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Time : 14:23 CDT, 31:03 GET
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want to get one thing done and that is, at about 30 hours and 40 minutes in the timeline under the AC column, it says; Go B MAG power 1 to warm up and verify FDAI scale in 5/1. We don't know whether you have done that or not, but if you haven't, please do.

ACDR I've already got it on time. That was done on time.

CC-H Okay. Good Tom. One other comment, we'd like to continue with the BATT Alpha charge until we let you know and we'll delay the - that - BATT Bravo charge until later on today.

ACDR Okay.

ACDR Could you give us a ball park idea of what we're going to plan the plane change? Over.

CC-H Okay, Tom. I think it's going to be almost the nominal time, but let me see if we have a TIG yet. Hang on.

ACDR All right.

CC-H Tom, excuse me I was wrong. The TIG time is going to be very close to 32 hours and that's about 50 minutes from now and FIDO's hustling to get you pad at this moment.

ACDR Okay.

CC-H Okay.

ACDR Okay. And Dick, I was off the headset eating there. We'd better take this mostly out in - with respect to out of plane?

CC-H That's affirm. We're going to do it. Right. We're going to get you a pad that's going to take care of the out of plane this afternoon and it'll set up the rendezvous for tomorrow.

ACDR Right. I understood the last part of that but it looks like we'll be getting a P38 then. Over.

CC-H Oh. Tom, I'm sorry, I should have gotten to you - it's going to - it's not going to be a P38, it's probably just going to be a - an RCS burn.

ACDR Oh. Okay. I thought you were going to use the big engine for a big delta-V. I didn't know the magnitude of it. Over.

CC-H Oh. No. I guess - I guess you didn't hear me. The magnitude is very small. It's really - the magnitude of it we really could easily hide in the burns tomorrow but two or three other considerations just make us think that that is not the smart thing to do. We'd like to just go ahead and get it out.

ACDR Roger. Understand.

CC-H Okay.

END OF TAPE

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CC-H Apollo, Houston. We're about to go LOS from MILA; when you get locked up on the ATS right here, we'll pick you back up.
ACDR Understand.
CC-H Apollo, Houston through Madrid.
ACDR - - loud and clear.
CC-H Roger, Tom. Have you been trying to lock up the ATS?
ACDR Roger.
CC-H Okay. Let us recheck the angles again here. We want to get you locked up and switch over to ATS so we can get you a good pad in a little bit. Hang on.
ACDR Okay.
ACDR Go ahead with your angles.
CC-H Apollo, Houston. Say again.
ACDR Roger. What do you have for your angles there?
CC-H We're rechecking them right now. Hang on just a second, please.
CC-H Tom, Houston. The correct angles are pitch of minus 7; yaw of 313. Why don't you try those real quick and let's see if we can get locked up on ATS.
ACDR Okay, we got that, we should have ATS now.
CC-H Okay. I'm reading you loud and clear. That's real good. And stand by 1 on the pad. Hang on.

END OF TAPE

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Time: 14:44 CDT, 31:24 GET
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ACDR Okay. We got - should have ATS now.
CC-H Okay. I'm reading you loud and clear. That's real good, and stand by 1 on the pad. Hang on. Apollo, Houston. I've got a preliminary PCM pad for you when you are ready to copy.
ACDR Okay. Stand by one second.
CC-H Okay, Tom. It's in the flight plan; page 4.1-16 BRAVO.
ACDR I'm ready to copy.
CC-H Okay. Starting with NOUN 30 - 33:031; 58; 4 balls. Minus 00.22; minus 006.3; minus 006.0; 293; 057; 313. 009.0; 00:24. Weight: 32361, and of course the trims are not applicable. It'll be a four jet plus x RCS burn and here's what the stat needs to be; 61102. Go ahead. And Tom, Houston. We are processing data from the last good tracking pass we had over MILA. It was a real high pass so I may have another final pad for you here in about 5 minutes and I'm standing by to copy. Read back any time you have a chance. Apollo, Houston. How do you read? Apollo, Houston. How do you read?
ACDR Houston, Apollo. How do you read now?
CC-H Roger, Tom. I read you loud and clear now. How me?
ACDR Okay. Loud and clear. I'll - I'll go over - I'll read it back to you again if you're ready to copy it.
CC-H Okay. I don't know what happened there. I called you a couple of times but I didn't hear you coming down but I am ready to copy. Go ahead.
ACDR Okay. 03158; 4; all minus. Minus 002.2; minus 006.3; minus 006.0; 293; 057; 313. 009.0; 002.4; Weight 32361. N/A for the pitch, and the yaw: four jet plus x RSC. The map load(?) is 61102.
CC-H Roger. That is a good read-back, Tom. I don't know if you copied it or not but we probably will have a final pad here in in just a minute based on process of data from MILA.
ACDR Roger. I understand. Yea, we can see pad A and B real clear as we go passed over.
CC-H Yea, it sounded like that from what Deke said. Apollo, Houston. It turns out the preliminary PCM pad that you read back is GO for the final pad and there is no requirement for you - for you to do the PC - excuse me, the P52 prior to the burn, and we see that the DAP is loaded okay.
ACDR All right. Real good. Thank you.
CC-H Okay. And we're standing by.
ACDR Roger. No P52 required and we'll do a four jet (garble) on it - four jet burn.
CC-H Roger. That's correct.
ACDR And Houston, to keep comm as long as you can, when do you want us to maneuver to the burn attitude?
CC-H Okay, Tom. Hang on and let us check the angles and I'll get back to you. Apollo, Houston. Tom, it's okay with us so you can maneuver whenever you'd like to - just to give you plenty of time,

