 63, 46051; Address 04, 57671; Address 65, 02488; Address 66, 57937; Address 67, 45189, Address 08, 50459; Address 09, 04849; Address 10, 02656; Address 11, 28800. Did you copy? Over.  
69:01:25 C Roger. We copied. We're prepared to land.

# CONFIDENTIAL

## CONFIDENTIAL

69:01:33 CC Roger, John. We got the MAP back on the ground and verified it.

69:01:37 C ...

69:01:48 CC ... Antigua.

69:03:19 CC Gemini X, Houston CAP COM.

69:03:23 C Houston, go ahead.

69:03:25 CC Roger. We've read out these MDIU's - MDIU values on the ground and have confirmed them. How do they look up there?

69:03:33 C Look mighty pretty.

69:03:35 CC Roger.

69:03:37 CC I'd like at this time on your water management panel to confirm H2O valve is NORMAL, Condensate valve NORMAL, and the Dump valve OFF.

69:03:51 P While John's doing that, C.C., I read out all the values and they read identically except for Address 67 which reads one digit off - 45188 instead of 45189 - and I think it's probably "right on the nose".

69:04:07 CC Roger. I agree with you, Mike.

69:04:17 P Roger. It's NORMAL, NORMAL, OFF.

69:04:19 CC Roger. NORMAL, NORMAL, OFF. Over Tananarive, if you can get to it, we would like to move the Condensate Valve to tank FILL position. That's one position counterclockwise.

69:04:43 C What for, C.C.?

69:04:50 C Why do you want to do that?

69:04:56 CC That's to isolate the suit heat exchanger, John, for a post-flight evaluation. If you can get to it, fine. If not, don't worry about it.

69:05:04 C Okay. We'll do it.

CONFIDENTIAL

# CONFIDENTIAL

309

69:05:37 CC Gemini X, Houston CAP COM.  
69:05:40 C Go ahead.  
69:05:42 CC Roger. GMC confirms that that Address 67 is good load; we're satisfied with it and looks like you're all set.  
69:05:49 C We are too.  
69:07:53 CC Gemini X, Houston CAP COM. 1 minute from LOS. Standing by.  
69:07:59 C Gemini X. Roger.

## CANARY ISLANDS

69:13:16 CC Gemini X, Canary CAP COM.  
69:13:18 C Gemini X. Go.  
69:13:20 CC Okay. We have nothing for you. We'll be standing by. Have a good trip home.  
69:13:24 C Roger. Thank you very much. Enjoyed talking to you. It's been a lot of fun.  
69:13:28 CC Roger. Out.  
69:13:34 C Want to thank everybody down there for all the hard work.  
69:13:38 CC Sure will. You all had a good space trip.  
69:15:13 CC Gemini X, Canary. Would you put Quantity Read switch to H<sub>2</sub>, please? Thank you.

## KANO

69:20:16 CC Gemini X, Houston CAP COM. Standing by over KANO. We have about 6-1/2 minutes to LOS.  
69:20:30 P Gemini X. Roger. We're all set up here, Houston.

# CONFIDENTIAL

## CONFIDENTIAL

69:20:35 CC Roger.

69:20:38 P Boy, I really hate to come back! This is really something up here!

69:20:44 CC Take more groceries next time.

69:20:49 P Next time we'll take more groceries. Good point.

69:25:58 CC Gemini X, Houston CAP COM. 1 minute from LOS. Standing by.

69:26:04 C Roger, Houston.

## TANANARIVE

69:31:32 CC Gemini X, Houston CAP COM. Standing by. We've got about 9 minutes. Just passed over Tananarive.

69:31:42 C Roger. ...

69:31:50 C Houston, this is Gemini X. I just wanted to pass along, before we pass over you again, that we enjoyed it and we appreciate all the men involved here too. Good show!

69:32:12 CC Roger, Gemini X. We say thank you.

69:32:17 C I know there must have been a lot of work going on around that place. A lot of headsets.

69:35:00 C Condensate Valve in tank FILL position ...

69:39:08 CC Gemini X, Houston CAP COM.

69:39:12 C Gemini X. Go.

69:39:13 CC Roger. Verify Condensate Valve in tank FILL position.

69:39:17 C Roger. I reported that a couple of minutes ago; you didn't read ...

69:39:21 CC Roger. Thank you, John.

CONFIDENTIAL

# CONFIDENTIAL

311

69:40:04 CC Gemini X, Houston CAP COM. 1 minute to LOS. Standing by. We'll see you over Canton for a Retrofire.

## CARNARVON

69:47:18 CC Gemini X, Carnarvon.

69:47:20 C Yes, Gemini X here.

69:47:22 CC Okay. It's good to see you again. How about setting in 22 minutes in your event timer and I'll give you more.

