Gemini 5 Mission Commentary Transcript

PART 3

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PRELIMINARY - 8 October 1999

This is Gemini Control, at 57 hours 54 minutes into the flight of spacecraft Gemini 5. Here in the Mission Control Center, we have a computer problem. This occurred at 5:23 CST. Both our computers -- the Mission Operations Computer and the Dynamic Standby Computer -- lost the historical data that had been stored during the past 12 hours. There is no problem here with the dynamic display material. However, the Mission Control Center maintenance and operations personnel are looking into this problem, and they have not yet found the cause. Loss of the historical data will not affect the Gemini 5 mission adversely. It simply means that the staff support personnel will need to calculate trends of flight data manually instead of having constant mechanically computed displays to indicate the trends. This type of data is normally logged, or stored, in the computers for 12 hour periods, and then erased from the computer memory. We expect to have more information on the status of these computers in a short while. This is Gemini Control.

This is Gemini Control, at 58 hours 2 minutes into the flight of Gemini 5. At this time, our spacecraft is coming up over the west coast of India, on its 37th revolution of the earth.

Here in the Control Center we have no further information on the computer problem. It is still with us. We will keep you advised as soon as a fix is made. To run over it: at 5:23 Central Standard Time, both the Mission Operations Computer and the Dynamics Standby Computer lost the historical data that was stored in their memory drums during the past 12 hours. This type of information is normally stored for 12 hours and then erased. It's used to indicate trends with the various systems during the flight. The problem won't affect the flight of spacecraft Gemini 5 adversely. It means that the staff support people will need to calculate trends manually instead of having reference to the instant displays. The dynamic displays, however, are still with us. We've lost only that portion that is contained with the historical data. Our spacecraft, shortly, will be passing over the country of India, and then out over the Coastal Sentry Quebec tracking ship. We have not had a voice communication with the spacecraft for approximately 40 minutes. We expect that we will have some voice communication over the CSQ, or over the Hawaiian tracking station, and we'll update you at that time. This is Gemini Control.

This is Gemini Control, at 58 hours 41 minutes into the flight of spacecraft Gemini 5, which is now passing over the Pacific Ocean. It will be within the voice range of the Rose Knot Victor tracking ship within a few minutes. It is on its 37th revolution over the earth.

Here in Mission Control Center, our computer problems are clearing up. Within eleven minutes after loss of the trend data the Mission Operations Computer was back online, and the operations people had managed to retrieve some three hours of this stored data

and put it back in the computer. The remaining three hours of data normally stored in the computer is now also being retrieved from tape. The cause of the loss of this trend data has not been pinpointed, but we expect to soon have full normal trend display capability here in Mission Control. This is Gemini Control.

This is Gemini Control, now 59 hours 2 minutes into the flight of spacecraft Gemini 5, which had just passed over the southern tip of South America, and is on its 38th revolution around the world.

During the past few minutes, the spacecraft passed over the Rose Knot Victor tracking ship off the coast of Peru. At that time, the RKV gave the spacecraft some updated data for landing areas. They also gave a 'Go' from the ground. The words were: "everything looks great". Here in the Mission Control Center, our computer problem is rapidly straightening out. We again have access to the trend display daya that is used here by those who need to call up an instant visual to look at trends with the spacecraft's systems. And, of course, all our dynamic displays remained in operation throughout -- we've had no problem there. At this time, the people who work with the computers are feeding in the data that has dropped out, and we expect to be back in complete operation with the visual displays very soon.

The Rose Knot Victor tracking ship, in talking to our Flight Director at Mission Control Center, reported that they have a little bit of weather there, with waves of 11 to 12 feet and some high winds. They have been on station now for 2 days and 18 hours. This is Gemini Control.

This is Gemini Control, at 59 hours 32 minutes into the flight of spacecraft Gemini 5, which is now in its 38th revolution of the earth and is just leaving the east coast of Africa.

Within a few minutes -- ten to twenty minutes -- the spacecraft will be over the Coastal Sentry Quebec, our tracking station south of Japan. At that time, we will perform a cabin lighting survey. This is a test with photometer and we read here the increment of light into the spacecraft -- in the various portions of the spacecraft proper. Here in Mission Control Center, things are in a low key. Some of the flight controllers are taking advantage of this silent period to get a quick sandwich and a cup of coffee, and are discussing the mission. Flight Director Gene Kranz is keeping activities somewhat subdued so that the spacecraft crew can get a little rest after the rather busy day that they've had during the past twelve to fourteen hours. This is Gemini Control.

This is Gemini Control, at 60 hours 2 minutes of flight, with spacecraft Gemini 5 now passing over the Pacific Ocean, almost alongside the Canton Island tracking station. There is no planned voice contact with the spacecraft at this time. The boys have been engaged in housekeeping activities, mainly getting things stowed away aboard the spacecraft that they have used and aren't planning to use in the immediate future. According to our flight plan, Pilot Pete Conrad is to start an eat period shortly. And Command Pilot Gordon Cooper is scheduled to be in a sleep period -- however, he is not asleep and probably will shortly go to sleep. We're making telemetry dumps to our stations along the way -- this is data that is fed into the computers on the ground and ... relayed back here to Mission Control Center. Voice conversation has been held to a minimum. Flight surgeon, Dr Dwayne Catterson, in reporting on the medical status of the flight, said that both pilots are in excellent condition. He's very pleased with their physical situation at the present time. This is Gemini Control, at 60 hours 3 minutes into our mission.

Here in the NASA Mission Control Center our controllers are very relaxed during this period of relative inactivity. The flight appears to have settled down for the long haul. All spacecraft systems are normal, and -- according to our Medical Director -- our flight crew is in top physical and mental shape. And according to Flight Director Gene Kranz, there is nothing presently apparent to keep this flight from going the full route [the full eight days].

We will now give you the live voice transmission as spacecraft Gemini 5 passes over the Rose Knot Victor tracking ship. We should have acquisition momentarily. At this time, aboard the spacecraft, Command Pilot Gordon Cooper is in a sleep period, and Pilot Pete Conrad should be eating -- according to the flight schedule.

Conrad	Roger ...
RKV	Say again, Gemini 5.
Conrad	Here's the ECS ... and I'll go through these ECS quantities ... and the fuel cell O2.
RKV	Roger, standing by.
Conrad	Roger. The onboard reading is 88, ...
RKV	Copy.
Conrad	Fuel Cell O2 is ... percent ... psia.
RKV	Roger, I copy. You've a 'Go' on all systems from the ground.
Conrad	Roger, we're 'Go' up here. Be advised that ...
RKV	Roger, I understand. We've a map update for you. Acknowledge when you're ready to copy.
Conrad	Roger. Let me put ... so I can use my other hand. Go ahead. Ready to copy.
RKV	Roger. Map at 02:53:07, longitude 8 degrees east, rev 39
Conrad	Roger, map 02:53:07, 8 degrees east, rev 39.
RKV	Roger. Star 02 53 07 01 33 03
Conrad	Roger. 01 33 03
RKV	Roger. Be advised you have a fuel cell purge over Kano -- I'll give you the time. 02:50:00.
Conrad	Roger, 02:50:00, purge the fuel cells. Purge both of them?
RKV	Roger, Sections One and Two.
Conrad	How's the weather down there?
RKV	We just got an advisory that gives us [waves of] two or three feet -- feels more like ten or twelve feet from inside this ship.
Conrad	Roger. You might pass on to Houston that there are two very very large cloud areas out over the Pacific. We passed over both on the last two revs and it really bothers the horizon scanners.
RKV	I understand -- your horizon scanners are effected by this large cloud coverage over the Pacific
Conrad	That's correct.
RKV	How's the spaghetti and meat balls?
Conrad	Very good -- I never thought cold spaghetti and meat balls could taste this good, but it sure does.
RKV	Real Italian style.
Flight	RKV CapCom, Houston Flight.
RKV	Go ahead, Houston Flight.
Flight	Roger, how's your tape dump going?
RKV	My tape dump is coming along fine.

Flight	Roger. You get yout TX in?
RKV	Tnat's affirmative -- TX in.
Flight	Okay.

That was the live voice communication between spacecraft Gemini 5 and our tracking ship the Rose Knot Victor. This is Gemini Control.

This is Gemini Control. We are now 61 hours 2 minutes into our flight. The spacecraft Gemini 5 is crossing the northeast portion of the African continent on its 39th revolution of the earth. We have had no voice communication,with the spacecraft since ... it was over the Rose Knot Victor tracking ship off the west coast of Peru. Command Pilot Gordon Cooper is still programed in his sleep period.

In the Mission Control Center, we have some additional information on the computer problem we discussed earlier this evening. The loss of trend -- or historical -- data that we reported on has been traced to an operator error, and the entry of incorrect data caused the computer program to halt during processing. The entry which was attempted is performed only during periods of low mission activity. There was no malfunction of the computing equipment, nor of the computer program. I'd like to repeat that. There was no malfunction of the computing equipment, nor of the computer program. The historical, trend data, was reestablished in the computers some time ago by replaying the previously recorded data. This is Gemini Control.

This is Gemini Control, at 61 hours 32 minutes into our flight. Spacecraft Gemini 5 is over the Pacific Ocean -- nearing the Canton Island tracking station. Everything aboard the spacecraft is in a nominal condition. We had a pass over the Coastal Sentry Quebec a few minutes ago, and the Coastal Sentry Quebec Spacecraft Communicator gave the spacecraft a 'Go' from the ground. Pete Conrad reported he had purged the fuel cells. We'll give you a tape playback of that communication between the Coastal Sentry Quebec tracking station and the Gemini 5 spacecraft.

Flight	CSQ CapCom, Houston Flight.
CSQ	CSQ CapCom.
Flight	Roger. You could advise the crew that we'll give them their systems update briefing -- their spacecraft systems briefing -- over Canton on this rev, and I'll standby and I'll give you time from now. It's about thirteen minutes from now.
CSQ	Thirteen minutes from now, roger. Gemini 5, CSQ.
Conrad	Go ahead, CSQ.
CSQ	Roger. Houston advises they'll give you a systems update over Canton, approximately thirteen minutes from now.
Conrad	Roger. Understand systems update over Canton thirteen minutes from now. Thank you, sir.

This is Gemini Control, at 62 hours 2 minutes into the mission of spacecraft Gemini 5 which, at the present moment, is just about ending its 39th revolution, and will shortly be picking up on its 40th revolution over the earth.

At the present time, we have voice communication between the Rose Knot Victor, our tracking ship, and the Gemini 5 spacecraft, and at this time the Spacecraft Communicator aboard the Rose Knot Victor is updating the tracking tasks that will be accomplished by the flight crew from now through tonight and tomorrow. A few minutes ago, as the

spacecraft passed over the Canton Island tracking station, Houston Spacecraft Communicator, Buzz Aldrin, briefed the crew on their spacecraft systems -- as seen on ground readouts. At this time, we will play back for you the taped voice communication between the Canton Island tracking station -- that is, Remote Voicing the Houston Spacecraft Communicator through Canton to the spacecraft.

Houston	Gemini 5, Gemini 5, this is Houston. I do not receive you. I'd like to give you a status report on your systems. Over.
Houston	Gemini 5, I still do not read you.
Houston	[Transmitting in the blind...] Your status report is as follows. Your fuel cells seem to be adequately replacing your water consumption. Tank 'A' quantity is 46 pounds. The fuel cells seem to be doing real well. There's no significant degradation in either of them. At present there's no real concern now for either the H2 or the water pressure limiting your duration. We show your cabin temperature holding at 70 to 71 degrees. How do you read, Gemini?
Cooper	...
Houston	Gemini 5, this is Houston. Say again.
Cooper	...
Houston	Roger, we show your consumables are quite close to predicted values. Your fuel cell H2 is expected to vent for approximately 80 more hours. We have your coolant temperatures holding steady, with the radiator outlet temperature varying from twenty degrees on the day-side to zero degrees on the night-side. Your GNC [Guidance, Navigation and Control] systems all seem to be doing quite well. Your fuel remaining is 79 pounds; oxidizer remaining is 139 pounds. With your projected experiments, we project them to require 59 pounds of fuel, leaving a pad of 20 pounds. Your radar average temperature dropped to 19 degrees over the RKV on the 35th rev. This is the reason we asked you to bring the radar to standby. Your temperature is presently 36 degrees. Over.
Cooper	Roger, 36 degrees on radar.
Houston	Roger. On your 'Phantom Agena' rendezvous today, the results were quite encouraging. We have your perigee within 2 nautical miles of being co-elliptic. Your .2 of a nautical mile [in perigee]. And your apogee is within .3 of a nautical mile. This would've given about a 2-minute difference in Initiation time for Terminal Phase [of a rendezvous]. Many of your experiments tomorrow are going to depend on how well we can get the reticle fixed. How do you seem to be doing on that now?
Cooper	I'm getting ready to work on it now.
Houston	Okey dokey. We've been taking a couple of them apart here to see what you might -- what problems you might have. We'd like to conduct some radar tests tomorrow. The ones we did day before yesterday were quite encouraging. In these tests we'll be doing three different types of rendezvous tests -- or radar tests, and two tests involving the IMU and the scanners. Could you tell us whether -- either duringthe REP exercise, or during the

	pass over the Cape -- you observed your FDAI needles to be centering as you were tracking either the REP or the Cape?
Cooper	Yes they were, Elliot.
Houston	This wasn't confirmed by our summaries on the ground. We're also considering some rendezvous Terminal Phase visibility tests, starting about 20 minutes prior to assimulated Initiation burn, and carrying on through to the Breaking Point. We'd like --
Cooper	...
Houston	Say again ... Gemini 5, Houston, say again.
Cooper	... we do not read Houston any more.
???	Roger, Gemini 5.
Houston	Gemini 5, how do you read Houston now?
Cooper	I can read you again.
Houston	Roger. We'd like to do some of these tests, power permitting, during your non-Stateside passes. If you have any comment on whether you care to be occupied while one person is sleeping we'd be willing to help.
Cooper	I think we've been kept fairly busy -- it hasn't been too bad so far.
Houston	Roger. This would be while one crew member is sleeping, and the other one is sitting by.
Cooper	Roger. Some of these things will probably wake the other man up.
Houston	Understand.

This is Gemini Control, at 62 hours 34 minutes into the flight of spacecraft Gemini 5, which is now passing over the southeast part of the continent of Africa.

We had a status review over Canton island and both the spacecraft and the flight crew are in a 'Go' condition.

In Mission Control Center, everything is operating normally. The Blue Team of flight controllers have reported in, and are about ready to take over direction of this flight. At the present time, they are receiving their routine briefing prior to assuming command. As our Flight Director, Gene Kranz, commented earlier, there's nothing apparent, at this time, to prevent this flight from going the full route. At 62 hours 34 minutes into the mission, with our spacecraft on revolution 40, this is Gemini Control.

This is Gemini Control, at 63 hours 2 minutes after liftoff. Gemini 5 just completed a pass over the tracking ship Coastal Sentry Quebec, near Okinawa, on its 40th revolution. During the pass, a medical data check was run on the Command Pilot Gordon Cooper. He also made a food and water usage report. A delayed-time telemetry tape was dumped to the ship during this pass and a cabin lighting survey with the spacecraft in the upright position was also scheduled. The Spacecraft Communicator aboard the Coastal Sentry Quebec said that Gemini 5 was 'Go' on the ground. Pilot Conrad is asleep at this time. This is Gemini Control.

This is Gemini Control, at 64 hours 32 minutes after liftoff. Gemini 5 is now over the southwest Pacific, south of the Philippine Islands, midway through its 41st revolution. On the pass over the tracking ship Rose Knot Victor, at the end of the 40th rev, the Command Pilot, Gordon Cooper, reported that he'd successfully repaired the spacecraft

reticle. Many of the various tracking tasks and experiments are dependent upon the reticle for alining the spacecraft toward ground objects. The reticle is boresighted along the longitudinal axis of the spacecraft. This is Gemini Control.

This is Gemini Control, at 65 hours 2 minutes after liftoff. Gemini 5 is now over the southeast Pacific, toward the end of the 41st revolution, and will be in voice and telemetry contact with the tracking ship Rose Knot Victor six minutes from now. Pilot Conrad is still sleeping at this time. There has been no change in the status of the spacecraft crew or on its systems during the past hour. If the Gemini mission runs full eight days, then retrofire will occur next Sunday morning at approximately 7:29 Central Standard Time. This is Gemini Control

This is Gemini Control, at 65 hours 32 minutes after liftoff. Gemini 5, at this moment, is in telemetry and voice contact with the Canary Island tracking station, and will cross the African coast shortly on a track passing over the Sahara Desert and on along the southern shore of the Mediterranean, toward the end of the 41st revolution.

Gemini 5 passed over the tracking ship Rose Knot Victor for the last time until the 50th revolution. We now have a brief tape of the voice communication between Gemini 5 and Rose Knot Victor. Let's hear that tape now.

RKV	Gemini 5, RKV CapCom.
Cooper	Roger RKV CapCom, Gemini 5.
RKV	Roger. We'd like to verify the position of your fuel cell Heater and O2 Heater circuit breaker -- we'd like for it to be 'Open'.
Cooper	Roger. Fuel cell ... heaters are all 'Open'.
RKV	I'm referring to the heater circuit breaker on the Pilot's circuit breaker panel.
Cooper	... heater circuit breaker. That's all?
RKV	Roger, thank you. They're wanting to make sure that we don't vent any more of the H2 overboard than we have to. Everything looks real good here on the ground,
Cooper	Gemini 5 -- everything looks good up here.
RKV	Roger.

This is Gemini Control, at 66 hours 2 minutes after liftoff. Gemini 5 is now crossing the Bay of Bengal, east of India, midway through its 42nd revolution. At the present time, Command Pilot Gordon Cooper is scheduled to conduct measurements of the spacecraft's electrostatic charge potential -- experiment MSC-1. Pilot Pete Conrad is still asleep. This revolution will be one of the quietest of the entire mission, for there is a gap of 1 hour 10 minutes between the Canary Island pass, earlier in this revolution, and acquisition by the stations of the Eastern Test Range at the beginning of the 43rd revolution. This is Gemini Control.

This is Gemini Control, at 66 hours 32 minutes after liftoff. Gemini 5 is now over the south-central Pacific, toward the end of the 42nd revolution. There hasn't been any voice, radar, or telemetry contact with the spacecraft during the past half-hour. The next station to contact Gemini 5 will be the Antigua station in the Eastern Test Range. While Pilot Conrad presumably is still asleep, the flight plan calls for Command Pilot Cooper to eat at this time. This is Gemini Control.

This is Gemini Control, at 67 hours 2 minutes after liftoff. Gemini 5 is now over the mid-Atlantic, at the beginning of the 43rd revolution. During the just-completed pass over the stations of the Eastern Test Range, Command Pilot Cooper completed a purge of the fuel cell oxygen and hydrogen system. He also described how he repaired the spacecraft's reticle. We now have a tape of this pass. Let's listen to the tape now.

Antigua	Could you give us a little description now you repaired your reticle, please.
Cooper	Rog. I took it all apart, and completely dismantled it, and was installing the aux receptacle line inside when I discovered that the aux receptacle -- when the cord was pulled out to the fairly full extent, it shorted out. And, further, I discovered it was my aux receptacle cord and not the reticle.
Antigua	Rog. Understand. Very good. You've started a new concept in in-flight maintenance down here.
Cooper	Rog. So then I went back to it and I put the thing all back together again and put another aux receptacle on it and it works fine.
Antigua	Okay. Wery good. We're interested in that, and that really saves us quite a bit on the experiments.

This is Gemini Control, at 67 hours 32 minutes after liftoff. Gemini 5 is now over the Indian Ocean, one-third of the way through the 43rd revolution. The Carnarvon, Australia tracking station, is due to acquire Gemini 5 eight minutes from now. It will pass up the the crew flight plan updates for the Stateside passes in the next several revolutions.

Pilot Conrad presumably is still asleep at this time. The balky spacecraft reticle's now been repaired and is functioning again. Command Pilot Cooper did some first echelon in-flight maintenance on the device by replacing the cord powering the reticle's light source. This is Gemini Control.

This is Gemini Control, 68 hours 2 minutes after liftoff. Spacecraft Gemini 5 is now over the south-central Pacific, toward the end of the 43rd revolution. During the pass over Carnarvon, ending 12 minutes ago, the Spacecraft Communicator Charles (Chuck) Lewis passed up to the crew several Planned Landing Area updates and experiment updates. He reported to Houston Flight that the telemetry showed Gemini 5 was 'Go' on the ground. We now have a tape of the Carnarvon pass. Let's hear that tape now.

Carnarvon	Gemini 5, Carnarvon CapCom.
Conrad	Come in Carnarvon, Gemini 5.
Carnarvon	Rog, Gemini 5. We've got a lot of updating to do this pass. We will start by updating your PLAs. Are you ready to copy?
Conrad	...
Carnarvon	Prior to that,we'll finish up this platform test procedure and go on to flight plan update.
Conrad	Okay -- ready to copy.
Carnarvon	Rog. Area 45-1, 11:45:36, 14+07, 19+17. Area 46-1, 13:20:09, 12+59, 18+32. [Area] 47-1, 14:55:36, 12+09, 18+07. Area 48-1 --
Flight	Carnarvon, this is Houston Flight. Can you give me a ... readout?

Conrad	... +48 ...
Flight	Can you get me those two temperature readouts?
Conrad	...
Flight	You'll have to cut the air-to-ground off.
Carnarvon	... [Area] 49-4 ...
Flight	I can't read you. You'll have to cut the air-to-ground off.
Carnarvon	Roger, Frank. BravoBravo 05 reading 70 percent -- 70 degrees.
Flight	Roger. Now the other one.
Carnarvon	Bravo Charlie 03 reading 65 degrees.
Flight	Okay. Put back air-to-ground on.
Carnarvon	Roger. How far did you get with that update over the states on the platform test?
Conrad	We just got the platform test and ... configuration and the platform ... computer configuration and the attitude control configuration.
Carnarvon	Okay, I'll get back and start platform test ... you got part of it. The configuration is platform to ... attitude control horizon scan ... star mode 01 ... 30 and procedures as follows: yaw 90 left. Take one photo of horizon. Copy?
Conrad	Roger, yaw 90 left, take one photo of horizon.
Carnarvon	Roger. Okay, platform test number two configuration. Same as platform test one, procedure as follows: point at Southern Cross and take one photo. Should be on horizon. Next point at ... and take one photo. Should be ...
Conrad	Point where?
Carnarvon	Z-zero ZULU, zulu.
Cooper	I copy.
Carnarvon	Right. That's it on the platform test two.
Conrad	What's the time for platform test one and two?
Carnarvon	Say again.
Conrad	What is the time for test one and two.
Carnarvon	Okay, that's the next on the flight plan update, Pete. I'll start that now. Okay, ... this is platform, 12:40: 00.
Carnarvon	Okay. Next is D-4/D-7, 12:50:00 ... number 408. The next one is the platform 13:10:00, remarks -- aline SEF. Next S-8/D-13, time 13:32:46, sequence number 03, remarks -- pitch down 30, yaw left ... degrees. Next -- are you copying Okay?
Conrad	Yeah.
Carnarvon	Okay. Next, medical data pass, 13:47:01, remarks Command Pilot at Canary Island instead of Carnarvon. Next is platform 14:00:00, aline SEF. Next is S-1, time 14:18:16, remarks -- sunset time. Next is D-6, 15:08:56, that's sequence number 021. ... number 08, remarks -- pitch down 30, yaw left 2 degrees ... 60. We've got about 30 seconds left and I've got about halfway through this, and I'll fix you up later. I'll give you the next one. D6 is 15:13: 51 seconds, secuence number 134. ... number 08, pitch down 30, yaw 0 ... 125. Do you copy?
Conrad	I copy you.

Carnarvon	Okay, that's about it ... [LOS] any minute now. You'll pick up the rest of these next station.