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it does look like we'll probably lose the high-gain shortly before you get to the burn attitude, so why don't you just let us know when you are starting the maneuver. Be advised you probably will see a high gimbal angle when you do the maneuver but that shouldn't be any problem as long as you're aware of it. I want to point out one thing before I lose you, though, about the flight plan and that is the mapping the earth's resources mapping pad that we were forced to miss awhile ago - that camera set up in the window was intended to be used are - we were going to leave the camera set-up in the window and so sometime if you have a free moment before the next mapping pass which for sure we don't want a miss, you might want to start that camera set-up a little bit early.

ACDR We got the camera set-up, it's and it's going on right now.

CC-H Okay. You're ahead of us. Thanks a lot and just let us know when you start maneuvering, Tom.

END OF TAPE

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ACDR - - the camera set up is right - is going on right now.
CC-H Okay. You're ahead of us. Thanks a lot and just let us know when you start maneuvering, Tom.
ACDR All right.
ACDR Okay. We're going to take the maneuver right now.
CC-H Okay, Tom. See you later. The - the next AOS after the burn will be Vanguard at 32:14.
CC-H Apollo, Houston. I think I was confused a little bit about the high-gain angles a while ago. The situation is that we probably will keep comm for a while in the burn attitude, but towards the end of the ATS pass we will lose comm so we will not be able to watch your burn, in the event we lose high-gain while you are maneuvering I do have a set of pitch and yaw high-gain angles. When you get to that attitude you might could reacquire.
ACDR All right, go ahead.
CC-H Okay. Pitch is minus 35, yaw of 094.
ACDR Roger. Pitch minus 35, yaw 094.
CC-H Okay. Real fine. See you later.

END OF TAPE

ASTP (USA) MC136/1
Time: 15:08 CDT, 31:52 GET
7/16/75

CC-H Apollo, Houston through the satellite.

PAO This is Apollo Control. Some 11 minutes remaining in this ATS-6 pass and about 6 and a half minutes until ignition on the Apollo phasing maneuver. Ignition time is 31:58 ground elapsed time. It's a 9 foot per second reaction control system burn - -

PAO This phasing maneuver will produce an orbit measuring 93.4 nautical miles at perigee and 124.7 at apogee. It's aimed primarily towards taking out the - a slight wedge angle or plane difference in setting up tomorrow's rendezvous. Meanwhile, the Soyuz crew about 1 rev ago or an hour and a half back in the flight had a brief conversation with the crew of Salyut IV. Sevastyanov and Klymouk aboard Salyut IV talking back and forth with Leonov and Kubasov from Soyuz. 9 minutes until LOS. We're standing by.

CC-H Apollo, Houston. How do you read?

CC-H Apollo, Houston. How do you read?

CC-H Apollo, Houston in the blind. Tom, if you are reading me, we notice that the BMAG power 1 is not on and because we're looking at low bit rate, we're not - we're unable to look at the RCS jets, but they should all be enabled also.

END OF TAPE

ASTP (USA) MC137/1
Time: 15:18 CDT, 32:02 GET
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PAO This is Apollo Control. LOS through the ATS-6 satellite. We have 12 minutes until reacquisition through tracking ship Vanguard, for the first time this afternoon. Spacecraft communicator Dick Truly was unable to raise the crew of Apollo during the last few minutes of that pass, as they went into attitude for the Apollo phasing maneuver - which should have taken place almost 5 minutes ago. It was partly due to the spacecraft attitude at the time. The communications engineer advised the flight director that the crew could be downlinking voice, had they chosen, but they could not receive uplink voice from the ground. We'll return for the Vanguard pass in 11 minutes. This is Apollo Control at 32:03 ground elapsed time.

END OF TAPE

ASTP (USA) MC]38/1
Time: 15:33 CDT, 32:13 GET
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PAO This is Apollo Control at 32:13 ground elapsed time. Acquisition in 40 seconds through tracking station Vanguard, tracking ship Vanguard. As the Apollo spacecraft trails Soyuz by something around 17 hundred nautical miles. We're estimating change of shift briefing in the main auditorium at JSC around 5 p.m. plus or minus 15 or 20 minutes with flight director Pete Frank and joint flight director on the shift, Frank Littleton. Should have acquisition momentarily through Vanguard.

