

SL II MC 1/1
Time: 6:32 a.m. CDT, T-01:25:00 GET
5/25/73

R Brown

9.01

PAO This is Skylab Launch Control T minus 1 hour 25 minutes and counting. Just completed at the T minus 1 hour and 30 minute mark were a simulated first motion signal test. During this test the simulated signal indicating first motion is sent to the Eastern Test Range and also to the Mission Control Center in Houston. During the actual lift-off this first motion signal starts the countdown clock in the plus time at those two areas. Recently completed were checks of the emergency detection system. This is a system that is designed to sense and react to any emergency situation resulting from a launch vehicle malfunction during the early portion of the powered flight. During most of the first stage flight the EDS, as it's called, provides the capability for automatically aborting the mission. The auto abort system is turned on at lift-off and disabled by the crew about 2 minutes into the flight. The system senses such things as loss of thrust in first stage engines or excessive rates in pitch or yaw. The test takes about 30 minutes, it's conducted with the spacecraft commander, Pete Conrad, and the launch vehicle people here in the firing room. During the test, simulated emergency conditions are sent to the vehicle and lights in the spacecraft light indicating what the nature of the emergency is. We have one more hold planned in the countdown, that's at the T minus 15 minute mark. Nominally that will be for 2 minutes duration. AT that time the clock will be updated to correspond with the orbiting Skylab overhead. The close out crew at the white room area is securing now for their cabin purge and leak checks. Everything continues to move along smoothly there. Now for a status report from the Mission Control we go to Houston.

PAO This is Skylab Control at Houston at minus 1 hour 24 minutes and continuing with the count. In the Mission Control Center two teams of flight controllers now on station at their consoles proceeding toward the launch of Skylab 2. The crimson team of flight controllers headed by Flight Director Don Puddy managing the orbital workshop systems, and the purple team headed by Flight Director Phil Shaffer, which will be in control for the manned launch and rendezvous phase of the flight. The Saturn workshop is presently in an orbit of 239 nautical miles by 234 nautical miles. An average workshop cabin temperature now reading 120 degrees. At the time of ignition, the workshop will have passed directly overhead and should be approximately 780 nautical miles down-range at the time of ignition. Flights Dynamics advises that Skylab 2 will be launched with an azimuth of 47.58 degrees. CAPCOM for our launch will be Astronaut Dick Truly. We're at 1 hour 23 minutes, continuing with the count at Mission Control Houston, this is Skylab Control.

cc
END OF TAPE

SL-II MC2/1

Time: 07:02 a.m. CDT, T-00:55:00 GET
5/25/73

PAO This is Skylab Launch Control we're at T minus 55 minutes and counting. T minus 55 and counting in the first manned mission in the Skylab program. The closeout crew at the pad is now clearing the pad area. Before leaving, the pad leader confirmed that the white room area had been completely secured, all loose equipment removed and stowed and the tool and supply cabinet secured. There is an environmental control hood which attaches between the white room area and the spacecraft. That's also now been secured. He reported back that the white room now ready for swing arm retract. This will happen at the T minus 45 minute mark in the countdown and actually the swing arm will come back to what is called the 12 degree position. This is the standby or park position. And it will remain there until the final minutes in the launch. At T minus 5 minutes it will swing back to the fully retracted position. Also underway at this time the superintendent of range operations calling in to Bill Schick the Test Supervisor indicating that the launch danger area has been declared clear for a launch. In the spacecraft itself pilot of the mission, Paul Weitz been working with ground controllers on spacecraft communications frequency and power readouts. Weitz selected as an astronaut in 1966 was a member of the astronaut support crew for Apollo 12. That Apollo 12 mission also commanded by Pete Conrad. Weitz holds a degree in aeronautical engineering. He's a Commander in the Navy with approximately 4000 hours of flying time. Our weather at this time is generally cloudy in the launch area, however, some of that cloud is expected to dissipate during the next hour. For launch time the weather men are predicting broken clouds. These will be in several layers. The tops of the upper layers expected to be about 15,000 feet and the base of the lower layer is about 6,000 feet. Winds at launch time are expected to be approximately 10 knots from the southwest and the temperature about 78 degrees Fahrenheit. Closeout crew now cleared the area. T minus 53 minutes 40 seconds and counting this is Kennedy Launch Control.

