

Gemini 5 Mission Commentary Transcript

PART 5

This document was scanned and annotated by David Harland, with 'proof checking' feedback from Derek Henderson and Ken Glover.

We would like to express our thanks to Colin Fries, Stephen Garber and Roger Launius of the History Office at NASA Headquarters in Washington, and Glen Swanson, the Historian at the Johnson Space Center.

PRELIMINARY - 8 October 1999

This is Gemini Control, at 180 hours 2 minutes into the flight of spacecraft Gemini 5, which is now on its 114th revolution around the earth, and, at the present time, is passing over the continent of Africa. Aboard our spacecraft, Command Pilot Gordon Cooper has awakened from his sleep period. Pilot Pete Conrad should be sleeping now, according to our flight plan. The spacecraft is in drifting flight, and powered down. The crew has been notified that their flight will end at 12:55 Greenwich Mean Time, that's 6:55 a.m., Central Standard Time here in Houston, and our splashdown is to be 276 statute miles southwest of Bermuda.

The city of Chattanooga, Tennessee, has called to advised they've conferred honorary citizenship on Gordon Cooper and Pete Conrad, and named them 'Brothers of the Brush'. Chattanooga is celebrating the 150th anniversary of its founding, and many of its residents have grown beards to commemorate the event. They tell us the 8-day beards of Cooper and Conrad will amply qualify them for the elite society of 'Brothers of the Brush'. We'll pass on the message to the spacecraft at our earliest opportunity. Gemini 5 will be visible in the Houston area from 5:04 a.m. to 5:09 a.m. CST, Sunday, on its 119th rev. It'll come over the horizon at west-southwest, traveling east-northeast.

At this time, we are 180 hours 3 minutes into the flight of Gemini 5. We now have for you the voice transmission between spacecraft Gemini 5 and the tracking ship Rose Knot Victor on tape.

RKV	Gemini 5, RKV CapCom. How do you read?
Conrad	RKV, Gemini 5. Loud and clear.
RKV	Roger. I have a map update for you. Acknowledge when you're ready to copy.
Conrad	Ready to copy.
RKV	Map 01 55 42, longitude 19 west, rev 114. Star 01 55 42, 23:07:11.
Conrad	Roger.
RKV	Okey dokey. All systems are 'Go' on the ground.
Conrad	All systems are 'Go' up here.

This is Gemini Control, at 180 hours 32 minutes of flight for spacecraft Gemini 5. At this time, it is making its last pass over the Coastal Sentry Quebec, our tracking ship in the Pacific, located south of Japan. The revolutions from now through the end of this mission do not bring our spacecraft within voice range of CSQ on any further passes. At this time, we're in voice communication from CSQ. We assume that they will be saying 'good night' to our spacecraft crew, and wishing them well. The next voice transmission we will have

with the Gemini 5 crew should occur over the Rose Knot Victor, the tracking ship off the coast of Peru, in approximately 30 minutes. This is Gemini Control 180 hours 33 minutes into the flight.

This is Gemini Control, at 181 hours 2 minutes into the flight of spacecraft Gemini 5. At the present time, the spacecraft is passing over the Pacific Ocean, and will shortly come up over the Rose Knot Victor, our tracking ship located off the coast of Peru. During the last pass over the Coastal Sentry Quebec, our other tracking ship which is located south of Japan, the tracking ship gave our spacecraft crew a 'Go' from the ground. At this time, the spacecraft is coming up the end of its 114th revolution and, within minutes will be starting its 115th revolution around the earth.

We now have for you the voice transmission -- the last voice transmission -- between spacecraft Gemini 5 and the Coastal Sentry tracking ship.

CSQ	Gemini 5, CSQ CapCom
Conrad	Go ahead CSQ, Gemini 5.
CSQ	We have you 'Go' on the ground. We'd like to get a readout of all your cryogenic quantities. Will you select the ECS O2 on the Quantity Read switch, please?
Conrad	Okay.
CSQ	And we'd also like to know if the total water consumption is close to mark please.
Conrad Command Pilot's is 36 pounds.
CSQ	Copy.
Conrad	Pilot's is 34 pounds 4 ounces.
CSQ	Copy. Will you select the fuel cell O2, please.
Conrad	That's 35 pound 4 ounces ...
CSQ	Roger. 35, 4.
CSQ	Gemini 5, would you select fuel cell H2, please.
Conrad	Roger.
CSQ	Gemini 5, you can return to the 'Off' position Quantity Read switch.
CSQ	Houston, CSQ has Gemini 5 'Go', and nothing further at this time.
Flight	Roger. Why don't you pass up your best wishes -- this is your last pass, I believe.
CSQ	Roger. Will do.
CSQ	Gemini 5, CSQ.
Conrad	Go ahead, CSQ.
CSQ	Roger. This is the last pass as you come around. I hope you've a nice landing, and I'll see you in Houston.
Conrad	Thank you. Thank you for all your help. You did a real fine job. Over.
CSQ	Thank you.

This is Gemini Control, at 181 hours 32 minutes into the flight of spacecraft Gemini 5. Our spacecraft has just recently begun its 155th revolution around the earth. At the present time, it's just approaching the west coast of Africa. A short while ago, as it passed over the Rose Knot Victor, our tracking ship located off the coast of Peru, the tracking ship told the flight crew that everything looks good from the ground. They then updated

the spacecraft's star map, and sent the flight crew on its way. We now have for you the voice transmission between spacecraft Gemini 5 and the Rose Knot Victor tracking ship.

RKV	Gemini 5, RKV CapCom.
Conrad	Go ahead RKV, Gemini 5.
RKV	Roger. Everything looks real good here, on the ground. I have some landing area updates for you, if you are ... acknowledge when you're ready to copy.
Conrad	Okay. Just one second, and we'll be ready.
RKV	Roger.
Conrad	Okay, we're ready to copy.
RKV	Roger. The weather is good in all areas -- it's day 8. The bank angles remains the same for all -- roll left 53, roll right 67.
Conrad	Okay.
RKV	Area 117-2, 06:17:03, 17+07, 22+11. Area 118-2, 07:52:49, 15+42, 20+47. [Area] 119-1, 09:15:18, 17+12, 22+16. [Area] 120-1.11:04:18, 12+52, 18+16. [Area] 121-1, 12:27:39, 14+08, 19+20.
Conrad	Roger. Got all of those.
RKV	Roger. Houston Flight, RKV CapCom.
Flight,	Go ahead, RKV.
RKV	Everything looks real good here on the ground. We're transmitting Real Time.TM 'Off' at this time.
RKV	Gemini 5, RKV CapCom. We'll be standing by for the rest of the pass.
Conrad	Okay. Mighty fine. Thank you.

That was taped conversation between spacecraft Gemini 5, and the Rose Knot Victor, our tracking ship off the coast of Peru. This is Gemini Control at 181 hours 35 minutes into the flight.

This is Gemini Control, at 182 hours 2 minutes into the flight of spacecraft Gemini 5. At the present time, the spacecraft is on the 115th revolution and is passing over Viet Nam and moving out over the Pacific area. According to reports from our ground stations over the past hour, all spacecraft systems are functioning normally and the spacecraft crew is in good health. Command Pilot Gordon Cooper is awake at this time, and Pilot Pete Conrad is in a sleep period. According to our flight plan, very shortly Gordon Cooper will do an MSC-1 test, a measurement of radiation outside the spacecraft. This is Gemini Control, at 182 hours 3 minutes into the flight.

This is Gemini Control, at 182 hours 32 minutes into the flight of spacecraft Gemini 5. At the present time, the spacecraft is on its 115th revolution over the earth, and is passing over the South Pacific on its way to the Rose Knot Victor, our tracking ship located off the coast of Peru.

Here in the Mission Control Center, the White Team of flight controllers is concluding its last night of direction of spacecraft Gemini 5. The Blue Team is about to take over. Our press briefing will begin at the NASA News Center at 11:30 p.m. This is Gemini Control at 182 hours 32 minutes into the mission.

This is Gemini Control, at 183 hours 2 minutes after liftoff. Gemini 5's just begun the 116th revolution. It will be acquired by the Canary Island tracking station in two minutes. It just made a pass over the tracking ship Rose Knot Victor, its last pass over this ship for this mission. The Blue Team of flight controllers has just settled down for their last tour of duty for this mission here in Mission Control. This is Gemini Control.