This is Gemini Control, at 68 hours, 32 minutes after liftoff. Gemini 5 is now over the western Atlantic, northeast of Cuba, at the start of the 44th revolution. During the present pass over the Eastern Test Range, Spacecraft Communicator Dave Scott, here in Mission Control, completed relaying to the crew the information on experiments -- Carnarvon was unable to complete the updates before Loss Of Signal in the previous revolution. Canary Islands station will acquire the spacecraft three minutes from now. This is Gemini Control.

This is Gemini Control, at 69 hours 2 minutes after liftoff. Gemini 5 is now crossing the eastern coast of Africa and going out over the Indian Ocean. During the pass over the Canary Island station -- completed 14 minutes ago -- the Canary spacecraft communicator, Keith Kundel, reported to Flight Director John Hodge that Gemini 5's telemetry readouts looked good from the ground. The next station to acquire Gemini 5 will be the Carnarvon station some twelve minutes from now. We now have a tape of the pass over the Eastern Test Range stations earlier in this 44th revolution. Let's listen to that tape now.

Houston	Gemini 5, Gemini 5, Houston CapCom, over.
Conrad	Hello Houston CapCom, Gemini 5 here. Go ahead.
Houston	Roger. I have a continuation for your experiments update. Are you ready to copy?
Conrad	We copy.
Houston	Rog. The first one will be D-4/D-7, 15:59:00, sequence 409 and 410-bravo. Next one is a platform at 16:15:00, aline SEF. Next one is power up at 16:20:00, radar and rate gyros on. Next one is D-4/D-7, 16:37:24, sequence 423-alpha, mode 08, pitch 30 down, yaw 42 left, speed 60. Next one is computer, 16:45:00, power up. The next one is a radar test, 16:46:02, sequence 09, pitch 30 down, yaw 07 left. The test will complete at 16:55:00, radar off, aline SEF. Next one is a platform test at 17:05:00, sequence 01. The next one is the other platform test at 17:21:43, sequence 02. And we have a change on the stars, it will be Venus instead of the Southern Cross, and Fomalhaut instead of Pollux. Next one is S-8/D-13, at 18:16:14, sequence 03, pitch 30 down, yaw 22 left. The last one is power down at 18:25:00, computer off, and rate gyros off. Do you cony?
Conrad	...
Houston	Roger, and would you turn your radar 'Off' now please.
Conrad	Roger, radar 'Off'.
Houston	Okay. You look real good here on the ground. Do you have any questions on the experiments?
Conrad	No. I'll tell you -- we got a full day. I hope we can get them all done.
Houston	Yeah, it should bunch up a little bit sometimes, but we tried to plan them so you have time in between; if you've any questions as you go along, just ask. We'll be standing by.
Conrad	Okey dokey. How's the weather back there in Houston?
Houston	Gemini 5, Houston [say again].

Conrad	I say, how's the weather back there, Houston?
Houston	Oh, it's real nice -- just hot and sunny, as usual. No rain in particular -- every once in a while a little thunderstorm.
Conrad	Roger.
Houston	Say, we've noticed that the temperature up there's a little cooler than we expected. How is your comfort?
Conrad	Cold.
Houston	Cold, huh? Have any rain up there?
Conrad	We're taking the inlet hose of our suits every once in a while, to warm up. We've got quite cold.
Houston	Roger, understand.
Conrad	I wish you'd tell John Yardley I'm gonna have to eat crow on that. We've had the suit set on the full-hot position. And we had noth suit flows down to ... and we still get cold.

[** DMH's note -- John Yardley was one of the McDonnell Company's senior spacecraft managers.]

Houston	Roger, under stand.
Conrad	I guess both those coolant loops really did it.
Houston	Rog.
Flight	Hey, Gemini, this is Houston Flight.
Flight	Gemini, Houston, go.
Conrad	For your information, the relative humidity has been running around 56 to 59 percent.
Houston	Roger, understand, 56 to 59. That's nice and dry.
Conrad	Yep.
Houston	Wish we were up there.
Conrad	Say again.
Houston	Wish we were up there.
Conrad	After another day or two, I'll be glad to trade with you.
Houston	You got a deal.
See	How many peanut cubes you got left.
Conrad	I haven't found any yet, but we're collecting an awful lot of stuff.
See	How much of that stuff are you having left over from the meals?
Conrad	Hey, Elliott, Gemini 5.
See	Go.
Conrad	What's the deal on the hydrogen -- it seems to be going down fairly fast.
See	Yeah, it's venting and we expect it to be going down fast. We're watching it very closely. It's following the predicted curve.
Conrad	Roger.
Flight	Hey, Gemini 5, this is Houston Flight.
Conrad	Go ahead, Flight.
Flight	That's just about exactly the way it was predicted prior to liftoff. There's been hardly any difference at all -- we can't measure the difference between preflight predicted and what we're getting right now.

Conrad	I see.
Houston	Gemini, your O2 pressure's around 115 now -- in case you're, interested.
Conrad	What temperature?
Houston	No, your oxygen pressure is around 115, you've done real well pumping it up, up there.
Conrad	Yeah.

This is Gemini Control, at 69 hours 32 minutes after liftoff. Gemini 5 is now over the southwest Pacific -- north of New Zealand -- and is nearing the end of its 44th revolution. During the Carnarvon pass eight minutes ago, Pilot Conrad said Gemini 5 was 'Go' from the crew's standpoint, and that the cooler-than-normal suit temperatures were recovering. Canarvon reported that Gemini was 'Go' from telemetry readouts. We now have a tape of this pass over the Canarvon station. Let's roll the tape now.

Carnarvon	Gemini 5, Carnarvon. We've a valid oral temperature. Standby for Surgeon.
Surgeon	Gemini 5, Carnarvon Surgeon. Standing by for your first blood pressure.
Conrad	Roger. Coming down. Your cuff is full-scale.
Surgeon	We have your blood pressure. Standing by for exercise on your mark.
Conrad	Roger. Mark! The cuff is full-scale.
Surgeon	Now we have your second blood pressure. On your food report, if you could, give it to us by day and letter, and if you remember the items which you didn't eat.
Conrad	Alright. Okay. The water is 15 pounds --
Surgeon	Roger.
Conrad	-- 8 ounces, and I'm presently eating meal 3A, and I've pretty well been eating the dehydrated foods, but not the solid.
Surgeon	Roger. Sleep report now?
Conrad	Yeah, I slept about 4 hours last night on the nap period, and I slept about 2-1/2 on the '2-hour' nap period.
Surgeon	Roger. Anything else to report?
Conrad	Nope.
Surgeon	Roger. Carnarvon Surgeon, out.
Carnarvon	Gemini, Carnarvon CapCom. What is the position of your suit temperature control valve?
Conrad	Roger. I'll give you a number reading -- it's just off number eight.
Carnarvon	Is it 4 o'clock ... warm?
Conrad	No, not quite.
Carnarvon	Are you too cool?
Conrad	No, we were last night. It gets pretty cold in here with two coolant loops running.
Carnarvon	Roger.
Conrad	Our suit temperatures run down around 44.
Carnarvon	Roger -- copy, 44.
Conrad	Yeah, we've got it running ip aound 50 right now.
Carnarvon	Roger.

Flight	Carnarvon CapCom, this is Houston Flight.
Carnarvon	Flight, Cararvon. Go ahead.
Flight	Point out to him that if that thing is in the full warm position, it cuts off the coolant supply completely.
Carnarvon	Roger, Flight.
Flight	So it has to warm up under those circumstances.
Carnarvon	Roger. Gemini 5, be advised that once temperature control valve is in the full clockwise -- or full warm position -- it'll cut off the coolant loop.
Conrad	Yeah, I think we discovered that!
Carnarvon	Roger.
Conrad	Now, we're 'Go' up here.
Carnarvon	Roger, Gemini. You look real good down here, also. We have the second stage of the booster which is following you about eight minutes, about 10, 15 minutes ago.

[** DMH's note -- need to figure out this reference to the booster!]

Conrad	Roger.
Carnarvon	There's a question on that. It's about 36 minutes ahead of you.
Conrad	Oh. How's everything going down there? Are we keeping you busy?
Carnarvon	Very busy. Got up this morning about noon, the piano player at the ... got us up, we had a delicious meal at ... and then came to work.
Conrad	Roger. Give my best to all my friends down there, please.
Carnarvon	Will do, Pete. They send you their regards also, they miss you.

This is Gemini Control, at 70 hours 2 minutes after liftoff. Gemini 5 is now over the Gulf of Mexico, nearing the end of its 44th revolution. It is in contact with the Stateside stations. We expect to have a tape of this pass which we will play back for you within the next ten to fifteen minutes. This is Gemini Control.

This is Gemini Control, at 70 hours 14 minutes after liftoff. We now have a tape of the last Stateside pass by Gemini 5. We'll hear this tape now.

Houston	Gemini 5, Gemini 5, Houston CapCom.
Conrad	Go ahead, Houston. demini 5 here.
Houston	Rog. You're looking good here on the ground. We'd like to get a number of readouts from you for correlation with our TM data. First, could you give us your cryo quantity readout in all three positions, please?
Conrad	ECS O2, 87 percent, 790.
Houston	Rog - understand 87 percent, and 790.
Conrad	Roger. Fuel cell O2, 91.5 and 100.
Houston	Roger. 91.5 and 100.
Conrad	Hydrogen is 82 percent -- maybe just a notch above that, make it 82.5 and, about 785.
Houston	Rog. 82.5 and 785. Next could we have your OAMS source pressure and temperature, please.

Conrad	The OAMS source is 50 and 50.
Houston	Roger, 50 and 50. And your OAMS regulator pressure, please.
Conrad	The OAMS regulator pressure -- the temperature is 50 and the pressure is fifteen-fifty.
Houston	Roger, understand 50 and 50. Next the RCS Ring A -- source pressure and temperature.
Conrad	I'll say again. The OAMS source temperature is five-zero, the pressure is one-five-five-zero.
Houston	Rog. Five-zero and one-five-five-zero.
Conrad	Roger. Going to your RCS Ring A -- temperature is 65, 290
Houston	Roger. Temperature 65 and 290 pressure. Okay. RCS ring B?
Conrad	63, 285.
Houston	63 and 285.And your propellant quantity, please.
Conrad	40 percent.
Houston	Roger, understand, 40. Thank you. Could we have another read on your OAMS regulator pressure, please.
Conrad	You're keyed. Hello, Houston?
Houston	Go ahead.
Conrad	The OAMS regulator source pressure is 1550.
Houston	Gemini, could we have your regulator pressure, not your source pressure -- your regulator pressure.
Conrad	Ah, roger. Sorry. Fuel is 50, 300.
Houston	Roger, understand.
Conrad	Anything else, Houston?
Houston	Yeah, Elliott wants to talk to you about the H2 -- here he is.
See	Pete, I'd like to give you a little further briefing on what to expect on this fuel cell hydrogen. As you'll notice, you've used about 20 percent over the past three days and you can now start expecting a rate of about 23 percent per day until you get down to about 25 percent remaining. And then the curve will flare out there, and decrease at a slower rate, and it's a little bit unknown at that point. We'll just have to wait and see how it goes, down in there -- as to just what it will behave like. We're venting now and that's why it's going down so rapidly.
Conrad	Okay. And would you give me one more detailed information on this radar test 09. D'you want us to acquire it the first time in the 'Rendezvous' Mode, or should we be in 'Catch-Up' [Mode] for acquisition
See	You can be in 'Rendezvous', that's okay. As you approach the target, you can have a readout going on 69. It shouldn't change, as I understand it. It shouldn't change until you actually acquire the target and start reading out some range. And then, once you get a range readout, you can start into your cycles.
Conrad	I'm with you.
See	Is it clear, otherwise?
Conard	Say again.
See	Is it clear otherwise?
Conrad	I think so.
See	Okay.
Flight	Morning, Peter, how are you this morning?

Conrad	Fine. Who's that? Mr. Kraft?
Flight	That's right.
Cooper	Morning, Chris.
Flight	How are you, Gordo?
Cooper	Pretty fine.
Flight	You both sound great.
Cooper	Good.
Conrad	We discovered one thing -- Gordo's beard is white.
Flight	Rip Van Winkle?
Cooper	That's right.
Conrad	Nope -- Santy Claus!
Flight	Your doing a great job up there.
Cooper	Thank you, Chris.
Conrad	Listen, ... passes, we look like we're awful busy. I hope we get it all done for you.
Flight	Do what you can, that's all we want.
Conrad	Roger. Say, I want you to tell John Yardley I really was wrong. Boy! Those two cooler loops on there really cool things down.
Flight	Yeah, that's one of the reasons we want to power up here to see if we can't warm things up a little bit.
Conrad	That's be great. We've both been sitting here shivering all these last few hours.
Houston	Did running that suit temperature up to 'Full Warm' help out any there, Gordo?
Cooper	When we get it on 'Full Warm', if you run it completely to 'Full Warm', it shuts the flow completely off.
Houston	That warms it up a little bit, doesn't it?
Cooper	Yeah, but aren't we apt to get a little bit too cool on the radiator business, that way?
Houston	Negative.
Cooper	No?
Houston	No.
Cooper	Okay. We'll turn it clear off, then.
Houston	They're monitoring the coolant loop temperature here on the ground, and they'll let you know if it gets too cool.
Cooper	Okay. You should have seen ... last night, handling all the nuts and bolts and the screws rebuilding that reticle.

This is Gemini Control, at 70 hours 32 minutes after liftoff. The Gemini 5 spacecraft is now over central Africa, one-third of the way through its 45th revolution. During its recent pass over the Canary Island station, Spacecraft Communicator Keith Kundel told the cre of Gemini 5 that he had nothing for them, this pass, only a C-Band radar test. This is Gemini Control.

Good morning. This is Gemini Control. We have just completed a rather long and very silent pass across Carnarvon. The spacecraft now to the east coast of Australia on the 45th rev around the earth. As we come up across the Pacific, over Canton Island, the flight plan calls for the crew to aline the platform, Small-End-Forward, and then, as we swing across the States, they'll take another long look at those eye charts 40 miles north of Laredo -- we hope with more success than they had in that area yesterday. The Pilot, Pete Conrad,

read out some of his values on the hydrogen and the oxygen reactant supply, at the start of the Carnarvon pass. There was no other conservation. This is Gemini Control at 71 hours 3 minutes into the mission.

This is Gemini Control, at 71 hours 32 minutes into the flight. Two minutes ago, the spacecraft was acquired by the Guaymas station. It is now proceeding across Mexico, and we expect this to be an extremely quiet pass because with the reticle fixed (Gordon Cooper fixed it last night) the boys are going to make a determined effort to sight on those squares 40 miles north of Laredo. If there is conversation, we'll cut in and listen to it, but if not, or until there is, let's cover some other things. The breathing oxygen onboard, the quantity is 86 percent, the Environmental Control System oxygen tank pressure shows 940 psi. The fuel cell oxygen supply is riding at 91 percent and it is showing 115. It's up again -- better then 10 pounds from yesterday at this time. Fuel cell hydrogen quantity is 81 percent, it's pressure level is 35 pounds. During the last eight hours, apparently the pilots got a little bit chilly. There was some concern -- some hesitancy -- about regulating the suit temperature controls, so the suit inlet temperature got down to about 45 degrees. Gordon Cooper then went ahead and did adjust it upwards. The suit inlet temperature is now about 50 degrees. We expect that it will slowly climb up to about 54 to 55 degrees, which has been the most comfortable level in past flights. The suit inlet temperature consistently runs 5 degrees or more below the actual suit temperature. We've onboard, 155 pounds of maneuvering fuel remaining. We expect to use some 15 to 20 pounds. Jim McDivitt is in touch with Conrad now, and at Laredo we are advised that they have lit some of smoke signals as an additional acquisition aid. Let's cut into that conversation now, live.

Conrad	Right smack over the site.
Houston	Okay.
Conrad	We had no trouble tracking it, we had no trouble picking up the smoke, but we did not see the squares -- either one of us.
Houston	Okay Pete, I'll check and make sure that they had the smoke and I'll give you that information over the Canaries, -- as a matter of a fact we'll try and get it for you before you leave the States.
Conrad	You ready for our onboard readings?
Houston	Say again?
Conrad	Are you ready for our onboard readings?
Houston	Roger, go ahead.
Conrad	Okay, the A bus is 26.0 volts, the 1A current is is 8.1, 1B is 8.0, 1C is 9.5, 2A is 7.0, 2B is 6.9, 2C is 8.5.
Houston	Roger.
Conrad	RCS Ring A is 65 degrees, 295 is the pressure; RCS Ring B is 60 degrees, and 285; Secondary O2 left is 5,400, O2 right reads 5,300. We are 'Go' for 47-1 ...
Houston	Roger, you have a 'Go' -- you have a 'Go' for 62-1.
Houston	Gemini 5, this is Houston here, did you get your 'Go'?
Conrad	Roger, we got a 'Go' from you. We were just whistling over Houston here. We wanted to get some pictures
Houston	Okay, I've got some other information here for you. You don't have to bother to acknowledge most of it. We'd like to have

	you be aware that we want you to do a medical data pass on the Command Pilot over the Canaries.
Conrad	We'got that, have you got an AOS time?
Houston	Roger, it'll be at 03:13:47:01.
Conrad	Roger.
Houston	We'd like to know what condition you're in with the suit gloves and helmets. Do you have the gloves and helmets off or on?
Conrad	Oh, about the time you gave us a 'Go to pass [area] 6-4 we took off the helmets and gloves, and we haven't had them on since.
Houston	Okay, very good.
Conrad	Now Gordo's not wearing the cuffs on his wrists, and I am -- that's just because I got use to it. The relative humidity has stayed down around 56 percent all the time so we feel we're in good shape that way.
Houston	Okay, how about the ...
Conrad	Say again, Houston.
Houston	Roger, are you wearing your neck dams?
Conrad	That's affirmative. We've been wearing the neck dams the whole time.
Houston	Okay.
Houston	We'd like to know if you're staying warm now -- do you have the cooling under control?
Conrad	Yeah. Our problem is that the temperature really doesn't change in here too much, but when either one of us goes to sleep, we're just not putting out too much ourselves, and then we really chill down.
Houston	Yeah, I noticed that a little too. Listen, one thing I want to tell you about, don't worry about turning the coolant off into cockpit. We've got some excellent TM on the radiator outlet temperatures and we'll keep you advised if they go down, so don't worry about turning off the coolant to the suit loop or the cabin loop.
Conrad	Okay. Boy, Florida is really clear today. I can see Jacksonville, and all the streets in it, and the Cape, and all the way down to Miami.
Houston	Very good, very good.
Conrad	Florida is really pretty, out there today.
Houston	Can you give us a couple of general comments on housekeeping -- are you keeping the stuff under control?
Conrad	Yeah, but we're going to have a lot in the end. I'd like to tell you right now, I've got three airplanes in sight flying off Jacksonville.
Houston	Well, very good. We'll run a separate visual acuity test here.
Conrad	Yeah, we may not sight that [Laredo] target, but we're seeing all kinds of other.things!
Houston	Roger, roger.
Conrad	Yeah, we're keeping housekeeping under control, but it takes a deal of time.
Houston	Rog. How's that bag working out -- behind the seat -- Pete?

Conrad		It's full!
Houston		All ready?
Conrad		With gear that has other places to go later.
Houston		Oh, okay. Be advised you've got a good [area] 47-1 load in.
Conrad		Roger.
Houston		Are you having any trouble with those blue bags?
Houston		Gemini 5, Houston here. Gemini 5 Houston here.
Conrad		Go ahead Houston.
Houston		How many of the blue bags have you had to use?
Conrad		One.
Houston		Roger.
Conrad		Houston, Gemini 5. Do you want us to leave the computer up?
Houston		Gemini 5, Houston here. You can go ahead and power down the computer now.
Conrad		Roger, computer coming down in just a second.
Houston		Gemini 5, Houston here. Do you still read?
Conrad		Read you loud and clear.
Conrad		... out.
Houston		Okay.
Conrad		... comfortable.
Houston		You say you're comfortable?
Conrad		Yeah.
Houston		Yeah, it's pretty nice, floating around, isn't it?
Conrad		Yeah.
Houston		Hey listen, you were the big singing star of television last night.
Conrad		We did what!?
Houston		You were a big singing star on television last night. You got requests for thousands and thousands of copies of that song you sang.
Conrad		I'll tell you the story about where those words came from when I get back -- that's quite a good story also.
Houston	Okay.	
Hodge		We always have this levity first thing in the morning. The Red Team comes on, then the joke's come on.

This is Gemini Control Houston here again. We don't expect, much more conversation with the spacecraft out on the far edge of the Bermuda area. You heard Jim McDivitt refer to a "blue bag" -- this is a reference to the Fecal Containment Bag. Pete Conrad confirmed that there had been at least one bowel movement to date during the flight. We're not exactly sure which pilot had a bowel movement.

The 'Go' for the 62-1 area was given by McDivitt on the instruction of Chris Kraft. At the time of the 'Go' it was 7:36 a.m. CST.

Our present orbit is 124 miles perigee, 192 miles apogee -- that's statute miles, with an estimated lifetime of 16 days without any further adjustment. Our period is 94.4 minutes.

Dr. Berry says he is very satisfied with the crew. They sound sharp, he says. He notes that they're eating again -- still a little less than had been planned, but they're getting about 2,000 calories per day. They're eating about 2 meals a day, but not eating all of the meals. He is completely satisfied on the water intake. Apparently this is enough food to keep them going. Last night -- we know -- Pete Conrad got about 6.5 hours of sleep. We're not sure about Cooper, but we have a medical data pass coming up over the Canaries in a very

few minutes, and should have a very report on his sleep. This is Gemini Control, Houston, at 45 minutes after the hour.

Gemini Control, at 72 hours 18 minutes into the mission. We are now in our 4th day. The weather this morning -- the Weather Bureau Spaceflight Meteorology Group advises that weather conditions around the world continue very good for orbital operations during the next two days, and probably longer. The four Planned Landing Areas are all located in broad zones of generally good weather, which is characteristic of latitudes near 30 degrees north of this time of the year. The west Atlantic landing area between Florida and Bermuda has partly cloudy skies, with intermittent ceilings of 1500 to 2000 feet; winds are less than 10 knots; and the waves are 2 to 3 feet. In the east Atlantic area, some 300 miles west of the Canary Islands, skies will be partly cloudy with infrequent ceilings of about 1500 feet; winds will be near 15 knots; and waves of about 4 feet. In the mid-Pacific area, 500 miles north of Honolulu, broken cloudiness will produce ceilings near 2000 feetmost of the time; winds are a little stronger than usual averaging close to 20 knots; and the waves are around 5 feet. In the far-west Pacific area, 500 miles southwest of Tokyo, skies are partly cloudy and ceiling, usually unlimited; winds will average less than 15 knots; and seas are about 4 feet. Tropical storm Anna -- first of the season in the Atlantic Ocean -- formed far north of the usual storm generating area. Its present location is about 500 miles north of the ground track of Gemini 5, but could be seen by the Gemini astronauts while over the mid-Atlantic. Tropical storm Doreen, meanwhile, centered about 1000 miles south and 500 miles west of San Diego, continues its westward movement at about 10 miles per hour. Extensive clouds and showers over the Caribbean and the islands of Cuba and Hispaniola show no signs of being organized in any specific pattern. Otherwise, conditions around the world remain the same as yesterday.

With the spacecraft now over the Indian Ocean, the pilots will be in an S-1 experiment. This is the Zodiacal light experiment which will go on for some 20 to 30 minutes during the night-side pass. Toward the end of this night-side pass, up in the area of Hawaii, they will purge both sections of the fuel cell, and on both sides of the diaphragm -- the oxygen side as well as the hydrogen side. Later, over the States between Texas and the Cape, they will take some D-6 photography and, again out in the area of Bermuda, they will take D-6 pictures, possibly of a [aircraft] carrier, just as we attempted to get yesterday, and perhaps we'll have better luck today with the reticle repaired.

We have the Carnarvon conversation racked up and ready to play for you, and let's roll that tape now -- I'm sorry, it's not the Carnarvon tape, it's the Canary Islands tape.