69:47:27 C Do you believe it's already set in?

69:47:28 CC Okay. You got about a minute.

69:48:15 CC 10 seconds.

69:48:20 CC 5, 4, 3, 2, 1,

69:48:25 CC MARK.

69:48:39 P Address 02; we're at 022. Outstanding!

69:48:42 CC And ... a mile. I'll give you a Mark at 69 hours and 49 minutes Ground Elapsed Time.

69:48:55 CC 5, 4, 3, 2, 1,

69:49:00 CC MARK.

69:49:03 C We are right on.

69:49:18 C It's been a lot of fun. Certainly enjoyed working with you guys!

69:49:22 CC It's been enjoyable working with you, too, and we'll see you back in Houston.

69:49:25 C Roger. We appreciate all the late hours you've put in.

69:49:28 CC Thank you.

# CONFIDENTIAL

## CONFIDENTIAL

69:54:54 P ... heading.

69:54:56 C Let's see. Going through the TR minus 256 Check List a little early at 69:55.

69:55:02 P 15 minutes before - -

69:55:04 C Retrofire.

69:55:08 P - - Okay. Cryo Quantity is OFF.

69:55:10 C Let's put that OFF. You don't need that anymore.

69:55:12 C Yes.

69:55:13 P And Antenna Select, REENTRY ...

69:55:44 P Your Platform Rate-Range scale, HIGH.

69:55:52 C Okay. I'll leave them LOW.

69:55:57 C Okay. Rate Gyro's in PRIMARY.

69:56:01 C Okay.

69:56:04 P Attitude Control in - PULSE. We can do without it.

69:56:09 C ... 6 minutes.

69:56:12 P You've got your - your Platform in RATE.

69:56:14 C Yes.

69:56:16 P You're in Computer and RATE. It's says to go to PLATFORM RATE.

69:56:18 C Yes, I'll be in Computer. It's the same thing. Doesn't know the difference.

69:56:21 P Yes.

69:56:24 C That'll just leave me one switch to go to GUIDANCE ...

69:56:28 P Okay. Scaling should be HIGH.

69:56:30 C The ... FULL-SCALE for Retrofire. Okay.

CONFIDENTIAL

69:56:36 C Attitude Control in the RATE COMMAND.

69:57:24 C See this ... going to be the other way, isn't it?

69:57:28 P Opposite the PPS.

69:57:30 C Yes. I hope.

69:57:31 P Yes.

69:57:33 P That's what I think.

69:57:40 P PPS really lights up! Everybody's talking about these Retros blasting back to Hawaii.

69:57:46 C PPS puts you far from Hawaii.

69:57:49 P And then some!

69:57:51 C Yes.

69:57:52 P ...

69:57:54 P Yes. The PPS - is a 1g and that - and the Retro hopefully is a little more than 1/2 g.

69:57:59 C Yes.

69:58:02 P We got 1-1/4 g on our last PPS.

69:58:06 C It is.

69:58:12 C ... not being able to see it. We can sure see a lot of it.

69:58:32 C Sun looks nice.

69:58:46 C Can feel the sunshine.

69:58:48 P Yes.

69:59:02 C Nice Spacecraft.

70:01:04 P ... was right.

70:01:12 P 5 minutes to go to the 416 Check List.

70:01:38 C Okay. You've got yours completed. Right?

## CONFIDENTIAL

70:01:40 P Just about, John. I'm going to go through it again. Light Sequence, lights AMBER. I can't verify that - things like that.

70:01:49 P I've got it all set where I can **whip** through it in minimum time. Yes.

70:01:52 P Everything is virtually done.

70:01:57 C TR minus 256 Check List. All the circuit breakers are CLOSED and the TR minus 256 circuit breaker is CLOSED. Oh boy!

70:02:46 C Attitude Control, PULSE.

70:02:48 P Roger.

70:02:51 C OAMS Control Power, OFF.

70:02:54 P OAMS Propellant Motor valve, CLOSED.

70:02:57 C Power is OFF. RCS A and B to ACME. Control Spacecraft to RETRO-ATTITUDE.

70:03:06 C Okay.

70:03:12 C ... those are on -

70:03:14 C RATE COMMAND.

70:03:20 C And I don't want to leave that off.

70:03:55 C It's pretty.

70:04:04 P Okay.

70:04:12 C Retro Power switch, ON.

70:04:19 C Retro-Attitude ...

70:04:27 C Okay, Mike. You can report TR minus 256 Check List complete.

70:05:05 P Okay. Retro Power switch is ON.

70:05:09 C Okay.

CONFIDENTIAL

# CONFIDENTIAL

315

70:05:13 C Boy, it's a tight rascal!

70:05:24 P Really kicks, doesn't it?