ACDR Hello, Houston, Apollo.

CC-H Roger. Tom go ahead.

ACDR All righty. Couldn't get you (garble) comm altitude and the burn went right on target. They were good. (Garble) are 0 plus 10 and delta VC - -

CC-H Okay

ACDR And delta VC (garble).

CC-H I'm sorry. I didn't copy delta VC. Say it again please.

ACDR (Garble)

CC-H Okay. Sounds real good, Tom. We're - if you'll stand by here for a second, we're talking about the rest of this afternoon flight plan and I'll get right back to you.

ACDR Okay. We're trying to leap in and try and get ahead of the game and we're - I've already finished my leg volume measurements and Vance is working on Deke, and I'm going to get going on the electrophoresis.

MCC-H Okay Press on with the leg volume measurements. Lets go ahead and do that

CC-H Okay. We do want you to press on with the leg volume measurements. We may have some changes after that and we're talking about it now and I'll get back with our recommendation here as soon as I know it Tom.

ACDR Okay. You want me to plan to go ahead with that electrophoresis prep then on time because if we do some maneuvers, that changes that.

CC-H I can't answer that right now but I think I'll have an answer here before LOS so I'll be right back to you.

ACDR Okay. Houston, Apollo.

CC-H Go ahead, Tom.

ACDR Okay. Ask the experimenters on the furnace if there's any concern about having that furnace running with the door open.

CC-H Roger. We got that report awhile ago and we are in the process of working it and I should have you an answer shortly.

ACDR All right. Thank you.

CC-H And Tom, if you're still there, can I talk to you a minute about the flight plan this afternoon?

ACDR Sure can. I've got it right in front of me.

CC-H Okay.

CMP And Dick, tell them that the furnace is running so whatever they come up with, may not matter cause we have it going.

CC-H Okay. Thanks Vance, and I will. Okay. The - if

ASTP (USA) MC138/2
Time: 15:33 CDT, 32:13 GET
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it turns out that we looked at all the things in the morning that needed to be done, and priortized them against the things this afternoon and the thing that we want to make up is to make sure that we get an OBS and excercise run sometimes this afternoon on the three crewmen. What we recommend is the following: You're obviously ahead and already started on the furnace and the log volume so we'll complete that and also we'd like to start the EP prep on time and then when CP and DP finish up on the log volumes if they'll start putting on the OBS and can get that exercise out of the way. We think that the AC may be able to his during the long EPE OPS from about 33:10 down to 34:30 and it isn't clear exactly what is the remainder of the afternoon, we'll have to cancel because frankly we just don't know how fast the OBS donning and exercises will go.

ACDR Are you talking about the canceling Earth OPS and mapping for OBS to (garble)?

CC-H We're talking about it but it isn't clear at this moment that we have to do it.

ACDR All right. All right.

CC-H Tom, to answer your question directly, yes, we are. We do consider the OBS donning and exercising more important and we would cancel it if we had to. And Apollo, Houston. I'm going LOS here and we'll give you a call at Rosman at 32:39. See you there.

ACDR All right.

PAO This is Apollo Control. Loss of signal through tracking ship Vanguard. Next station Rosman in 18 minutes. Our gross estimate for a change of shift briefing is somewhere around 5 p.m. in the main auditorium of JSC. Flight director Pete Frank and joint flight director Frank Littleton. We'll keep you advised on later estimates on this change of shift briefing. At 32:21 ground elapsed time. This is Apollo Control.

END OF TAPE

ASTP (USA) MC139/1
Time: 15:53 CDT, 32:38 GET
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PAO Apollo Control. Ground elapsed time 32 hours 38 minutes. Acquisition coming through Rosman tracking station in 40 seconds, as the Apollo crew members complete their 16th orbit - will begin their 17th as they pass through the Rosman tracking station.

CC-H Apollo, Houston. Newfoundland through - on VHF. How do you read?

CC-H Apollo, Houston. Through Newfoundland. How do you read?

ACDR (Garble) and then I'll try to get on the - one of the biosensors, and I'm starting (garble) of the electrophoresis.

CC-H Okay, Tom. About the first half of your conversation was way down in the mud, and I didn't copy it. I'm sorry. Can you say it again?

ACDR Okay. Deke and Vance are doing the leg measurements, and I'm starting on the electrophoresis, the German one, MA-014.

CC-H Okay, Tom.

END OF TAPE

ASTP (USA) MC140/1
Time: 16:08 CDT, 32:48 GET
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CC-H Apollo, Houston. I'm not in - I don't want to interrupt what y'all are doing, but when Tom or - anybody that could talk to me about the next 3 or 4 hours of the flight plan - could - I'd like to say a couple of 2 or 3 words about it to you. I was cut off short by LOS back there at the Vanguard and we really didn't finish talking about it.