Surgeon	Gemini 5, Canary Surgeon. Your cuff is full-scale.
Cooper	Roger.
Surgeon	We have a good blood pressure. Give me a mark when you begin exercise.
Cooper	Roger. Begining exercise now.
Cooper	Ending exercise now.
Surgeon	Gemini 5, your cuff is full-scale.
Flight	Canary CapCom, Houston Flight.
Canary	Flight, Canary CapCom.
Flight	On the pass over Laredo ...
Surgeon	We have a good blood pressure, standing by for your water and sleep reports.
Flight	Standby, I'll listen.

Cooper	Roger. My water report -- I've had 16 pounds and 4 ounces of water. Last night, I had about 2 hours of sleep during my nap period, and about another 2 to 3 -- about 3 hours of sleep during my long sleep period.
Surgeon	Roger. This is Canary Surgeon. Could you give me an estimate of the quality of your sleep, also Houston Surgeon has asked us to get a food report from you.
Cooper	Roger. The quality of my sleep was better in my short nap than it was in my long sleep period. And it was quite deep during my short sleep period. As for the food -- I just ate, I believe it was Meal 3-charlie.
Conrad	3A was the last one I had. 3-alpha was the last meal I just had at 03:12:30:00.
Cooper	Okay, go ahead Canary.
Surgeon	Would you repeat that please, this is Canary Surgeon.
Conrad	Roger, Meal 3-alpha was the last meal I had, and day 3 -- that's today -- 12 hours 30 minutes, 00 seconds,was the start of the meal.
Surgeon	Roger, we copy.
Canary	Go ahead, Flight -- with what you wanted over Laredo.
Flight	Okay, over Laredo, there was smoke on the northwest corner of the target.
Cooper	... in this small cabin.
Flight	It wasstreaming toward the northwest, about 3,000 feet long.
Canary	Roger, copied -- smoke over Laredo was to the northwest about 3,000 [feet].
Flight	In the northwest corner of the target.
Canary	And it was 3,000 yards long, huh?
Flight	Feet -- feet!
Canary	Okay.
Canary	Gemini 5. Flight advises that over Laredo, the smoke was at the northwest corner of the target, approximately 3,000 feet long.
Conrad	Roger, thank you very much. We saw the smoke loud and clear, and we assumed that it was the northwest corner, but we were unable to see the target, I think probably duee to the slant angle.
Canary	Roger.
Canary	Flight, we've got about 50 seconds left.
Flight	Who's on this loop. Get off the loop. Who's counting on this loop please -- and if you are, get off!
Canary	Flight, we're not reading it out here.
Flight	Roger.
Canary	Roger. We've had LOS.
Flight	Roger, Canaries.

This is Gemini Control, at 72 hours 32 minutes into the mission.The astronauts have just completed a rather quiet pass across the Carnarvon site in which they asked for ground quiet while they worked with the cameras to get the zodiacal light pictures. Conrad reported that the first phase of the picture taking went extremely well. Standby one minute, to see if we have this tape racked up -- I am sorry it is not ready for you. When it is ready, we will play it. This is Gemini Control, out.

Gemini Control, Houston, here, at 72 hours 38 minutes into the mission. We have the Carnarvon tape ready for you now. It's a brief pass, and we'll play it for you at this tine.

Conrad	Carnarvon, Gemini 5.
Carnarvon	Gemini 5, Carnarvon. Go ahead.
Conrad	Everything's 'green' up here. Unless you have something for us, we're very busy.
Carnarvon	Roger, I'll update your TR for a 62-1, about mid-pass.
Conrad	Okay. Give me a call before you do it, because we're rolling the camera in the window when the [DCS] light comes on.
Carnarvon	Roger. Will do.

Gemini Control, Houston, at 73 hours 2 minutes into the mission. In this pass across the States, we expect contact momentarily from the Guaymas station. We've knocked out the planned D-6 experiment that was to have been done in the Dallas area. It was scrubbed due to weather in the Dallas area. We will, however, attempt high resolution photography out over the [aircraft] carrier on the eastern edge of this pass.

We have the tape of the Hawaii conversation ready for you, and we'll play it for you at this time.

Conrad	Hawaii, Gemini 5. We're doing the S-1. Would you please check the speeds on the cameras with the D-6. I believe they should be 1/125th of a second -- rather than 1/60th of a second -- and one 1/250th.
Hawaii	Roger. Will do.
Flight	We'll get you an answer on that.
Hawaii	Okay, Flight.
Flight	We want to delete the D-6 anyway. We've got a weather problem.
Hawaii	Roger. Gemini 5, we want to delete that D-6 anyway -- we've got aweather problem.
Flight	Standby on that. It's just one of the D-6's were going to delete.
Conrad	Both of them?
Hawaii	Negative. Delete the D-6 at time is 15:08:56.
Conrad	Okay. That's the one over Texas.
Hawaii	Roger.
Flight	Affirmative.
Conrad	Flight, listen -- with this Questar lens -- tell them we're going to pick a good [example] site somewhere going across the US and get it.
Hawaii	Roger.
Conrad	Afterall, we're in the process of rigging for it, and we'll be rigged for it for the one off the coast.
Hawaii	Roger.
Flight	That's right. We're working on those settings right now, Hawaii.
Hawaii	Roger, Flight. They're working out the settings, Gemini 5.
Conrad	Roger. My information up here says 127.
Hawaii	Roger, roger.

Conrad	Hawaii, Gemini 5. Do you want this Section One and Two [fuel cell] purge?
Hawaii	That's affirmative.
Conrad	Coming up right now.
Hawaii	Roger. Give me a mark.
Conrad	Roger... hydrogen purge commencing, now. Number One purge hydrogen complete. Commencing Number Two hydrogen purge on my mark -- mark. Number Two hydrogen purge complete. Standby for oxygen purge Number One. Commencing Number One O2 purge now.
Flight	One 160th and one 125th, as they suggested. Did you copy, Hawaii?
Hawaii	Roger, copy. Gemini 5, we're coming up on LOS. The settings for your camera is one - 1/125th, and one - 1/60th.
Conrad	Hawaii ...
Hawaii	Roger. Flight, Hawaii.
Flight	Go ahead.
Hawaii	Okay. We've had LOS, so you might pass that [information] up over Guaymas again.

This is Gemini Control, Houston, at 73 hours 23 minutes. In their last pass across the States, the Gemini 5 crew went through a fuel cell calibration exercise, and they attempted to get a picture of a land object near Dallas, but the Dallas area was, as Gordon Cooper put it, "solid overcast" and they couldn't get that picture. They did, however, get a picture of a ship. They're not sure of whether it was the Lake Champlain [the aircraft carrier serving as their prime recovery ship], but this was the second picture planned for this pass, and they got a picture of a ship just west of Bermuda. They also received an update on the Zodiacal light experiment that they'll do again on this present [night] pass over the Carnarvon area. This will involve the use of infrared sensors and the radiometer, and they'll take a similar measurement on the star Deneb -- D like in dog, e-n-e-b, in the same area over Carnarvon. This is a star that they had hoped to get a measurement of yesterday, but they couldn't get because the reticle in Gordon Cooper's window was inoperative. They generally reported that there were a lot of clouds over the States. They said in Texas, Houston was the only city that appeared to be open. We have the tape for you of the Stateside pass, and will play it for you now.

Houston	Gemini 5, Gemini 5, this is Houston here. If you've time, give us a call. We have some information for you.
Conrad	Roger, go ahead.
Houston	Okay -- we would like to have you put your Cryogenic Gauging switch to 'Fuel Cell O2'.
Conrad	Roger, 'Fuel Cell O2'.
Houston	Okay. Are you through with your D-6, so I can give you some other stuff?
Conrad	Roger, go ahead.
Houston	Okay. We would like to have you put your Calibrate switch to 'Number One' position for ten seconds. I'd also like to tell you that your [ship] target for your next D-6 will be going up-track, so that the V-wake will be downstream.
Conrad	Roger.

Houston	And I've got an update for your D-4/D-7 California background measurement -- whenever you're ready to copy. I also need your 'Go' for that over Carnarvon. I'd like to have you tell Carnarvon whether you will be ready to do it or not.
Conrad	Okay.
Houston	Are you ready to copy the update?
Conrad	Roger, go.
Houston	Okay -- first put your Calibrate switch to 'Number Two' for ten seconds. Okay, here comes the D-4/D-7 update: new time is 03, 16:37:28, pitch 26 down, yaw 38 left.
Conrad	Okay, go ahead.
Houston	[Be advised that] they'll be updating your TR over Texas and Bermuda, so you'll get a couple of DCS lights and stuff.
Conrad	Okay.
Houston	I've got a map and star update for you also.
Conrad	Roger, go ahead.
Houston	Okay. They're both at the same time. 03, 16:17:37, the map is 162.5 degrees east, the star is 01 17 49.
Conrad	Alright.
Cooper	What's the rev?
Houston	Standby one -- rev 47. You can place your Cryogenic Gauging switch to 'Off' now. Okay, that's all the information I have for you. Why don't you go ahead with your D-6 experiment.
Conrad	Okay. We got a complete set of the Zodiacal pictures on the last night-side.
Houston	Very good! Very good.
Conrad	Worked out okay on it.
Houston	Good.
Conrad	I gave Gordo a "well done" for tracking tests I really think we got some good ones.
Houston	Good.
Flight	Gemini 5, Gemini 5, Houaton Flight here.
Cooper	Go ahead, Gemini 5 here.
Flight	How did you make out on your D-6 experiment?
Cooper	There was quite a lot of clouds out there, and we saw one ship with a wake. I don't really believe it was them [-- the assigned target ship], but we snapped a picture of it.
Flight	Okay. Did you pick up anything across the States with your other D-6?
Cooper	No, it was pretty solid overcast, it was all out west.
Houston	Yeah, that's why we scrubbed it, because of the bad weather.
Cooper	Yeah, it's pretty solid out there -- all the way from the coast on in. Houston was the only area that was really -- it looked like it was open.
Houston	Okay.
Cooper	Houston, Gemini 5. Do we come anywhere near Austin [Texas] next pass?
Flight	Well, it looks like you might be a little bit north of it there.
Cooper	Okay ...
Houston	Why, are they open?

Cooper	Yeah, they were when we went by, but we were too close in to yaw and gape.
Houston	Okay.
Flight	I'll take a look at that and see what we can do. You know, you are going to be pretty busy next pass anyway?
Cooper	Well, we'll pick them up tomorrow. Maybe the weather will be better.
Flight	Okay.

This is Gemini Control, at 73 hours 32 minutes into the flight, now on the 47th rev of the earth. We've had no contact since we left the Bermuda area.

I would like to pass on to you a little background on the "Red and White" control team. We're configured, as you know, in four tiers here in the Mission Control Center. Starting down on the front tier -- on the left as you view from the top -- the Tank Pressure Monitor during the launch phase was Charles Bassett, astronaut Charles Bassett; he's 33 years old, was born in Dayton, Ohio, and he holds a bachelor's degree in electrical engineering from Texas Tech in Lubbock. To his right is the Booster Systems Engineer, who doubles up as Assistant Flight Director, is William Platt, 29, from Eunice, Louisiana, has a BS degree in mechanical engineering from the University of Southwest Louisiana, Lafayette. Our Retro Officer is Thomas F Carter, 27, of Quitman, Mississippi, and he holds a BS degree in civil engineering from Mississippi State. Our Guidance Controller is Charlie Parker -- that's his full and official name. Charlie Parker is 31years old, a native of Concord, Texas, holds a BS degree in electrical engineering from Lamar Tech in Beaumont. Our Medical Director is Flight Surgeon, Doctor Charles Berry -- he is 41, was born in Rogers, Arkansas, holds a medical degree and a degree of Master of Public Health. His medical degree was from the University of California and his Master of Public Health degree from Harvard. The Flight Dynamics Officer is Jerry Bostick, "B" as in boy, o-s-t-i-c-k. Jerry's 26 years old, a native of Golden, Mississippi, holding a BS in civil engineering from Mississippi State. CapCom Jim McDivitt, 36, Chicago, Illinois, holds a bachelor's degree in aeronautical engineering from the University of Michigan. Electrical, Environmental, and Comminications Officer, EECOM, is Richard Glover, 30, also of Chicago, holds a BS in electrical engineering from the University of Texas and a Master of Science and electrical engineering from Stanford. The Guidance, Navigation and Control Officer is Gerald Griffin, age 30, native of Athens, Texas, with a BS in aeronautical engineering from Texas A&M University. Our Operations and Procedures Officer is Jones Roach -- first name, Jones, J-O-N-E-S -- age 32, a native of Richmond, Virginia, with a BS degree in electrical engineering from Virginia Military Institute. Our Network Controller is Ernest L Randall, 30, from Oklahoma City, holding a BS degree in Chemistry from East Central State College in Oklahoma. Our Flight Director, of course, is Chris Kraft -- he's 41 years old, a native of Phoebus, Virginia, with a BS in aeronautical engineering from V.P.I. This is Gemini Control, at 73 hours 36 minutes into the mission.

This is Gemini Control, at 74 hours 2 minutes into the mission. The Carnarvon station has just established contact. The pilots reported they were performing their sightings, and taking their infrared readings on the star Deneb. It's a relatively quiet pass. The crew was advised they would have a medical data pass over Hawaii this pass, and Hawaii should acquire in about twenty minutes. Let's see -- I believe that wraps up all the information at this time. This is Gemini Control, out.

This is Gemini Control, at 74 hours 22 minutes into the mission. We have a brief, it's about a minute and a half, of conversation over the Carnarvon station. Let's play for you. We've got a little mechanical difficulty there, rolling the tape. We'll standby one until it's ready. Let's break, and come back to it.

Conrad	Carnarvon, Gemini 5. We're doing 409 at this time, equipment is on.
Carnarvon	Say again the last, Gemini 5.
Conrad	Roger. We're doing 409 at this time, equipment is on.
Carnarvon	Roger. We're receiving your FM -- FM telemetry.
Conrad	Okay. Give me a mark in four minutes, please.
Carnarvon	Roger.
Conrad	Be advised, Carnarvon, we'll be 'Go' for 423-alpha.
Carnarvon	Roger, understand. We've got an update for you. They have a medical pass scheduled on the Pilot at Hawaii this rev. Hawaii's acquisition [time] is 16:24
Conrad	Roger, 16:24.

This is Gemini Control, Houston, ay 74 hours 36 minutes into the Gemini 5 mission. Over the last Hawaii pass, Gordon Cooper reported he'd finished Meal C, which included in orange drink, spaghetti and meat, butterscotch pudding, toasted bread cubes and cheese sandwiches. The Hawaii Surgeon said he noticed, what he interpreted was little shiverings and squiggles on his reading out blood pressures and respirations. He ask the crew about this and they said, well, it probably came from an earlier reading. Conrad reported he was working up a good appetite.

We're in contact right now with California station. And ten seconds ago we launched a Minuteman, the Department of Defense confirmed. Pete Conrad just came up on the loop and said, "I see it! I see it!" He sounds quite elated. He just said, "There it goes". They're orienting the spacecraft so they can get both photographs of that Minuteman launched out of Vandenburg Air Force Base at -- we would judge -- very close to 38 minutes after the hour. We're standing by for further word on the flight itself. And there's Conrad again, he says, "He's out over the water, see him." Conrad picked it up at about 10 seconds out. We have an indication that the second stage has ignited. Conrad says, "Okay, we can see them real good". Standing by for further word on the Minuteman. Conrad says, "We can still see it very clearly. We can also get a good background on it." Now apparently the booster, the Minuteman, is out of sight of the Gemini 5 spacecraft. That sounded like a most successful test. This experiment is aimed at finding out how well a crew in space can sight an object launched from the ground, and keep their spacecraft tightly aligned on it and photograph it. We're now over Texas, and let's cut in on the conversation live.

Conrad	...
Houston	Say again.
Conrad	Wait a minute, we're getting something on the horizon scanner.
Conrad	... Holloman right now, and I can see the runways of the whole ...
Houston	Say that again, please.
Cooper	We're tracking Holloman air strip.

[** DMH's note -- They are to try to observe a rocket-sled firing at Holloman.]

Houston	Okay, I got you. Very good. Did you get a picture of that other thing [-- the Minuteman].
Conrad	I got about six of them.
Houston	Very good.

Gemini Control here. The crew, last report, was tracking the Holloman Air Force Base in West Texas. No further reports since then. We show them on our maps here as directly over Texas. Standby for additional conversation.

Gemini Control here. The flight plan calls for the pilots to turn the computer on over the Cape to perform another test with their onboard radar. We'll see how it goes. Immediately after leaving the Antigua area, they'll turn off the radar and align their platform Small-End-Forward.

Conrad	Okay, we got Bergstrom that time too.
Houston	Very good. Sounds like you are getting caught up on D-6.
Conrad	Yeah, I hope so. Okay, we're going to 30 [degrees] pitch down, yaw 7 [degrees] left, and we're standing by for radar.
Houston	Okay, fine. You've got that procedure all squared away, haven't you?
Conrad	We'll go to 'Rendezvous' [Mode] and then back to 'Catch-up' after lock-on for second, back into 'Rendezvous' and keep that cycle up till we loose lock again.
Houston	Okay, very good. Do you have your FDAI up?
Conrad	Confirmed.
Houston	Okay, are you going to be pointing at the transponder?
Conrad	Yeah, you can track it.
Houston	Okay, very good.
Conrad	Okay, we have solid [radar] lock.
Houston	Okay, kind of keep your eye on the FDAI needles if you can, as you go across, and give us a little report on them.
Cooper	Roger, I'm reading range, range-rate ...
Houston	Okay.
Cooper	I'm locked on.
Houston	Very good.
Conrad	I haven't gotten anything to read into the 'Rendezvous' Mode yet.
Cooper	My FDAIs are locked.
Houston	Okay, are they null?
Cooper	Rog.
Conrad	I won't read into the 'Rendezvous' Mode. Do you want me to go to 'Catch-up'?
Houston	Yeah, cycle it back and forth and see what happens. Did you get the 'Start Comp' [Start Computation] button pushed there?'
Cooper	Locked on good with the ...
Houston	Okay.
Cooper	Proceed with the reticle.
Cooper	Holding lock, as we go straight across.
Cooper	Is it out at Merritt Island?

[** DMH's note -- The radar transponder is on a tower on the Kennedy Space Centre's Merritt Island Launch Area.]

Houston	I don't know, just a second.
Houston	We've got the coordinates to 4 decimal places in seconds, but I don't know where it is.
Cooper	My radar's showing it's right on Merritt Island out there.
Houston	Okay.
Cooper	I'm still locked on.
Houston	Okay.
Conrad	I don't understand. I'm not getting any range readout, either in 'Catch-up' or 'Rendezvous' [modes].
Houston	Roger. You got the 'Start Comp' button?
Conrad	Yeah, I've tried everything.
Houston	Is the MDIU on?
Cooper	Well over 250 miles an hour now I guess.
Houston	Did you have the MDIU powered up?
Conrad	Yeah.
Houston	Okay.
Cooper	I'm still locled on. We're over 300, I guess, now.
Conrad	Well you'll have the data on the tape through, won't you.
Houston	We hope we do, yes.
Conrad	I squeezed off a couple of D-6's going by there too -- he'was pointed right at it.
Houston	Okay.
Cooper	Just broke lock.
Houston	Roger, broke lock at 40:47.

Gemini Control here. We're out on the eastern edge [of the ETR's acquisition zone] approximately 1,000 miles east of the Cape now. And you heard what real good success Gordon Cooper had with that onboard radar, locked onto an L-band signal from the Cape and still holding it and reporting good values at a range of 300 miles.

Here in the Control Center we were watching closely Dr. Berry's oscillograph, which gives us the heart beat and the respiration information. During that Minuteman launch out on the West Coast, we noted some slightly elevated values, which would be an indication of the pickup of work. It certainly was a fast working -- hard working -- six minute pass. Now, Jim McDivitt's trying to raise the spacecraft again, let's go back.

Houston	... purge out the fuel cells. We want it over a [tracking] site so we get some good data while we're doing the purge. We don't really have much else for you. We've got about another six or seven minutes here of acq time.
Cooper	Okay, I'll give you a little information further, radar wise. I was getting radar range, and range-rate intermittently on my digital there, and on my analog there, I don't know why it wasn't steady. On my needles, I had steady lock-on and was pointing them away on out, and away on past.
Houston	Okay, did you get that intermittent R and R-dot throughout the whole pass?

Cooper	A little bit. Although ... fairly close we locked up pretty solid on the analog and held fairly steady.
Houston	So in-close it was steady, but at greater range it was intermittent.
Cooper	Greater range it was a little bit intermittent, although it did seem to jump in and out a little there.
Houston	Okay.
Houston	Gemini 5, Houston.
Cooper	Go ahead, Houston.
Houston	Your attitude control fuel usage has been up pretty high lately, and we want to make you conscious of the fact that you're going to have to start taking it easy and going at a little lower rate than you have been to make it through the rest of the flight here.
Copper	Roger.
Houston	As a matter of a fact, I'll try to fix up a little summary for you, and give it to you across the States the next time, and let you know where you are.
Cooper	Okay.
Houston	Gemini 5, Houston here. Would you hit the 'Start Comp' button one more time. We want to see -- get some stuff on the ground here?
Conrad	It's in 'Catch-up' [mode], you want it in 'Rendezvous'?
Houston	It doesn't make any difference. Just go ahead and hit the 'Start Comp' button.
Conrad	Okay.

This is Gemini Control Houston. I think we're out of voice contact with the spacecraft now, as it starts swinging across the Atlantic. We're on the 48th revolution -- a revolution that started at the precise time at 10:47 Central Standard Time. We have the tape racked up on the earlier portion of this pass, beginning at Hawaii, and we will play it for you at this time.

Conrad	Blood pressure coming down.
Conrad	Blood pressure coming down.
Surgeon	Gemini 5, Hawaii Surgeon.
Surgeon	Gemini 5 Hawaii Surgeon, full-scale.
Surgeon	We have a goad blood pressure. Standing by for your water report.
Conrad	It's still the same as I think it was this morning -- 16 pounds 4 ounces. And the meal -- I still haven't eaten anything since the last meal. This was [Meal] 3-charlie, I think.
Surgeon	Okay, real fine. Are either you or the Command Pilot having any problem with the temperature now? Are you fairly comfortable?
Conrad	Oh, yeah, we're fine now.
Surgeon	Okay, have either you or Gordon been doing any shivering on the last few revs? Or any exercises? We've noticed -- we're just checking on your respirations here. There are a few swiggles on it, and we were trying to figure out why that was happening.

Cooper	We were probably shivering, you know, this last rev or two ...
Surgeon	Were you shivering on the last rev or two?
Cooper	The last one rev has been good, but on the several before that we were probably shivering.
Surgeon	Roger. Is everything else all right, up there?
Cooper	Say again?
Surgeon	Everything else all right up there?
Cooper	Just fine.
Conrad	The Pilot's working up a big appetite, I can tell you that!
Surgeon	Ha! Real good. Alright, I've got nothing else, Hawaii Surgeon, out.
Cooper	Okay.
Hawaii	This is Hawaii CapCom. For your experiment 423A, there is a small cloud deck that extends from 700 up to 1100, it's west to southwest, about 2 miles east of the site.
Cooper	Roger, we're ready.

Gemini Control Houston here. That concludes the Hawaii pass. We've got the start of the Stateside tape racked up, and we'll play it for you now.

Houston	Gemini 5, Gemini 5, Houston here.
Cooper	Go ahead Houston, Gemini 5 here.
Houston	The cloud deck over the site now is solid, it goes to broken about 5 miles to the southwest of the site and it goes clear about 2 miles to the east of the site.
Cooper	Roger. We can see the cloud deck.
Houston	Okay, very good. And they are 'Go' there.
Cooper	Roger. We're in position, and waiting.
Houston	Roger.
Conrad	Boy, I wish we could get on it, this Questar lens is fantastic.
Houston	Roger.
Cooper	If we don't get this this time, will you stand outside and wave, so we can get your picture as we go by?
Houston	Say again -- oh, Rog!
Cooper	If we don't get this, you can stand outside and wave, and we'll get your picture as we go by.
Houston	Okay, I'll be out there.
Houston	10, 1, Mark! There we go. It's on it's way.