END OF TAPE

SL-II MC3/1

Time: 07:13 a.m. CDT, T-00:45:00 GET
5/25/73

PAO This is Skylab Launch Control; we're at T minus 45 minutes and counting. We'll expect the swing arm to be retracted shortly. Mark there comes the swing arm, moving back to the park position; this is a 12 degree park position, approximately 10 to 15 feet from the vehicle. It will remain there now until approximately 5 minutes in the countdown, and at that time it will be moved back to the full retract position. Also underway at this time are interrogations of the C-band beacons. These are two beacons aboard the instrument unit of the vehicle. During this test these are simply checked, the beacons are checked to insure that they are being tracked and will be tracked during the powered phase of flight. During powered flight the beacons give position data as well as speed and acceleration. Now that the swing arm has come back, the launch escape system atop the command module will be armed. Stoney, Astronaut Bob Crippen, will position the mobile launcher elevators at the 320-foot level in what is called the egress mode. The - Bob Crippen is the Astronaut communicator name that is called, he is called Stoney, will be in the Launch Control Center. Crippen was also a member of the crew which entered the altitude chamber for the Medical Experiments Altitude Test, 56-day test run in Houston last July. A short time from now we expect the science pilot, Joseph Kerwin. We'll begin arming the service module reaction control system. To do this, he actually opens valves and allows the hypergolic fuels to flow down through the lines down to the engines. The countdown has proceeded very smoothly this morning. Now at T minus 43 minutes 4 seconds and counting, this is Kennedy Launch Control.

END OF TAPE

SL-II MC4/1

Time: 07:30 a.m. CDT, T-00:27:00 GET
5/25/73

PAO This is Skylab Launch Control. T-27 minutes 59 seconds and counting. Preflight command system tests for the mission control center in Houston have just been completed. Also just completed at this time was a final level adjustment of RPl, the fuel used in the first stage. RPl is actually loaded prior to the countdown demonstration test and replenished last night before cryogenic loading. This level adjustment made here during the final hour of the count is necessary to take into account temperature and humidity and to assure us a full flight load. Cryogenic loading of course, also completed earlier this morning and topping continues. The astronaut crew completing their preflight check list in the command module at this time. Now we'll switch to Houston for a status from the Mission Control Center.

PAO This is Skylab Control Houston at -27 minutes and counting. Flight director Don Puddy of the workshop team is going around the Horn with his team in the mission control center for a GO/NO GO for Skylab launch based on orbital workshop data. Given a GO at this time for the launch of Skylab II. The workshop is now passed out of range of the Honeysuckle tracking station. The next station to acquire will be Texas on this the 156 revolution. Meanwhile the Shaffer team of flight controllers has been given a GO for the start of the terminal count which is now in progress. The displays of mission control center in Houston now selected for the launch of Skylab II. At -26 minutes and continuing with the count, this is Skylab Control Houston.

SL II MC 5/1

Time: 7:36 a.m. CDT, T-00:21:59 GET
5/25/73

PAO This is Skylab Launch Control passing the T minus 22 minute mark in the countdown for the first manned mission in Skylab. Science Pilot Joseph Kerwin at this time reading out temperatures, pressures, and quantities in the service module reaction control system quadrant. Cryogenic fuels aboard the launch vehicle continue to be topped. We have one more hold as we aim toward our 9:00 a.m. lift-off. That's a nominally 2 minute hold and we're coming to the T minus 15 minute mark. Our countdown continuing to go smoothly at this time, T minus 21 minutes 30 seconds and counting, this is Kennedy Launch Control.