ACDR Okay, Dick. Let me tell you where we're at now. I just got to the ETE prep finished up. I'm getting ready to get that started. Vance and Deke are getting on their bio sensors. They can either get the - maybe get the thing maybe before or after the mapping pass. Now you go ahead.

CC-H Okay. That sounds good with what we were planning. What we were going suggest was the following, Tom. We're hoping to - first of all we do want to get the OBS and the exercise. We wouldn't - -

ACDR That's in work.

CC-H Yes. Okay. Understand. Okay, now we would also go ahead and want to do the P20 option 5 and at least we figure we can get the mapping pass - we're willing to give up the VIS OBS pass that goes along with it and I guess you guys would be a much better judge of that than us. Looking ahead to the - -

ACDR (Garble)

CC-H Okay.

ACDR Let me say tell you what I think we ought to do. Looking at this thing here from the time we got, and what it's going to take them, we're now here at 32:54, coming up to 33 hours. I'll be in good shape for the ETE prep and run that. By the time these guys get the OBS on it's going to take them 20 minutes to do that, you're going to have LOS. Let us go ahead and go get these OBS on, we'll go do the VIS OBS, and the mapping pass, and then after that at the next acquisition, you can get those two guys working out. Over.

CC-H Okay, before we make the final decision, Tom, let me tell you what we were going to propose. We missed the SIM BAY activation this morning and what we were going to do - we cannot do the RASTER scan without the SIM BAY activation. What we were going to propose to you was to delete the RASTER scan that takes up that ATS pass coming up over there at about 34 hours and 30 minutes and use that ATS pass and that coinciding night period to get the SIM BAY activation that we missed this morning.

ACDR Okay, real good. We can go back and pick that up so RASTER scan.

CC-H Okay and I guess the complications between that and what you suggested was if we're quite willing to give up the VIS OBS in order to do that, but we still wanted to get the mapping done.

ACDR Okay. We may be able to do all this. We'll put the SIM BAY activities in there at that time.

CC-H Okay. But we will plan then on doing the SIM BAY activation instead of the RASTER scan and - why don't we just let you guys just go ahead and be working and see how it goes for now. But, definitely we do want to get the mapping pass.

ACDR Okay, good. You can get the beamed data in on your remote -

on your recorder.

CC-H Okay. Yes, we can get it either real time on the ATS or any other stadium passes, like for instance, at Vanguard or Goldstone. If we're LOS, you'll need to go to high bit rate while your exercising and then - then out of high bit rate when you're through.

ACDR Okay. That's all I need to go to high bit rate, good. Okay. We're gonna press right on here. I'm working - everything's going along good on the EP.

CC-H Okay. Real fine. Keep us advised. We're standing by. We still got almost 40 minutes of this ATS pass, so we're sitting here.

ACDR Okay. I've got aborting - inhibited all those jets except D1, B2, A3, C3, B3 and D4. Over.

CC-H Okay.

CC-H Apollo, Houston. Be advised, we're about to change modes on the satellite. We're gonna dump DSC data to clean it off for you for this upcoming exercise period.

END OF TAPE

ASTP (USA) MC141/1
Time: 16:18 CDT, 32:58 GET
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CC-H Apollo, Houston. Be advised we're about to change modes on the satellite. We're going to dump the SC data to clean it off for you for this upcoming exercise period and so I'll drop out for about 30 seconds.

ACDR All right.

CC-H Okay. And I'll call you when I'm back up, Tom.

CC-H Apollo, Houston. I'm GO for voice again here on the ATS. Standing by.

ACDR Roger, Dick. I'm now starting working on the electrophoresis and they're getting ready for their bio - their little workout. One thing that nobody ever thought of in timelines is the amount of time it takes to go up and reset the master 1 when the O2 flow gun's high.

CC-H I figured that must be bugging you, because we've been noticing every time that it went off, and it sure does seem like a lot.

ACDR Houston, Apollo.

CC-H Roger, Tom. GO ahead.

ACDR Okay. Have you got the EPE checklist there?

CC-H I sure do. Let me turn to page - turn (garble). What page are you on?

ACDR Page 1-2.

CC-H Okay. GO ahead.

ACDR Okay. It says, "Perform steps 9, 10 and 11." Okay I see what to do. I'll go ahead to the freezer and I can get out that little jewel all ready and leave it out for 20 minutes. Okay? Check with the experimental (garble) that just before 6 9, 10, 11; that's written in and (garble) - -

CC-H Yeah, yeah, I see where you are.

ACDR - - remove the sample - -

CC-H Yeah, I see where you are. Hang on and let me check real quick. I'll be right back to you.

CC-H Apollo, Houston. Tom, yes you've got it right. After step 2 what we want you to do is go - skip over and perform steps 9, 10, and 11 and after you complete those go back to step 3 and then proceed right on through.

ACDR Okay. So then just add the (garble). I'll put in sample 1, 2 and 3 for the run and I'll pick up the sample 4 which comes out of the freezer for the last one, right?

CC-H That's affirmative.

ACDR Real good. Thank you.