[** DMH's note -- A second Minuteman missile has been launched from Vandenberg Air Force Base, just up the California coast from Los Angeles.]

Conrad	I see it there! See it Gordo? See it through that holes in the cloud. There he goes, bigger then heck. See him?| There he is over the water, Jim.
Houston	Second stage.
Conrad	Okay, we can see him, real good.
Houston	Very good, very good.
Conrad	We can still see his climb very, very clearly down there. Even against the cloud background.

Houston	Okay.
Conrad	Houston call when you want the computer on.
Houston	Yeah, tell us when you get through there and we'll ...
Cooper	We're through.
Houston	You're all done? Okay, we'll go back to this other stuff now.
Cooper	I can see him, going above us.
Houston	You say he's going above you, right?
Cooper	Right,we saw him way out, going high to the right.
Houston	Okay, roger. The computer power up time is 03:16:45:00 and you can power it before then by a couple of minutes if you'd like.
Cooper	Okay, we're hoping to find something down here for the D-6.
Houston	Just a second. and I'll run outside!
Cooper	Okay.

This is Gemini Control Houston, at 75 hours 3 minutes into the mission. We've a little bit of additional information on that Minuteman launch. Apparently the best estimate now is the point of closest approach was about 115 statute miles. The missile would have arced up and over, of course, it was slightly, to the north of the spacecraft. How many miles to the north, we can't get an exact fix on, it would probably be on the order of 100 miles. At last report, the Minuteman was observed rising, and well above the spacecraft, which, at that point it would have been, oh, 135 to 140 statute miles in altitude coming into a perigee, or just about perigee which was actually 124, I believe. This is Gemini Control, Houston.

This is Gemini Control, at 75 hours 32 minutes into the flight of Gemini 5. We're on the 48th revolution with the spacecraft coming up on a Carnarvon acquisition. First of all, we have some information on the upper stage of Gemini 5's launch vehicle. According to our sources, the stage impacted somewhere in the Indian Ocean within the past hour. The start of its reentry was reported by an observer in Pretoria, South Africa, at 10:36 Central Standard Time. He observed the start of the stage's break up. He estimated the altitude at about 110 kilometers. The report was that the second stage broke into four or five pieces, and they were presumed to have impacted somewhere in the mid-to-east Indian Ocean, ten to fifteen minutes later. Just how much of it impacted, we don't know. We got no reports on if in fact any pieces got through the reentry heat. And some additional information on the Minuteman launch. The flight was completely successful, it was a 27-minute duration flight. It impacted at a point in the west Pacific, more than 5 thousand nautical miles from Vandenberg Air Force Base. It reached a maximum altitude of just over 500 nautical miles. The Minuteman was flying a path of 155 statute miles north of the path of the spacecraft. The point of closest approach between the two was 201 statute miles. The time of closest approach was 10:38:06 CST. The missile was launched at 10:37:28 CST. The spacecraft was four minutes away from perigee at the time of the closest approach, which would've put its altitude at the time of the sighting and the picture-taking at 125 statute miles. At this time, we've a brief conversation between the spacecraft and the station at Ascension Island during its recent swing across the Atlantic, and we'll play that tape for you now.

Houston	Gemini 5, Gemini 5, Houston here, over.
Cooper	Go ahead Houston, Gemini 5

Houston	Roger. We're taking a quick look at the fuel here, and it looks like you're a little bit below the programed flight plan fuel level for this particular time in the flight, so we're gonna have to take it easy for a while.
Cooper	Roger
Houston	We're getting some more information on the S-8/D-13 pass across Laredo, right now the weather is clear with a few little puffy clouds around, less than a tenth. You're gonna have a smoke pod on the northwest corner again, the smoke is drifting slowly out to the northwest. You should be a little bit to the south and the sun should be almost overhead. So it'll be a lot better -- the conditions will be a lot better than they were this morning.
Cooper	Okay, fine.
Houston	Gemini 5, Gemini 5, Houston.
Cooper	Go, ahead
Houston	Can you give us an onboard readout on what your propellant quantity is, please?
Cooper	The proepllant quantity is reading 31 percent, over.
Houston	Roger, under 31 percent
Cooper	... 113 down on my recording chart.
Houston	Okay, very good.

This is Gemini Control, at 75 hours 48 minutes into the mission. The Department of Defense experimenters concerned with the Minuteman launch from Vandenberg Air Force Base are extremely pleased here in the Mission Control Center. They advised that their bird was launched on the second called for. They are very complimentary to the SAC crew that handled that launching. The spacecraft is on its swing up across the Pacific. We should be in touch from the Hawaii station, in about five minutes.

Meanwhile we have some tape conversatiion gathered from the Carnarvon pass ended about five minutes ago. We'll play it for you now.

Conrad	Carnarvon, Gemini 5. Standing by for the updates.
Carnarvon	Roger. Here's the PLA update.
Conrad	Roger.
Carnarvon	Area 50-4, 20:53:56, 12+12, 18+17,. Area 51-3, 32:12:40, 14+05, 19+13. Area 52-3, 23:47:51, 12+57, 18+18, Area 53-3, 25:22:39, 12+10, 18+00. Area 54-delta, 26:17:24, 19+56, 24+41. Did you copy?
Conrad	Yeah, I don't understand the times on the last two -- is that 25, 26. Will you read the times on 53-3 and 54-delta?
Carnarvon	Roger, DODRC, 53-1 is 25 hours 22 minutes.
Conrad	Okay, good show.
Carnavron	Standby, there seems to be a question on this thing. You have to tell me what it is.
Flight	Carnarvon, those times should be 01:22:39 and 02:17:24 and the day on them is 04.
Carnarvon	Roger.
Conrad	What were the last two ...
Carnarvon	53-3 is 01:22:39 and 54-Delta is 02:17:24.

Conrad	Copy.
Carnarvon	The weather's good in all areas.
Flight	Carnarvon, can you give us an onboard computer summary?
Carnarvon	Roger.
Conrad	Okay. Would you advise Flight that we got everything done except the Venus photographs on the platform 02 test.
Flight	We copied.
Carnarvon	Roger.
Flight	We'd like to a Contingency B summary, please.
Carnarvon	Roger, Flight. Get set.
Flight	Carnarvon, Houston Flight.
Carnarvon	Flight, Carnarvon.
Flight	Would you cut an LOS computer summary please?
Carnarvon	Roger.
Flight	Carnarvon, did you understand that we wanted a Contingency B summary?
Carnarvon	No. We'll get another one out.

This is Gemini Control Houston, at 76 hours 2 minutes into the mission. And within the last minute, the spacecraft has come in contact with the Hawaii ground station and the crew's going through a medical data pass. Let's see -- I believe this is being performed on Gordon Cooper. Let's tune in there live, and see what's happening.

Surgeon	.... Ah, we have a good pressure. Standing by for your water report
Cooper	Roger, I had 17 pounds 4 ounces of water, and am still finishing up Meal 3-alpha.
Surgeon	Say again, please
Cooper	Roger, I'm still eating up the remnants of Meal 3-alpha, before I have a new meal here, shortly.
Surgeon	Roger. We've nothing else. Thank you Gemini 5, Hawaii Surgeon, out.
Cooper	Roger, thank you.

Back to Gemini Control here. Cooper's reference there -- Meal 3-alpha includes cocoa, salmon salad, something called a P-bar, toasted bread cubes and ginger bread, with a total count of 914 calories. After the exchange of medical data, we had no further conversation on the line. We'll standby and monitor it. We really don't expect anything, but we'll come back live if it does. During the pass across the States, the crew, once more, will attempt to sight those eye charts north of Laredo -- uh, let's go back to the spacecraft, no? apparently they're talked-out after that last pass, which was a very talkative one -- again, across the States, we'll try the vision test north of Laredo, and shortly after that we'll purge both the oxygen and the hydrogen side of the fuel cells, both sections. The computer will be up, the platform will be up, but the rate gyros will be offline. This is Gemini Control, Houston, at 76 hours 5 minutes into the mission.

This is Gemini Control Houston, at 76 hours 32 minutes into the mission. In the last pass across the States, the crew was successful in picking up that eye target over north of Laredo. Pete Conrad read out markings in what he called the second row. The squares are aligned in three rows, four boxes to a square 2,000 feet on a side. In the second row, he

said the second and third squares were in a position number two. Position number two is a slant from left-to-right -- in other words ... slanting into the left corner. They acquired the target a little bit late. He couldn't see any more than that, but he definitely could see those two squares in the second row. Later on in the pass, there was discussion of the operation of the primary scanner onboard. The crew reports that it is apparently off about 15 degrees in pitch, discussed noting this early in earlier revolutions. They are apparently allowing for it. Their secondary scanner seems to be right on the money. There was also discussion of the computer and how it's operating -- we have no information on just what, if we have a problem there, or, if we do have a problem, what it is -- it's giving the crew some strange readouts, and is causing some questions to be asked here on the ground. There's no major concern here over the computer, we know its operative and we're just trying to figure out exactly what the status of it is. We have a tape of that pass across the States for you -- it's rather long. We'll play it for you now.

Houston	Gemini 5, Gemini 5, Houston.
Cooper	Go ahead Houston, Gemini 5.
Houston	I want to give you a little information on your S-8/D-13, that might help you acquire the target. Are you ready?
Cooper	Roger, go ahead.
Houston	Okay. The smoke pod is still at the northwest corner of the area. It's about 1,000 feet from the nearest cleared square. The smoke is going just about due north, and it's about five or ten degrees wide -- ah, the smoke column goes out about like that. There's some scattered cumulus about 50 miles to the east, and there's some very small cumulus about 10 miles to the west. It's clear right over the target area. To the south- southeast, there's a light cirrus stack, but it's ... quite a ways out of the way.
Cooper	Roger.
Houston	Gemini 5, Houston again. Be advised that you'te going to be passing just about 75 miles ground-range south of the area where the targets are.
Cooper	Roger.
???	Texas go 'Remote', California go 'Local'.
Conrad	... Gemini 5, we have the smoke in sight at this time. We're still quite a distance out.
Houston	Okay. Now the smoke's supposedly blowing due north from the northwest of the site.
Conrad	Rog. We'll do our best.
Houston	Okay.
Cooper	The target's in sight.
Houston	Roger.
Conrad	Okay. We saw the targets, and we think we logged about two of them and that's about it.
Houston	Okay. Can you tell me what they were?
Conrad	Well, let me think about what direction we are [pointing] first.
Houston	Okay. It wasn't the Big-E, huh?
Conrad	No. I think the third one in the second row was a [position] two. We think that the second one was a two, and that the third was a two. That's about it. We were past it before we picked it up.

Houston	Okay. So you think the second and third one in the second row were both twos?
Conrad	That's right.
Houston	Very good. We have some other information here for you, when you're ready to go.
Conrad	Go ahead.
Houston	We would like to have you start your [fuel cell] purge now, and purge both sections. When.you Complete your purge, we'd like to have you then power down.
Conrad	Okay. I think we'll ... it tonight.
Houston	Roger.
Conrad	We have a piece of information for you. We're pretty sure our primary scanner is off. It works all right, except it measures ... with the nose about 15 degrees down.
Houston	Okay. You think the primary scanner is off about 15 degrees in pitch. Is that right?
Conrad	Yeah. The secondary scanner works fine.
Houston	Okay. Listen, would you start the purge because we don't have any telemetry out of Antigua, and we'd like to watch this purge.
Conrad	... hydrogen off ... down.
Houston	Okay.
Conrad	Hydrogen complete on Number One.
Houston	Okay.
Conrad	Number Two hydrogen's complete. Starting Number One O2.
Houston	While you're doing the purge, I'd like to ask Gordo a couple of questions about the needles during the liftoff -- in the powered portion of the flight. We'd like to know which one of the tank needles went full-scale during powered flight, and at what time did this occur?
Cooper	Roger, it was before staging, and it was the emps fuel needle, second stage.
Houston	Roger, second stage, emps fuel needle, not the oxidizer.
Cooper	Then it came back in, after staging, and then went off ... shortly thereafter.
Houston	Shortly after staging?
Conrad	Affirmative.
Houston	Okay, very good.
Cooper	... told you about the POGO?
Houston	Roger.
Conrad	Section One oxygen purge complete -- Mark!
Houston	Roger, thank you.
Conrad	Starting Section Two purge at this time.
Houston	Gemini 5, Houston again. When did you first notice that the primary scanner was giving this 15 degrees pitch down?
Cooper	It was yesterday, when it was being really erratic. Clouds were ... quite, easily and at every sunset and sunrise it would go off ... signals ... It was doing better yesterday. Today we tried the primary, just to compare, and it's very weak and is holding the attitude slightly nose down.
Houston	Okay.

Cooper	... it has quite a ... to it's attitude hold.
Houston	Okay. How about in the platform ... Does it align the platform properly?
Cooper	Well, fairly well. It's still ... a little bit off, I think over a long ... it would be aligned alright, but the secondary does align it.
Houston	Okay. Gemini 5, would you go to 'Catch-up' [Mode] and hit the 'Start comp' button on your computer please?
Conrad	Roger... Getting Comp start now. Section Two purge complete.
Houston	Alright -- your Section Two purge is complete.
Conrad	Holler, when you want us to power down.
Houston	Okay. We're checking a few things on the computer. If we lose voice contact before we get this done, we want you to power down and ... start your rest cycle. We're going to start the rest cycle about half an hour late today, so we want you to regulate your sleeping by shifting everything a half hour backwards. We would also like to have you put your Cyrogenic Gauging switch to the 'Off' position now.
Conrad	The computer's in the 'Catch-up' [Mode] now and we hit the 'Start comp' and four ... IVIs are cycling through from zero to 999.
Houston	Okay. We'll look into that for you.
Conrad	We had this problem at the start of the REP, but I thought it was me and I got it to stop the first day, but it slipped my mind now.
Houston	Okay. Understand it's still going back and forth.
Conrad	Yeah, it's going from 0 to 99 ...
Houston	Okay. It's coming up all the time -- is that correct?
Conrad	Up all the time.
Houston	Okay.
Conrad	Now it's stopped at 794 and ...
Houston	Okay.

This is Gemini Control, Houston, at 77 hours 10 minutes into the mission. We're on the 49th revolution around the earth, out over the Indian Ocean, on a long, quiet swing up across the East Indies. We should be in contact with our Hawaii station, although it'll be a peripheral contact, in perhaps 20 to 25 minutes. One of the more optimistic signs having to do with this mission, has just flashed up on the board -- I refer to the start of the Ground Elapse Time to Retro command for an end-of-mission. Our clock has been activated, and has the setting in it, and it reads, right now, 114 hours and 54 minutes and 15 seconds to Retro command -- that would be for a full 8-day mission. The clock just above it is set and is counting backwards for a Retro command that would bring us down into the 62-1 area, which is our present point of commitment. This is Gemini Control.

This is Gemini Control, at 77 hours 32 minutes into the flight. The spacecraft is over the mid-Pacific. It's a quiet period here and, we presume, one of relative inactivity aboard. Pete Conrad should be taking a nap, and the Command Pilot, according to the flight plan, should be eating another meal at this time. We expect acquisition within a few minutes, at our Hawaii station, and then we'll find out a little bit more about what's going on. This is Gemini Control, out.

Gemini Control here, at 77 hours 44 minutes into the mission. We've an ever-so-brief conversation with the Hawaii stationn. Gordo's rogering that everything's quiet and slow onboard, and sounding just a wee bit tired after the day's activities. We've the tape ready, and we'll play it now.

Hawaii	Gemini 5, Hawaii CapCom. All your systems look good. We've nothing for you at this time. We're standing by.
Cooper	Roger. Everything's quiet and slow up here.
Hawaii	Roger.

This is Gemini Control, at 78 hours 2 minutes into the flight. Just a very few minutes ago, at precisely 01:58:39 Central Standard Time, Gemini 5 began the 50th revolution as it crossed 80 degrees west [the longitude corresponding to the Cape, from which it began its flight].

During the spacecraft's swing down the west coast of North America, we had a long conversation, largely between Jim McDivitt and Gordon Cooper. McDivitt passed along a long series of flight plan updates and there was considerable discussion of the Laredo eye chart experiment. The crew was asked for any suggestions they might have for placement of the smoke pots that have been lighted out there to assist the crew in finding those charts, and among other items, the Gemini 5 crew was told to look, on the 51st revolution, for an active volcano to provide background for one of their infrared experiments. The volcano is in Hawaii. It's called Kilauea -- I'll spell it, K-i-l-a-u-e-a -- at 19 degrees 24 minutes north, 155 degrees 17 minutes west.

We also want to acknowledge receipt of a telegram from a scouting group in convention at Albuquerque. The message to Gordon Cooper reads: "326 Scouting executives from the Southwestern states of Oklahoma, Texas, and New Mexico, in conference at Albuquerque, send their greetings and best wishes for a successful flight to their friend and former scout, Gordon Cooper of Shawnee, Oklahoma." This message will be presented to Gordon at the conclusion of the flight.

We have the tape racked up from the last pass across the west coast of North America, and we will play it for you now.

Houston	Gemini 5, Gemini 5, this is Houston, over.
Cooper	Go ahead Houston, Gemini 5.
Houston	Roger. I have a couple of questions and -- in fact, I have a lot of questions -- and a flight plan update. Are you ready?
Houston	First question: Did you see any accelerometer malfunction lights on your IMU during that last radar test over the Cape?
Cooper	No.
Houston	No mal lights. Okay. I've got a flight plan update for you. Are you ready to copy it -- it's quite long?
Cooper	Yeah, go ahead.
Houston	S-7, time 03:21:20:08, sequence number is 03, remarks -- pitch down 90 degrees. Apollo Landmark time 03:21:38:02, sequence 213, remarks -- pitchdown 30 degrees, yaw right 6 degrees. D-4/D-7, time 03:22:48:17, sequence numbers 425-alpha and 416, remarks -- pitchdown 30 degrees, yaw right 30 degrees, and it's a volcano. HF test, time 03:22:55:00, sequence number is 01,

	end time is 04:00:25:00. S-8/D-13, time 04:02:30:00, sequence numbers 01 and 02, remarks -- the Pilot. S-7, time 04:03:20:25, sequence number is 01, remarks -- pitch down 90 degrees.
Cooper	Okay.
Houston	S-8/D-13, time 04:03:30:00, sequence numbers 01, 02, remarks -- Command Pilot. HF test time 04:04:00:00, sequence number is 02, remarks -- end time is 04:05:30:00. And that is the end of the flight plan update. Are there any questions?,
Houston	Gemini 5, Houston. Did you get the flight plan?
Cooper	... Gemini 5.
Houston	Gemini 5, this is Houston.
Cooper	Roger, you just started on the HF test, and you faded.
Houston	Okay, I'll repeat the HF test. The time is 04:04:00:02 -- I'll say that again, that was a mistake -- 04:04:00:00, sequence number is 02, remarks -- end time is 04:05:30:00.
Houston	Gemini 5, that's a completion of your flight plan update. Are there any questions?
Cooper	I didn't get the remarks on that last HF test.
Houston	Roger, under remarks, the end time for the test is 04:05:30:00.
Cooper	Okay, I got that.
Houston	Okay, fine. We've got some questions on the S-8/D-13 Gordo.
Cooper	Okay.
Houston	These come from the experimenters. They say that they had the smoke generator and the chevron both situated at the northwest corner. And the question is -- was there any problem in locating the pattern at the end of the smoke columns, and, if so, do you have any suggestions for improving the position of the smoke column?
Cooper	I remember we just had trouble locating the patterns as we got in close in there -- I guess we were just coming in from such a different angle than we'd seen it before.
Houston	Okay. You think the smoke column was placed at a reasonably good position though -- is that correct?
!Cooper	The smoke column really points out maybe 100 miles -- maybe 100 -- and, oh probably, at a slant range of 200 to 250 miles easily.
Houston	Okay, fine. They have another question here. Did you see any marks in -- uh, did you see marks in every square or just in the two that read off to me?
Cooper	I could see marks in several of the squares. I didn't see them in every square, but I just didn't have time when we were coming at such an angle ... And apparently about all that registered with Pete, was one particular square Pete saw clearly. Like I say, we didn't get it located until we had already passed it.
Houston	Roger. I have a comment here that the four largest targets were in the northern row. I guess they just want to point out that to you again that they keep the largest targets in the northern most line.

Cooper	Yeah, well the one that I could see the clearest, that registered on me, was the first target in the second row, which was the nearest to us when we went over.
Houston	Oh.
Cooper	Real close to the targets, like we did the first pass -- when I saw them earlier.
Houston	Okay, so you say that the one you saw the best was the first one in the second row?
Cooper	Roger. But I think, again, this is where the problem is, like we had discovered in flying up there over them -- I'd say it was the lighting angle on the target itself.
Houston	Okay. Now, was the light angle better on the second pass today, or the first pass, as far as you were concerned?
Cooper	I think it was better this second pass.
Houston	Okay. According to our calculations, the sun was pretty much over it for the second pass, but you had to look into the sun for your first pass. We assume that the lighting was better on the second one.
Cooper	We both thought it was the second.

This is Gemini Control, at 78 hours 34 minutes into the flight of spacecraft Gemini 5, which is in its 50 revolution over earth, and passing over the Tananarive tracking station, on its way into the Indian Ocean area.

At the present time, here in the Mission Control Ceriter, we are in the midst of the shift change, the second shift of flight controllers -- or the White Team -- replacing the first shift Red Team, and very shortly our Number One Flight Director, Christopher C. Kraft, and a few of his flight controllers, will be at the News Room for their regular shortly-after-noon press briefing. As soon as this press briefing is completed, we expect to have a flight and network status report ready for you. This is Gemini Control, at 78 hours 35 minutes into the mission.

This is Gemini Control, at 79 hours 2 minutes into the mission of spacecraft Gemini 5. Our spacecraft, at the present time, is on its 50th revolution over the earth passing over the Pacific Ocean, and has just left voice range with the Coastal Sentry Quebec, our tracking ship located in the Pacific Ocean.

At this time, we will give you the taped voice transmission of the Gemini 5 flight crew as they passed over the Coastal Sentry Quebec.

CSQ	Gemini 5, Gemini 5, CSQ.
Conrad	Roger, go ahead CSQ.
CSQ	Roger. We'd like to know what setting you have on your suit coolant control.
Conrad	Roger. It's all-the-way closed.
CSQ	Understand -- its all-the-way closed.
Conrad	Roger.
CSQ	We have you 'Go' on the ground. If you have your experiment status report ready this rev, we'll copy; if not, we'll copy it next rev. Over.
Conrad	Okay. We'll catch you next rev on it.
CSQ	Very good. We have nothing further, and we're standing by.

Conrad Standing by, thank you.

This is Gemini Control, at 79 hours 32 minutes into the flight of spacecraft Gemini 5, which is now on its 50th revolution and is approaching the west coast of Africa, and will, within a very few moments, be starting its 51st revolution over the earth. A while back, as the spacecraft passed over the Coastal Sentry Quebec, we played back to you a voice tape taken over that tracking ship. This, tape, however, did not include a late comment from the Coastal Sentry Quebec Spacecraft Communicator -- in talking to Command Pilot Gordon Cooper he said, "Gordo, we saw you on this last pass." And Gordo's reply was, "Great! Did it look very bright in the sunlight?" And the answer was, "Affirmative. It was bright."

After that, the spacecraft passed over the Hawaiian tracking station and we had another voice communication with Command Pilot Gordon Cooper, and at this time we will play you that taped voice communication between the Hawaiian tracking station and Gemini 5.

Hawaii	Gemini 5, Hawaii CapCom. All systems are 'green'. And we're copying your dump. We have an onboard map update for you.
Cooper	Roger. Go ahead.
Hawaii	Roger. The title is map 22:15:02, longitude 71 east, rev 51. The star is the same time under remarks, 01:10:12.
Cooper	Okay, fine. Thank you.
Hawaii	Roger.
Cooper	Hawaii, Gemini 5. Could you give us a GMT time hack, please?
Hawaii	Roger. I'll give you a hack at 21:14:00.

[** DMH's note -- The rest of this tape is missing from the submitted transcript.]