70:05:27 C It's a good one.

70:05:30 C I'd forgotten how kicky it was. It really makes this vehicle get up and go.

70:05:42 P Okay, John. You might be keeping an eye on these AMBER lights and when they come on, see what your Event Timer reads.

70:05:48 C Okay.

70:05:50 P It's about another 30 seconds.

70:05:52 C Okay.

70:05:56 C ... it's 428 right now.

70:05:59 P Yes. It's coming up.

70:06:02 P 426 ...

70:06:07 P We're together.

70:06:10 P There they go! Okay. Did you punch it at that instant?

70:06:12 C Yes.

70:06:13 P That was 416, right on the money! Okay.

70:06:15 C Yes.

70:06:17 P Computer is in REENTRY. I've got Squib Batteries, three ON; I've got Mains ON. Verify RCS Prop A and B, OPEN. They are OPEN. Prop Gage is at RCS A; Record switch is CONTINUOUS; Cryo Quantity is OFF; Antenna Select is to REENTRY. You've completed all those things - you - -

70:06:39 C Yes. Retro Power is ON - 70 - -

70:06:43 P Okay. Indicate Retro-Attitude to PUSH. Have you already done that?

# CONFIDENTIAL

## CONFIDENTIAL

70:06:45 C - - Yes.

70:06:47 P All right. I'm in PLATFORM and ATTITUDE. Scale Range is HIGH and the HF is OFF. So Tr minus 256 is complete, John.

70:06:59 C Okay. At Tr minus 2, I'm going to give a countdown, so do you want to go down to SEP-ADAPT?

70:07:05 P Okay.

70:07:09 P And I'll hold about a good 1-second spacing between them.

70:07:11 C Okay.

70:07:12 P Maybe a little more.

70:07:16 C Okay.

70:07:20 C Push them in the center; push them hard and hold them down for a good, fat 1-second.

70:07:30 P You tell me when to do that.

70:07:33 C At Tr minus 2 minutes.

70:07:36 P Roger.

70:07:37 C Have a little separation between them.

70:07:39 P Yes, I will. About 2 seconds?

70:07:42 C No. Make it 1.

70:07:44 P Okay.

70:07:59 P Rate Command -

70:08:06 P Okay. Say when.

70:08:09 C Okay.

CANTON

70:08:12 CC Gemini X, Houston CAP COM.

CONFIDENTIAL

# CONFIDENTIAL

317

70:08:17 C Gemini X here. Roger. Loud and clear.

70:08:19 CC Roger. Read you the same. Standing by to count you down to Retro.

70:08:25 C Okay. SEP the - SEP the OAMS.

70:08:28 P It went.

70:08:30 C SEP-ELEC.

70:08:32 P SEP-ELEC.

70:08:33 C Now this is going to be a good SEP-ADAPT.

70:08:34 P Okay. Ready?

70:08:37 P That's a pretty one!

70:08:40 P It went!

70:08:42 C Okay. SEP-OAMS; SEP-ELEC; SEP-ADAPT.

70:08:46 P The next item, John, is  $T_R$  minus 30 seconds.

70:08:50 C Okay.

70:08:51 P And that's the Retro Rocket Squib, four ARM.

70:08:59 P Okay. Then at  $T_R$  minus 5, I'll get ARM on the Retro.

70:09:01 C Yes.

70:09:11 C Retro-Attitude looks good.

70:09:17 P I'll tell you when the time comes, if you'd like, if you want to concentrate on the attitude. It's 1 minute.

70:09:22 C Okay.

70:09:23 P 1 minute.

70:09:24 CC  $T_R$  minus 1 minute.

70:09:25 CC MARK.

70:09:26 P MARK.

# CONFIDENTIAL

## CONFIDENTIAL

70:09:27 P That's good!

70:09:29 C Okay.

70:09:43 C Okay. T<sub>R</sub> minus 30.

70:09:45 P Okay.

70:09:49 P It's T<sub>R</sub> minus 40.

70:09:53 P Okay, John. Anytime now.

70:09:54 CC T<sub>R</sub> minus 30 seconds.

70:09:55 CC MARK.

70:09:56 P MARK.

70:09:57 P 2, 3, 4, - four Retro Rockets are ARMED.

70:10:01 P At T<sub>R</sub> minus 5, I'll arm my Retro.

70:10:02 C Okay.

70:10:11 C Stand by.

70:10:16 CC 10, 9, 8, 7, 6, 5, 4, 3, 2, 1,

70:10:26 CC RETROFIRE!

70:10:45 P This one was a soft one, wasn't it?

70:10:48 P I count four beautiful ones, John, Babe.

70:10:52 C Yes.

70:10:53 P Okay.

70:10:56 C That was a superfine Automatic Retrofire: 303 aft;  
5 right, 119 down.