This is Gemini Control, at 184 hours 26 minutes after liftoff. Gemini 5 has just begun its 118th revolution, and will be acquired by the Antigua station of the Eastern Test Range within the next minute. A communications check between the SeaLab with astronaut Scott Carpenter aboard, off the shore of California, in approximately 200 feet of water, will be Remoted from Houston through Antigua. Once Antigua acquires the spacecraft, we'll join the conversation. Still no conversation yet on air-to-ground -- we'll go live, now.

Houston	Gemini 5, Gemini 5, Houston CapCom, over.
Cooper	Go ahead Houston CapCom, Gemini 5.
Houston	Roger. You're looking good here on the ground. We have a number of things to pass up to you now, and if you can copy them down we will try and be quiet the rest of the way. First, we'd like you to place your Reentry C-Band to 'Continuous'.
Cooper	Roger. C-band 'Continuous'.
Houston	Roger. I have some update on your PLA's if you're ready to copy.
Cooper	Roger. Just a moment.
Houston	Okay.
Cooper	Okay, we're ready.
Houston	Roger. Area 122-1, 14:02:24, RET 400K is 12+58, 18+17, roll left 53, roll right 67. Area 123-4, 16:47:58, 15+50, 20+55, roll left 53, roll right 67. Copy?

[** DMH's note -- This reference to '400K' is to the 400,000 foot altitude of the atmospheric entry interface.]

Cooper	Roger. Got those.
Houston	Okay. Now some general instructions. When you get to Carnarvon set your event timer to 27, I say 27, instead of 36. Copy?
Cooper	27 instead of 36, roger.
Houston	Roger. And the weather in the recovery area is improving. The forecast at present for your landing is 2,000 scattered, 10 miles, 10 miles, the wind's 230 degrees at 10 knots, the sea is about 2 to 3 foot waves, the temperature is 82, and you have about five tenths coverage.
Cooper	Okay, got it.
Houston	Okay, on your medical data passes -- we would like to delete the Canary medical data passes on revs 119 and 120, and add the following if you're ready, to copy.
Cooper	Okay, ready.
Houston	Rog. Medical data on the Pilot at the Canaries, acquisition time 08:13:26. Medical data on the Command Pilot at Carnarvon, acquisition time 08:48:10.

Cooper Say again, that Carnarvon time.
Houston Carnarvon is 08:48:10.
Cooper Go ahead.
Houston Okay. In general, your acquisition times according to your flight plan are 38 minutes later -- in other words, the flight acquisition is 38 minutes later than you have on your flight plan, for the rest of the mission.

Cooper Okay.
Houston Okay. Elliot's got some procedures on your Retro checklist now.

See The first thing I want to discuss with you is a proposed fuel cell test. What they'd like to do, is to have you take all your load on section 2. And the purpose is to see if a section which has been down for a pretty fair amount of time can carry the full load just before retrofire. This is proposed to be done only for about an hour, and then we'll turn it back on. How's this sound to you guys?
[No Answer]

See Let me go ahead and give you the procedures for it and then you can continue to think about it because you got a while before it should be done. Are you reading me, Gemini 5?

Cooper Roger, we're reading you.
See Okay. The procedures would be as follows: time, day 8, 08:13, purge both fuel cells. Would you put your Reentry C-Band on, please? Would you put your Reentry C-Band on 'Continuous', please, Gemini 5?

Cooper Done.
See Okay. Next item is 8, 08:57, [FC] section 1 power switch 'Off'. We don't want you to shut down the primary coolant loop. I repeat -- do not shut down the primary coolant loop. At time of day 8, 09:57, section 1 power switch 'On'. During this period you should be carrying about 32 amps, which we think'll bring you down to about a 23 volt main bus voltage. How does this sound to you? You can be thinking about it, and as far as I'm concerned, if you have any strong objections, it's up to you whether you do it or not. We'd like very much to do it, if it's okay with you guys.
[No response]

See Now, SeaLab-II is standing by and is ready to talk to you at this time.

Cooper Okay.
See You go ahead, and call them.
Cooper Hello SeaLab, Gemini 5, Cooper.
SeaLab-II SeaLab-II transmitting from 200 feet down off La Jolla. How do you read, Gordo?

Cooper Fine, how're you doing, Scott?
SeeLab-II Roger, Gordo. You're doing a great job. We almost missed you. We just got down this afternoon, and I'm glad we got a chance to tell you what a great job you two guys are doing. I hope you have a very pleasant reentry shortly. Over.

Cooper	...
SeaLab-II	Thank you. My best ... before too long. Over.
Cooper	Good to hear from you down there. How're things going?
SeaLab-II	Roger, Gordo. Things are going very well. We just got down to SeaLab about 6 hours ago -- 8 hours ago. It took a while to get set up, and get going. We've a lot of sea life to study here. The SeaLab is in good condition. We're looking forward to pleasant days ... down here.
Cooper	Please say that over again.
See	You have about 20 seconds to LOS, Gordo.
Houston	Gemini 5, Houston. Would you check to make sure your Reentry C-Band is 'On', and your Adapter C-Band is 'Off', please
Cooper	You want adapter C-Band 'Off'?
See	... Adapter on 'Command', and Reentry on 'Continuous'.
Cooper	Houston, Gemini 5.
See	Go ahead.
Cooper	Houston, Gemini 5.
See	Go ahead Gemini 5.

This is Gemini Control. You could faintly hear the voice of astronaut Scott Carpenter, in SeaLab. And that falsetto garbled effect of his voice was due to the mixed breathing gas of oxygen and helium at several atmospheres, which effects the effectiveness of his vocal chords. This is Gemini Control, at 184 hours 36 minutes after liftoff.

This is Gemini Control, at 185 hours 2 minutes after liftoff. Gemini 5 is about a third of the way through the 117th revolution. It will be acquired by the Carnarvon, Australian tracking station, in approximately 13 minutes, for a pass that should last around 7 minutes 30 seconds. There will be about another four passes over Carnarvon before the end of the mission. The clock at the right hand side of the control room says 5 hours and 25 minutes until retrofire. During the pass over the Canary Island station, earlier in this revolution, all the telemetry readouts on the ground looked very good. Canary ran a C-Band track of the spacecraft, using the reentry antenna on the Adapter. This is Gemini Control.

This is Gemini Control, at 185 hours 32 minutes after liftoff. Gemini 5 is now halfway through the 117th revolution, just past Australia, north of New Zealand. The next stations to acquire will be those of the Eastern Test Range, at 58 minutes past the hour. During this pass over the Carnarvon, a radar track on the reentry antenna was run again, as it had been run in the Canary Island pass earlier.

We now have for you the voice transmission tape between the spacecraft Gemini 5 and the Carnarvon tracking station.

Carnarvon	Gemini 5, Carnarvon CapCom.
Conrad	This is Gemini 5. Go ahead Carnarvon.
Carnarvon	Roger. I have a flight plan update, when you're prepared to copy.
Conrad	Ready to copy.
Carnarvon	Power up at 09:21:34, remarks -- 132.8 degrees west, rev 118. Next is star, same time, 09:21:34, remarks -- Right Ascension 22 hours 59 minutes. Do you copy?

Conrad Roger. Copy.
 Carnarvon That's it. You're looking good down here.
 Conrad We're 'Go' up here.

This is Gemini Control, at 186 hours 2 minutes after liftoff, and 4 hours 25 minutes to retrofire. Gemini 5 has just begun the 118th revolution. It was acquired four minutes ago, by the stations of the Eastern Test Range. Spacecraft Communicator Dave Scott here in the Mission Control Center is presently talking to the crew of Gemini 5. He said they looked good on the ground, and he recommended that they begin stowage procedures prior to the retrofire sequence and subsequent landing. This is Gemini Control.

This is Gemini Control, at 186 hours 32 minutes after liftoff. Gemini 5 is on its 118th revolution, and is now crossing the east coast of Africa about the outlet of the Red Sea. It will be acquired by the Carnarvon, Australia, station in 26 minutes. During the pass over the Eastern Test Range stations early in this revolution, and at the end of the previous one, the flight plan updates were passed up by the Spacecraft Communicator here in the Control Center. These updates were the Pre-Retro checklist. Also outlined was a test of the OAMS system, to determine the amount remaining if any, and also the procedures for aligning the platform using the RCS -- Reentry Control System -- which is incorporated into the 'small end' of the spacecraft. On the Canary Islands pass subsequent to that, a medical data check was run on the Pilot.

At this time we are 186 hours and 33 minutes after liftoff. We now have the tape of the voice transmissions during the Stateside pass early in this revolution. We'll listen to this tape now.