END OF TAPE

SL-II MC6/1
Time: 07:42 a.m. CDT, T-15 min GET
5/25/73

PAO This is Skylab Launch Control we're now at the 15 minute mark in the count, T minus 15 minutes and holding this is a planned hold period nominally for 2 minutes. It's a final clock adjustment to assure lift-off at the proper time in conjunction with the orbiting Skylab overhead. Interrogation of radar beacon number 1 has just been completed. When we come out of this hold at the T minus 15 minute mark the spacecraft will go to full internal power. Actually the fuel cells have been supporting the spacecraft at this time but they have also had a backup of ground support power. In the command module the crew completing their checks. They actually on their display panels have some 24 instruments, 566 switches, 40 event indicators and over 70 lights. Inside the command module they have approximately 70 cubic feet per man. This is a little larger. A little more room than one would have in a compact car. Once they get into Skylab, however, that will change considerably. They will actually have about 59 times the volume in Skylab that they have to work in in the command module. At this time Stony, the astronaut communicator Bob Crippen here in the Launch Control Center, the Launch Operations Manager, Paul Donnelly and the Spacecraft Test Conductor, Bob Reed have switched to the astro launch circuit for communications checks. This is the circuit which will be used by the astronaut crew and these members at launch time. When he came aboard this morning Astronaut Pete Conrad commented that he hoped the launch team planned to blow the clouds away by 9 a.m. The clouds, in fact, are breaking up somewhat at this time. Bob Reed, the Spacecraft Test Conductor, indicated that if the clouds weren't all blown away he was sure that they would do it as they lifted off. We're preparing to pick up the countdown now. Mark T minus 15 minutes and counting. This is Kennedy Launch Control.

SL-II MC7/1
Time: 7:47 a.m. CDT, T-00:10 GET
5/25/73

PAO The crew now making some quick voice checks on their astrocom circuit. Cryogenic topping continues. Swing arm number 9 in the standby position. It will be moved back to the full retract at T-5 minutes. Now T-10 minutes 42 seconds and counting. This is Kennedy Launch Control.

END OF TAPE

SL-II MC8/1

Time: 7:49 a.m. CDT, T-9 min GET
5/25/73

PAO This is Skylab Launch Control crew finishing up now in their checks on communications. Launch Operations Manager Paul Donnelly wishing the crew good luck, God's speed and good sailing. Now T minus 9 minutes 47 seconds and counting this is Kennedy Launch Control.

SL-II MC9/1

Time: 7:54 a.m. CDT, T-7 min GET
5/25/73

PAO This is Skylab Launch Control we're passing the 6 minute mark in the countdown now. Various personnel now reporting in to the spacecraft test supervisor Bill Schick that they are ready and GO for launch. Bob Reed the spacecraft test conductor has indicated that the spacecraft is GO. Launch operations manager Paul Donnelly reports GO and the director of launch operations Walter Kapryan also has reported GO for a launch. Final computer programs are now being run to place the launch vehicle in a launch mode. In the spacecraft the final action to be taken there will be at the T minus 4 minute mark. Paul Weitz will turn on the spacecraft batteries and at T minus 45 seconds, the last action to be taken by the crew will be taken by Pete Conrad when he makes a final guidance alignment. We're coming up now to the 5 minute mark. At that time the swing arm, swing arm number 9 will come back to the full retrack position. Actually for the Saturn-IB there are only 5 swing arms. The number 9 designation comes from the earlier launches using this same mobile launcher, using the Saturn-V. Swing arm now coming back to the full retrack position. It will remain in that full retrack position now for the rest of the countdown. At T minus 3 minutes and 7 seconds the count will go on the automatic sequencer and will be carried out automatically from that time on. Now at T minus 4 minus 39 seconds and counting this is Kennedy Launch Control.