70:11:07 CC Roger, Gemini X. Looks good!

70:11:13 P Okay. Jettison that baby!

70:11:16 C Okay. Jettison Retro.

70:11:19 C Mark it.

CONFIDENTIAL

# CONFIDENTIAL

319

70:11:20 P There she went. What do you think of that?

70:11:26 CC That was Jet Retro and it all left.

70:11:30 C Your platform should be free and it ...

70:11:35 CC Roger, Gemini X.

70:11:40 C Okay. ...

70:11:47 P Countdown at - -

70:11:48 C Retro.

70:11:49 P - - Retrofire.

70:11:50 C Retro Jettison.

70:11:52 C Okay. Post-Retro Jettison Check List. You ready for that?

70:11:56 P Retro Power, SAFE.

70:11:58 C Retro Power, SAFE.

70:12:00 P Retro Jettison, SAFE.

70:12:02 C Retro Jettison, SAFE.

70:12:04 P Retro Rocket Squibs, four SAFE.

70:12:05 C Four SAFE.

70:12:08 P FDR, COMPUTER; FDM, RATE; Scale Range, LOW; RCS Control Power B, OFF. Where are you?

70:12:16 C I'm right here.

70:12:19 P Did you start the clock at Retrofire?

70:12:20 C Yes.

70:12:21 CC Gemini X, if you would like a 2-minute RET time hack, you've got 2 seconds.

70:12:23 P Okay. Got it right on.

# CONFIDENTIAL

## CONFIDENTIAL

70:12:25 CC MARK.

70:12:32 C Okay. Give me one at 02:15.

70:12:34 P Okay. 10, 11, 12, 13, 14 - -

70:12:40 C Hold it a second.

70:12:41 C Okay. Give me one at 02:20.

70:12:43 P - - Okay.

70:12:44 P MARK. 2 minutes.

70:12:46 C 02:21, 2, 3, - -

70:12:50 P That's supposed to be about 1 second behind.

70:12:52 C That's right.

70:12:54 P Okay. Cryo Oxygen and Hydrogen Heater circuit breakers, OPEN.

70:12:57 C Okay. That's OPEN.

70:12:59 P OAMS Propellant Control circuit breaker, OPEN.

70:13:10 C Okay.

70:13:11 P Propellant Control circuit breakers, OPEN.

70:13:13 CC Gemini X. Stand by for our 3-minute time hack.

70:13:16 P Tape Recorder Control circuit breaker, OPEN.

70:13:20 P Recorder Control circuit is OPEN.

70:13:21 CC 5, 4, 3, 2, 1 -

70:13:25 CC MARK. 3 minutes.

70:13:28 C Roger. We got a good time hack.

70:13:29 P Oxygen and Hydrogen Heaters, OFF; Section Power 1 and 2 are OFF. Okay. Stacks, OFF; Fuel Cell Control 1 and 2 circuit breakers are OPEN.

70:13:47 P Cabin Air Recirc valve, 45 degrees.

CONFIDENTIAL

# CONFIDENTIAL

321

70:13:49 C ... We can say it's around 5th magnitude.

70:13:52 P FDR is to COMPUTER. FDM to RATE.

70:13:54 C Tighten and lock restraint harness.

70:13:58 P Check hatch pawls to NEUTRAL.

70:14:01 P Report check list complete. I have the Post-Retro Jettison Check List complete.

70:14:06 C Okay. Retro-Sequence Control circuit breakers 1 and 2, OPEN.

70:14:11 C Scanner is OFF.

70:14:16 P ...

70:14:37 C Okay.

70:14:57 C Dash 1, down; window is plus 5.

70:15:15 C RCS Control Power B, OFF.

70:15:17 C It's been along - okay our Retro.

70:15:23 P According to me, John, we might be 1 percent hot.

70:15:26 C Yes.

70:15:29 P Three-quarters of 1 percent hot and we're ...

70:15:31 CC Gemini X. Hawaii CAP COM.

70:15:32 C Gemini X. Go.

70:15:33 P And the Lift Vector ... 48 degrees.

70:15:36 CC How are you doing?

70:15:37 C Roger. We're coming down.

70:15:40 CC Okay. You're looking real good here on the ground. We'll keep a good look on your systems. Your Main Bus is reading real fine, your Secondary O<sub>2</sub> is holding, Cabin Pressure is good and your RCS is normal.

70:15:45 C Roger. Read you, Gary.

# CONFIDENTIAL

## CONFIDENTIAL

70:16:19 P Hey, John! I have you 48 degrees instead of 55.

70:16:21 C Okay.

70:16:23 P And about 10 seconds off the time to REVERSE BANK.

70:16:27 C Okay.

70:16:28 P That would be 27:36 in, according to me.