CC-H Roger.

END OF TAPE

ASTP (USA) MC142/1
Time: 16:28 CDT, 33:08 GET
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ACDR Hello, Houston, Apollo.
CC-H Hello, Tom. Go ahead.
ACDR You wouldn't believe what just happened.
CC-H Well - tell me.
ACDR You know, I was going after the electrophoresis sample in the freezer? I pulled out the cap, and it came flying out without even having to go after it, and took off across the spacecraft, at minus 200 degrees. We finally got the little rascal captured, using some used underwear, and we're preceding on.
CC-H Roger. You're right. I never would've guessed what happened.
CC-H Apollo, Houston. For Tom.
ACDR Go ahead.
CC-H Tom, what do you think the problem was when you got the cap off and the sample came flying out? Was it - just the force that you took the cap off, or do you think it was maybe some pressure in there that - that just let it go?
ACDR That's hard to say. There's a few drops of ice and snow - and Vance was helping me - and the thing came out. And just as we got the lid out and I started to reach down to touch the little to - you know - extension there, to turn it - Bang! The thing just came zipping right out. But it is now well secured and under control.
CC-H Okay. We were - while it was fresh on your mind, we just wanted to hear what we could about it, to see if it was something maybe we could prevent in the future.
ACDR No, it's like a minor snowstorm - just a little bitty one that came out - it wasn't bad.
CC-H Okay.
CC-H Apollo, Houston. For Deke. Deke, when - assuming you're going to do this mapping pass coming up - when you have the time, I've got an update on the time in the Earth OBS book on mapping pass on Mike 3.
CMP Okay, go ahead with your change for Deke's mapping.
CC-H Okay, Vance. The change is the stop time for mapping pass M-3. And the correct stop time - the start time is okay, as is the change - all the data for M-2. The stop time for M-3 should read: 34:06:40.
CMP Okay. 34:06 - and you were cut out on the seconds. Please repeat seconds.
CC-H Roger. That's really the only change. It's 40 seconds. 4-0.
CMP Roger. Understand.
CC-H Okay, Vance. And incidentally, one of the things that we never got a report back down on was - was the VTR cooling activation procedure done yet?
DMP Negative. It's not done.

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CC-H Okay. At some point, we would like to get it done and get you to tell us - When you do do it, it's on page 1-47 of the systems checklist. The reason we're interested in going ahead and doing it is that - we had a funny on DUMP and one of the VTR tapes. We don't think it's any kind of a failure in the - in the equipment. However, we would like to do a little bit of troubleshooting that's not scheduled in the flight plan now. And we don't want to do it until we get that - hoses hooked up.

CMP Okay. I understand - and - -

CC-H So -

CMP And -

CMP And Deke and I are both instrumented. He's going to exercise the first one.

CC-H Okay. Real fine.

END OF TAPE

ASTP (USA) MC143/1
Time: 16:38 CDT, 33:18 GET
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CC-H Apollo, Houston. Be advised - we're through with the DSC dump and so we've got ATS for the next 15 minutes - 14 minutes so Deke if - if you're getting ready to exercise and can go ahead and start doing it, we will not have to use up the DSC we can just get you in real time data.

ACDR Okay. How about helping us. Where's the exerciser?

CC-H Okay. Stand by a second - -

ACDR (Garble)

CC-H - - Okay. Hang on a second.

CC-H Tom, it was launched in A5.

ACDR In A5. Okay.

CC-H Affirm.

ACDR Houston, Apollo.

CC-H Roger, Tom. Go ahead.

ACDR Be sure your doctors have on your bifocals there, Deke's going to start exercising shortly.

CC-H Okay. Super and we've got nine minutes left in ATS pass.

ACDR I'll tell you one thing. You get more damned exercise getting ready to exercise than we're ever going to get doing it.

CC-H (Laughter) That's the exercise: getting ready.

CC-H Apollo, Houston. Be advised that we do not see any biomed data at all of whether or not Deke has started exercising or not. Have - are you plugged in already?

ACDR He's huffing and puffing like mad.

CC-H Okay. Why don't you make sure that he's plugged in there. We don't see any biomed data.

ACDR No. He's plugged in the DM, but that doesn't carry biomed data. We'll have to get him back down here.

END OF TAPE

ASTP (USA) MC144/1
Time: 16:48 CDT, 33:28 GET
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ACDR (Garble) the east plug is in the DM but that doesn't carry biomed data. We want to get it back down here.

CC-H That's affirm. Sorry about that.

ACDR Okay. You better think about this, DICK. The DM's the only cool place. This command module's still pretty hot and if I'm exercising here I'm not sure how good it's going to go, but the comm cords won't reach from here up to there. We'll take a look at it.

CC-H Okay. Copy. We would like to get at least a little bit of data during this exercise period.

ACDR Well, we'll have to come back down in the command module where it's pretty crowded and hot but we'll see if it'll do.

CC-H Roger, Tom. We still have about 5 minutes left in the ATS pass.