END OF TAPE

SL-II MC-10/1

Time: 7:57 a.m. CDT, T-3 min GET
5/25/73

PAO This is Skylab Launch Control. The launch sequence has started. We're now on the automatic sequencer, and the countdown will be run now by that automatic sequencer. The number of functions are carried out by the sequencer, and they must be carried out in the proper order, or they would be automatically shut down. Also, at the same time, the launch crew here in the firing room will continue to monitor their various readout temperatures, checking the gages for pressures and rates. They could override the sequencer if necessary. At the T-3 minute and 6 second mark, the automatic sequencer terminated the liquid oxygen and liquid hydrogen replenishing. These cryogenic fuels have been being replenished since fueling was actually completed early this morning. After this termination the fuel tanks will be pressurized. Actually pressurization has now started. The second stage liquid oxygen tank has now been pressurized, and the first stage fuel tank also has been pressurized. Now passing the 2 minute mark in the countdown. The vents closing and the pressurization is taking place on the 2 stages of the Saturn IV. At the T-1 minute 15 second mark, Paul Weitz will trip two switches in the command module, placing the spacecraft batteries on line. These batteries will give added support to the fuel cells and also act as a backup to the fuel cells. Fuel cells also on line at this time. T-1 minute 30 seconds and counting. Our countdown continues to go smoothly. Also during the automatic sequence we'll switch to internal power. We've been carrying the power from a ground source up to this point to save on the flight batteries. At T-50 seconds in the count, we'll switch to internal power and stay on internal power for the remainder of the count. We are approaching the 1 minute mark in our countdown. MARK T--

END OF TAPE

SL-II MC-11/1

Time 08:01 a.m. CDT, T-1 min GET
5/25/73

PAO Countdown MARK; T-1 min., 1 minute and counting in the launch of the first manned mission in Skylab. T-50 seconds, T minus 50 seconds, and cb76g. And we are now going to internal power, all stages switching to internal power, stages now and fuel tanks pressurized. Approaching the 30-second mark in countdown. At 30 seconds water will begin spraying on the deck of the mobile launcher. T minus 30 seconds, and the countdown continuing to go smoothly. The Skylab, itself, orbiting some 780 nautical miles northeast of KSC, at this time. T-17 seconds and counting, T-15. At T-3.1 second we'll expect the engine sequence to start on the vehicle. T-7, 6, 5, 4, 3, engine sequence start, 2, 1, 0. We have launch commit and we have lift-off. The clock is running and Skylab has cleared the tower.

SC Tower and Houston, Skylab II, we fix anything, we've got a pitch and a roll program.

PAO Houston is now controlling.

CC The thrust is going all engines.

SC Boy, is that a smooth ride.

PAO Twenty five seconds pitch and roll program started. Skylab now maneuvering to its proper flight path attitude. MARK 35 seconds, 1 nautical mile in altitude. Given a green by-range safety. MARK 45 seconds, cabin pressure relieving, adjusting now from sea level to a space environment. MARK 50 seconds, 2 nautical miles in altitude.

SC And roll is complete, Houston.

CC Roger. Standby for mode-1 BRAVO. MARK,

1 BRAFG

SC Roger. Propellant ... as RCS ...

CC Roger.

PAO MARK, 1 minute 8 seconds roll program

completed

CC Skylab, Houston, you're feet wet.

SC Roger, feet wet.

PAO That call out from Capcom Dick Truly,

says Skylab, now, capable of water landing. One minute, 20 seconds, passing through the period of maximum aerodynamic pressure on the vehicle. One minute 25 seconds, 8 nautical miles in altitude. MARK, 1 minute 35 seconds pass through MAX Q, Skylab still flying steady on all 8 engines.

SC JEDS (garble) engine, launch vehicle rates are all off.

CC Roger, stand by for mode 1 Charlie. MARK, your 1 mode, Charlie.

SC 1 Charlie.

SL-II MC-11/2

Time: 08:01 a.m. CDT, T-1 min GET

5/25/73

PAO The status check in mission control by Flight Director Phil Shaffer, a GO no GO for staging. Given a GO, for staging.

CC You're GO for staging, you're looking good.

PAO MARK, 2 minutes, 6 seconds, 21 nautical miles in altitude, 20 nautical miles downrange, velocity now reading, 5947 feet per second. Coming up now on staging and shutdown.

PAO Center engine shutdown. Seven outboards out.

SC All right, I've got an S-IVB light Houston, and a nice staging.