Conrad Houston CapCom, Gemini 5.
 Houston Gemini 5, Houston CapCom. Everything looks good on the ground. You've got about 4 hours 27 minutes until retro. We recommend beginning stowage and are standing by ...

Conrad Roger. We have a question for you.
 Houston Go ahead.
 Conrad Has anybody thought of -- what could the effect be of the RCS plume on the scanners?
 Houston Standby.
 See Are you wondering about using them for platform alignment, Pete?

Conrad Affirmative.
 See We'll check that one out for you.
 Houston Gemini 5, Houston. We've got an update on your flight plan if you want to copy it now, or we can pass it to you at Carnarvon. We're checking the thrusters and the scanners out for you.

Conrad We're ready to copy.
 Houston Okay. Coming up.
 See Pete. On day 8, 10:27, power up checklist, with one change -- rate gyros 'On' before computer 'On'. Start Pre-Retro checklist. Copy?

Conrad Okay. 08, 10:27 power up checklist, rate gyros 'On' before the computer.
 See Right. Okay, did you get that time? That was 10:27 with 00 on the seconds.

Conrad Roger.
See Okay. At 11: 00:00, OAMS power switch 'Off'. Activate and check RCS operations. Then align platform using RCS. Do you copy?

Conrad 0, 11:00 power switch 'Off', activate RCS, platform with RCS.
See Right. That was 11 hours - it's day 8, 11 hours. Okay, at day 8, 11:26:00 -- which is approximately TR-minus-one-hour -- RCS power switches 'Off', evaluate the OAMS in 'Direct'. That's to check it out as thoroughly as you can, tell whatever you can at this point about its operation -- whether -- just blasting it out in 'Direct' will clear it out, or whether we're essentially out of fuel. When completed, fire the OAMS Regulator Squib, complete the Pre-Retro checklis, and RCS power switches will have to come back on, of course, because you will be pretty close to being out of OAMS.

Conrad Okay. We got it. Go ahead.
See Okay. And at day 8,12 hours -- standby a minute. Pete, on the last Carnarvon pass before retrofire, at 11:57, report Pre-Retro checklist complete and continue nominal flight plan. Do you copy?

Conrad That's fine.
See That's all we have. We're standing by.
Conrad Okay. Well, give us a reading on the scanners. As I see it we have a night retrofire -- is that correct?

See That's affirmative.
Conrad And we'll not have a countdown from Hawaii. Is that correct?
See We plan that you will have a countdown from Hawaii.
Conrad We have that much acquisition time with them on ... 121 huh? I mean 120 huh?

See That's correct.
Houston Roger. Acquisition at Hawaii at rev 120 is 12:23:22.
Conrad And when do we lose them?
Houston Okay. LOS is 12:30:47.
Conrad Okay. We'll make out pretty well on that.
Houston Roger. They ought to be able to get your [Incremental Velocity Indicators] IVIs, and attitude, and everything.

Conrad Okay. Very good. And if you can answer the questions on what the RCS will do to the scanners we're very happy.

See Okay.
Houston We'll check it, and give it to you at Carnarvon.
See We'll get some info on that to you as quickly as we can.
Conrad Okey-dokey. Incidentally, as a matter of information, the OAMS Propellant Gauge has gone on down to below zero!

See The OAMS Quantity Gauge?
Conrad Yeah. The Prop Quantity Gauge.
See Roger. It's no problem if, in this exercising, you just run it on out of fuel.

Conrad Fine.

This is Gemini Control, at 187 hours 2 minutes after liftoff. Gemini 5 has just crossed the east coast of Australia and is northwest of the Island of New Zealand, midway through the 118th revolution. During the Carnarvon pass, just completed, medical data pass check was run on the Command Pilot. He also gave food, water and sleep reports to Carnarvon Surgeon. Guaymas station will acquire the spacecraft in 25 minutes. For those of you in the Houston and southeast Texas area who operate eyeball tracking stations, the spacecraft should be visible starting at 5:02 Central Standard Time in a westerly direction. It will rise at 5:02, will pass to the north, be due north at 5:08, at an elevation of about 67 degrees. It will set to the east at 5:09. We've a tape of the voice transmission between the Carnarvon station and Gemini 5.

Carnarvon	Gemini 5, Carnarvon. We have a good oral temp. Standby for Surgeon.
Surgeon	Gemini 5, Carnarvon Surgeon. Standing by for your first blood pressure.
Cooper	Roger.
Surgeon	Your cuff is full-scale.
Carnarvon	Would you place your Quantity Read switch to fuel cell H2, and leave it there for remainder of mission.
Carnarvon	That'll be TX.
Surgeon	We have your blood pressure. Standing by for exercise on your Mark.
Cooper	2, 1, Mark!
Carnarvon	Flight, Carnarvon.
Flight	Go ahead, Carnarvon.
Carnarvon	Do you want to change the time on that time that was updated to the crew on that TR-minus-one-hour, or do you want to leave it now? You updated them 11:26 and the flight plan said 11:27:39.
Flight	Negative. It's 'approximately one hour', we're interested in.
Carnarvon	Roger.
Surgeon	Cuff's at full-scale. We have your blood pressure. Standing by for food, water, and a 24-hour sleep report.
Cooper	Roger, I've had 37 pounds 4 ounces of water 08:00:00:00 I had Meal 5-charlie. I had 2 hours of sleep just recently, very sound.
Surgeon	Very good. How are you feeling in general at this time?
Cooper	Fine
Surgeon	Thank you Gordo. If you're doing as good as you look on the ground, you're in good shape. Carnarvon Surgeon out.
Carnarvon	Gemini 5, Carnarvon CapCom. Did Flight advise you that for your OAMS thruster check at 11: 26, to use attitude thrusters only -- do not use maneuver thrusters.
Cooper	Roger.
Flight	Carnarvon CapCom, this is Houston Flight.
Carnarvon	Go ahead.
Flight	In answer to that question they asked on the effect of the RCS plume on the scanners.
Carnarvon	Roger.
Flight	As far as we can determine, there'll be no problem. They ran some similar checks on GT-3, and it's okay.

Carnarvon Roger. Gemini 5, Carnarvon. Flight advises on this RCS plume effect on scanners -- there should be no effect. He said that they ran a test on GT-3 and found no problem.

Cooper Okay, very fine. Thank you.

This is Gemini Control, at 187 hours 32 minutes after liftoff, with 2 hours 55 minutes until retrofire. Gemini 5 is now completing the 118th revolution. During the pass over the Guaymas station TM looked real good according to Spacecraft Communicator Ed Fendell. On the present Stateside pass, there was a check of the fuel cell section number 1 ... And a purge of the fuel cell sections will be conducted during the upcoming Canary Islands pass. This is Gemini Control.

Good morning! Gemini Control, Houston, at 187 hours 57 minutes into the flight. On the last pass across the States, Dr. Berry -- among others -- chatted with Gordon Cooper. Cooper declined the use of any stimulants for the reentry, upcoming in another rev or two. He said he was feeling fine. And he certainly sounded quite cheery. Dr. Berry conveyed congratulations to Gordon Cooper on his wedding anniversary today. We believe it's his 18th. Congratulations came from his wife. We've that conversation., and we'll play it for you now.

Surgeon Gemini 5, this is [Houston] Surgeon. Good morning, Gordo.
 Cooper How are you?
 Surgeon Listen, I'd like to check with you -- according to the records here you both have had some sleep during the night. How do you feel about any aid here, as far as coming in, for fatigue?
 Cooper Making a house call?
 Surgeon Yeah. Could I do that? Say -- incidentally -- Trudy asked me to tell you "Happy Anniversary" this morning.
 Cooper Return my wishes to her.
 Surgeon Will do.

Gemini Control here, at 188 hours 32 minutes into the flight. We just passed over the Carnarvon station, at which point we actuated the RCS rings; they appeared to be working all right. We've also turned the rate gyros on. The computer has been powered up -- it's in the 'Prelaunch' mode. And everything appears to be 'green' at this point. This is Gemini Control

This is Gemini Control, Houston, at 188 hours 48 minutes into the flight. We have racked up now the Carnarvon pass and will play it for you at this time.

Carnarvon You look good on telemetry, and we're standing by.
 Cooper Roger Carnarvon, ...
 Carnarvon Computer just came on.
 Flight Roger.
 Carnarvon You need a little yaw right ...