70:16:31 C Okay.

70:16:33 C Okay. I've got the OAMS Prop circuit breaker OPEN.

70:16:34 P Yes.

70:16:35 C Fuel Cell Control 1 and 2 circuit breakers, OPEN?

70:16:36 P Yes.

70:16:37 C Tape Recorder Control circuit breaker, OPEN?

70:16:38 P Yes.

70:16:39 C O<sub>2</sub> and H<sub>2</sub> Heaters, OFF?

70:16:40 P Yes.

70:16:41 C Power and Control, OFF?

70:16:42 P Yes.

70:16:44 C Air Recirculate valve in place. Okay. Time to lock ...

70:16:47 C Event Timer to PLUS time.

70:16:49 P That's what I did.

70:16:57 C Copy Retro update time.

70:16:59 C Okay. We've got those yet. Control Spacecraft 180 degrees yaw and 170 degrees roll.

70:17:04 P Okay.

70:17:09 P GET RB; I get 27:36.

CONFIDENTIAL

# CONFIDENTIAL

323

70:17:26 P Okay. What can I do for you now?

70:17:31 C These times will be coming up.

70:17:35 P That will do it.

70:17:58 CC Still looking real good down here.

70:18:02 C Gemini X. Roger.

70:18:31 CC Main Bus is running about 23.7. Real fine.

70:18:35 C Roger. We'll see you guys again sometime. Thank you for all your help.

70:18:39 CC Okay. Take care.

70:19:02 P We ran out of film, Babe.

70:19:04 C I'm doing it on purpose.

70:19:06 P You are?

70:19:09 CC Gemini X, Hawaii.

70:19:10 C Gemini X. Go ahead.

70:19:14 CC Based on your IVI's, your initial deflection will be 65 up.

70:19:17 C Roger. Thank you.

70:19:31 P Is that what you get?

70:19:33 C Yes, just about. Just a second, let me check.

70:19:52 C Make it 70 up.

70:19:53 P Okay.

70:19:55 C Make it 65; that's from the noise.

70:20:00 C How much K is that?

70:20:04 P Regular times, they may be a little bit out, but that is about it. Ready to go.

70:20:10 C 4K is 22:12.

# CONFIDENTIAL

## CONFIDENTIAL

70:20:12 P 22:12.

70:20:13 C 22:12.

70:20:16 P Your first bank is about 27:36.

70:20:19 C Okay.

70:20:47 C ...

70:20:55 P Are you in yaw position?

70:20:56 C Yes.

70:20:59 P Okay. Remember it!

70:21:02 C Yaw angle is low.

70:21:04 P It's not low, John, it's parallax. That's the same thing we ran into in St. Louis.

70:21:09 C I guess you're right.

70:21:11 P The way I look at it over here, it's not low at all.

70:21:16 P ... .. it's perfect. It just ... ..

70:21:19 C Yes. Could be.

70:21:22 P In fact, how does mine look? Mine probably looks low to you also. No. Mine looks high probably, to you, doesn't it?

70:21:26 C Yes, it does.

70:21:29 P Okay. See, mine looks good to me.

70:21:33 P Just parallax.

70:21:38 CC Okay. We're 1 minute to LOS. We'll be standing by. We'll see you.

70:21:41 C Roger. Thank you.

70:22:23 C Okay. Bank 10 degrees to the left. Okay. We'll go to 48 degrees to the left. Okay?

70:22:33 P Yes.

CONFIDENTIAL

# CONFIDENTIAL

325

70:22:57 C You can see a lot more ... out that window than I can.

70:23:01 C ...

70:23:08 P No. Don't feel a thing. We have any?

70:23:11 C I don't know.

70:23:14 C How many Retro Rocket g's did we get?

70:23:19 C Let's see. We got - would you believe 1/2 g?

70:23:21 P Is that all?

70:23:24 C It may be less than that.

70:23:27 P More than that. 3/8ths. That's no good.

70:23:29 C ...

70:23:33 P The last one felt like a soft light compared to the first three. Didn't it to you?

70:23:35 C Yes.

70:23:37 C ...

70:23:40 P Yes.

70:23:57 P John, what can I do you for in through here, Babe?

70:23:59 C Well, there's nothing we can do right now. Go over and see if we made all the items on the check list, just one more time.

70:24:04 P Okay.

70:24:07 C Circuit Controls 1 and 2 are OFF; Retro Sequence Controls 1 and 2, OFF.

70:24:16 P Scanner's OFF.

70:24:18 C Scanner is OFF.

70:24:20 P Hatch pawls in NEUTRAL. Mine is in NEUTRAL.

# CONFIDENTIAL

## CONFIDENTIAL

70:24:23 P I've got the Cryo O<sub>2</sub> and Hydrogen Heater circuit breaker - that's OPEN.