ACDR This is like Skylab.

CC-H Roger. Understand.

DMP Hey, Dick. What do you want down there? Do you want us to get some exercise or do you want some EKG data. I think we ought to give you one or the other.

CC-H Okay, Deke. Why don't you go ahead where you are and finish the exercise and then when you get through, come back in the command module and plug in for a while and give us some EKG data and maybe that's the best compromise of the whole thing. We really wanted to do both.

DMP Okay. We'd like to give you both but I think we're going to get neither if we don't do something pretty quick.

CC-H Roger. Understand. I suggest going ahead and finish the exercise and then when you get back in the command module, give us some biomed data and - -

DMP Okay, we'll do that.

CC-H Okay, and if we've had LOS, ATS just turn on the high bit rate and put it on the DSE and we'll pick it up a little bit later.

DMP Okay.

CMP And Dick, we are maneuvering to go into P20.

CC-H Okay. Okay, Vance.

CC-H Apollo, Houston. Are you still there? Apollo, Houston, if you still read, we are going LOS ATS. I'll see you at Vanguard at 33:47.

PAO Apollo Control, ground elapsed time 33 hours, and 34 minutes. Loss of signal.

PAO Apollo Control, ground elapsed time 33 hours, 34 minutes. Loss of signal through the ATS 6 satellite. Next acquisition in 12 minutes through the Vanguard tracking ship. During our previous conversations Tom Stafford commenting to the ground concerning Deke Slayton's exercise period. Which doctors hope to catch live through the ATS 6 satelite. However Deke was doing the exercise in the docking module using the standard modified - Apollo exerciser. There's no live

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capability in the docking module for the biosensor harness. When he completes his exercise he will return to the command module, and then the doctors will be able to get a reading of - from Deke Slayton's biosensor harness. During this pass, commandor Tom Stafford working on the MAO 14 electrophoresis experiment, of German principal investigator Professor Kurk Hannig of the Max Planek Institute. Next acquisition Vanguard in 10 minutes, and 55 seconds at ground elapsed time 33 hours, 35 minutes. This is Apollo Control.

END OF TAPE

ASTP (USA) MC145/1
Time: 17:06 CDT 33:46 GET
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PAO Apollo Control. Ground elapsed time 33 hours 46 minutes. Acquisition through the Vanguard tracking ship in 15 seconds.

CC-H Apollo, Houston. Good evening. I have a couple of items that need to be done if somebody has a chance to copy.

ACDR Go ahead Bo. Glad to see you on duty again.

CC-H Yeah. Glad to talk to you, sir. One is that at 34:07, we need you to perform POO, and then VERB 49 to a solar inertial attitude. Are you ready to copy?

ACDR Got that.

CC-H Okay.

ACDR 34 plus 07.

CC-H Roger. POO, VERB 49 to roll 019, pitch 170, and yaw 330. And the high gain angles are pitch: minus 70, and yaw 050.

ACDR Okay, Bo. 34:07, VERB 49 to solar inertial, roll 019, pitch 170, yaw 330. High gain is: pitch minus 70, and repeat the yaw, please.

CC-H Yaw was 050.

ACDR 050. Roger. Vance and Deke are right in the middle of the Earth obs mapping and I'm just finishing the four sample electrophoresis, but we'll get it all done for you.

CC-H Roger. And I have one other item. And at 33:55, we need to end the manual soak and perform the helium injection. That's on docking module checklist, page 7-5.

ACDR Okay Bo. I'm aware of that one. At 33 plus 55, manual soak end and helium injection, page 7-5.

CC-H Roger.

DMP Are you guys getting by on that data down there.

CC-H Deke, I understand that we do have data. It's poor quality - the data is poor quality.

DMP Okay, going back - plugged into the (garble) for this mapping pass.

DMP Try to get in some exercising time later.

CC-H Apollo, Houston. There is less than a minute until LOS. We'll see you at Goldstone at 34:03.

DMP 34:03.

PAO Apollo Control. Ground elapsed time 33 hours 52 minutes. Loss of signal through Vanguard. Next acquisition in 11 minutes 10 seconds will be Goldstone tracking station. On this pass as the spacecraft passes over southern California, the crew will be looking at - taking part in Earth observations of southern California to observe and photograph, if in fact they do see ocean current bounderies along the coastline. And then as the spacecraft moves further inland, in North Duluth in Minnesota, the crew will also observe and photograph any - observe color oxidations of the iron mines in the Lake Superior area. And as the spacecraft crosses over the North Atlantic, the crew will be asked to observe whether

or not they actually can see a separation of the Gulf current and the Laborador currents off the Newfoundland coast. Change of shift briefing at 5:30 with Flight Director Pete Frank in the main auditorium at building 1. Pete Frank, Flight Director, at 5:30 in the main auditorium. Next acquisition in 10 minutes through Goldstone. At ground elapsed time 33 hours 54 minutes, this is Apollo Control.