Gemini Control here. Our orbit this morning is like this, 123.8 perigee, 180.3 apogee, statute miles of course. The period of our revolution is 105.2 minutes. Just been chatting with the weather man, Ernie Ammon, a veteran of Mercury as well as Gemini launches he works both the Cape and Houston. Ernie's report for 121-1 is scattered cloud, southerly

winds of about 10 knots, seas running 2 to 3 feet, visibility 10 miles. We asked Ernie if he was happy with that, and he came back with: "Real happy. They picked a good spot." We also note, with some interest here around the Mission Control Center, a number of people have read the horoscope in one of the Houston morning newspapers, which goes like this: "Being active during the morning brings fine results, but later you have to take it very easy. Maintain your poise. Say what you plan to do then carry it out, then carry on with the work with a nice easy gait." Pretty good advice for the people involved in the Gemini effort this morning. This is Gemini Control.

Gemini Control here, at 189 hours 10 minutes into the flight. And the Guaymas station raised the spacecraft just a few minutes ago. The opening, message was certainly a cheerful exchange. The ground gave the spacecraft a 'Go', and the report came back from Gordon Cooper: "We're 'Go' up here. Everything is just peachy keen." Pete Conrad complimented the Guaymas station on their handling of this mission, all they've done for them, and then he promised to see them on the ground. The spacecraft is operating on the Reentry Control System maneuvering unit right now -- it has been on that for about an hour. And over the Guaymas station, Conrad made one last attempt to see if there was any fuel left in the main OAMS maneuvering system tanks, the system we've been using for the last 8 days, and he got zero thrust out of his attempt. The ground showed no fuel either, and no thrust. This is Gemini Control.

This is Gemini Control, Houston, at 189 hours 12 minutes into the flight. We have the beginning of this Stateside pass. We're going to break it up into increments, but we'll play it right through for you. One element -- one note before we start that -- in the event that we don't accomplish a 121-1 landing -- that is, if we should at the last moment, wave off the retrofire, the Flight Director has decided the next area he would go for is 123-4, out in the west Pacific. But I want to emphasize that everything looks just 'four-oh' at this point, for a 121-1 landing. Everything seems to be functioning on board. The crew sounds chipper, and they've got their stowage list apparently all put to bed, and they're going through their Pre-Retrofire Checklist. Let's listen to the Stateside conversation now.

Guaymas	Gemini 5, Guaymas CapCom.
Cooper	Okay Guaymas, Gemini 5.
Guaymas	Okay. We show you 'Go' here on the ground. What do you do?
Cooper	Roger. We're 'Go' here. Everything's peachy keen.
Guaymas	Okay.
Cooper	It's nice to have a control system again!
Guaymas	I imagine it is.
Conrad	Hey, Guaymas.
Guaymas	Say, boy.
Conrad	We sure appreciate everything you did for us. We'll see you on the ground.
Guaymas	Okay, Peter.
Cooper	Say thank you to all the people there who have done a fine job.
Guaymas	I sure will. I think y'all have done a real great job.
Conrad	Thank you. We couldn't have done it without y'all.
Guaymas	What's your status with that OAMS at this time? What are you doing with it?
Cooper	We're not really ... the OAMS
Guaymas	Okay. Will you run that OAMS check?

Conrad We didn't have enough OAMS propellant left to run it. We tried a little... and, if you'll standby, I'll go ahead and run this test to see if we can hear anything left there, we're in RCS.

Guaymas Okay.

Conrad No, I put in a squib but I couldn't hear anything.

Guaymas Okay. Very good.

Guaymas Flight, Guaymas. Copy that?

Flight Affirmative.

Guaymas I'm not showing any OAMS lights at all, on my console.

Cooper Chris, our whole OAMS system was just pretty well shot.

Guaymas Roger.

Cooper We're all set. We've the platform all aligned. And ... once more and follow along.

Guaymas There we go.

Cooper We've even got everything stowed.

Guaymas Now you're talking of a real accomplishment.

Cooper It is.

Guaymas RCS seems to be holding real well.

Cooper Yeah, it's a real fine system.

Guaymas Okay.

Conrad We're using ... waves all the way around.

Guaymas I beg your pardon?

Conrad I say we're using ... waves all the way around for the alignment.

Guaymas Roger.

Cooper We'll also start our ... for retrofire and then we'll ... for reentry until we need to bring ...

Guaymas Roger, got that.

Houston Gemini 5, Houston.

Cooper This is Gemini 5, all set ... retro.

Houston Very good. We're going to be sending your computer load. We want to confirm that you've got the computer on, and that it's in 'Prelaunch'.

Cooper Roger. I'm prelaunch computer.

Houston Okay. Very good. I've also got your backup information. Are you ready to copy?

Cooper Ready.

Houston Okay. GMT of Retrofire is 12:27:38. Time for 400K is 14+18. Time to reverse bank, 19+25, roll left 53, roll right 67.

Cooper Roger, ...

Houston Gemini 5, Houston. Say again, please.

Cooper Roger. You want us to put our computer ...

Houston Roger. Are you all set now?

Cooper Right.

Houston GMT of Retrofire is 12:27:38. Time to reverse bank -- time to 400,000 feet, 14+18. Time to reverse, 19+25, bank left, 53, bank right, 67.

Conrad Copied.

Houston Roger. Your altimeter setting for the recovery area is 30.10.

Houston Gemini 5, Houston again.

Cooper Go ahead.

Houston Be advised that, by some calculation here, your water tank for your fuel cells is approaching the full point, and if you get a Delta-P light, we advise you not to worry about it because we've run some tests that indicate that there's plenty of time -- on the order of 20-plus hours after you've run the tank ... that the fuel cell will still operate properly.

Cooper Roger. We won't worry.

Houston Okay.

Cooper These old fuel cells have done very well, haven't they?

Houston They sure have -- we've run all kinds of tests on them, haven't we?

Cooper Yes, we have.

Conrad Houston our yaw system. It was just so sick that there was just no sense working with it. When the rates were down, what was coupling into what rate -- we just couldn't figure out which thrusters were bad.

Houston Roger.

Conrad We put in a squib, and we couldn't hear it. Then I did pulse regulator and it worked.

Houston Okay, very good. Do you have a good DCS load for 121-1, and a good TR time?

Conrad Roger. We'll put the computer to 'Reentry' [mode] at this time.

Houston Roger.

Surgeon Gemini 5, this is [Houston] Surgeon. I want to check again, for sure, that we're in agreement that we will not use Item B. Is that affirm?

Cooper It's not affirm. We took one for the road.

Surgeon One for the road. Okay. Gordo, I want to confirm again this blood pressure for Pete's use on reentry. We checked the times here, and we see that the only time that we'll be over a [tracking] site where we can get any blood pressure prior to the time that you're on the water would be over Guaymas. Pete, this would be between 12:35 and 12:40 over Guaymas. That would be after retro over Guaymas. So if you can get one blood pressure at that time, then get the programer in as soon as you're on the water, and be prepared to switch it back and forth then. The other item is in post-landing, remember that if you do have any symptoms at all have any symptoms at all after bridling the chute, or on the water, be sure and prop those calves and get your feet elevated, slide down so that your feet are above your head.

[** DMH's note -- The Flight Surgeon is concerned that if the astronauts felt faint after the parachute had adopted its two-point attachment configuration, or whilst floating on the ocean, that they should slump back in their seats in order to elevate their legs with respect to their heads, to restore blood circulation. This is, after all, from the point of view of flight endurance, an unprecedented reentry.]

Cooper I've got the blood pressure bulb inside, and I have the pumping gear in my pocket, and all I have to do is put it on and pump up a blood pressure, right, and it goes on recorded?

Surgeon Correct.

Houston Gemini 5, Houston. Be advised everybody ran out, looked up, and there you were.

Cooper How did it look?

Houston They want me to -- well, it looked like you were about 3 degrees off in yaw.

Cooper No, that's wrong.

Houston Okay.

Cooper ...

Houston Must have been the sun angle.

Cooper That's what it was.

Houston Did Dave Scott mention to you the fact that you're going to have a lighted horizon at 400,000 feet on your reentry?

Cooper Going to have what?

Houston Just about as you get to 400,000 feet, you should have a lighted horizon.

Cooper Roger.

Houston Gemini 4, Houston again.

Cooper Go ahead.

Houston The ships that'll be in your landing area will be the Lake Champlain and two destroyers, the DuPont and the Waldron. The airborne -- the man in charge of the airborne operations call sign will be Air Boss, and the helicopters will be called Recovery-I and -II and Search-I, -II, and -III.