70:24:30 P OAMS Prop Control circuit breaker - that's OPEN.

70:24:35 P Tape Recorder Control circuit breaker.

70:24:44 C That's OPEN.

70:24:48 P Cryo Oxygen and Hydrogen is OFF.

70:24:55 P Power 1 and 2, OFF; Stack switches, six OFF; Fuel Cells Control circuit breakers, OPEN; Recirc, 45 degrees; FDR, COMPUTER and FDM, RATE.

70:25:05 P I have the Rate needles over here, if you'd like to use them, John.

## CALIFORNIA

70:25:06 CC Gemini X, Houston CAP COM.

70:25:07 C I've got some over here.

70:25:10 P Okay. But you're not using it, are you?

70:25:13 P You monitoring attitude?

70:25:17 C Yes. I'm monitoring attitude.

70:25:20 P Right. Now see, what I mean is, I'm monitoring Rate already. If you wanted just instantaneous Rate, just glance over here.

70:25:24 C Okay.

70:25:36 P Think it's about time to ready PLUS time. Okay? I'm coming up on - -

70:25:40 C Is that 38 degrees, in reference to what?

70:25:44 P - - 48.

70:25:45 C Yes.

70:25:47 P I guess that's the way this game works, isn't it?

CONFIDENTIAL

# CONFIDENTIAL

327

70:25:49 C Yes.

70:25:55 C 27:36 by your calculations, right?

70:25:59 C 27:36. I'll knock 10 seconds off that.

70:26:00 CC Gemini X. Houston CAP COM.

70:26:02 C This is Gemini X. Go.

70:26:06 CC Roger. Read you loud and clear. We'll pass your Retro update times as soon as I have them, John.

70:26:10 C Roger.

70:26:16 C Have Super Retro ... Are you busy?

70:26:20 CC Say again. I didn't read you.

70:26:23 C I say have you got Super Retro down there helping us?

70:26:33 CC That's affirmative. He's right here.

70:26:35 C Roger.

70:26:45 C Keep your ...

70:27:01 P Oh, we were supposed to - -

70:27:03 C 303 and one went down.

70:27:06 P - - We're only 1 off on the 4 aft. We were supposed to get 304 and we got 303.

70:27:13 C Yes.

70:27:16 P And we were supposed to get 114 down and we got 119.

70:27:18 C Yes.

70:27:20 P And we were 5 feet per second hot, down; 1 foot per second cold, aft. And then we got the 5 right.

70:27:26 C Yes.

70:27:29 P Despite that, I compute we're not quite 1 percent over on Delta-V.

# CONFIDENTIAL

## CONFIDENTIAL

70:27:34 C Yes, we're a little hot.

70:28:03 P I should ... 49 degrees instead of 48, did I? Pretty much of a noise.

70:28:07 C Yes.

70:28:11 P I don't feel any g's yet. Do we have any yet?

70:28:14 C Another 15 minutes. Don't get any g till way past 400K.

70:28:16 P Yes. You're right. 400K is - -

70:28:19 C ... We're not going to stay up very long.

70:28:26 P - - 400K is like 1 foot per second per second.

70:28:31 C Yes.

70:28:33 P I didn't feel that.

70:28:36 C Yes, I think so.

70:28:54 P Okay. Now all we have to do, know the last ...

70:29:01 P Ask 86 and 87 what they say. I'm not sure they say anything up here. See if they're working.

70:29:07 P Yes. Heck, yes! 86 says 2693 north. They want 2656. Should be holding constant here for awhile.

70:29:19 P And 87 - -

70:29:21 C That longitude ought to be changing.

70:29:23 P - - Yes, it should be moving out. 244 - 24412 -

70:29:34 C I wouldn't bother that right now ...

## GUAYMAS

70:29:47 CC Gemini X, Houston CAP COM.

70:29:50 C This is Gemini X. Go ahead.

CONFIDENTIAL

# CONFIDENTIAL

329

70:30:14 P 07 - -

70:30:19 P Have I got it early or late?

70:30:26 C Early, 5 seconds early.

70:30:48 C There we are.

70:31:19 CC Gemini X, Houston CAP COM.

70:31:22 C This is Gemini X. Go.

70:31:23 CC Roger. Your GET RB, 27 plus 38. Bank left 45, bank right 45.

70:31:38 P They're getting pretty accurate down there.

70:31:41 C I get 27:36 and 48 degrees.

70:31:43 C You guys are getting pretty accurate. We figure it 27 plus 36 and 48 degrees.

70:31:53 CC That's what the chart's for.

70:32:18 C Okay.

70:32:22 P We should be getting 400K. We should be starting Guidance.

70:32:32 P Okay. Right.