This is Gemini Control, at 80 hours 2 minutes into the flight of Gemini 5, which is on its 51st revolution over the earth and approaching the southern tip of the African Continent. At this time, in the Mission Control Center, we still do not have our updated status report. Flight Director Gene Kranz is in the process of accumulating all the up to date data that he will need, to give the crew an updated report on how the flight looks from the ground. On the next pass over the Rose Knot Victor, our tracking ship off the coast of Peru, we should have from the astronauts a report on experiments that they've accomplished during the last 24 hours. At that time we'll give you a rundown on this experiment report. This is Gemini Control, at 80 hours 3 minutes into the flight.

This is Gemini Control, at 80 hours 32 minutes into the flight of spacecraft Gemini 5, which is now on its 51st revolution over the earth and is passing over the Coastal Sentry Quebec, our tracking ship located in the Pacific south of the Japanese Islands. We have a report from our Flight Surgeon, Dr Dwayne Catterson, that, so far, the crew sounds fine, and appears to be in very good physical condition, and that is from the data being received here on the ground. The Command Pilot has had an average of 5 hours of sleep a day for the first 3 days, the Pilot Pete Conrad, 6.5 hours average. The water intake of both men is very closely following the national average, which is 6 pounds of water per man per day. We have not, as yet, had an opportunity to update the spacecraft from the ground which is the usual procedure an we're waiting a good pass over one of the tracking stations and at that time our Flight Director, Gene Kranz, will give them an update on all the spacecraft's

systems as they look on the ground. This is Gemini Control, at 80 hours 33 minutes into the flight.

[** DMH's note -- The context of this short segment of conversation with Hawaii was not introduced.]

Conrad	The islands look real clear today. We can see Honolulu real well and can see Kilauea down here on Hawaii.
Hawaii	You sound like a tourist.
Conrad	Boy, it's really a nice day down there isn't it?
Hawaii	I wouldn't know. I never get a chance to get out.
Conrad	Me neither!
Hawaii	Touche.

[** DMH's note -- Pete Conrad's reference to not having a chance to 'get out', alludes to the fact that the spacewalk that he had originally been assigned had been deleted, once it had been advanced to Gemini 4 and performed by Ed White.]

This is Gemini Control, at 81 hours 32 minutes into the flight of Spacecraft Gemini 5, which is now on its 52nd revolution over the earth, and is approaching the southern tip of Africa. About ten minutes ago, as the spacecraft passed over the Rose Knot Victor, our tracking ship off the coast of Peru, Pilot Pete Conrad, on instructions from the Rose Knot Victor's Spacecraft Communicator, purged his fuel cells; this was successfully completed. He was advised that there will be a medical data pass by the Pilot over Hawaii, which will be coming up shortly. He reported that Command Pilot Gordon Cooper is sleeping at this time. This is Gemini Control.

This is Gemini Control, at 82 hours 2 minutes into the mission of spacecraft Gemini 5, which is now on its 52nd revolution over the earth, and coming up over the Coastal Sentry Quebec, our tracking ship located in the Pacific Ocean, somewhat south of Japan.

This has been a very quiet flight since 2:00 p.m., when the White Team of controllers came aboard here in the Mission Control Center. We have, upcoming, a medical data pass from Pilot Pete Conrad who is awake. It will take place over the Hawaiian tracking station, about 10 minutes from now. At this time, Command Pilot Gordon Cooper is asleep. Here, we were just visited by our Number One Flight Director -- Christopher Columbus Kraft -- who spent a few minutes talking to his relief Flight Director, Gene Kranz, now on duty in control of this flight. From the mannerisms and actions of Chris as he chatted, obviously he's very pleased at the way this flight is going. This is Gemini Control.

This is Gemini Control, at 82 hours 32 minutes into the flight of the Gemini 5, now on its 52nd revolution over the earth, and passing over the mid-Pacific on its way towards the Rose Knot Victor tracking ship located off the west coast of South America. We're told by our Flight Director, Gene Kranz, that approximately 40 pounds of OAMS fuel is required to complete the remainder of the 8-day flight plan, based on presentl calculations. There is sufficient fuel aboard to accomplish all the planned experiments, and complete the mission.

We also have a report from our recovery officer that the USS McKenzie -- a destroyer assigned to the recovery forces in the west Pacific landing area -- sighted the spacecraft for approximately 15 minutes during the 49th revolution. The time of sighting was from

1935 hours to 1950 hours Greenwich Mean Time. The ship reported that Gemini 5 was traveling in a northeasterly direction at a fast speed, and it had the magnitude of a planet.

Here in the Mission Control Center our flight controllers are taking their evening coffee breaks, and some of them are getting ready for their evening meals. We will now play back for you the taped voice conversation between the spacecraft and our Hawaiian station just a few minutes ago. This is Gemini Control.

Surgeon	The people back in Houston would like a little information on your sleep, and on Gordo's sleep. Did he go to sleep right after our last Hawaii pass?
Conrad	He's sort of been cat-napping. He had a good long -- really he had about an hour's sleep period, very deep [sleep] on this last orbit.
Surgeon	Is he asleep right now?
Conrad	Yep.
Surgeon	Alright. And how long was your nap?
Conrad	I slept about an hour and a half.
Surgeon	One and a half hour's pretty good sleep?
Conrad	Yeah, I don't remember anything.
Surgeon	Okay. Fine. Hawaii Surgeon out.
Conrad	Okay, Hawaii Surgeon. Let me give you a status on these meals -- we finally got them straightened out, and I just ate Meal 3B at 22:00:00.
Hawaii	That's 3B at 22:00:00.
Conrad	Now we've used up all the day 3 meals, we've used up all the day 2 meals, and we've eaten the two packages that were in the footwell. And we have all the first day's meals plus all the food in the left stowage box [still] to go.
Hawaii	Okay. I copy that you used up all the day 3 meals, all of day 2 meals, and two packages in the footwell, and you still have to go all the first day's meal and all the food in the left stowage box. Is that right?
Conrad	That's right.

This is Gemini Control, at 83 hours 2 minutes into our mission. Gemini 5 ... has just recently started its 53rd revolution over the earth and, at the present time, it is approaching the eastern coast of Africa. About 10 minutes ago, the spacecraft was over the Rose Knot Victor, our tracking ship located off the coast of Peru.Pilot Pete Conrad was engaged in a series of experiments measuring radiation, and making photographs of various objects in space and on the ground. Command Pilot Gordon Cooper is still in his sleep period. After completing the experiments, Pete Conrad is scheduled to eat another meal. Everything in our flight appears to be normal, and we expect that we'll have an updated medical report during our next voice broadcast. This is Gemini Control.

This is Gemini Control, at 84 hours 4 minutes into the flight of spacecraft Gemini 5, which is now on its 53rd revolution over the earth, and it has just passed over the Canton Island tracking station. In voice conversation with the Canton Island station, the voice of Spacecraft Communicator Buzz Aldrin here in Mission Control Center was Remoted. Pilot Pete Conrad discussed several of the experimens that have been carried on during the past six hours. He gave a food report which has our surgeons quite elated. It was a good

food report. We will get some additional details on that later. He was also asked now his beard feels after four days in space without shaving, and his comment was very short. He said, "Oh, not so bad." At the present time, the spacecraft is moving southward and, shortly, it will pass just south of the Rose Knot Victor, our tracking ship off the of Peru, and we are not sure at this time whether they will get within voice range of that station. This is Gemini Control, at 84 hours 5 minutes into the flight.

This is Gemini Control. We are now 84 hours 32 minutes into the flight of Gemini 5, which is now on its 54th revolution over the earth, having started that revolution just a few minutes ago. At the present time, the spacecraft has moved off the coast of South America, is over the south Atlantic, and is moving toward the African continent. Everything aboard the spacecraft appears to be in a 'Go' condition at this time. Pilot Pete Conrad has reported that they've no discomforts aboard. Our Flight Surgeon says everything appears to be first-rate at this time. We're in a very slack period of flight. There is very little activity. We've a medical pass coming uo over the Coastal Sentry Quebec in approximately 40 minutes, and we've some very routine tests, vision tests, that are also scheduled to be handled shortly. At this time, the spacecraft is apparently going to be updated. We'll have a briefing of the spacecraft crew. We've not yet come to that briefing period, and when we do we'll be able to give you a good status report. This is Gemini Control, at 84 hours 33 minutes into the mission of Gemini 5.

This is Gemini Control, at 84 hours 45 minutes into the flight of spacecraft Gemini 5, which is now on its 54th revolution and has just approached the east coast of Africa. We have a food, water, and sleep report from our Flight Surgeon, Dr. Dwayne Catterson. He said the astronauts have been eating their meals regularly, and are not at all behind on the food intake. He said their water intake is adeouate, and very close to the predicted levels. He said their sleep was adequate. He said that both astronauts are in good physical shape, and are in condition to keep up with the [8-day] mission. The medical equipment onboard, is all in good working order, and the pilots have reported that they're comfortable.

Astronaut Gordon Cooper, with 84 hours 46 minutes of space flight on this trip, has now rolled uu more hours in space than any other human being. He had accumulated 34 hours 20 minutes during his flight in the 'Faith 7' Mercury spacecraft in 1963. His total now is about 119 hours 7 minutes. This is Gemini Control.

This is Gemini Control. We're at 85 hours 2 minutes into the flight of Gemini 5, which is now passing over the continent of Asia. At this time, Command Pilot Gordon Cooper is rather busy. We'll have a medical data pass upcoming over the Coastal Sentry Quebec, our tracking ship off the Asian coast, south of Japan, and Command Pilot Cooper will perform a purge of the fuel cells and he then will engage in some vision tests. This is the ability to detect and recognize ground objects. Pilot Pete Conrad is soon to start his sleep period. In addition, Command Pilot Gordon Cooper is due to have another meal. There are several other tests that will be slated and we'll give you the details as they're performed. All seems to be going well. Our flight controllers are beginning to awaken a little bit from their coffee and lunch breaks here in the Mission Control Center, and with these tests slated aboard the spacecraft, activity here is picking up a little. This is Gemini Control.

This is Gemini Control, at 85 hours 32 minutes into the flight of spacecraft Gemini 5, which is now on its 54th revolution over the earth, passing over the Canton Island station in the mid-Pacific. At the present time, our Spacecraft Communicator here in the Mission Control Center, Buzz Aldrin, Remoting through Canton Island, is updating the flight plan

for the benefit of Command Pilot Gordon Cooper. We should have a report on the updated plan with our next transmission. About 10 minutes ago, as the spacecraft passed over the Coastal Sentry Quebec, the ship's Spacecraft Communicator passed up the 'Go' from the ground. At that time, also, they took a medical pass Type I on the Command Pilot, which consists of a temperature reading, a blood pressure, a 30-second exercise period, followed by a second blood pressure reading. Cooper gave a report on his water consumption since the start of this flight, and said he's had 20 pounds and 8 ounces of water. He also passed on to Coastal Sentry Quebec some of the results of vision tests that he had made. At that time, the CSQ also updated the spacecraft star map. Cooper ended that conversation with a report that everything is fine in spacecraft Gemini 5. This is Gemini Control.

This is Gemini Control, at 86 hours 2 minutes into the flight of spacecraft Gemini 5, which has -- just about a few minutes ago -- started its 55th revolution over the earth and, at the present time, is passing over central South America. During a conservation with the Rose Knot Victor, our tracking ship located off the coast of Peru, some instructions were passed to the spacecraft crew relating to maneuvers to be performed in coming revolutions. One of these maneuvers will be a pitch-up maneuver which is somewhat reminiscent of the old Immelmann maneuver performed by an aircraft. The purpose of this maneuver is for a terminal maneuver during reentry that will be coming in the Gemini program, to enable the pilot to position their spacecraft to keep the various stars in view which will orient them on their reentry attempt. Here in the control room ... the Blue Team of flight controllers are filtering in, because we're about ready for another shift change. We're estimating a press briefing at approximately 11:30 p.m. in the News Center with Flight Director Gene Kranz, Dr. Dwayne Catterson, Henry Stephenson, our Guidance, Navigation and Control Officer, and astronaut Buzz Aldrin, our Spacecraft Communicator. This is Gemini Control, at 86 hours 3 minutes into the flight of Gemini 5.

This is Gemini Control, at 86 hours 32 minutes into the flight of spacecraft Gemini 5, which is now on its 55th revolution over the earth, and is now passing over the continent of Asia. According to our flight plan we'll soon establish contact with the Coastal Sentry Quebec, our tracking ship located in the Pacific Ocean. At that time, our Command Pilot Gordon Cooper will conduct a cabin lighting survey. This is a measurement of light that filters into the spacecraft in -- he will check the lighting that filters into various portions of the spacecraft -- he'll use a photometer to do this lighting survey. At this time, Pilot Pete Conrad is asleep.

Here in Mission Control, our flight controllers are concluding the briefing of the Blue Team of flight controllers, who will take over direction of this flight at 11:00 p.m. Central Standard Time. At this time, the spacecraft, its pilots, and Mission Control, are all going well. This is Gemini Control.

This is Gemini Control, at 87 hours 2 minutes after liftoff. Gemini 5, now approaching the end of its 55th revolution, is over the south-central Pacific, and nearing acquisition by the tracking ship Rose Knot Victor -- this will occur some 23 minutes from now.

Here in Mission Control, the Blue Team of flight controllers led by Flight Director John Hodge, is settling down for the early-morning-owl shift, usually a rather quiet, uneventful period, when station contacts are infrequent, and there is little air-to-ground transmission. This is Gemini Control.

This is Gemini Control, at 88 hours 32 minutes after liftoff. Gemini 5 is now midway through its 56th revolution, crossing over the northeast coast of Australia in the southwest Pacific. It will be acquired by the tracking ship Rose Knot Victor in 27 minutes. There are no special flight plan activities or medical data checks to be run during the upcoming pass over the Rose Knot Victor. Pilot Conrad, presumabily, is still asleep at this time. This is Gemini Control.

This is Gemini Control, at 89 hours 2 minutes after liftoff. Spacecraft Gemini 5 is now in acquisition by the tracking ship Rose Knot Victor, off the coast of Peru. In 19 minutes, the Canary Island tracking station should acquire the spacecraft. This'll be the first contact since the Canary Island pass early in this, the 56th, revolution. Gemini 5 was 'Go' on the ground at Canary station. This is Gemini Control.

This is Gemini Control, at 89 hours 32 minutes after liftoff. Gemini 5 is now over the Mediterranean shore of North Africa, one-fourth of the way into the 57th revolution. The spacecraft looked good on telemetry readouts aboard the tracking ship Rose Knot Victor, toward the end of the 56th revolution.

Since this was the last pass by Gemini 5 over the ship for several revolutions, Flight Director John Hodge released the flight controllers aboard the ship for the night after the spacecraft communicator reported Loss Of Signal. Duringthe recent pass over the Canary Island station, Command Pilot Cooper passed to the Canary Spacecraft Communicator the onboard readouts of the fuel cell reactant supply, namely -- oxygen 90 percent of quantity remaining at 110 psi and hydrogen 70 percent of quantity remaining at 770 psi. A delayed-time telemetry tape was also played back by Cooper to the Canary station. The next station to contact Gemini 5 will be the Carnarvon station -- 27 minutes from now. This is Gemini Control.

This is Gemini Control, at 90 hours 2 minutes after liftoff. Gemini 5 is now crossing the northwest coast of Australia, midway through the 57th revolution of the earth. During this pass over the Carnarvon station, the elevation angle of the spacecraft was something like 1.8 degrees, and the pass lasted only 2 minutes 6 seconds, so no attempt was made to contact the spacecraft. This is Gemini Control.

This is Gemini Control, 90 hours 32 minutes after liftoff. Gemini 5, now nearing the end of the 57th revolution, is now crossing the equator just west of Guayaquil, Ecuador. There has been no contact with Gemini 5 since the Canary Islands pass, earlier in this rev. Here in Mission Control, it is rather quiet. At this stage in the mission -- actually every 24 hours -- the orbits tends to shift away from our belt of tracking stations around the world, and there are only one or two stations in each revolution. Coming up on the next Canary Islands pass, the crew will be given updates for Planned Landing Areas for revolutions 60 through 64. This is Gemini Control.

This is Gemini Control, at 91 hours 2 minutes after liftoff. Gemini 5 is now passing to the eastward of the Canary Island tracking station.

Pilot Pete Conrad is scheduled to be awakened and briefed by Cooper when they come to the Carnarvon station in Australia. The Pilot will then eat. The Command Pilot will take a cat-nap about the time Gemini reaches Carnarvon.

Canary Spacecraft Communicator Keith Kundel passed up to Gemini 5 updates for the Planned Landing Areas for the 60th to 64th revolutions. The Canary report said Gemini 5 is 'Go' on the ground. This is Gemini Control.

This is Gemini Control, at 91 hours 32 minutes into the flight. Any moment now, the Gemini 5 spacecraft will be acquired by the tracking station at Carnarvon, Australia, which is scheduled, according to the flight plan here on the projection screen in Mission Control, to update Gemini 5 flight plan items for the rest of today. Command Pilot Gordon Cooper is scheduled to take a nap, and Pilot Pete Conrad is scheduled to have, I guess, Meal B for day 3, following this pass. This is Gemini Control.

This is Gemini Control, at 92 hours 2 minutes after liftoff. Gemini 5 is presently over the central Pacific, and will be coming up across Mexico in the next few minutes.

We have now the listing of some of the experiments updated to the spacecraft from the Carnarvon station -- I'll run through these as briefly as possible. There are approximately four runs of the surface photography experiment, in which four pictures will be taken of each object. The first one is at 5:55 Central Time, the next is 6:08, the next at 6:24, the next at 9:04, and the last one at 10:51. The visual acuity experiment will be done over Laredo at 7:23 this morning. The radiometric measurement, or the infrared measurements rather, will be run at 7:15, with six reading taken of the star Sigma Sagittarius. At 7:56, a radiometric measurement will be made of a sled run at the Holloman Test Range, near White Sands in New Mexico. Cloud-top spectrometer measurements will be made of thunder storms over southern Florida at 10:37 a.m. Following this group of experiments, along with the routine operational checks that are included in the flight plan update, the spacecraft will be powered down at approximately 11:00 a.m. Central Standard Time.

We have now a tape of the air-to-ground transmissions between the Carnarvon station and Gemini 5 spacecraft. Let's hear that tape now.

Carnarvon	Gemini 5, Carnarvon CapCom.
Conrad	Go ahead, Carnarvon.
Carnarvon	Roger. We've got a long flight plan update for you.
Conrad	Ready to copy you.
Carnarvon	... platform. By the way, all of these are ... update, 11:00:00, remarks -- power up. Item 2, platform, 11:25:00, remarks -- align SEF. Next item, power up, 11:40:00, remarks -- rate gyros and computer on. Next item, bio-med recorders, 11:51:00, remarks -- Number Two 'On', Number One 'Off. Next item, D-6 -- Delta-6 -- 11:55:55, sequence number 134, mode number 08, remarks -- pitch down 30, yaw 0, speed 60. Next item, D-6 -- Delta-6 -- 12:08:13, sequence number 067, mode number 08, remarks -- pitch down 30, yaw ... 11, speed 125. How're we doing so far?
Conrad	Got it.
Carnarvon	Okay. Next, Delta-6, 12:24:02 sequence 091, mode number 08, pitch down 30, yaw right 2, speed 60. Next item, platform 13:00:00, remarks -- align SEF. Next item, S-8/D-13, 13:23:39, sequence number 03, remarks, pitch down 30, yaw right 22. Next item, D-6 -- Delta 6 -- 13:58:50, sequence number 089, mode number 19, pitch down 30, yaw right 1, speed 1000, S-4. How's it going?
Conrad	Got it.
Carnarvon	Okay, next item. D-4/D-7, 14:15:00, sequence number 410-charlie. Next item, platform, 14:30:00, remarks -- align SEF.

	Next item D-4/D-7, 14:56:56, sequence number 424-alpha, mode number 08, pitch down 30, yaw left 10, speed 60, test time 14:57:31. Next item, D-6 --Delta.6 -- 15:04:40, sequence number 134, mode number 08, remarks -- pitch down 30, yaw 0, speed 125. Next item D-4/D-7, 15:19:00, sequence number 419. You got everything up to this point?
Conrad	Yep.
Carnarvon	Okay, we'll ... make it about one more in. Platform, 15:40:00, remarks -- align SEF. Next item, D-4 /D-7, 16:28:04, sequence 423-baker, mode number 08, remarks -- pitch down 29, yaw left 34, speed 60. Do you copy?
Conrad	... have it all.
Carnarvon	Okay, there's two, no three, more items. I'll give you this one, S-7, 16:37:00, pitch down 90, thunderstorms over southern Florida. You copy?

This is Gemini Control, at 92 hours 32 minutes after liftoff. Spacecraft Gemini 5 is in acquisition by the Canary Island tracking station. During the Stateside pass just completed over the Eastern Test Range stations, Pilot Conrad reported... that crew comfort was fine, the temperature in the cabin was very fine. We have a tape of this Stateside pass, which we will roll right now.

Houston	Gemini 5, Gemini 5, Houston CapCom. Over.
Conrad	Hello Houston, Gemini 5 here.
Houston	Roger. You look pretty good here on the ground. Are you ready to finish copying the flight plan updates?
Conrad	Would you wait just one second -- be right with you.
Houston	Okay.
Conrad	Houston -- ready to copy.
Houston.	Roger, I'll pick up where Carnarvon left off, but I may repeat part of the last one. It was S-7 at 16:37:00, pitch 90 down, thunderstorms over southern Florida. D-6 16:51:25, sequence number 965, mode number 08, pitch 30 down, yaw 32 right, speed 60. Power down, 17:00L00, rate gyros, computer, and platform off. Did you copy?
Conrad	Roger.
Houston	Okay. Did you have a chance to try the second rendezvous, illumination test, or did you cancel those out altogether tonight?
Conrad	Let me explain a little bit what our problem was -- after we left the States yesterday, we had quite a bit of housekeeping to do, and by the time we got done restowing things, why it was getting pretty late. Then we got into the HF check and that kept Gordo awake. And then we got into a bunch of things like that and the next thing we knew, neither one of us got any sleep to speak of, so we ran out of gas there, and we just knocked off everything trying to get some rest.
Houston	Okay. That's fine. No problems. I just wondered if you'd tried the second one. We may reschedule but we may not. It depends on the fuel. And do you have any particular questions on the procedures, or would you like to look it over for a little longer?