Cooper Okay.

Houston Then, as you're coming on down, I'll give you the call sign of the closest one to you, and who you should try to contact.

Cooper Roger. What's the call sign of Lake Champlain?

Houston The call sign is Nighthawk, but I think it'll be referred to as the Lake Chaniplain.

Cooper Okay, we just wanted to call 'em to get a Charlie time and a Fox coordinate.

Houston Roger. Do you still remember those panel signals for coming onboard.

Conrad You bet.

Cooper ...

Houston Say again.

Cooper ...

Houston I don't know how you log time like that.

Cooper ...

Houston Gemini 5, Houston here. Be advised that since you've changed microphones, you are pretty difficult to read. It would be better if you talked a little bit slower.

Cooper Roger. We used the headsets for the entire flight, until about 15 minutes ago.

Houston Okay, very good. They are a lot better. You seem to be picking up a lot of background noise when you're transmitting.

Cooper Okay.
Houston What kind of headsets were those, Gordo.
Cooper Those lightweight ...
Houston I think I've heard of that before.
Cooper Good.
Conrad Houston, Gemini 5. We'd like to report that the Retro checklist is complete.

Houston Roger, I understand. PreRetro is complete.
Conrad Houston, could you give us a GMT time hack.
Houston Roger. GMT time hack. On my mark, it will be 11:16:00, and that will be about 50 seconds.

Houston I'd like to remind you again, Gemini 5, that your event timer, should be set up at 27 minutes over Carnarvon, rather than the 36 it says in the flight plan.

Conrad I'm sorry.
Houston Okay, in 15 seconds approximately it will be 11:16:00, ... 3, 2, 1, Mark!

Cooper ...
See Gemini 5. Let me caution you on your microphone again. We're going to need the IVI readings over Hawaii, and we're not going to have a lot of time -- so try to give them slowly, and distinctly.

Cooper Okay, is that better now?
See Yes, it is. Did you put the faceplate down?
Cooper No, I moved the microphone farther away.
See Okay.
Cooper How do I sound now -- the faceplate's down? Is it any better?
See That's a little better.
Cooper Okay.
See It looks like we'll have adequate coverage across the States, so we should be able to provide you your backup guidance before you go into blackout.

Cooper Very good, Houston, Gemini 5.
Houston Go ahead.
Cooper When would you like the number 1 biomed recorder switched on -- what time? We don't have it on the checklist.

Houston Right now would be a good time -- right now. Did you get that, Gemini 5?

Cooper I say -- what time would you like to biomed number one recorder on? It's not on the checklist.

Houston Roger. Put it on now, put it on now.
Cooper Roger.
Houston We're just coming up on LOS now.

This is Gemini Control, Houston, at 189 hours 32 minutes into the flight. We have just had a pass south of the Canaries station, and had a brief update, and the usual exchange of congratulations. We'll probably hear more of that in the last circuit around the earth, the congratulations to the crew going up from the ground, and from the crew back to the ground stations. Let's listen to the Canary conversation now.

Conrad Hello, Canary CapCom, Gemini 5.
Canary Roger. We'd like to confirm that biomed recorder number one is 'On'.
Conrad Roger, it's 'On'.
Canary Okay, and what computer mode are you in?
Conrad 'Reentry'.
Flight We want it 'On'.
Canary I thought that's what I said. He said it's 'On'. And it is 'On'.
Flight No, he said it was 'Off' -- check him again.
Canary We're showing it 'On' here.
Canary Flight would like to get another reading on the biomed recorder number 1 status.
Conrad I said it's 'On'. Number 1 is 'On' -- they're both 'On'.
Canary Roger, I copy number 1, 2 both 'On'.
Canary Gemini 5, we'll give you a time hack for TR at one hour -- that will be 60 minutes.
Canary Gemini 5, Canary CapCom. I'll give you a time hack on TR in roughly one minute.
Conrad Gemini 5, roger.
Flight I'll give you a time hack in 15 seconds. On my mark it will be 11:27:00 -- Mark!
Canary Roger, Flight. I'm with you.
Flight Time to go is one hour and 25 seconds from my mark -- Mark!
Canary Roger.
Canary 10 seconds, 3, 2, 1, Mark! -- in 60 minutes.
Conrad Roger, It's right on the button.
Canary Roger. We'll have LOS in about 30 seconds. Everybody here at Canary Island would like to send their congratulations.
Conrad Thank you very much. We'd like to say the same to you, for your wonderful help.
Canary Roger, our pleasure.
Conrad See you in Houston.
Canary Roger.
Canary The Canaries have had LOS.

Gemini Control, Houston here, at 189 hours 42 minutes into the flight. We're coming up on Tananarive, off the coast of Africa. I'd like to run through the sequence of events at the retrofire. During the retrofire maneuver itself, the spacecraft will be pitch-down, nose down, 30 degrees. That is Blunt-End Forward, pitch down 30 degrees, 0 roll, and 0 yaw. That attitude will be held throughout retrofire, and immediately after retrofire the crew will roll the spacecraft around 180 degrees and assume a reentry angle of 1.7 degrees, that'll be 1.7 degrees up off the horizontal, in other words, slightly nose up. At that point, the crew will be heads down. The retrofire will take place 700 miles northeast of Hawaii. About 14 minutes later, the spacecraft should be at 400,000 feet. This is somewhere between Texas and Florida. And at that point, they will still be heads down. They'll roll to their left about 53 degrees, according to the present estimate, but this could change slightly based on radar data during this pass. Ten minutes later, they should be entering the radio blackout period. That will be 16 minutes after retrofire. And at that time, they will be at about 300,000 feet. A minute or two after they are in the black out, the computer onboard will give them their first solution on their landing area, and will have evaluated all

the information to date there, the exact thrust they got from the retro rockets, the other values, and it will give a solution. They'll end the blackout period at an altitude of 137,000 feet. That should occur about 20 minutes and 35 seconds after retrofire. And by that time they will have reversed their roll. They will have rolled over to the right, to about 67 degrees off a zero point of heads down. Then they will look at their eight-ball, in the of the console, a series of two crosshairs, one horizontal, one vertical, and they'll attempt to drive these crosshairs to the zero point, and this will have the effect of taking out both cross range and downrange errors. If everything goes right, the 50,000 foot point would occur 22 minutes and 19 seconds after retro. They should have main chute about 24 minutes after retrofire, and they should be on the water at a point 275 miles southwest of Bermuda some 28 minutes 30 seconds after retrofire. This is Gemini Control.

This is Gemini Control here, at 190 hours 2 minutes into the mission. We are in a pass over Carnarvon right now. The crew has run through their final checks with the Carnarvon station. They started an event timer onboard. The flight plan calls for them to start a minus 256 second checklist between Canton Island and Hawaii. A very few minutes, a minute or so after they're acquired at Hawaii, they'll go into their T-1 minute checklist, with retrofire occurring at 6:27:43 Central Standard Time.

We have the Carnarvon conversation. We are still in communication out there, and we will play it for you now.

Carnarvon	Gemini 5, Carnarvon CapCom.
Conrad	Go ahead Carnarvon, Gemini 5.
Carnarvon	Roger, I'm going to update you with a new Pre-Retro load and a new TR time, and I've also got the backup guidance quantities -- are you prepared to copy?
Conrad	Ready to copy.
Carnarvon	Transmitting your TR. You got the TR. You're in sync ...
Conrad	Wait a minute. Don't transmit it yet.
Carnarvon	I'll transmit the load.
Conrad	Did it go in?
Carnarvon	Roger, I got a ...
Carnarvon	Let me give you your backup guidance quantities, and check a couple of the cores in the MDIU.
Conrad	Read it.
Carnarvon	Roger. GMTRC 12:27:43, RET 400K, 14+12, RETRB 19+21, bank left 53, bank right 67. Copy?
Conrad	Roger.
Carnarvon	Okay, let's check cords, 03, GR cord 03.
Conrad	52192.
Carnarvon	Roger, standby one.
Carnarvon	Flight, there is some difficulties isn't there? He copied at 992, I got 93 at the end.
Flight	That's okay.
Carnarvon	Okay, read out cord 10.
Conrad	00955.
Carnarvon	Roger, you got it. Looks good.
Conrad	Oh.
Carnarvon	I'll give you an event timer countdown time hack at 27 minutes 00 seconds.