CC Roger, that.

PAO MARK, 2 minutes, 35 seconds, staging on schedule. Conrad, Weitz, Kerwin, now riding on a good second stage engine. Coming up now a launch escape tower jettisons.

SC 4-B.

SC Tower jet on time.

CC Roger, tower jettison, you're mode 2.

PAO MARK, 3 minutes, 2 seconds, 47 nautical miles in altitude. The launch escape tower now ejected, reports Conrad, his crew safety roll no longer required. Three minutes 12 seconds, 50 nautical miles in altitude, 84 nautical miles downrange. Velocity now reading 8200 feet per second.

PAO 3 minutes, 25 seconds, the first stage in launch escape tower both falling away now, headed for their own splash downs. Meanwhile, Conrad, Weitz, Kerwin, now at 58 nautical miles. The Skylab continuing to climb, moving out well beyond the Earth's atmosphere.

SC Okay. Houston, the computer looks good here.

CC Roger, we concur, CMC's go.

PAO 3 minutes 58 seconds, 66 nautical miles in altitude, 140 nautical miles downrange.

CC Houston, looking good, GO at 4 minutes.

SC And we're GO, here, Houston.

PAO MARK, 4 minutes, 15 seconds, now at 71 nautical miles in altitude, 167 nautical miles downrange, Skylab's onboard performance continues smooth. Onboard reading show, Conrad, Weitz, Kerwin with their computer in program 11, the earth orbit insertion program, ticking off their own altitude velocity. Velocity now reading, 9852 feet per second. MARK, 4 minutes 40 seconds, 77 nautical miles in altitude, at 199 nautical miles downrange. Flight Director Phil Shaffer pulsing his flight team, looking good.

SL-II MC-11/3

Time: 08:01 a.m. CDT, T-1 minute GET
5/25/73

CC Skylab, Houston. You're GO in five minutes, set your trajectories right on the nominal.

SC And, we're go here, Houston, looks good in here.

CC Roger.

PAO MARK, 5 minutes, 10 seconds, 82 nautical miles in altitude, 244 nautical miles downrange. A trajectory data in mission control looking good. Skylab now threading the eye of the desired flight path orbit. We're at 5 minutes, 22 seconds, 11,326 feet per second, now traveling Skylab.

PAO MARK, 5 minutes 35 seconds. Skylab now 85 nautical miles in altitude. Skylab's climb for altitude now essentially complete, moving out now for downrange distance. Conrad, Weitz, Kerwin, now flying almost parallel to the Atlantic below in a heads down position. We show a downrange distance of 312 nautical miles.

CC Skylab, Houston, you can GO at 6 minutes.

SC Roger, we're GO up here.

CC Roger.

PAO MARK, 6 minutes, 10 seconds, that GO given by Capcom Dick Truly. Responding spacecraft commander Pete Conrad. We now show Skylab at 88 nautical miles in altitude, 362 nautical miles downrange.

SC (Garble), Houston. Standby to GIMBAL motors at 7.

CC Roger.

PAO MARK, 6 minutes 45 seconds, Skylab velocity building up now, now reading 14,538 feet per second. Conrad, Weitz, Kerwin, traveling almost parallel to the east coast of the United States, the most northerly powered flight in the space for astronauts, thus far.

CC Skylab, Houston. We're go at 7 minutes.

SC Okay, Houston, 4 good Gimbal motors, then we're GO at 7.

CC Roger, copy.

PAO MARK, 7 minutes 25 seconds, 89 nautical miles in altitude, 522 nautical miles downrange now for Skylab, velocity now reading 16,709 feet per second.

SC Hey, do we just have - We just have PU shift, Houston?

CC Roger, we concur and you're GO at 8 minutes.

SC Okay.

PAO MARK, 8 minutes 10 seconds, a good propellant and utilization shift, says Booster Engineer, giving a change in fuel oxidizer ratio of - for more efficient engine performance in space. We show 87 nautical miles in altitude, 665 nautical miles downrange. Velocity now reads 19,605 feet per second.