Conrad	Well, later on today, why don't you run -- well, you can run it by, ah, why don't you run it by me right now to make sure I've got it. Alright?
Houston	Okay. We've got some other things that we'd rather talk to you right now about, particularly since we've still got 24 [hours], at least, until we try this one again, so we'll update you a little later on that particular test. Okay?
Conrad	Very good.
Houston	Did you get a chance, when you put the REP out, to take any pictures of it?
Conrad	Yeah, I should have it on 16-mm [film], and we should have it on the Hasselblad, and when we put it out we had both the REP and the blanket [<--??] right together.
Houston	Okay, understani. Thank you. Okay, I have a map update for you, if you're ready to copy.
Conrad	Okay.
Houston	Okay. This map at the time of 4 days, 11,hours, 38 minutes, 57 seconds, will be 134.6 degrees west.
Conrad	Rog. Would you give me the rev. And the time again please.
Houston	Rog. Rev is 59, and the time is the fourth day, 11:38:57.
Conrad	Very good. Got it.
Houston	Okay. And your fuel usage is getting sort of close. We figure we need about 44 pounds to finish all of the experiments, and we've about 45 pounds. So be conservative on that. Okay?
Conrad	Yeah. We've been drifting most of the time here, in the evening.
Houston	Okay. That's fine. We find that even during the slow passes when you're not doing anything that you use about two pounds or so -- so we'd like to keep it down as much as possible.
Conrad	Okay.
Houston	Okay. Elliot has a discussion on your radar yesterday, for you.
Conrad	Okay.
See	Could you give me a fuel cell 1 hydrogen quantity reading first, Pete?
Conrad	Okay, it's 68 percent and 770 [psi].
See	Roger. They did a considerable computer analysis yesterday, and I'd like to ask you a couple of questions and then I'll tell you what we're going to do. Did you get any analog range indication when you we're trying the last radar test.
Conrad	Yeah. Gordo said he had range-rate and I guess the range scale was packed.
See	Roger. And did you try when you were having the problem of reading the range out, did you try going to standby and then back to on.
Conrad	No.
See	Okay. You probably didn't think about that because you had a lock-on light. Okay. The MDIU appears to be okay, by ground analysis. They've checked out the various readings and it appears that it's working alright. For your information, your first 69 readout any time will be the last previous readout in the 'Rendezvous' mode so it ... okay. The range readout problem,

	we think, may be due to noise interference from either Jacksonville radar or SPADETS. We plan to have them [switch] off the next time we try this. We'd like to have -- to do another radar test -- not today but tomorrow. It'll probably be similar to the one you did yesterday. We'll have to forward information on that to you. We'll also include -- we'd like you to include taking Questar pictures of the Cape. Now, do you feel you can do this both at the same time. I have indication that you did something like that yesterday, anyway.
Conrad	That's correct. We got some pictures of the Cape yesterday with the Questar during the ...
See	Okay. Well, we'd like you to do that again when we do the [radar] test and the pictures will be taken when you're directly on boresight, and I was concerned about whether you could operate the MDIU and the Questar at the same time.
Conrad	Yep.
See	Okay. Do you have any other questions about the radar test?
Conrad	Nope.
See	Okey dokey.
Conrad	We'd like to request that we keep things to a minimum in the evenings. We -- for some reason -- are having trouble sleeping. One guy bothers the other when he's doing anything, is what it amounts to.
See	Okay. This would be -- this [radar] test would be -- done during the day, so I don't think there will be any problem that way.
Conrad	We're not concerned about that. We just want to emphasize that it's so darned quiet in the cabin and when one guy is trying to sleep, the other guy does anything, why, it makes quite a bit of noise.
See	Roger.
Houston	Pete, how about if we plan these last -- say, five or six -- hours before you got the Carnarvan updates, as a quiet period? Would that work out for you pretty good?
Conrad	Yeah. That's awful late, and that's what finally happened. We both fell asleep last night, I guess, or I know I did.
Houston	Okay. We'll keep it down, then. Can you give us a status on your temperature up there -- or your comfort?
Conrad	Our coinfort's fine, and the temperature is fine. I think my M-1 experiement's quit running for good now. I don't know whether it ran out of air, or what. The problem that I had with it before is not the same thing. The valve isn't making any noise any more, so I think it either ran out of air, or it just gave up the ghost and quit running.

[** DMH's note -- The M-1 Experiment is the inflatable cuffs that Pete Conrad is wearing on his thighs.]

Houston	Okay. Fine, understand.
See	You guys are sounding better all the time, Pete. You must like it up there.

Conrad	Say again.
See	I said you guys are sounding better all the time -- you must like it up there.
Conrad	Well, we're getting used to it.
See	Okay.
Flight	Gemini 5, this is Houston Flight. Good morning.
Conrad	Morning. How're you?
Flight	Great. It looks like we're getting ready for another 'day' here -- we'll be giving you a 'Go' pretty soon.
Conrad	Okay. We're standing by to power up.
Flight	Roger. We'll see you.

This is Gemini Control, at 92 hours 2 minutes after liftoff. We've some fairly late data on the orbital measurements of Gemini 5 flight from some fairly recent tracking data over the Eastern Test Range stations and Canary Islands -- a 123.7 statute mile perigee, a 189.5 statute mile apogee, and from the time of the tracking measurements it will have a life-time of 14.8 days. The next tracking station to acquire Gemini 5 will be the Carnarvon station -- in approximately three minutes. This Gemini Control.

This is Gemini Control, at 93 hours 32 minutes after liftoff. The Gemini 5 spacecraft is presently over the mid-south Pacific Ocean, toward the end of its 59th revolution.

The next tracking station which will acquire Gemini 5 will be Guaymas, starting a long string of passes over the Eastern Test Range and the Stateside stations. The first fairly full pass of the morning, this will.occur in approximately ... 13 minutes from now. We have a tape of the air-to-ground conversation between Carnarvon and Gemini 5 spacecraft, a few moments ago ... Let's listen to that tape now.

Carnarvon	Okay, I'll give you a mark at 11 hours 10 minutes -- in about 40 seconds. 10 seconds to go, 4, 3, 2, 1, mark! -- 11:10.
Conrad	Roger. Got it. Thank you.
Carnarvon	Gemini 5, we have visual contact.
Conrad	Very good. We're tumbling right now. We ought to be flashing at you.
Carnarvon	Roger. They report that they're having a little trouble staying on with the Segon beacon, at tumble.
Conrad	Next time we come over we'll be ... again.
Carnarvon	Roger. All systems look 'Go' on the ground, Flight.
Flight	Roger. Understand he's powering up -- is that right?
Carnarvon	Say that again, Flight.
Flight	We have an indication of power-up, from your summary on the platform.
Carnarvon	That's roger -- he reported the platform powered up at 11:00:00.
Flight	Very good.
Houston	... had a delay, Carnarvon CapCom -- wait on this call.
Carnarvon	We have acquisition.
Carnarvon	We've got a minute to LOS.
Conrad	Gemini 5, roger.
Carnarvon	Flight, the fuel cell O2 temperature heat exchanger has risen 14 degrees ....

Flight	Roger. The heat exchanger outer termperature? That shouldn't go up with pressure, that should go down. Okay, you mean the coolant loop is getting hotter? Yeah, okay.
Carnarvon	We've got LOS.
Flight	Roger Carnarvon. How did everything look?
Carnarvon	Looks real good.
Houston	Carnarvon AFD.
Carnarvon	AFD Carnarvon.
Houston	Okay. Would you recap the first part of your pass. The voice was down, and we couldn't hear you when you were on air-to-ground, Chuck.
Carnarvon	The first part of the pass was the medical pass of the Pilot -- we got good blood pressures and his water report was 19 pounds 6 ounces, he reports sleeping 4 hours last night. And I gave him a GMT timehack, and he reported that he powered up the platform as per the flight plan update, and that's about it.
Houston	Roger.

This is Gemini Control, at 94 hours 2 minutes after liftoff. The Gemini 5 spacecraft is mid-Atlantic. It'll be acquired by the Canary Island tracking station in approximately three minutes.

We have a brief tape of the last -- just completed -- Stateside pass over the Eastern Test Range stations and the Guaymas, Mexico, station. Let's hear that tape now.

Houston	Gemini 5, Houston CapCom.
Conrad	Go ahead Houston, Gemini 5.
Houston	Roger. Would you place your OAMS Heater Circuit Breaker to 'Open' for ten seconds, please, and then 'Close'.
Conrad	It's working. We can see the amps on the gauge.
Houston	Oh, Okay. We wanted to check it down here, too. How about your Quantity Read to ECS O2 please.
Conrad	Say again.
Houston	Your Quantity Read to ECS O2.
Conrad	We noticed that the OAMS was reading awfully cold.
Houston	Roger. Did you have any luck with the M-1 when you recycled the valve?
Conrad	That's negative. I'm afraid it's just flat quit running -- nothing's making any noise anymore.
Houston	Okay, fine -- good try anyway. Could we have a food report from the Pilot, please?
Conrad	Roger. My last meal was [Day] 1 [Meal] A, at 04:00:00.
Houston	Roger, inderstand. Could we have it for the last 24 hours, please? We didn't get it at Canarvon.
Conrad	3-D at 03:22:00:00.
Houston	Roger. You can turn the ECS O2 Quantity Read back, and I've information on the [aircraft] carrier for your D-6.It'll be heading 255 degrees. There will be one destroyer, one mile astern.

[** DMH's note -- This aircraft carrier is the Lake Champlain, their prime recovery ship. The destroyer steaming astern is in the 'plane guard' station, ready to rescue any pilot who ejects in attempting to take off from or land upon the carrier.]

This is Gemini Control, at 94 hours 32 minutes after liftoff. Gemini 5, presently in its 60th revolution, just passed the Tananarive Voice Remoting station off the eastern coast of Africa. The next station which will be in acquisition of will be Carnarvon in Australia -- in approximately eight minutes. This is Gemini Control.

Good morning. This is Gemini Control, at 95 hours 2 minutes into the mission. In a recent pass, the Command Pilot gave us the following medical information. He told us that he'd completed Meal 3-charlie, and this was on day 3, yesterday -- he had completed meal 3-charlie, 3-alpha, and 3-bravo. And he reported for day 4 he had completed Meal 1-alpha. He said his total water intake, up to his current revolution, had been 20 pounds 3 ounces, and he also reported he just finished seven good hours of sleep.

Capsule Communicator Jim McDivitt will attempt to ralse Gemini 5 in the next minute or so, via the Canton Island station. He plans to tell him to cancel out the Laredo eye chart experiment for this pass across the United States, the reason is weather in the Laredo area.

The weather this morning, reported by the Weather Bureau's Spaceflight Meteorology Group, is for weather conditions to remain very good for continuing the orbital operations of Gemini 5 for another 2 days, and probably longer. In the western Atlantic landing area, between Florida and Bermuda, skies are partly cloudy with ceilings unlimited most of the time; winds are less than 10 knots; and waves are not more then 3 feet; conditions will not change significantly during the next 24 hours. In the eastern Atlantic area, about 300 miles west of the Canary Islands, skies will be partly cloudy, with ceilings around 2000 feet at times; normal trade winds of about 15 knots; and waves of 4 to 5 feet are forecast for early Thursday. In the mid-Pacific area, about 500 miles north of Honolulu, skies will be partly cloudy with ceilings of 1500 to 2000 feet and widely scattered showers; winds averaging a little over 15 knots; and waves about 5 feet. In the west Pacific area, 500 miles southwest of Tokyo, weather conditions will deteriorate a little as a cold front moves across the north part of the recovery area, so that ceilings will lower, to about 1000 feet at times, while rain restricts visibility to about 6 miles, but the south half of that area will continue to have fine weather. Winds throughout that area will be only 10 knots, and waves 2 to 3 feet. Tropical storm Doreen has taken a turn toward the northwest -- it's now centexed about 1200 miles southwest of San Diego, and an equal distance east of Hawaii. With continued northwest movement, it should weaken, as do most these Pacific storms when they pass over cooler water. Anna in the central Atlantic is probably out of visual range of the Gemini astronauts. No unusual conditions are noted elsewhere the world.

We have the Carnarvon tape ready to play for you, and we'll do so at this time.

Carnarvon	Gemini 5, Carnarvon. We have a valid oral [temperature] on the Command Pilot. Request the Pilot to start a fuel cell purge.
Carnarvon	Standby for Surgeon.
Surgeon	Gemini 5, Carnarvon Surgeon. Standing by for your first blood pressure.
Conrad	Roger.
Cooper	Commencing hydrogen purge
Conrad	On my mark.
Cooper	Mark -- purge complete. Starting fuel cell 2 hydrogen purge.
Cooper	We just broke another oral ring on the blood pressure ...

Surgeon	Roger. Let's go ahead with the exercise.
Conrad	Roger.
Cooper	O2 purge on number one started.
Carnarvon	Roger.
Conrad	Exercise started.
Cooper	Give me a mark, and one minute of purge.
Carnarvon	Roger.
Conrad	Exercise complete.
Surgeon	Roger. We'd like a food report now for the past 24 hours.
Conrad	Roger.
Surgeon	We've had a ... O2.
Conrad	Okay.
Cooper,	Okay, food report -- say you want all day 3, huh? On day 3, on Commend Pilot, I have 3-charlie, 3-abel, and 3-bravo.
Surgeon	Understand, 3-charlie, 3-abel, and 3-bravo.
Cooper	That's right. On day 4, here, I had 1-alpha.
Surgeon	Roger. Water report?
Cooper	Water report -- at present, I have drunk 20 pounds and 3 ounces of water.
Surgeon	Roger. Sleep report?
Cooper	Sleep report -- I have just finished about 7 hours of sleep.
Surgeon	Understand, 7 hours.
Cooper	Affirmative.
Carnarvon	Mark! -- two minutes on O2 purge.
Conrad	Roger. Second one come in.
Flight	Carnarvon CapCom, Houston Flight.
Carnarvon	Flight, Carnarvon.
Flight	Would you query the crew as to their need for the platform, in doing the D-6 experiments?
Carnarvon	Okay. You want to know if they really need the platform for this D-6.
Flight	How they feel about it, yes.
Carnarvon	Okay. Gemini 5, Carnarvon. Flight would like to know if you feel you need the platform for the D-6 experiment.
Conrad	I think so. I think it would make it a lot better if we could use it.
Flight	...
Carnarvon	Roger. Say again Flight.
Flight	That's all right. His answer was the one we expected.
Cooper	Hydrogen and O2 purge complete on sections 1 and 2. Crossover is off.
Carnarvon	Roger. Surgeon would like to know about how long you had the oral temp probe in your mouth.
Cooper	I guess for a couple of minutes.
Carnarvon	Roger. Could you give us a readout of your ... quantity, pressure, and temp?
Cooper	Okay, the fuel gauge reads 26 percent, temperature is 61, and the pressure is 1350.
Carnarvon	Roger. Would you give us a quantity read on fuel cell O2.
Cooper	Want the hydrogen readings too?
Carnarvon	Roger, fuel cell, O2 and H2.

Cooper	Roger. Fuel cell O2, 90 percent, 120 psi; hydrogen, 67 percent, 77 [psi].
Carnarvon	Roger. We have nothing else. Standing by.
Cooper	Everything's fine.
Carnarvon	Flight, Carnarvon. Got all this?
Flight	Roger.

Gemini Control here again. While we get this brief Canton Island tape ready for you, we're happy to report that a bunch of bright-eyed Red Team flight controllers are on their stations, eager for a busy day. Now let's listen to this brief Canton Island pass.

Houston	Gemini 4, Gemini 4, Houston, over.
Canton	Gemini 4, Houston's calling you -- Gemini 5!
Houston	Gemini 5, Gemini 5, this is Houston.
Cooper	Go ahead Houston, Gemini 5 here.
Houston	Gemini 5, Houston. Be advised that the weather for your S-8/D-13 is too bad, and we will have to scrub your S-8/D-13. We'd like to replace it with a D-6.
Cooper	Roger. We'll replace the S-8/D-13 with a D-6.
Houston	I have some D-6 information here for you, Gemini 5, for a selected target. Are you ready to copy?
Cooper	Okay. Ready.
Conrad	Go ahead, Houston.
Houston	Gemini 5, Houston. Be advised that time will be 04:13:25:30, sequence 025, mode 19, remarks -- pitch down 30, yaw left 8, speed 1-over-1000, F-stop is 4, your weather is 2 to 3 tenths. Over.
Conrad	Roger. 04:13:25:30, and 025, a one-niner, pitch down 30, yaw left 8, 1-over -1000, and 4.
Houston	Roger. Good morning to you!
Conrad	How are you this morning?
Houston	Just fine.
Conrad	...
Houston	Good.
Cooper	Since you switched, I have every piece of gear in the spacecraft out in my lap.
Houston	Very, very good. Sounds like old-home week.
Cooper	Well, it's like any other household chore.
Houston	Say again.
Cooper	Well, it's like any other household chore.
Houston	Roger.

Gemini Control, here. That 'bright-eyed' Capsule Communicators of course, was Jim McDivitt, who slipped back into an earlier flight by calling for Gemini 4. However, he did recover, and get the right callsign up there! This is Gemini Control out.

This is Gemini Control here, at 95 hours 24 minutes. In the last minute, the Gemini 5 crew has been passed a 'Go' for 77-1, I repeat, they have been given a 'Go' for area 77-1. Earlier, they were told to scrub the Laredo eye chart test, and they were given a substitute, a D-6 photographic experiment. The site that they'll be shooting on this D-6 experiment is

England Air Force Base at Alexandria, Louisiana -- over which they should be right now. This is Gemini Control.

This is Gemini Control, at 95 hours 32 minutes. In this pass across the United States, Jim McDivitt relayed a message that went like this: "Trudy sends her congratulations." He was referring to Trudy Cooper, of course. This was upon Cooper taking the record for the longest time in space -- for the United States. Also, he said that Cooper's two daughters, Cam and Jan, sent their best. Gordo came back with a slow, but warm, "Thank you, and please thank them." Later, Cooper suggested -- he said he had a message for Wally -- that he throw away the reticle, apparently he is not too happy with its operation. The window reticle is to assist in acquiring various targets on the ground. He suggests that a fine line grease pencil would be much better. At that point, Chris Kraft observed that Gordo sounds like his old self today -- a comment based on the fact that he sounds pretty perky. Gordo did confirm that he sounds like his old self because of the basis of the 7 hours of sleep that he had last night.

[** DMH's note -- This reference to 'Wally', was to Wally Schirra, who would soon fly in the left-hand seat of Gemini 6.]

The crew also received updates on a D-4/D-7 experiments that is to be performed over Carnarvon next time around. They will take another infrared sighting on the star 'Nunki', and they will perform a high resolution photographic experiment -- a D-6 experiment -- in the area of Tananarive, on the Island of Madagascar. We've got the Stateside tape ready, and we'll play it for you now.

Guaymas	Gemini 5, Guaymas CapCom. Turn your TM Control switch to 'Real-Time' ...
Flight	Okay, thank you.
Flight	TM solid, Guaymas.
Guaymas	How are you doing up there?
Conrad	Fine.
Guaymas	Okay, you're looking real good on the ground. We'll standby if you need anything.
Conrad	Roger, thank you.
Guaymas	Intermittent telemetry.
Guaymas	Very poor telemetry -- unable to keep lock on at Guaymas.
Guaymas	Flight, Guaymas.
Flight	Go ahead, Guaymas.
Guaymas	How about if we go back to 'Command'. You are just about to get acquisition at Texas, and let you command us on and see what happens.
Flight	Okay.
Guaymas	Gemini 5, Guaymas CapCom.
Conrad	Go ahead Guaymas, Gemini 5.
Guaymas	Put your TM Control switch back to the 'Command' position.
Conrad	Okay.
Guaymas	Flight, Guaymas. We now have good TM again.
Flight	Roger.
Houston	Gemini 5, Houston. We have some information for you. I know you're preparing for the D-6, and I'll just read it off to you. You

	have a 'Go' for [area] 77-1. And you'll receive DCS updates on this pass across the States for 62-1, so you'll see your DCS light coming on and going off.
Cooper	Okay, fine.
Conrad	We're 'Go' up here. Do you want the onboard readouts?
Houston	Yeah, wnen you get around to it. I think you're getting ready for that D-6.
Conrad	Okay, I'll give them to you right now. 1A is 8.5, 1B is 8.0, 1C is 9.5, 2A is 7, 2B is 6.9, 2C is 8.5, and the main bus voltage is 26.0.
Houston	Roger.
Conrad	RCS [Ring] A is 72 ... RCS [Ring] B is 68 290, secondary O2, 54 on the left, 5300 on the right.
Houston	Roger.
Conrad	Say, are you sure this 025 is not under the clouds?
Houston	Well, there was supposed to be 2 to 3 tenths cloud coverage out there -- cloud coverage.
Conrad	Yeah, maybe in a hole.
Houston	Yeah, might be.
Conrad	It's under the cloud. We'll see if we can find something else, in going across here.
Houston	Okay, very good. Listen, I've got some other information for you here ... First of all, Gordo -- you there? Where else, huh? Gordo, this is Houston, I have a message for you.
Cooper	Okay. Go ahead.
Houston	Trudy says she would like to send her congratulations to you, for now having the most time in space. She says that Cam and Jan are fine, and they are all proud of the progress that you and Pete are making, and I'd sort of like to add my congratulations to it also. I'm sure Flight Director would too.
Cooper	Thank you -- tell them all "Hello".
Houston	Alrighty.
Houston	I have some updates for you on some of your forthcoming experiments, the times have changed slightly. If you're ready to copy -- when you're ready to copy -- give me a holler.
Conrad	We're moving across the coastline, We're going to try to get one [D-6] right in here some place.
Houstop	Roger, I'll just standby, and you give me a holler when you're ready.
Cooper	I'd like to add, right now, that I recommend to Wally [Schirra] that he throw this reticle away.
Houston	Okay, roger.
Cooper	The reflecting mirror completely blinds you when you're working in any kind of sunlight.
Houston	Roger. I'll send him your message.
Cooper	Right. I'd use a grease pencil on the window.
Houston	That's a fine-line grease pencil isn't it?
Cooper	Right. If I had one with me, that's what I'd be using.
Houston	Okay.
Houston	Gordo.Chris says it sounds like your old self this morning.

Cooper	Yeah, I finally got a good night's sleep.
Houston	Yeah, I got that -- seven hours. That's cheating.
Cooper	Yeah, it sure is -- I've sort of been saying up!
Houston	Rog.
Conrad	Okay, I'm ready for the updates.
Houston	Alrighty. We have a -- you have an experiment at 14:56:50. This is a D-4/D-7, and the time now has been changed to 14:56:53 -- three seconds later. Under the -- did you find that one, Pete?
Conrad	Yeah.
Houston	Okay. Under the remarks for that particular thing, the test time's been changed from 14:57:31 a to 14:57:33.
Conrad	Roger.
Houston	Okay, you have another D-4/D-7, and this one is at 16:28:04 -- the time on that has been changed to 16:28:07.
Conrad	Roger.
Houston	Now, right after that particular experiment, there's an S-7, and right after that is a D-6 -- you're really going to be pressed for time in between the D-4/D-7 and the D-6, with that S-7, so try to work it through the left-hand Pilot's window so that you don't have to dismantle all of your equipment. We realize that it's very time critical there.
Conrad	Roger.
Houston	Gemini 5, Houston here again. Did you get the O-ring fixed in the blood pressure bottle.
Cooper	Roger, we got the two new O-rings in.
Houston	Okay, very good. Have you used any of your blue bags yet?
Cooper	Have we what?
Houston	What's the blue bag status?
Cooper	There's still just one.
Houston	Very good.
Conrad	Just great.
Houston	Rog.
Houston	Gemini 5, Houston again. We'd like to have you give us a 'Go' for your D-4/D-7 at 14:56:53 over Carnarvon, if it's possible?
Conrad	Roger Houston. Will do.
Houston	Okay.
Houston	Just think, you only have 96 hours 23 minutes and 54 seconds until retrofire time.
Conrad	Listen, there was a momentous milestone to shift biomed recorders.
Houston	Roger. You're halfway there.
Conrad	You're right.
Houston	Hey, is your beard getting itchy yet?
Cooper	Yeah.
Houston	Did you take any curlers along, to curl it?
Cooper	No, but we should have.
Houston	You can always braid it, and tie your mike up with it.
Cooper	Right.
Cooper	All the [biomed] sensors are itching a lot worse than the beards.

Houston	Roger.
Surgeon	Gemini 5, Gordo, this is the MCC Surgeon. Do you have any other skin reaction around the rest of the skin, since we did this cleansing bit?
Cooper	Pete's cuffs -- the M-1 cuffs -- are itching him an awful lot.
Surgeon	Okay, we'll talk some later -- next rev -- about those cuffs. And congrat's, you guys are doing great.

[** DMH's note -- The congratulations are because they're now half way through the planned 8-day mission.]

Gemini Control, Houston, here, at 96 hours 28 minutes into the mission. Due to an apparent mechanical or personnel break down in the commercial television pool facilities, we're not able to play for you right now the Canary, Kano, or Tananarive passes. We are in discussions with the pool on why these passes were missed, and we do not have the explanation for you right now. We do have the Carnarvon tape, however, and we'll play that. I want to emphasize, we'll rectify this situation as soon as possible and we apologize because we cannot give you those earlier passes. We do have the Carnarvon tape, and let's play it now.