Flight Carnarvon, have him standby.
 Carnarvon You've got 20 seconds.
 Carnarvon Go ahead, Flight
 Flight That's alright, standby -- we want to have him go out on one mode and back into reentry just to check it. Standby.
 Carnarvon 10 seconds, 4, 3, 2, 1, Mark! -- 27 [minutes], got it?
 Conrad Okay, we're right on ... Verify the computer is in 'Reentry'.
 Carnarvon Roger. Flight, what were you wanting to check?
 Flight That's okay. That's what we wanted him to do, was verify ...
 Conrad I don't quite understand why we didn't get a DCS light on either the TR, or the load that just went in.
 Flight Roger.
 Carnarvon Roger, I got naughts back in those core readouts you gave me check with my ET message.
 Conrad Give me a TR at 26.
 Carnarvon Roger, 10 seconds to go. 5, 4, 3, 2, 1, Mark! -- got it?

This is Gemini Control at Houston. We're at 190 hours, 22 minutes into the flight, and while we're talking, Jim McDivitt has been Remoting to the spacecraft through the Canton Island station. Let's come up on that conversation, live.

Houston Gemini 5, Gemini 5, Houston here. We're standing by in case you need anything.
 Cooper This is Gemini 5.
 Houston Roger. Houston here. We're just standing by, in case you need anything.
 Cooper Right here, everything's fine.
 Houston Very good, very good.

Gemini Control back here. The retrofire clock shows 4 minutes and 10 seconds. Here in the Mission Control Center, Flight Director Chris Kraft, the Flight Surgeon, CapCom Jim McDivitt, and our Retro Officer Tom Carter, have the same kind of sensors applied to their bodies that the crew does on Gemini 5, and we'll be taking their EKG reading during this retrofire maneuver. Hawaii has acquired. Pete Conrad is on the line. During that final minute, Gordon Cooper be holding his attitudes very carefully. Pete Conrad will push the button marked SEP OAMS LINE. This will cut the line back to the OAMS system and the Adapter, and then he will push the SEP ADAPTER button. At T-10 seconds, he will arm the Retro button by pushing it, and meanwhile Cooper will count down with our Hawaii Spacecraft Communicator, Bill Garvin, down to the retrofire point. Our ground station in Hawaii says that the spacecraft is right on its proper attitude, at 30 degrees pitch down, 0 roll, 0 yaw.

With a little more than 2 minutes to go, it's all quiet here in the Control Center, and it's all quiet, out in Hawaii, and at a point about 150 miles up in space. Pete Conrad said, "We are right on," as he caught the 2-minute mark.

Over in the Atlantic Ocean, everything is ready. We've got two big four-engine aircraft stationed 1,200 miles uprange and 1,200 miles downrange from the landing point, 3 search helicopters, 3 recovery helicopters, an on-scene Commander in a Navy plane, an S-2, out. We also have 3 C-130 airplaries which will relay telemetry.

Here is the 1 minute mark. "Right thre, SEP OAMS," Conrad said, "SEP ELECTRIC" and "SEP ADAPTER". 9, 8, 7, 6, 5, 4, 3, 2, 1, Mark! Rocket-3 has fired, Rocket-2 has fired, Rocket-4 has fired, and Hawaii has verified all retros have fired, Conrad confirmed. And Gordon Cooper has just read out his Incremental Velocity Indicators, which showed 269 aft, 010 left, and 181 down. This sounds quite nominal.

We're 1 minute beyond the retrofire point, and in the spacecraft they should have just gotten our computer light on. The Flight Director has asked for another set of summaries of the conditions at the time of retrofire. Through our rapid communications system, they will be here, and displayed, within a second or two. The Hawaii Communicator is talking now. Let's listen to that conversation live

Conrad	... 26.
Hawaii	Roger.
Hawaii	I'll give you a mark at TR+3 minutes.

Gemini Control here. All the data is in from Hawaii, and we look very good. A big sign has just gone up on our recovery map which says "Nominal Retrofire". It's as much as we could have hoped for.

Hawaii	Hawaii has had LOS.
Conrad	Say, we got it Hawaii.
Hawaii	Roger, roger.
Flight	Well done, Hawaii.

Flight Director Chris Kraft gives the Hawaii station a "well done" on that maneuver. And within 3 to 4 minutes, the California station should acquire. From the carrier we learned that the helos are airborne, the search and the recovery helos -- a total of 6. Very little talk here in the Cente. Everybody has their iobs to do, and their numbers in front of them. And it will be a very active period in this pass across the States, with several radar points taken. Gemini Control here -- we'll come back to you when California acquires.

This is Gemini Control here. Jim McDivitt has just raised the spacecraft through the California station, and our Environmental Electrical, Communications Officer says the main battery look fine, the voltage is right up there where it ought to be. Jim has urged the crew to enjoy the view as they take the plunge across the United States, coming down the home stretch on their 120 revolution flight.

They're probably getting a real good look at this spacecraft out on the west coast. It's sweeping across New Mexico. There's darkness on the ground out there.

McDivitt says the weather looks good in the recovery area. About 7 minutes now since retrofire. Cooper made a comment about looking for the pump package that was observed by Grissom and Young as it went by after the Adapter separation. He apparently missed it, though. The crew is now being instructed to pump up their blood pressure cuffs and we're going to take a blood pressure as we sweep across Texas here. The cuff is full-scale. And Dr. Berry reports we've got a valid blood pressure on the pilot. It was taken actually at the Guaymas station, Guaymas in Mexico. We've got about six minutes to go before we reach the 400,000 foot mark, and one minute later we'll be at 300,000 feet, where the blackout period will begin. It will last about 4 minutes, a little over 4 minutes. Here's Jim McDivitt to the spacecraft, let's cut in on that.

Houston Okay. You should get the lighted horizon, just slightly before 400,000,

Conrad Roger.

Guaymas ... are holding good, Flight.

Flight Roger.

Guaymas The secondary O2 is real good.

Flight Roger.

Conrad This is a very futuristic sight out here with -- I don't know what all this stuff is -- I guess it's pieces of the Retro Adapter, or whatever, following along, but it's all lit up with sunlight in a complete black.void.

Houston Roger, can you see the Retro Adapter back there at all?

Conrad No.

Houston Okay.

Conrad Okay. We're beginning to see the horizon a few degrees below us.

Houston Okay.

Conrad Yeah, we have a good horizon now.

Houston Roger -- on the good horizon.

Everything entirely nominal up to this point. We're listening right along with you, and everything just looks 'four-oh'. Jim McDivitt giving Pete Conrad a little advice on how the horizon should look and exactly where to look. We're still estimating splash at 56 minutes. We'll be coming very shortly into the blackout zone. The last communication was rather garbled, always an indication that we're going into blackout. They should be somewhere between -- coming up on 400,000 feet in about 30 seconds. Jim McDivitt has just advised that blackout will occur at 16 minutes 14 seconds after retrofire -- very close the value we planned, about 2 revolutions ago, which was 16 minutes 15 seconds. Our pilots are being instructed to roll left 53 degrees. Their reverse angle will be 68 degrees. They start the 68 degree maneuver at 19 minutes 25 seconds after retrofire -- about five minutes from now. We're hearing from Pete Conrad. It's a little ragged, but it's coming in. Jim McDivitt has just advised the crew that the time for drogue chute will be 22 minutes 5 seconds, with the main chute coming out at 23 minutes, 48 seconds. Jim McDivitt says, "You're coming up on blackout now, Gemini 5. Have a nice ride." Blackout to begin in 10 seconds. A minute or two into blackout, the spacecraft's computer should give the crew its first solution of the landing problem, it's evaluation, it's instructions on what angles to fly. We suspect that it will agree very carefully with what has been plotted here. Now comes the long quiet spell. They should be out of blackout in about three and a half minutes from now. This is when the spacecraft comes to what must seem like a virtual halt from a speed of something over 17,000 miles an hour down to a speed around Mach 1 -- a mere 700-800 miles an hour -- in a short span of several minutes.

It's very quiet, almost a methodical approach here, in the Control Center. Everyone is seated, listening for the communication. Jim McDivitt is broadcasting now in the blind at 18 minutes and 30 seconds since retrofire, but we haven't heard back from the spacecraft yet -- shouldn't for another two minutes. Jim McDivitt just put in another call, 19 minutes 20 seconds since retrofire.

It's also all quiet from down range. We've had no reports in the last few minutes from the carrier, the Lake Champlain, but they'll be coming to life, I'm sure, in a few minutes.