70:32:42 C ... Get minus 25.

70:32:46 P Low.

70:32:48 C 22, 22. Guidance initiated.

70:32:50 P 22, 22 Guidance, right?

70:32:52 C ...

70:32:56 C Change the bank angle.

70:32:58 P What?

70:33:06 C Shift the bank angle.

70:33:18 C 48 degrees left.

# CONFIDENTIAL

## CONFIDENTIAL

70:33:20 P 45 degrees left, they say.

70:33:22 C Bank 45 degrees left.

70:33:34 C Indicate 45.

70:33:37 P Okay.

70:33:39 P You have your Scale Range on LOW?

70:33:41 C Yes.

70:33:42 P Okay.

70:33:44 P Should have about 65; 2/3rds of a needle full-scale deflection on it here.

70:33:47 C Thank you. Here it comes.

70:33:49 P They say 65 and I say 70.

70:33:53 P Full-scale's 100 miles.

70:33:59 P Stuff's starting to come off the Spacecraft here.

70:34:04 C ...

70:34:11 P Okay. Better me than you. I've got the camera.

70:34:12 CC Gemini X, Houston CAP COM. About 1/2 minute to blackout.

70:34:44 P Man, that's starting to look like something!

70:35:00 C There you go!

70:35:36 P Just about as good as it gets to looking, John?

70:35:38 C Yes.

70:35:40 P Look at that son of a gun burn!

70:36:14 C Okay. G's starting.

CONFIDENTIAL

# CONFIDENTIAL

331

70:36:40 P How many g's going, John?

70:36:42 C About 1/2.

70:36:44 P You're kidding!

70:36:46 C No.

70:36:55 C We're pulling, would you believe, 3/4ths of a g.

70:36:58 P No. Man, I feel like about ...

70:37:11 C 1 g does feel like a lot, doesn't it?

70:37:23 P How is the reentry coming here?

70:37:25 C Okay. ...

70:37:27 P Okay.

70:27:31 C How many g's are we pulling?

70:37:33 P We're pulling 1 g.

70:37:35 C Okay.

70:38:15 P You're doing a nice job, Kid. It really looks good!

70:38:54 P Roger. ... looking good, John.

70:39:03 C I wonder how many g's we're going.

70:39:05 P 4.

70:39:07 C 4. Right.

70:39:14 P ... looking good too, John.

70:39:46 CC Gemini X, Houston CAP COM.

70:39:48 C Gemini X. Go.

70:40:05 P Fly that thing, John! You're doing a beautiful job!

70:40:14 CC Gemini X, Houston CAP COM.

70:40:16 C ...

70:40:26 C Houston, Gemini X. Go.

# CONFIDENTIAL

## CONFIDENTIAL

70:40:28 CC How you doing, John?

70:40:31 C Oh, we're doing okay. We're at 2 g's right now.

70:40:36 CC Roger.

70:40:37 CC Address 86 reads 02655.

70:40:42 C Altimeter is off the peg.

70:40:44 CC Roger. Off the peg. It looks good down here, John.

70:40:48 P ..., John.

70:40:50 C Okay.

70:40:52 C Okay. About 280K.

70:40:54 CC Address 86 reads 02655.

70:41:02 CC Did you copy 86, 02655?

70:41:07 C Okay. On the landing, we're off.

70:41:14 CC 87 reads 28807. It's going to be a little bit long, John.

70:41:16 C Okay.

70:41:20 P ...

70:41:23 C Right.

70:41:30 C ...

70:41:32 P Okay.

70:41:38 P Here we fly.

70:41:40 C Yes.

70:41:50 C Shoot!

70:42:02 P Quiet! John, it's all right.

70:42:06 C All right.

70:42:18 P It's all right.

CONFIDENTIAL

70:42:31 CC Okay. What altitude are we?

70:42:33 C Okay. We're at 17,000.

70:42:35 CC Did you get ... everything unstowed, arm restraints unstowed, ... and monitor the cabin pressure?

70:42:45 C Everything's stowed.

70:42:50 P Okay.

70:42:54 C There goes the chute!

70:43:09 P ... that's a pretty one!

70:43:11 C Yes.

70:43:16 C Okay. Give a Main Chute Deployment.

70:43:18 P Okay. Now to three-point altitude - attitude.

70:43:23 C You ready? Brace your arm, Ace!

70:43:26 P Okay. Pick your point.

70:43:29 C Okay. Let her go!

70:43:40 C Okay. The main chute ...

70:43:41 C Houston. Gemini X. We're on single-point now and coming down.

70:43:42 C Reads 5500. Chute is good.

70:43:43 CC Roger, John; you're on television.

70:43:48 C Chute is GO!

70:43:53 C Rescue Beacon Look-out light.

70:43:59 P What the heck is this?