Conrad	Carnarvon, Gemini 5.
Carnarvon	Gemini 5, Carnarvon.
Conrad	Roger. We have a computer to keep the ... light out while we are tracking up here, and ...
Carnarvon	That's all right, leave it there. Are you 'Go' for [area] 77-1?
Conrad	Roger. And we'll be 'Go' for D-4/D-7, 424-alpha.
Carnarvon	Roger.
Conrad	We'll give you a call when we're tracking.
Carnarvon	Roger. You're 'Go' on the ground for 77-l, I'll up-date your TR.
Conrad	Thank you Carnarvon, Gemini 5.
Carnarvon	Go ahead.
Conrad	Are we just about over ahead of you, now?
Carnarvon	In about 30 seconds.
Conrad	Roger. Got a good look at Perth.
Carnarvon	Roger.
Conrad	And we'll give you a call just the second tracking starts.
Carnarvon	Roger.
Flight	That's where he is -- just about over the top of Perth, not over Carnarvon ...
Carnarvon	Roger, Flight.
Carnarvon	That time I gave you is the approach, you're south of us.
Conrad	Roger.

This is Gemini Control, at 96 hours 51 minutes. In the last minute, the spacecraft has been acquired through the California station, and we are going to bring you the Stateside pass. This pass will inclade a sled run at Holloman Air Force Base. The pilot's will have their infrared sensors on it and they'll try to track it across the ground.

A little information developing here, which may be of interest, on the Environmental Control System oxygen -- we're showing 81.7 percent as a quantity reading. The pressure is 1010 psi and venting slightly; that system vents at approximately 1000 pounds. Fuel cell

oxygen -- we show a quantity of 89.5 percent, pressure 140. Fuel cell hydrogen -- we have a quantity of 65.6 percent, pressure reading is 353, and venting slightly; that system vents at 350.

Let's stand by now as we begin this pass across the States. The spacecraft is almost to the coast of Baja, California. Let's cut in live on it.

Cooper	... and he's making the coffee now.
Houston	Very good -- were those scrambled, or over?
Cooper	Oh, over-easy.
Houston	Okay. How is he as a cook?
Conrad	He's a pretty good cook.
Houston	Is he, how's he as an eater?
Conrad	But good! But good!
Houston	Roger.
Conrad	Hey, we got Catalina and Sacramento out there, but it looks like San Diego and Los Angeles are covered in.
Houston	Roger. How's the weather out west? Is it pretty good?
Conrad	Yeah, all across the country it is. The cloud deck is right up, you know, from the Pacific right up to the Coast.
Houston	Right. How about in the southeastern US -- is it pretty clear over there? Or is it clouded over?
Cooper	It's fairly cloudy over there. It looks like, probably, it will break up -- it's not heavy clouds.
Houston	Okay, I've got some information for your D-6 on the carrier, as soon as you complete D-4/D-7.
Cooper	Okay.
Cooper	We're coming right in over the Gulf of California now.
Houston	Roger, our plot board agrees with you.
Cooper	Very good.
Conrad	Okay, we've got White Sands in sight from here.
Houston	Okay, very good. I was just going to ask you to give me a call when you had it.
Conrad	Yeah.
Houston	We're still going right along with the test on the ground.
Cooper	Very good.
Houston	We're still 'Go' on the ground.
Cooper	We're tracking now.
Houston	Okay, very good. We've got about 23 seconds.
Houston	15 ...
Cooper	Roger, [we're] right on it.
Houston	Very good.
Houston	2, 1, Go!
Houston	Ignition!
Conrad	... sighted on the track.
Cooper	There it goes. We see it!
Houston	Very good, very good. Burn-out now!
Cooper	We're tracking right on it.
Houston	Very good.
Houston	Are there any comments on that particular one?

Cooper	We could see it very good, and we were right on the money, I think, tracking that so.
Houston	Okay, how about the water breaking?
Cooper	We could see something. I don't know whether it was water or smoke. It probably was water down, at the end.
Houston	Okay, fine. Are you ready for this short briefing on your D-6.
Cooper	Roger, go ahead.
Houston	Okay, the weather in the area is two-tenths to three-tenths cloud coverage, and it's getting better, and it's completely clear right over the carrier.
Cooper	Roger, very good.
Houston	The carrier will be going in a very large circle with the DD about 1,500 yards behind, right in the wake -- trying to make the wake so you can see it.
Conrad	I hope we can find them this time. We've been looking for them enough times.
Houston	I thought an old Navy guy like you could find a carrier?
Conrad	I had the wake yesterday, but then we lost it so that we couldn't track.
Houston	Roger.
Cooper	The weather hasn't been too good, over the water there.
Houston	I gather that from your comments yesterday. Today it looks like it should be pretty good there.
Cooper	I hope so.
Conrad	.... sun angle.
Houston	Okay.
Conrad	Hey, could you get a reading for me for how many pictures they have on this 3401 film.
Houston	That's 3401?
Conrad	That's right, I've taken quite a few pictures now, and I'm afraid I might run out.
Houston	Okay.
Cooper	Passing north of Lake Charles, New Orleans. We have the Cape in sight.
Houston	Very good. You got 70 frames -- seven zero -- on that 3401.
Conrad	Okay. We've got plenty left.
Houston	Okay.

Gemini Control here. The count on the OSO at the Cape is T-16 minutes and counting. The spacecraft will not attempt to track it. It will pass over it, ahead of the planned launch time. Let's standby for any additional conversation.

[** DMH's note -- This reference to 'OSO' is the 3rd satellite in the Orbiting Solar Observatory series (OSO-C), which was launched on 25 August 1965. Unfortunately, its upper stage failed and the satellite was lost.

Houston	Gemini 5, Houston. Do you have your primary [horizon] scanners on now?
Cooper	Negative. We're on secondary.

Houston	Could you switch over to primary for a couple of minutes here. We'd like to get some data on them.
Cooper	Pete, go to primary.
Cooper	That's a good idea.
Houston	Say again, please?
Cooper	Say, that's a good idea. We've been wanting somebody to check that one.
Houston	Okay.
Cooper	We have a few cloud problems.
Houston	Okay.
Cooper	We'll give her a go, here.
Houston	Say again.
Cooper	I say, we'll give it a go.
Houston	Okay.
Conrad	Dead ahead, 12 o'clock. I can see her turning, bigger than heck.
Conrad	We got her in sight, this time.
Houston	Roger, I knew an old carrier pilot could find the carrier.
Cooper	Very good.
Conrad	Okay, we got it this time.
Houston	Well, according to my figures here, you must've been just about over him when you saw it, was that right?
Conrad	Let's see, I'd say we were about 50 degree pitch.
Cooper	We got him a fair ways out.
Houston	Well, very good. Okay, you did get some pictures of him that time, then?
Conrad	Correct, six of them.
Houston	Very good.
Cooper	This 35-mm camera is still jamming, incidentally. Pete's had about four jams now, over the last couple of days on it, and I did too.
Houston	Have you been able to clear the jam each time, without any trouble?
Cooper	Well, we manage to get it clear, but it still isn't all right.
Houston	Okay.
Houston	Gemini 5, Houston here. If you're through with that experiment, it would be nice if you could come up to around 000 attitude, or either BEF, or SEF, so that we could get some data off your scanner.
Cooper	Okay, swinging it around to -- I'll be in SEF, momentarily.
Houston	Okay.
Houston	Gemini 5, Houston. Could you read what was on the carrier [on its deck]?
Conrad	I didn't -- I could see the carrier, but not that well. It took up about, maybe, a tenth of the picture frame.
Houston	Okay, I think we are getting LOS.

Gemini Control here. We apparently either have had -- or are about to have -- Loss Of Signal out there. The countdown on the OSO at the Cape is T-8 minutes and counting. The reference to the carrier -- you heard Jim McDivitt compliment Pete Conrad for the

ability of an old carrier pilot to acquire, or find, the ship. Here comes one more bit of conversation. Let's go back to it.

ConradGo ahead Houston.

Houston	I just wondered if we still had voice contact with you. Did you ever get SEF, or any level attitude?
Conrad	We're coming there very slowly right now. We're just staying in Pulse -- we don't want to use too much fuel.
Houston	Rog. Okay, if we don't get this in over this pass, when you are over one of the stations that has TM, it might be a good idea to sort of fly across it at 00 attitude -- just so the horizon scanners are locked on -- so we can get about a minutes worth of data.
Conrad	Okay, will do.
Cooper	You should have gotten some data as we crossed the Coast of Florida, we were still 000 there.
Houston	Okay, very good.
Cooper	Okay, we're approaching 000 now.
Houston	Okay, very good.

This is Gemini Control. That appears to have wrapped up the transmissions from the spacecraft. They're unusually clear today. The spacecraft is out almost to the 40th parallel and it was still in very sharp communication back here with our Mission Control Center in Houston. You heard Jim McDivitt compliment Pete Conrad on his ability as an old carrier pilot to find the ship. By coincidence, the first time Pete Conrad saw that particular ship -- the Lake Champlain -- was back in June of 1955. Pete made his first carrier landing -- his very first carrier landing -- on the Lake Champlain. About four days from now, I am sure he'll hope to make a very close approach to that same ship!

We have the Hawaii tape which proceeded the Stateside pass racked up for you, so we will play it for you now.

Hawaii	Gemini 5, Hawaii CapCom.
Cooper	Go ahead Hawaii, Gemini 5.
Hawaii	Roger, we've got you 'Green'. We'd like you to do a UHF type 6 [test] over the States, we'd also like a 424-alpha go from you.
Cooper	Roger, Gemini 5. 424-alpha go, and I understand we're to do an UHF 6 over the States.
Hawaii	Roger.
Cooper	Roger.
Flight	424 alpha is also on scheduled, and counting.
Hawaii	Roger -- 424 alpha is on schedule, and counting.
Cooper	Roger, very good.
Cooper	We're on schedule too --
Hawaii	Roger.
Cooper	-- and counting.

This is Gemini Control, Houston, at 97 hours 15 minutes. The count on the Thor-Delta vehicle at the Cape to launch OSO is 2 minutes -- 2 minutes and counting. T-90 seconds on the OSO. Spacecraft Gemini 5 is now coming up over the coast of Africa. It'll

just miss the shoulder of Africa, and swing down across the Indian Ocean. T-30 seconds and counting on the OSO.... 20 seconds ... 5 seconds, 2, l, 0, ignition. We've got a liftoff, and it looks nice at the Cape. Roll program's in, the pitch program's in. They tell us from that Cape that the roll looks very good and the burn is entirely normal. I've got an unofficial liftoff time of 17 minutes after the hour. On OSO, a 600 pound satellite, they're trying for a roughly 350 mile circular orbit. 17 minutes after the hour was the beginning of the OSO launch window which extended to 3 minutes after the next hour -- from 10:17 Cape time, to 11:03 Eastern Standard Time. They'll try to get an azimuth on the OSO. Standby one please. Now second stage ignition on that Thor-Delta vehicle. We are advised the azimuth they are flying is 100 degrees, which would carry them just to the south and above the Gemini spacecraft which, you'll recall, was launched in an azimuth of 72 degrees. Cape says it's entirely happy with the Delta's performance. We are standing by for a word on the burnout. The Gemini crew, meanwhile, is running Small-End Forward, and they're going through a series of platform alignment checks of their guidance system. Their flight plan is free otherwise between now and Hawaii, when we have a medical data pass. Standby. They have second stage burnout on the OSO, and now a short burn on the solid third stage. Now 5 minutes 40 seconds into the mission, and everything looks fine on the OSO. The second stage's burn was entirely nominal -- the Cape reports. We won't know until Carnarvon whether the crew observed the OSO. It's entirely possible that they could have yawed around 180 degrees and tried to look for it.

Gemini Control, here again. The Cape advises that the Thor-Delta rocket boosting OSO is now in its long coast period between second stage burnout and third stage ignition. They are estimating third stage burn should occur shortly after ten minutes of elapsed time, and burnout very close to 10 minutes 31 seconds elapsed time. We'll come back to you when we get confirmation on that burnout. This is Gemini Control out, at 97 hours, 26 minutes into the Gemini 5 mission.

Gemini Control, here, at 97 hours 29 minutes into the mission. The Cape confirms that the third stage did spin-up properly, did burn properly, and has cutoff. They're considering OSO safely in orbit. We do not have any orbital elements for you, but we should have them in a very few minutes. This is Gemini Control.

Gemini Control, Houston, at 98 hours 12 minutes. We have a brief Gemini-Carnarvon conversation for you. Over the Carnarvon station we had some operational communications difficulties; the conversation was very weak at the start, and then it dropped off to nothing! The Voice Control people [at Goddard] are investigating, and I think have it fixed up. Our straight communications with the Carnarvon station remain good, but something happened to the Remoting arrangement through the Carnarvon station, where we lost power, and the voice signal wasn't completely audible, which requires the Carnarvon station to replay their tape on the ground, back to us here in Houston.

A period of relative quiet and relaxation after that busy Stateside pass has gone on here now, for the last 30 minutes. A number of flight controllers are enjoying their 77-1 cigars, which the Flight Directors passed out, and we're coming up on another Stateside pass here very shortly. Hawaii should acqiuire within two to three minutes. We've got the Carnarvon tape now, as brief as it is, and we'll play it for you now.

Carnarvon	Gemini 5, Carnarvon CapCom.
Cooper	Gemini 5.

Carnarvon	Be advised you have a medical pass on the Pilot at Hawaii -- and their acquisition time is 16 hours 15 minutes.
Cooper	Roger, 16:15.
Carnarvon	Roger, and are you're 'Go' for sequence 423-baker?
Cooper	Roger ...
Carnarvon	...
Cooper	... I lined everything up 00 very carefully, set the primary [horizon] scanner on, and it pitched us down to about 30 to 35 degrees, ... the light came on, but every time that I applied ... took it off the line ... and started a slow rate upwards through the horizon, put the scanner back on, and it would stop the upward rate but would slowly start pitching us back down to almost vertical.

That was the extent of the Carnarvon conversation. You heard Gordon Cooper refer to that primary scanner, apparently it's still a little bit out of phase, as we reported yesterday. On the eastern edge of this Stateside pass, the crew will perform an S-7 experiment. This involves a spectrograph reading of the cloud-tops, an infrared signature of the cloud tops, and also some associated photography. This experiment is one from the Weather Bureau. The principal experimenter is Doctor Faud Saidey. Doctor Saidey is a Syrian national, and is working with our Weather Bureau on this experiment. This is Gemini Control. We've not yet acquired Hawaii, we'll come back to you when we do.

This is Gemini Control, Houston, at 98 hours 27 minutes. Our orbital elements today, are 123.5 statute miles perigee, 189.2 statute miles apogee, and the period of revolution is 95.5 minutes.

During the recent Hawaii pass, Pete Contad, reported he drank a total of 20 pounds 12 ounces of water. He reported he completed eating Meal 1-bravo and he said he had 6 hours of sleep last night.

The Gemini 5 spacecraft is coming up on the Coast of California at this time. And out at Vandenberg Air Force Base we've just had ignition [of a Minuteman missile] at 28 minutes 16 seconds after the hour approximately. Pete Conrad says they have got it in sight, lifting off from Vandenberg. Pete came back within a second or two of ignition and said, "We've got it now." Reports from the ground say it's looking good. They're tracking. It's right on course. We've had no comment from the spacecraft in the past minute. Fifty seconds into the flight of the Minuteman. It's still going good, and the second stage has ignited on time. Pete Conrad reported just before ignition that he could see an airplane in the area. Our Air Force observer reports that the missile is "on time and on the line". Now T+120 seconds. Cooper reported very briefly that he was having a little trouble operating the spacecraft in the 'Pulse' Mode, keeping a precise track on it. Texas station has acquired the spacecraft. Jim McDivitt has just congratulated the crew on setting a new American record for time in flight. It's very appropriate that Jim should do it -- it broke his record. Let's cut in on that conversation live.

Houston	... gulp is one ounce?
Cooper	That's right. We calibrated our gulps, and our gulps are approximately 25 cc's, or approximately 1 ounce.
Houston	Okay, fine. And you're assuming that the amount of water you put in the food is what's called for on the bag -- is that correct?
Cooper	That's right.

Houston	Okay, well we need this pretty accurately because we're using it to check on the fuel.cell outputs.

[** DMH's note -- The potable water is drawn from the same tank as collects the 'waste' water produced by the fuel cells, but there is a bladder in the tank to keep the two separate. In effect, the fuel cell waste keeps the water tank pressurised as the crew consumes water, either directly by drinking it or by injecting it into the bags of dehydrated foodstuffs. And the engineers were using that the amount of water the crew drew from the tank as a measure of the output from the fuel cells -- hence the requirement for the astronauts to measure their consumption accurately.]

Cooper	Okay.
Houston	Are these gulps any larger than what you are using on the ground, Gordo?
Conrad	I think we're probably being underestimating slightly..
Houston	You think you are drinking a little more than you are estimating, is that right?
Conrad	I sort of think so.
Cooper	I kind of think so -- I think the gulps may be a little larger than they are on the ground.
Houston	Okay, because of the high pressure [in the tank]?
Cooper	Affirmed.
Houston	Okay, we suspected that might be it -- we just wanted to make sure.
Houston	When you do this S-7, we'd like to know in which direction you do it, and whereabouts the particular clouds were with respect to Florida, so we can get the airplane to take pictures of the same clouds?
Conrad	Okay. We'll do it going in the orbital plane, I think it's the best, and we'll pitch down 90.
Houston	Okay, after you've taken the pictures, let us know where it was, and we will dispatch the aircraft to that particular spot.
Conrad	Okay.

[** DMH's note -- For Experiment S-7, they're making coordinated studies, combining data from the spacecraft with that from meteorological aircraft.]

Houston	I'd also like to remind you that we want to purge both fuel cells before you power down, and when you do power down, we'd like to have you turn your horizon scanners off also. We'd like to get in a pretty low-power configuration.
Conrad	Okay.
Houston	The weather for your next D-6 still looks pretty good.
Conrad	Okay.
Houston	I might add here, that you had some pretty good explanations on why your IVIs [Incremental Velocity Indicators] were driving in the windows yesterday, so I wouldn't worry about that any longer. I could give you the explanation -- if you're interested.
Cooper	Okay, we'll get it from you later.

Houston	Okay.
Conrad	We're passing right over the top of you right now.
Houston	Just a second, and I'll run out.
Houston	You know, we ought to put a glass ceiling in here [in the MCC] so we could look up and see you!
Conrad	Yeah.
Houston	How's the weather down here today?

[DMH's note -- The Mission Operations Control Room -- the MOCR -- is a large windowless facility.]

Conrad	I see some thunderstorms back there.
Houston	Roger.
Conrad	There is a big one down there by Lake Charles.

This is Gemini Control here. There is a break in the conversation. Apparently the crew could see the Minuteman quite visibly. The liftoff time was 28 minutes 7 seconds after the hour. But they also, apparently, had some difficulty in actually tracking it and following it with their infrared sensor. The spacecraft right now is down over Florida.

Conrad	Hey, Jim, the only thunderstorms in Florida are right at the very tip, and we're just about to pass over them now. They're all the way down by Key West.
Houston	Okay, very good.
Houston	Gemini 5, Houston.
Conrad	Go ahead.
Houston	I was talking to Jane this morning Pete, and she said to tell you that everything is going along fine. She is having a nice time on the ground, and hopes you are having a nice time in the air.
Conrad	Thank you very much.
Houston	Gemini 5, Houston. We've another three or four minutes [prior to Loss of Signal]. We'll just standby, in case you've got anything.
Conrad	Okay, we've got the thunderstorm pictures and we've just taken some more photographs of Cuba.
Houston	Okay.
Cooper	Just scenic shots.
Houston	Gemini 5, Houston. What is the thunderstorm situation across the southern United States?
Conrad	Well, there was some. I didn't see them in the western part. We were recovering from -- we were turned around BEF [Big-End Forward], and followed the California tracking. But just as we came over Galveston there, I saw one just north of Houston and then one about Lake Charles, and then it gets better. There were none in Florida until you go all the way down to Key West.
Houston	Roger. How are they out over the ocean? Are there any at all out there?
Conrad	There's quite a few out here, today.
Houston	Okay.

Surgeon	Gemini 5, this is Houston Surgeon. Pete, can you tell me about this interference with sleep that you were reporting last night. Is this due to the fact that Gordo's activities require him to move around in the spacecraft? Is it just the movement of the other guy?
Conrad	The HF check -- where he's transmitting every five minutes for an hour and a half -- doesn't help you wnen you're sleeping!
Surgeon	Okay, you're hearing everything he says. Are you wearing the ear muffs?
Cooper	...helmet, but actually during the fuel cell purging, where both guys have to participate during one or the others' sleep periods.
Surgeon	Okay, so it's still scheduling as well as ...
Cooper	I can't purge the fuel cells on my side, so I have to wake Pete up to purge the fuel cell -- because I can't reach the switches there. And I can't put out the platform without crawling all over him with the swizzle stick, and lighting the light on his side -- and things like that -- that just cause a lot of interference.
Surgeon	Okay, fine Gordo. We'll try and do some talking down here -- with Jerry -- and see if we can't wiggle this flight plan around some.
Houston	Gemini 5. Houston.
Cooper	Go ahead Houston, Gemini 5.
Houston	What do you think about the HF check from the ground to the spacecraft. Do you think that would bother you; I don't imagine it would -- would it?
Cooper	No, that wouldn't bother us.
Houston	Okay, I'll try to go over some of these things with the flight planners before I leave today, Gordo.
Cooper.	Okay, I think they're just kind of loading down some of those night periods with things that are really preventing sleep, pretty much.
Houston	Okay, I think I know what you mean about the swizzle stick and getting the IGS power on, and those kind of things.
Cooper	Rog.
Conrad	Yeah, that old platform business last night kept us both going for a while.
Houston	What did you have to platform up for last night?
Conrad	We never did get it up. We decided it against it, but talking to Houston about it last night -- what they wanted us to do -- we had four communications, and one thing or another, and it took up about an hour or so.
Houston	Oh, rog. I know what you're talking about. Okay.
Flight	We'll get that straightened out, Pete.
Houston	We're working on that now, Pete.
Conrad	Okay.

Gemini Control here. During this lull we should explain the reference to the "swizzle stick" as Gordon Cooper called it. This is a stick about 2 feet long. It's usable from either side of the spacecraft, and has a little crook on the end of it -- a little L-shaped affair -- and it's used for flicking on and off the switches that are slightly out of reach.

We're way down on the edge of the Antigua zone right now. The flight plan on down across the Atlantic calls for the crew to do another D-6 experiment over in the Ascension area. Let's standby -- I think we're out of range, but we'll make a check.

Gemini Control, here again. We're out of the acquisition range now, but we have the Hawaii tape that proceeded the Stateside pass, then we'll come back with the beginning of the Stateside pass, which includes the McDivitt message to the crew. Let's roll the Hawaii tape now.

Hawaii	Gemini 5, Hawaii CapCom. We copy your oral temp, you can start your blood pressure.
Conrad	Okay.
Surgeon	Gemini 5, this is Hawaii Surgeon. Your cuff's at full-scale now, we have a good blood pressure. Give me a mark when you are going to begin your exercise.
Conrad	Roger. Mark!
Hawaii	Systems are 'Go', Flight.
Flight	Roger, Hawaii.
Surgeon	Standby Gemini 5, Hawaii Surgeon. Full-scaling you now. We have a good blood pressure. Standing by for your water and sleep reports.
Conrad	Roger, and I've drunk 20 pounds 12 ounces, my last meal was 1-bravo and 04:10:00:00. And I got about 6 hours of sleep last night.
Surgeon	You had 6 hours of sleep last night?
Conrad	Yes.
Surgeon	Roger. Okay, fine, thank you. Gemini 5, Hawaii Surgeon out.
Hawaii	Gemini 5, Hawaii CapCom.
Conrad	Go ahead, Hawaii CapCom.
Hawaii	Roger. We'd like to know your status for 423-bravo.
Conrad	We're 'Go' on 423-bravo.
Hawaii	Roger. We'll continue the count. However, there's high cirrus clouds that may move into the area.
Conrad	Okay.
Hawaii	Now would you place your OAMS Heater switch to 'Off'.
Conrad	Roger. OAMS Heater switch is 'Off'.
Houston	Circuit breaker.
Hawaii	We're still counting on time.
Conrad	Okay.
Hawaii	Now we're copying FM ...
Houston	Roger.