We're now at 20 minutes 8 seconds since retrofire, and we estimate in 30-60 seconds they should be out of the blackout region. Their drogue chute presently is planned for an

opening at 22 minutes 5 seconds after retrofire, followed a minute and a half later, by the main chute. The drogue chute will come out at 50,000 feet.

Twenty-one minutes since retrofire.

We now we can hear Pete Conrad. His voice is very faint, but we can hear him. Jim McDivitt's finally raised them. There he goes on another call. Pete Conrad says they are flying various bank angles, and he believes they may be a little bit short of the target.

There's the drogue out. Pete called it at about 22 minutes 10 seconds, which is within five seconds of what we were planning here. They're on the drogue.

The carrier, we are informed, has radar contact with the spacecraft. Now the carrier is in voice contact with the spacecraft we're told.

Gemini 5 Communicator Jim McDivitt says, "Give us a call when you put your main out." Pete comes back with a "Roger". The main chute should be going out in a second or two from now. "Roger," Pete says, "main chute out." He's on a main and he says it looks fine. Jiin says that according to our radar information, they may be a little bit up range. We don't have a plot yet just where. They both report they are feeling fine, "We feel okay."

The destroyer DuPont, as you can see, if you're looking at a plot of that 121-1 area, is 72 nautical miles up range from the destroyer -- from the carrier, I'm sorry. We hesitate to say, because we do not have any data yet, on just where this point is, but it seems that the landing point may be up around the DuPont. It's likely between the DuPont and the Lake Champlain. The on-scene commander down range has voice contact with the spacecraft. We now have an estimated splash point here of 70 degrees 15 minutes west, 30 degrees, 15 minutes north.

Gemini Control here. The radar contacts are pouring in at this point, and we're able to give you a preliminary estimate that the spacecraft is floating on the water, and they are in voice contact with an airplane carrying the on-scene commander. We estimate this position about 80 miles west of the carrier itself, west of the carrier Lake Champlain. This would be slightly to the south of the ground track and right now the best estimate is 80 miles west of the carrier. We'll standby, and bring you additional information as it develops.

Gemini Control here. We've just been advised by the carrier, the on-scene commander down there, that an airplane, an HC-97, will be over the spacecraft in about 5 minutes and will remain there until additional aircraft -- helicopters -- have reached the point. Our crew is on the water, and as we say, the best estimate right now is about 80 statute miles west of our original target point. This is Gemini Control standing by.

Gemini Control here. We just heard one of the cleaner transmissions we have heard in the last few minutes. It came from Gordon Cooper. He said. "Gemini 5 here. We're on the water, and we're in good shape. Standing by, awaiting you sailors and you airplane people."

We still have no decision on just exactly what the crew will do, whether they will sit it out there in the spacecraft, and wait for the carrier to come alongside, or whether they'll take a helicopter pick-up as we have in the two previous Gemini landings. Before this mission, we planned for the crew to remain in the spacecraft, to be hoisted aboard the carrier. But if this 80 mile estimate is accurate, that would mean about three hours, so that's a factor that has to be considered. This is Gemini Control standing by.

Gemini Control here. The recovery room has given the following briefing to the Flight Director. They estimate that we're -- the spacecraft is down at a point 22 miles south of the destroyer Dupont. The on-scene airborne commander is in the area over the spacecraft. He has directed three rescue helicopters to come to the scene. They're proceeding at full throttle to that point. We have all good 'green' reports from the spacecraft. All in all, it looks like a good situation, with fairly low waves and good visibility, ten miles. We're standing by for additional information.

This is Control here. One of the rescue aircraft has the spacecraft in sight, and he is on scene. The recovery helicopters -- three in number -- are presently about 15 to 20 minutes away from the spacecraft. We have not got a decision back from the on-scene commander, but we are recommending from here that we go ahead with the helicopter pickup and transfer the crew back to the carrier, Lake Champlain, via helicopter. We'll stand by for additional information as it develops. This is Gemini Control out.

Gemini Control here. The Air Boss assures the on-scene commanders that he has the green dye markers that have been put out by the Gemini 5 spacecraft on splash, they have the dye markers in sight, and are letting down toward it.

This is Gemini Control. The swimmers, pararescue men, members of the Air Rescue Service, are about to jump into the water in the area of the spacecraft. And it appears right now that the spacecraft is resting on the 30 degree north latitude and is about 69.5 degrees west longitude. We're standing by.

This is Gemini Control. Our situation looks like this. The destroyer, Dupont, is now 17 miles north of the spacecraft, and is proceeding toward it. We have two swimmers that are poised, and ready to go at the command of the on-scene commander who is also in the area in another aircraft. And we have three helicopters which should be there in a few minutes. And the on-scene commander then must decide whether he wants to deploy his pararescue men or let the helicopters go in and make the pickup. In all probability, he will deploy his pararescue jumpers, but we'll stand by for the precise word.

This is Gemini Control. Our status is, the rescue aircraft is over the spacecraft, and a decision has been made not to jump the two pararescue aboard, but instead to wait for the helicopters to arrive. They are expected within 10 to 15 minutes. They will have swimmers who will go into the water and fix a flotation collar about the spacecraft and then assist the crew in anyway they need assistance, in leaving the spacecraft and going up the sling into the helicopters. This is Gemini Control.

Gemini Control here. The helicopters which are coming in on the site are estimating that they'll be over the spacecraft in six or seven minutes -- that will put them overhead at about 20 minutes before the hour. The on-scene commander says the spacecraft antenna does not appear to be up, he has not had any voice contact with the spacecraft. However, the carrier itself had voice contact as they approached the splash point, or very close to splash. We're standing by for additional information.

Gemini Control here. The search recovery helicopter, has been directed to proceed in on a pick-up pass, and deploy its swimmers. The helicopter is commanded by Naval Cdr. Fredrick L. Highsmith of Nahunta, Georgia. They have three swimmers aboard. They are

Lt (jg) John Hunt, Boston, Massachusetts, Quarter Master 3c Peter A. Spencer, Stamford, Vermont, and William L. Langley, Naval Airman, Greenville, South Carolina.

This is Gemini Control. From the airplane callsign Air Boss, the on-scene commander is directing recovery helicopter number 1 to make an approach and go ahead and deploy its swimmers. They should be jumping momentarily. We're also advised that in the same area there is a commercial ship, tentatively identified as the Victoria, US registry -- it happened by, and is getting a pretty good eye view of the recovery pickup.

This is Gemini Control. One swimmer is in the water, two swimmers in the water. A flotation collar has been dropped. All three swimmers in the water with the collar and they will inflate the collar and encircle the spacecraft with it. The recovery helicopter is backing off a little bit so he doesn't make too much wake which would interfere with the swimmer operations, they're in the water now swimming around the spacecraft, beginning to put the flotation collar around the spacecraft. The report from the on-scene commander is that the collar is now affixed to the spacecraft. The swimmers are still in the process of putting the flotation collar around the spacecraft, securing it. We have a very clean signal from the on-scene commander. One swimmer is up on the edge of the collar, and he's signaled to the recovery helicopter to drop the life raft. Standard procedure. The raft is now on the water. A just swimmer plugged in an interphone communication patch to the spacecraft. The life raft is now inflated beside the spacecraft. The swimmer talking on that interphone has just flashed a big "thumbs up" signal to the recovery helicopter. We still have no reports yet on a hatch opening, but we should have that momentarily. We have a report, a hatch is open. The left hatch is now open, we're advised by the on-scene commander. One astronaut is leaving the spacecraft at this time. That would likely be Gordon Cooper. He's standing on the seat, and one of the swimmers is chatting with him. Now we're advised that one of the astronauts who was standing on his seat has moved over, he is now sitting on top of the spacecraft. And the astronaut gives us a big "thumbs up"; he is giving a thumbs up sign to the on-scene commander.

Now the second astronaut is standing up in his seat. He's talking to the swimmer. The first astronaut has entered the life raft. The second astronaut is walking around the collar, apparently to make his jump into the life raft. Now the hatches on the spacecraft are being closed -- a safety measure to avoid a wave splashing in there. The hatches are being closed and we're preparing to bring the astronauts up on the life lines. Still, one astronaut on the life raft, one astronaut is holding on to the spacecraft. We're preparing to hoist one of the astronauts. Let's try to catch the signal live downrange.

Gemini Control here again. The signal from downrange is getting a little rough, but it certainly was good up to that point.