END OF TAPE

ASTP (USA) MC146/1
Time: 17:23 CDT, 34:03 GET
7/16/75

PAO Apollo Control. Ground elapsed time 34 hours, 3 minutes. Goldstone acquisition coming up in 40 seconds. During the previous Vanguard pass, doctors observed Deke Slayton's heart rate following his post exercise period in the docking module. After a review of the data, doctors here at the mission control center report they observe no change in Deke Slayton's post exercise measurements which recorded 78 to 80 beats per minute. And these are consistant with his normal post exercise rate of preflight measurement. Goldstone contact coming in 7 seconds. Cap comm is Karol Bobko.

CC-H Apollo, Houston through Goldstone for a little over four minutes, standing by.

ACDR Roger. Electrophoresis is finished and I'm shutting down the experiment.

CC-H Roger. That's good news and when you have a chance you call me and I'll give you some flight plan changes, sir.

ACDR Okay. Stand by. We're pretty busy right now, but we'll call you in a minute.

CC-H Apollo, Houston. We've been thinking about doing the SIM experiment activation at about 34:25. Is that a good time for you people to start?

ACDR Yes. Our TBS will be over then and we'll go - I'm still getting this electrophoresis thing (garble).

CC-H Roger. Understand. You're still working on electrophoresis but you think we can make it.

CC-H And Apollo, you can do that deactivation of the primary evaporator on the bottom of page 4-118 in the waste stowage vent valve CLOSED as soon as you figure - finish the electrophoresis ops and it needs to be done ten minutes before we start the experiment activation.

ACDR Okay.

CC-H And we're going to be LOS here and we'll see you at Madrid at 34:26.

DMP Hey Bo, do you guys want any more biomed data or are we clear to (garble) that off?

CC-H Apollo, Houston, say again please.

DMP Yes. Did you guys learn any more biomed data?

PAO Apollo Control. Ground elapsed time 34 hours, 10 minutes. Loss of signal through Goldstone. Next acquisition will be in five minutes. We'll hold the line up in the event the press conference does start. We will hold the line - record the air to ground and replay at the close of the press conference.

END OF TAPE

ASTP (USA) MC147/1
Time: 18:22 CDT, 35:02 GET
7/16/75

PAO - - Ground elapsed time 35 hours, 1 minute. We have accumulated 18 minutes of air-to-ground during the change of shift briefing. We'll play that tape now, then come up live through the Orroral - Orroral station in Australia.

CC-H Apollo, Houston, through Newfoundland. How do you read?

ACDR Loud and clear, Bo. We'll be maneuvering at a solar inertial attitude.

CC-H Roger. The last data we hac - perhaps you hadn't gotten to that deactivation of the furnace yet. Have you been able to get to it sir?

CC-H And Apollo, Houston. We're standing by for ATS acquisition.

CC-H Apollo, Houston, through ATS. How do you read?

ACDR Loud and clear. We're deactivating the primary evaporator.

CC-H Roger. We copy. And before you start the SIM experiment activation, will you give us a couple of minutes warning so that we can get the ground configured to receive your data.

ACDR Okay. Then you want the SIM activation to take place in the solar inertial attitude that you gave us, the 19 roll 170 pitch and 330 yaw, over.

CC-H Roger, that is correct.

ACDR Okay, Bo. We're maneuvering there now.

CC-H And of course, since you're going to be doing that activation from 34:30 to 35 hours, all of the other activities in the AC's and CP's columns of the flight plan are gonna be deleted.

ACDR Yes.

DMP Bo, how do you read me?

CC-H I read you loud and clear, Deke.

DMP Okay, I guess you guys wanted to know what our mod 1 temp is. It's 691.

CC-H 691.

DMP Roger.

CC-H And Deke, we've got plenty of data off of your exercise.

DMP Okay, I'll go ahead and finish exercising anyway. I still got the tomorrow (garble), however.

CC-H Okay.

CC-H And Tom, we still show that the secondary coolant move is working. Have you turned it off?

ACDR Okay, I thought they told us yesterday because it's still rather warm in here they were going to leave just the pump on.

CC-H Negative. We decided to turn the whole thing - turn it off and we think we'll probably do better with it off.

ACDR Okay, Bo. The pump is off. Everything else I had off but the pump.

CC-H Okay, and the secondary loop evaporator has to be off too.