70:44:00 P What?

70:44:11 C You've got a good thing ..., Babe, ...

70:44:13 P Say again?

## CONFIDENTIAL

70:44:15 C You've got a good Sink Rate; just ride through.

70:44:18 P ... really need that.

70:44:23 C It's 30 feet per second ...

70:44:26 P I can't hear you, John. Speak up.

70:44:29 C 30 feet per second.

70:44:31 P Okay.

70:44:33 C A slow rate.

70:44:35 P It's stopping now.

70:44:40 C I never ran into anything like that before. Did you, Babe?

70:44:43 P ... whatever it was ...

70:44:52 P My ears were blocked; I couldn't hear.

70:44:54 C Boy, we're going to hit like a ton of bricks!

70:44:59 P Okay. Get your Beacon ACME power, OFF.

70:45:01 C Okay.

70:45:07 P Your heaters are OFF.

70:45:09 P Scan Heater circuit breakers, OPEN.

70:45:13 P Computer is PRELAUNCH.

70:45:16 P Computer Power is OFF.

70:45:19 P Platform is OFF.

70:45:21 C Rate Gyros, OFF.

70:45:25 P Your Rate Gyros are OFF.

70:45:26 C LST, this is Gemini X. Do you read? Over.

70:45:27 CC Gemini X, this is Guadalcanal. Read you loud and clear.

CONFIDENTIAL

# CONFIDENTIAL

335

70:45:29 P Roger.

70:45:34 CC Gemini X, Guadalcanal Control. We have you in sight.

70:45:38 P All right. Turn all that stuff off. I already gave it to Houston.

70:45:44 P It's on my check list to turn that stuff off.

70:45:47 C Right.

70:45:49 P All right. Hold it.

70:45:52 C This is X. How far away are we?

70:45:56 CC Gemini X, Guadalcanal. Approximately 8.5 miles.

70:45:58 P Roger.

70:46:00 C Long, I'll bet.

70:46:04 P Okay. I've got the RCS Control circuit breakers OPEN; RCS Control is OFF; ACME Control 1 through 6 breakers. - -

70:46:15 C Okay. Stand by. - -

70:46:19 C Houston, we're going to land like a ton of bricks!

70:46:24 P ...

70:46:26 P What altitude are we now?

70:46:30 C We're at 500 feet.

70:46:32 P Okay.

70:46:37 P We can start jettisoning quick.

70:46:40 C Wait, wait, wait - -

70:46:42 P I know, I'm just getting it ready.

70:46:44 C - - Go ahead and push it.

70:46:45 P I pushed it.

# CONFIDENTIAL

## CONFIDENTIAL

70:46:47 C Okay.

70:46:48 C We've got the chute ON.

70:46:50 C Okay. Fairing jettison complete.

70:46:54 P Want to extend any jet?

70:46:57 C No.

70:46:58 CC Gemini X, Houston CAP COM. Our plot shows you 4 miles off the IP.

70:46:59 P Okay. Landing line - I mean Landing, SAFE. I mean ...

70:47:02 CC Guadalcanal. I have a helicopter overhead.

70:47:04 C Okay. We have him in sight. Get a picture of the helicopter.

70:47:11 P Okay. I'm going 16 frames per second. You take a picture of it.

70:47:13 CC Gemini X, Houston CAP COM.

70:47:14 C Okay. I got it.

70:47:16 C How does it work?

70:47:19 P Point it. It's running.

70:47:22 CC Gemini X, Guadalcanal. You're at 7.5 miles ... and one is on top.

70:47:28 C Roger, Guadalcanal. This is Gemini X. We have them in sight.

70:47:32 C Here's another one and - -

70:47:34 P Another one right here.

70:47:47 CC ... reporting that ... is making his approach to the capsule. The sea is fairly calm.

70:47:52 P ...

CONFIDENTIAL

# CONFIDENTIAL

337

70:47:53 CC And appears to be floating upright. And the chute is laying along the side.

70:48:00 C Go to CM.

70:48:02 P I have it closed.

70:51:11 C Just fine! How's everything out there?

70:51:23 CC Don't sweat it. Just take your time.

70:51:29 C You guys be careful out there now!

70:52:01 C Swim 1, this is Gemini X. How do you read me? Over.

70:52:08 CC Swim 2, read you loud and clear. Astro.

70:52:10 C Roger. Loud and clear.

70:52:12 CC Swim 1, read you loud and clear.

70:52:20 P Hey, boys, take your time! We're not in any hurry. We don't want anybody getting hurt out there.

70:55:31 C Okay. Like I say, be careful. That may be one of those pyros that didn't fire back there.

70:55:36 C We've got all the circuit breakers and things that control it OFF in here, though.

# CONFIDENTIAL