The man who gave us that blow-by-blow account is Cdr Kenneth O. Echlin, Jr., who is Air Group Commander from Air Group 54. A native of Grimerton, Washington, he now lives in Key West, Florida.

Now, the sling is being placed around the second astronaut. He is about to be hoisted up and into the recovery helicopter. Now we've both astronauts in the helicopter, and that seemed to be a signal for Chris Kraft to break out his cigar box and he is passing them out to various people here in the Control Center.

We don't have a precise fix on when the helicopter is due back on the Lake Champlain, but we'll standby and give you that as it develops. We've got a report from the helicopter, relayed to the on-scene commander. He says both the astronauts are looking pretty good, it sounds like they're a little bearded, but they're walking around in the helicopter, they

seem to be in good spirits. He says they look good. Now, with the helicopter proceeding toward the Lake Champlain, we're advised that it is moving a speed of 130 knots.

This is Gemini Control here. We're advised through the relay that the astronauts have gone through their first medical check point. A simple stand up test, but best be described as a deep knee bend, and it was entirely normal. We will keep you advised as additional information reaches us.

This is Gemini control. We're now estimating the helicopter will be on the deck of the Lake Champlain at 36 minutes after the hour -- about a half hour from now. We're getting very good reports on the crew. They are minimal, but they are certainly good reports.

Meanwhile, here at the Control Center, smiles and big cigars are the order of the day. Dr. Gilruth, Director of the Manned Spacecraft Center is congratulating Chris Kraft. Our other two Flight Directors, John Hodge and Gene Kranz, are also in the room, along with Charles Mathews, the Gemini Program Manager. You can just feel the atmosphere relax in a round of hand shakes and cigar smoke.

This is Gemini Control. We've been passed two bits of information. The pilots asked the helicopter crew whether the gentleman who wanted the dollar bill is aboard the carrier. This is a reference to the National Aeronautics Association representative, who is ready to certify this flight as the world's record holder for endurance, as well as several other new records. They've also advised that they will walk down to the sick bay area -- they don't want any help -- a very hopeful sign. We're estimating that the helicopter should land on the deck of the Lake Champlain at 28 minutes after the hour. We'll be back with you in a very few minutes.

Gemini Control here. From downrange we're advised that the search planes just gave up the search for the Radar and Reentry section. That's the forward nose of the spacecraft which we have sometimes recovered. We hoped to get it, but apparently it sank. There is some question as to whether it had any of the cork material inside of it, which would have kept it afloat. We're also advised that the astronauts are going to come back aboard in their spacesuits, but they've taken off their helmets, so we should see their furry and growthy beards. But they will still have their spacesuits on. This is Gemini Control standing by.

Gemini Control here. Trudy Cooper and her two daughters have just walked into the Control Center. Chuck Berry has his arm around her. They are both looking up at a large Videx presentation coming from the carrier -- various shots of Pete and Gordo as they got out of the helicopter and walked across the deck. Deke Slayton, the Assistant Director for Flight Crew Operations, is down congratulating Trudy, and is now chatting with her. We are sure she is going to make her way around the Control Center. Of course, it has been a long mission. Trudy has a big smile on her face. Now, Deke Slayton is escorting her and the girls across the Control Center up to Chris Kraft's console. And Chuck Matthews, the Gemini Program Manager is shaking hands with Trudy now. Now Chris Kraft, the Flight Director, a big cigar stuck in the side of his mouth -- couldn't be happier. George Mueller, Associate Director for Manned Spaceflight and Dr Bob Gilruth, the Director of the Manned Spacecraft Center, are relaying their compliments to Trudy. Ah, we're not quite sure what is going on here. Chris is plugging in some headsets. Trudy's got one in her hand. We're going around the world, stopping at the individual stations, Kraft relaying a well done to each of the stations. We're getting a report from sick bay that the boys look

fine -- this is from the doctor. A very happy and smiling Jane Conrad is in the Mission Control Center, and in quite a hurry to get to the third floor where Mrs Gordon Cooper is already waiting.

Commentator	Mrs Conrad, I know you're in a hurry to get to the third floor. What comment do you have at the moment?
Jane Conrad	Not right now.
Commentator	Not right now. She is in a hurry to get upstairs. Perhaps she is about to speak to her husband for the first time in at least eight days, Mrs Jane Conrad with Bob Gordon of NASA Protocol, making their way to the elevators. In just a few seconds, they'll be up there in the third floor Mission Operations Control Room. Mrs Trudy Cooper and the two daughters of Gordon Cooper are already there.
Commentator	This is Murphy Martin, in the lobby of Mission Control.

In the midst of a lot of congratulations, we received additional word from the recovery forces that during that period they were on the water, apparently there was some difficulty with their antenna ... but that is not of very much concern at this point.

Jane Conrad has joined us here in the Control Center. She didn't bring the boys with her, however. Both wives seem very much absorbed in a picture, where they are actually watching themselves on Chris Kraft's monitor at that center console -- which has been the scene of numerous conferences these past eight days, I can assure you.

Gemini Control here again. The circuits are being checked out right now. We hope to arrange a little conference call between the wives and the pilots out on the Lake Champlain. We've released a certain circuit for that purpose, and it is being checked out, but we've no estimate on exactly when this call will take place.

Now Jane Conrad has taken Chris Kraft's seat at the console and another chair's being pulled up for Trudy Cooper. The Cooper girls, Cam and Jan are busy in a conversation all of their own. Now chairs are being brought up for them.

President Johnson	I want to salute you both for the very calm and cool courage that you have shown throughout these last 8 days. In the face of disappointments and discouragements, you have conducted yourselves nobly. You have certainly proved for once and all that man has a place in the exploration of the great frontier of space. Gordon, when are you going to be ready to go up again?
Cooper	Well in a day or two, sir. As soon as we can have a little to eat, and a little rest.
President Johnson	Well that's fine. Astronaut Conrad, after you see that family of yours, would you like to see some of the world at ground level for a change?
Conrad	I'm sorry sir. I couldn't hear you.
President Johnson	I say after you see that family of yours, how would you like to see some of the world at the ground level for a change?
Conrad	Oh, I'd like to very much, sir.

President Johnson Well, you're going to get the chance. We want you to take a good rest and work with your doctors and follow out Mr. Webb and Dr. Seamans' instructions, but afterwards, we hope that both of you, along with the other astronauts can accept some of the invitations to share your achievements with the people in other lands, because the one thing that we are all working for, and really our only purpose in space is peace in the world. We want all mankind to be the beneficiaries of what you have done. And I know that you can continue to communicate America's message on earth, as in the skies. We spent a good part of last evening working out some plans for you. Now Gemini 5 will long be remembered, and long honored, for the courage of the crew, and the competence of the team on the ground, and the vision of all who dared to see this great interprise. We can only hope that your achievement will encourage all other nations to accept more fully what great accomplishments can be wrought by cooperating together in these new realms of infinity. So I just want to say God bless you both, we're glad you're back, we'll be everlastingly proud of you and we are so thankful for all the blessings that are ours. Do either of you have any observations you want to make?

Cooper No, no sir. It was certainly a wonderful trip and we saw a lot of the whole world, a lot of countries and a lot of places that were extremely interesting, and it makes me feel how small and insignificant man is compared to a country, or the world, and how we all should work together to further ...

President Johnson Well Gordon, we wish you could be out here with us, this morning.

President Johnson Gordon, do you read me?

Cooper Yes sir, we are reading you.

President Johnson Are you just reluctant, or did you not hear me?

Cooper We are reading you. Are you reading us?

President Johnson I sure am. I wish you could go the the Short Horse with me this morning as we did not long ago.

Cooper That would be nice.

President Johnson We'll be looking forward to seeing you, and congratulations again, and I know that those families are going to be mighty happy to see you again.

Cooper Thank you, thank you very much for calling us.

President Johnson Over and out.

Cooper We'll see you, bye.

Gemini Control here. Our ground communications haven't worked out nearly as well as our space communications in the last eight days, but in the last five minutes both Trudy Cooper and Jane Conrad talked with their husbands -- as well as the two girls -- out on the carrier. We understand that the patch did not work out, so that that particular conversation failed to get out, but it was a very abortive sort of a conversation. They had great difficulty hearing the carrier, and apparently the boys had difficulty hearing them. However, they did relay their congratulations both ways, and the girls are now leaving the room, presumably to go back home. Trudy told Gordo that she would see him in about

four days. Apparently Jane Conrad has other ideas, she said that it might not be that long. This is Gemini Control out.

END OF RECORD