That concludes the Hawaii portion. And now we want to play for you the tape of the Minuteman launch. At the end of it, is McDivitt's congratulatory message on beating his record, the total time in a Gemini spacecraft. Roll the west coast portion of that Stateside pass now, please.

Houston	Gemini 5, Gemini 5, Houston.
Conrad	Go ahead Houston, Gemini 5.
Houston	Roger. We're still going along fine on 423-bravo. I'll give you a little weather report here. There's a low deck of scattered

	clouds at about 500 feet that extends down to the southwest, and this is probably the stuff blowing in off the water. There's a high deck of broken cirrus at about 35,000 feet ...both of these decks are clearing off, though, so there's at least a 50 percent chance of it being clear.
Conrad	Roger. We're in position -- ready to go.
Houston	Okay. We're still on schedule.
Conrad	Roger. I can see an airplane to the south of us down there [it is] contrailing just bigger than heck.
Houston	Roger. One minute.
Conrad	Roger. Weather's going to be good, right?
Houston	Understand the weather's going to be good.
Conrad	Right. Breaking up for a nice one.
Houston	Okay. We've got about four seconds.
Conrad	Roger.
Houston	Ignition. It's on its way!
Conrad	We have him in sight!
Houston	Very good. He's tracking right on our course. Second stage.
Conrad	Say again.
Houston	Second stage.
Conrad	You can't do this [tracking] in 'Pulse' Mode.
Houston	You can't do this in 'Pulse' -- is that right?
Conrad	Tnat's right.
Houston	Have you completed your tracking yet?
Conrad	No. We never got on him -- we never caught up with him, once we saw him.
Houston	Okay. You now have flown for 98 hours and 31 minutes and 30 seconds -- and let me be the first to congratulate you on setting a new American record for manned spacecraft.
Conrad	Thank you.

... it's the Antigua discussion. Just after Ascension, the crew is to perform a Section 1 and Section 2 hydrogen and oxygen purge. Following that, they're to power the spacecraft down, turn off their rate gyros, turn off their computer, as well as their platform. Darkness will begin on this rev at approximately the Tananarive station -- which they should meet in about 2 to 3 minutes. At Carnarvon, they'll receive some planned updates for the 65-4 area and other Planned Landing Areas, should they be needed, from 65-4, on through the 70th revolution. Following that, Gordon Cooper is to have some lunch between Carnarvon and the States. There'll be a medical data pass over Hawaii, and just after the Carnarvon pass, the Pilot, Pete Conrad, is to catch a nap. This is Gemini Control in Houston.

This is Gemini Control, Houston, at 99 hours 32 minutes. We have the Carnarvon tape -- the station we just left about a minute ago -- ready to play for you at this time.

Carnarvon	Gemini 5, Carnarvon CapCom.
Conrad	Roger Carnarvon, Gemini 5 reading you loud and clear.
Carnarvon	Roger. I have a flight plan update -- when you're ready to copy.
Conrad	Roger. Wait one. Okay. Ready to copy.
Carnarvon	Item HF 18:00:00, sequence number 04, remarks -- end test at 19:25:00. That's the HF test starting right after Hawaii's LOS.

	Next item is S-7, 19:44:02, sequence number 03, pitch down 90. Next item is the OAMS (...garbled), sequence number 03, pitch down 90 -- [tropical] storm Doreen. Did you copy?
Conrad	Roger. We got those three.
Carnarvon	That's all the flight plan update. There'll be a medical pass on the Command Pilot over Hawaii -- the AOS time is 17:51.
Conrad	Okay.
Carnarvon	Okay. And next we've got a PLA update -- when you are ready to copy.
Conrad	Standby. Ready to copy.
Carnarvon	Roger. Area 65-4, 20:45:18, 12+10, 18+06. Area 66-3, 22:02:46; 14+21; 19+31. Area 67-3, 23:38:00, 13+09, 18+41. Area 68-3 -- this is next day -- 01:12:44; 12+16; 18+00. Area 69-delta, 02:05:59, 20+14, 25+03. Area 70-delta, 03:38:43, 19+31, 24+13. Weather is good in all areas except for 66-3 and 67-3 where it's marginal. Do you copy?
Conrad	Have it all.
Carnarvon	Very good.

Gemini Control here. Within the last minute, the Hawaii station has raised the Gemini 5 spacecraft. Command Pilot Gordon Cooper is going through... the things associated with a medical data pass. We should have some conversation on the air-to-ground, so let's cut in now and find out what's going on.

Cooper	... fine now.
Flight	Hawaii, send the C-Band 'Off' command at 55.
Hawaii	Roger, Flight.
Flight	As planned. And you can ask him if he turned it 'Off'.
Hawaii	Roger.
Cooper	Ending exercise now.
Surgeon	Roger.
Surgeon	Gemini 5, Hawaii Surgeon, your cuff is full-scale.
Flight	Hawaii. How do you know the beacon isn't on?
Hawaii	Okay, they're reporting they're losing track, and they lost it, and they regained it again -- that's happened twice through this pass.
Flight	Oh, so the beacon is okay. They tracked from the Wheeling. We got the data.
Surgeon	We have a good blood pressure. Standing by for your water and sleep reports.
Hawaii	I've commanded C-Band 'Off', Flight.
Flight	Rog.
Surgeon	... sleep report.
Cooper	No sleep since last night, when I reported on that. The water report -- I've drunk 21 pounds 13 ounces of water. I'm just in the process of eating now -- which I've added to that.
Surgeon	Are you in the process of eating now? What meal would that be?
Cooper	Just a second here -- it's 1-bravo.
Surgeon	I understand, 21 pounds 13 ounces, no sleep since last night, and eating 1-bravo.

Cooper	Roger.
Surgeon	Thank you, Hawaii Surgeon out.
Hawaii	Gemini 5, Hawaii CapCom. On this HF test -- we are going to stop it for about 10 minutes over the States, and we'll resume at 18:14:00.
Cooper	Roger.
Hawaii	Hawaii has LOS.
Flight	Roger.

In that pass, you heard Gordon Cooper confirm that he'd had no sleep since last night. His water intake indicated he drank approximately 1 pound from about 2 revolutions ago at the Canaries, when he made a report of slightly over 20 pounds ... I believe he said he was eating Meal 1-bravo on day 4. That meal includes beef and vegetables, patato salad, cheese sandwiches, strawberry cubes, and an orange drink, for a total intake of 931 calories. This is Gemini Control, Houston, at 99 hours 57 minutes into the mission.

This is Gemini Control in Houston, at 100-hours-even in the mission. The California station should acquire the spacecraft momentarily. As they swing down across Mexico on this pass, the crew will perform a number of HF tests. They'll orient the spacecraft around in various positions, and test their various antennas using the HF bandwidth instead of the usual UHF mode. Of some interest may be the fact that during the earlier Stateside activity in the two previous passes, with much of the equipment powered up, we were pulling an amperage load of 41 amps. We're now powered back down. We're pulling a load now of about 18.6 amps, and the spacecraft will probably remain in this configuration.

We're standing by here -- we should have contact by either our California or Guaymas stations momentarily, and when we do we'll play it for you immediately -- there's the TM solid signal from the Guaymas communicator.

Guaymas	How're you doing?
Cooper	Roger, doing fine.
Guaymas	You're looking good here on the ground. I'd like a readout of your OAMS propellant quantity, pressure, and temperature, please.
Cooper	Roger, OAMS propellant quantity is 20 percent, temperature is 75 degrees, and pressure is 1350.
Guaymas	Say again the pressure.
Cooper	1350.
Guaymas	Roger, I copied -- thank you. Standing by, if you need anything else.
Cooper	Okay, fine. Thank you.
Guaymas	Flight, Guaymas. Did you copy.
Conrad	For your information we read Hawaii on HF all the way to your call.
Guaymas	Very good.
Guaymas	Flight, Guaymas.
Flight	Go ahead.
Guaymas	On the ground, readout on that temperature, there's a correction on our part -- that was 76 degrees instead of 68.
Flight	Roger.
Houston	Gemini 5, Gemini 5, Houston.

Cooper	Roger Houston, Gemini 5. Go ahead.
Houston	Roger, I have some information here for you that I'd like to read up to you -- map and star updates. Ready to copy?
Cooper	Wait one second here. We will be.
Houston	Okay. While you are getting ready, I've got some questions -- can you tell me if the Command Pilot is doing the M-9 with the left or right eyepiece.
Cooper	With the right eyepiece.
Houston	Okay, I'd also like to know if each pilot is getting five readings when you do the M-9 experiment
Cooper	Negative -- we've just been taking one reading.
Houston	Okay.
Cooper	They have always been the same.
Houston	Okay.
Houston	Have you been able to get S-6 pictures on successive passes over the same particular piece of weather?
Cooper	Two or three times ...
Houston	Very good. Can you give us a film and voice tape report of what you've taken, and what you have left?
Cooper	We've got lots of voice tapes here -- we haven't used much of any of them. We're on our fifth voice cartridge now, on tape.
Houston	You say you have ten left?
Cooper	We have 18 left.
Houston	18 left -- roger.
Cooper	We've used two full 70-mm film magazines plus half, or about one-third, of another one.
Conrad	On the D-6 pictures on the 3401, we probably have taken 50 or 60 pictures now, I'll have to add it up. But that's the only one that we'd be low on. The 8443, we've got plenty left, probably 55 pictures left, and on the 3401, I think we have probably 50 pictures left.
Houston	Okay. And you've taken two full 70-mm film packs plus one-third of another one.
Cooper	That's correct. And on experiment S-1, we're still on our first 16-mm camera package. We've got three of those left.
Houston	Okay, you've got three 16-mm packs left.
Cooper	We've got a question for you.
Houston	Okay.
Cooper	We're in the middle of this HF test now. Now the write up for this HF test calls to be stabilized in 'Horizon Scan'.
Houston	Roger.
Cooper	Is it desirous to use our last horizon scanner for an HF test like this?
Houston	No, you can go ahead and hold your attitude using the 'Pulse' Mode, Gordo. And just make sure that you stay near the zero roll and zero pitch attitude.
Cooper	Okay.
Houston	Gemini 5, we would also like to have you keep your power level down, so that we don't use up too much of the reactants [for the fuel cells].

Cooper	Roger. We're completely powered down now.
Houston	Okay, very good.
Conrad	We're ready for the map update.
Houston	Okay, if you're ready for the map update -- here it comes. Time for both the map and star update is day 06 at 17:36:22. The map update is 134.0 degrees east, for rev 63, star update is 0 16 41.
Conrad	.... on the star update.
Houston	Okay, Dr. Berry would like to talk to you for a couple of minutes.
Surgeon	Gordo and Pete -- you've had 100 hours 11 minutes 35 seconds now, and we'd just like to tell you that the data that we're seeing down here looks really excellent. All the rates and pressures are still well within normal ranges, no abnormal changes at all. We think you're doing beautifully as far as water intake is concerned. We're delighted with this. The food seems to be going okay too. And we do feel that you still need to keep pushing on that sleep, and I guess you feel the same way, and we're going to try and help with that. Are you still comfortable as far as the spacecraft is concerned? Are you having any more times when you feel cool?
Cooper	Every time we power down at night, it gets pretty cool in here, but we'll overcome ... night.
Surgeon	Very good. Pete, we've checked on this [thigh] cuff business, and we feel that the -- that you have just run out of gas, so what we'd like for you to do is to turn that switch off and then if you desire, at your option, depending on how much bother you're having with the cuffs, you may try and remove those cuffs, if you think you can do it. It's up to you.
Conrad	Okay, I'm going to try and take them off, because when the heat load is up, I sweat around the legs and that makes them itch right there very badly. And as long as it's not running, it's not doing me any good.
Surgeon	That's right Pete, and I think you ought to, if you can, feel free to cut through the cuffs if you want -- just be careful when you are using the scissors there!
Conrad	Okay. Well, I've been out of the harness once already and back in again, so I can get them off alright -- I'm not worried about that.
Surgeon	Okay, fine. Let's try that. I think you ought to get them off. It'll be a lot more comfortable. It's still going to give us good data, Pete, because we feel that it's still going to give us comparison [against Cooper, who wasn't wearing cuffs] with the four days that we had.
Conrad	Sorry it's run out of air. We heard it running two or three times back during testing. We told them about it, but nobody seemed to pay much attention to it, so I guess it's been leaking down.
Surgeon	Oh, boy. We need a new gas supply. You might breathe on it a while.

Cooper	Are you still there, Chuck?
Surgeon	Yes, sir.
Cooper	One of the problems on the sleep cycle is that some of our sleep cycles have been falling during the normal East Coast daytime cycle.
Surgeon	Rog. Okay.
Cooper	... to be sleepy then, we're a little bit, you know, you just don't go to sleep very easy then, whereas during the Cape night cycle, we always seem to get sleepy.
Surgeon	Okay. Are you doing better with the nap times now, Gordo, as the days go on. Is it easier to go to sleep during the nap periods or not?
Cooper	Oh, I don't think we've really had trouble with the nap periods. We each power down for those periods, for 30 or 40 minutes, several times during the day, and get a little naps. But for the long sleep period -- we really had trouble getting these lenghty sleeps.
Surgeon	We'll check these times out pretty carefully with Jerry, both Jim and I want to do that after the shift today, and we'll try and get something worked out on this flight plan and on the sleep times with him.
Cooper	That's the big thing on the longest sleep period, there's just too many interferences where you couldn't settle down and sleep.
Surgeon	I think we've got that squared away now, Gordo.
Cooper	Okay, real fire.
Surgeon	Good trip?
Conrad	Yeah, we've felt real good up here. No problems.
Surgeon	Very good. We're going to keep it that way for the rest of the time then.
Cooper	We've felt lots better since we've got our suits off, but --
Surgeon	Which suits?????????
Surgeon	You want to check my pulse rate!?
Houston	Gordo, tell Pete about Enith.
Cooper	Yeah.

This is Gemini Control. I think that wraps up the that particular Stateside pass. Gordon Cooper's remark, of course, about how they feel a lot more comfortable without their suits brought Dr. Berry right up out of his chair. We're sure it was in jest, but it surely elevated his pulse rate! This is Gemini Control, Houston, at 100 hours 18 minutes into the mission.

This is Gemini Control,Houston, at 100 hours 32 minutes into the mission. We've had no contact since our last report. Things here in the Control Center generally are just like the spacecraft -- in a rather powered down configuration. Our Flight Ddirector has been out for the last 15 to 20 minutes on a lunch break. Other controllers are comparing notes with their counterparts in the back rooms; it's generally a period of relative inactivity. The flight plan calls for Pete Conrad to be taking a nap, and Gordon Cooper should have completed a meal by now. He is between Ascension and Tananarive. Tananarive, the night-side on this pass, beginning some ten minutes prior to Tananarive. This is Gemini Control, Houston.

This is Gemini Control, at 101 hours 2 minutes into the mission. Word from the Cape on the OSO launch is that a premature burn of the third stage caused the satellite to fall into the south Atlantic. Johannesberg station advised that they didn't acquire it, so presumably the OSO did not achieve orbit.

The two numbers on the Minuteman launch this past revolution, the time of liftoff was 28 minutes 7 seconds after the hour -- that would be 10:28:07 Houston time, and the time of closest approach of the Minuteman and the Gemini 5 spacecraft was at 10:28:46 Central Standard Time. Closest approach, from a slant range point of view, was 182 statute miles. That would have been with the missile slightly above the spacecraft, and just about abreast of each other on a longitudinal basis. The spacecraft was flying a ground track that carried it 139 miles south of the Minuteman silo at Vandenberg.

The spacecraft is now over the East Indies, coming out across the Pacific. We've had no contact since at the States. This is Gemini Control.

Cooper	Hawaii, Gemini 5 here.
Hawaii	Go ahead.
Cooper	Roger. We completed all the experiments that were assigned for today, except one portion of 410-charlie and D-4/D-7 --
Hawaii	Roger.
Cooper	-- that were deleted by the time we got there, for one reason or another, due to weather.
Hawaii	Okay.
Cooper	All that were assigned, we completed.
Hawaii	Did you copy, Flight?
Flight	Affirmative.
Hawaii	Okay, we're copying the dump off ..., I got the TX in.
Flight	Roger.

This is Gemini Control, Houston, at 101 hours 49 minutes into the mission. Gemini 5 is beginning its 65th revolution, crossing the 80th line of longitude on the northwest coast of South America. We have about 3 minutes of conversation -- intermittent conversation --with the Guaymas station. The principal point of discussion is that Gordo is having to look back at his log to check on the time of a certain experiment, ... and whether he had done it. The reference is to a D-6 experiment, a picture of the [aircraft carrier] Lake Champlain that was taken earlier today. Here's the tape now.

Guaymas	Gemini 5, Guaymas CapCom.
Cooper	Go ahead Guaymas, Gemini 5.
Guaymas	Okay. You're looking good here on the ground. How are you doing?
Cooper	Roger. Doing fine. Everything's 'Green' here.
Guaymas	Okay. I'd like the amount of time left on your D-4/D-7 experiment recorder.
Cooper	Standby, just one minute.
Guaymas	Okay. While he's getting that, Flight, I'm getting a reading on my Delayed-Time transmitter, but I believe the carrier's still out.
Cooper	Roger. Sixteen minutes time, last night.
Guaymas	Did you say sixteen minutes, Gordo?

Cooper	That's affirmative.
Guaymas	Okay. Did you complete D-6 134-08? And the time on that was 04:11:55:55.
Cooper	What was the time on that, again?
Guaymas	Okay. The support date 11:55:55.
Cooper	Let me look it up in our D-6 log. I have it here that we did it, but let me double check it.
Guaymas	Okay.
Cooper	Negative, we didn't complete that one.
Guaymas	Okay, thanks very much. Flight, did you copy all that?
Flight	Affirmative.
Guaymas	Okay. Okay. We'll standby here, if you need anything else.
Cooper	Real fine, we did get 134 though, 15:04:48. Report that.
Guaymas	Report that. Alrighty.
Flight	What did he say there, Ed?
Guaymas	He said he did 134, and the time on that was on the fourth day ... (interrupted by Cooper)
Cooper	.... we got it today.
Guaymas	Say again.
Cooper	We didn't get that one the first time, but we did get it today.
Guaymas	Okay. He said he didn't get it the first time, but he got it today at 04:15:04:40, and he completed it.
Flight	Say that time again, Ed.
Guaymas	Fourth day, 15:04:40.
Flight	Roger. Thank you.
Guaymias	Okay.

This is Gemini Control, Houston, at 102 hours 2 minutes into the mission. We have no new status to report on the spacecraft, we've been out of contact since that swing down the West Coast of North America. The White Team has come into the Control Centre, looking all rested and ready. The normal kind of discussion that takes place at every shift change is going on now, with the new operators sitting down and comparing notes for at least a half hour before they assume control of the consoles. This is Gemini Control, Houston.

This is Gemini Control. We are now 102 hours 34 minutes into the flight of spacecraft Gemini 5, which is just coming up over Singapore, and shortly will pass over the Coastal Sentry Quebec, our tracking ship located in the Pacific Ocean. At the present time, here in the Control Center, we're in the midst of a shift change with the White Team ready to take over from Christopher Kraft's Red Team of flight controllers. We have a message to pass to the spacecraft, as it comes over the Coastal Sentry Quebec -- that message was initiated by the Weather Bureau people who're interested in having our astronauts take some visual observations of tropical storm Doreen, located approximately 1,500 miles east of Hawaii. This is Gemini Control, at 102 hours 36 minutes into the flight of spacecraft Gemini 5.

This is Gemini Control, at 103 hours 2 minutes into the flight of spacecraft Gemini 5, which at the present time is on its 65th revolution over the earth and now passing over the Hawaiian tracking station. A few minutes ago, as the spacecraft passed over the Coastal Sentry Quebec, our tracking ship located in the Pacific Ocean, one of the Flight Surgeons aboard the Coastal Sentry Quebec was taking a turn on deck, and he reported that he saw

Gemini 5 in the sky passing over that station. He said the visual sighting was supurb. He said it was rather thrilling to see the spacecraft come over. We'll now play back the voice communication between the Coastal Sentry Quebec tracking ship and spacecraft Gemini 5.

CSQ	Gemini 5, CSQ CapCom.
Cooper	Roger CSQ, Gemini 5.
CSQ	Roger. We're 'Go' on the ground, and have some information on a tropical storm that we'd like you to look at, over.
Cooper	Okay, we're 'Go' here. Just a second. Let me get my pencil and I'll copy. Okay, I'm ready to copy.
CSQ	The Weather Bureau estimates that tropical storm Doreen will be 200 nautical miles left of course, SEF, time of closest approach 21:09:19. We'd like to know the time and distance to the eye of the storm ...
Cooper	Okay, the time and estimated distance to the eye of the storm. Is that affirmative?
CSQ	Roger. We'd like the time, plus the estimated distance.
Cooper	Okay, fine.
Cooper	Okay, I've got this.
CSQ	CSQ.

This is Gemini Control, at 103 hours 32 minutes into the flight of spacecraft Gemini 5, which is now passing over South America on its 66th revolution over the earth. Just a few minutes ago, it passed over the Rose Knot Victor, our tracking ship off the coast of Peru, and at that time we were in voice communication with Command Pilot Gordon Cooper. As they passed over, the RKV reported all systems in the spacecraft looked "good". They also told Cooper the weather in the Pacific, where the ship is located, is good, clear, and calm. Cooper gave a report on tropical storm Doreen, which he said he could see approximately 250 miles off his flight path. We will now play back that tape of the voice communication between the Rose Knot Victor and Gemini 5.

RKV	Gemini 5, RKV CapCom.
Cooper	Understand RKV, Gemini 5.
RKV	We'd like to get your estimate of the time of closest approach, and the distance to the eye of the storm Doreen.
Cooper	Roger. ...eye of the storm was 250 nautical miles to the left of our course, and the time of closest approach was 21:09:30.
RKV	Roger, I copied.
Cooper	And pass to MCC that I got seven photographs -- Weather Bureau photographs of it. Over.
RKV	Roger, understand. Gemini 5, we would like for you to cycle through your Quantity Read switch. You don't need to give us a spacecraft readout.
Cooper	Okay.
RKV	Hold it on this one for a moment.
Cooper	Alright.
RKV	Okay. Fuel cell hydrogen. Gemini 5, you may turn the switch to the 'Off' position. Thank you.
Cooper	Roger.

RKV	All systems look real good here on the ground. We havd nothing else for you this pass. We'll be standing by.
Cooper	Okay, fine. How's your weather been?
RKV	It looks real good down here. The seas are real calm, and clear.
Cooper	Good.
RKV	Houston Flight, RKV CapCom.
Flight	Go, RKV.
RKV	All systems look real good here on the ground. And the quantity readouts -- percent's of full scale -- ECS O2, 83.8; fuel cell O2, 85.8; fuel cell H2, 59.8. This is percent full-scale.
Flight	Roger, copy.

This is Gemini Control, at 104 hours 2 minutes into the flight of spacecraft Gemini 5, which is now passing over the Indian Ocean, on its 66th revolution over the earth. We've had no voice communication with the spacecraft since it passed over the Rose Knot Vlctor tracking ship, about 30 minutes ago. At that time, all the spacecraft systems were looking good, and the flight crew was in excellent condition. At this time, Command Pilot Gordon Cooper is scheduled to be in a sleep period. Pilot Pete Conrad, according to the flight plan will shortly be conducting a cabin lighting survey, as he approaches the Hawaiian tracking station. This is Gemini Control.

This is Gemini Control, at 104 hours 32 minutes into the flight. At this time, Gemini 5 is coming up over the Hawaii tracking station. We've had very little voice communication with the spacecraft for approximately the past hour, and we've nothing new to report from the spacecraft cabin. The last time we had a good voice conversation -- over the Rose Knot Victor on the last revolution -- everything was in fine condition with pilots in good health, and all systems 'Go'. Command Pilot Gordon Cooper is in a sleep period, and Pilot Pete Conrad is on the watch. He'll probably take another look at tropical storm Doreen, located east of Hawaii. The intention of the spacecraft crew was directed toward the storm by our weather people on our last revolution, so we assume Pete will take another look at it. This is Gemini Control, at 104 hours 33 minutes into the flight.

-/continued