ASTP (USA) MC147/2
Time: 18:22 CDT, 35:02 GET
7/16/75

ACDR Roger. I had it to RESET for a minute, then back OFF. I'll do it again.
CMP Houston, Apollo. How do you read?
CC-H Loud and clear. Go ahead.
CMP Okay, Bo. When - if your ready we're ready to start step 3, SM experiment activation 1-13.
CC-H Roger. If you'll hold off for a minute or two, well, we'll give you a call when we have the ground configured for your data.
CMP Okay.
CC-H Apollo, Houston. Our data system is configured. We'd like to confirm that the waist stowage vent valve is closed and then you're clear to proceed with the SM experiment activation.
CMP Okay, Bo. Waste stowage vent is closed now and - as is - I just closed the battery and the overboard drain dump also. I'm ready to go.
CC-H Roger. Go ahead.
CMP Okay. The time CM helium glow MAIN B coming CLOSED, and I'll start from there. Step 3 completed.
CC-H Copy.
CMP Step 4 completed.
CC-H Roger.
CMP And we have gray on all covers, in CLOSED position.
CC-H I understand.
CMP Okay, the tie down release is released and I'll give you voice marks opening various covers.
CC-H Roger, we're copying.
CMP T ring cover open now.
CC-H Roger.
ACDR Helium glow cover, open now.
CC-H Roger.
CC-H And Apollo, Houston. We'd like you to stand by here for just a minute.
CC-H And Apollo, Houston. We'd like you to verify one more time that the primary evaporator has been deactivated.
ACDR We'll stand by. We'll check again. Water is MANUAL.
CMP Okay, that's verified and we very carefully did that and held the door switch plug to close the door for one minute.
CC-H Roger, good. You are clear to proceed.
CMP Okay.
CMP EUV cover open now.
CC-H Roger.
CMP Jim, we've completed step 4, we're waiting 5 minutes.
CC-H Roger, we'll give you a call at 4 minutes.
CC-H And Apollo, Houston. We'd like battery vent back to VENT.

ASTP (USA) MC147/3
Time: 18:22 CDT, 35:02
7/16/75

CMP Roger, back to VENT.
ACDR Bo, while we're waiting for some of these items, it takes a while, do you still want us to get these DM height measurements? Over.
ACDR At 35 hours.
CC-H That's negative. We do not want you to perform those.
ACDR Okay, we'll still go ahead and - you still want us to get the exercise period for Vance and myself, right?
CC-H Roger. We still do want you to do the exercise.
CC-H And Apollo, Houston. We have a question. On that LiOH changeout at 34:30, if you did not change both of them out this morning, change - if you did not change one this morning, change both now. And did you change one this morning?
CMP That affirm. We changed one this morning per plan.
CC-H Thank you.
CC-H Apollo, Houston. Thus far the data off of the experiment you've activated looks just great.
CMP Glad to hear it.
CC-H So are we.
CC-H It's 4 minutes now.
CC-H And it's 5 minutes.
CMP Okay, understand we can proceed with 5.
CC-H Roger, proceed.
CMP Starting. Starting the UV telescope power switch OFF.
CC-H Copy.
CMP EUV cover, off now. Closed now.
CC-H Copy.
CMP Helium flow cover, closed now.
CC-H We show it closed.
CMP Starting X-ray first.
CC-H Roger.
ACDR And the backup purged.

END OF TAPE

ASTP (USA) MC148/1
Time: 18:31 CDT, 35:11 GET
7/16/75

CMP - - starting X-ray first.
CC-H Roger.
CMP And the backup purge, talkback (garble) - as it should be.
CC-H Roger. And we'll give you a call at 14 and 15 minutes.
CMP Roger.
CC-H And Apollo, Houston. On the top of page 4-119 of the flight plan everything was deleted because of this experiment activation except for the activation of the primary evaporator and the waste stowage vent valve - the vent which is down under the DP column. And - -
ACDR Okay, Bo, we got it and we'll take care of that when we're finished here.
CC-H Roger. That's exactly right, after you're finished.
ACDR Roger.
ACDR And while we're waiting here you can pass on the - again on the MA014 that German electrophoriss - the thing just worked as prescribed and everything looked like it was good.
CC-H Thank you.
CMP Might add that just before starting this experiment activation I had a - visual pass pass over a lot of the Pacific and some of the - you asked us - you know. I, I would say it was a partial success, we had quite a bit of cloud cover, for example, completely over New Zealand. We were hoping to look at a fault zone there and look for some stuff on the water, which was - then there wasn't much to see around New Zealand, but Los Angeles the water just off shore was cloudy, but it was very clear inland, over the desert and so forth.
CC-H Roger, copy.
CC-H And DP, Houston. Could you tell us the status of the MA0140 helium injection?
DMP Okay, Bo, yes, it's all done. I'm up here exercising right now.
CC-H Roger. I understand it's completed.
DMP Roger.
CMP And Bo, after we finish this I'll get my exercise. Are they getting my biomed down there?
CC-H Let me check, Vance.
DMP And Bo, while you're asking the medics questions, I got another one.
CC-H Go ahead.
DMP Yes, I checked my pulse rate, you know before I started exercising. I'm running like in 48 to 52, somewhere in there and I've been working up here for oh maybe 10 minutes and about as hard as I could do in one change and I could only get it up to around, oh maybe around 70 to 75. So I'm not sure exercising was all that significant they might want to review whether they really needed exercising or not.
CC-H Roger. We'd like the exercise and I understand 48, 52 before exercise and 70 to 75 now.