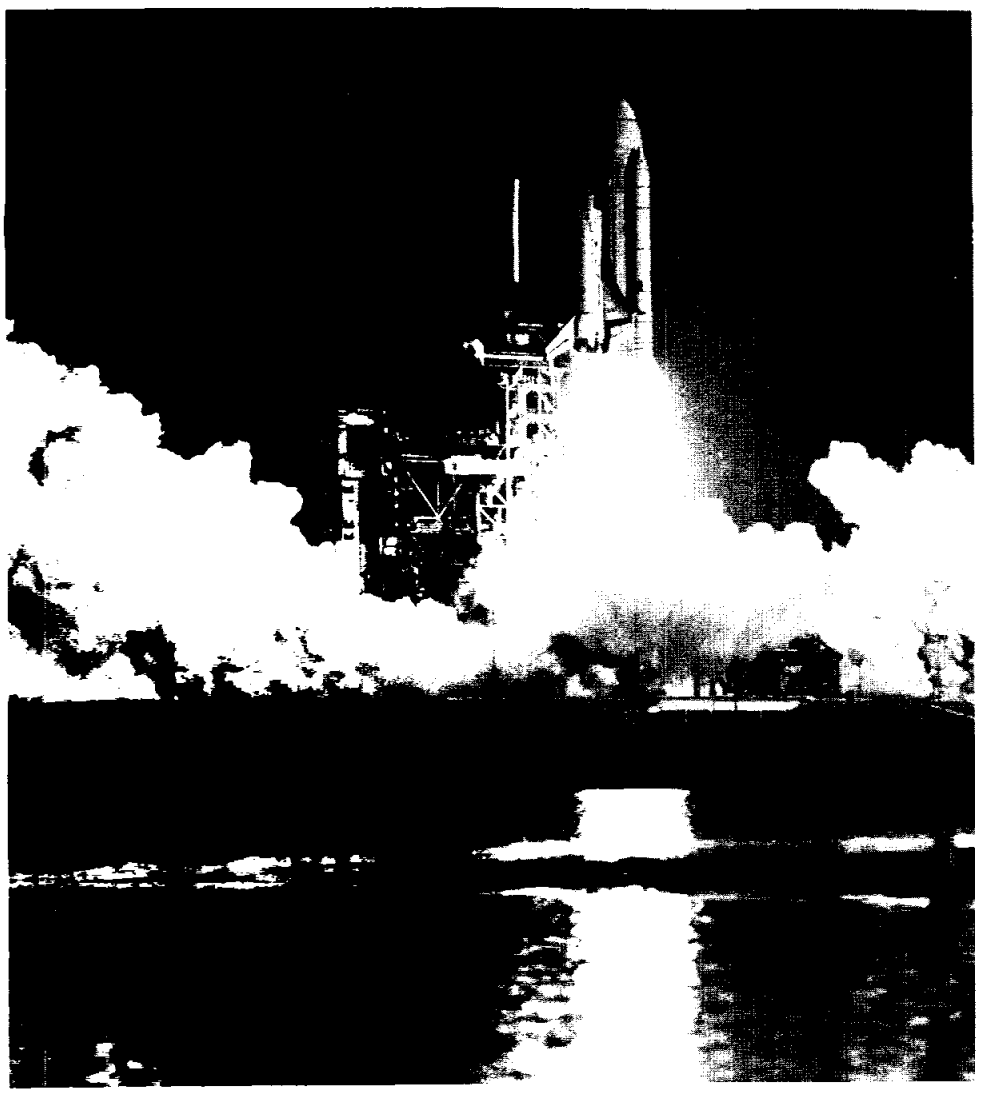

NASA
Lyndon B. Johnson Space Center

Space News Roundup

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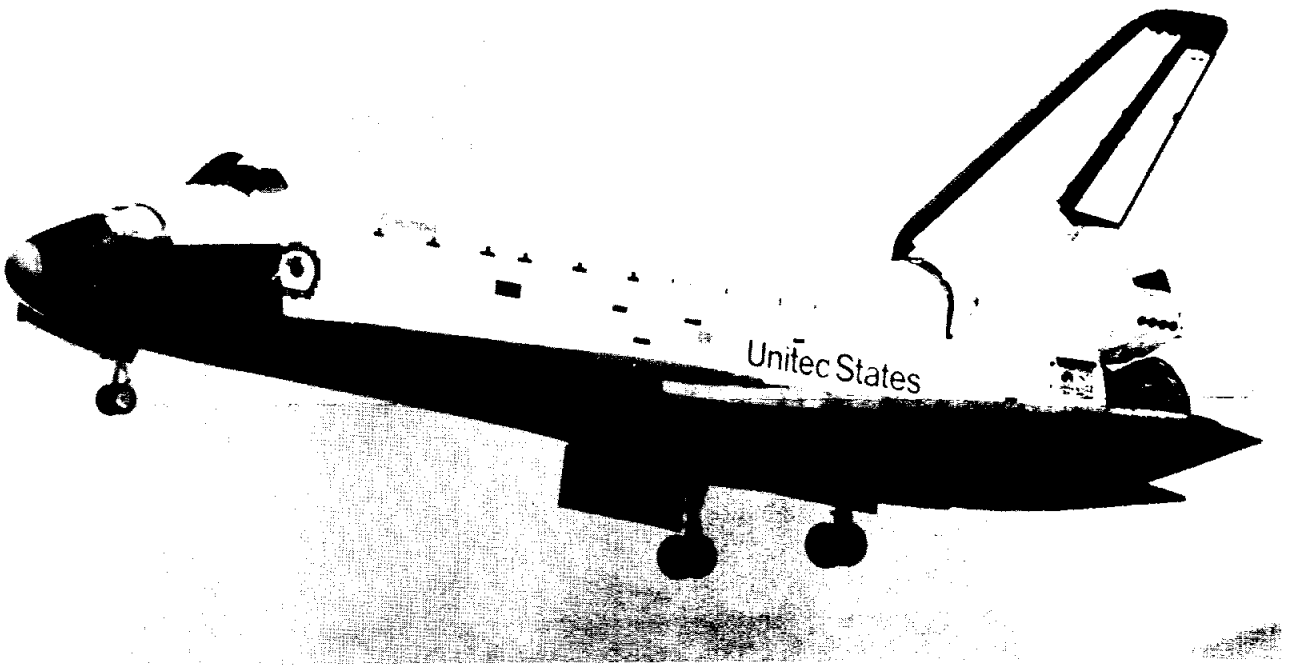
HAIL COLUMBIA!
The Way It Was

(Following are segments of Mission Control/air-to-ground commentary and conversation.

LC	T-1 min. 10 sec. and counting. Liquid hydrogen tank is at flight pressure. T-1 min. mark and counting. The firing system for the sounds supression water will be armed and in just a couple of seconds from now. It has been armed. T-45 sec. and counting. T-40 sec. and counting. The development flight instrumentation recorders are on. T-35 sec. We are just seconds away from switching to the redundant set sequencer. T-27 sec. We have gone for redundant set sequencer start, T-20 sec. and counting. T-15, 14, 13, T-10, 9, 8, 7, 6, 5, 4, we have gone for main engine start, we have liftoff of America's first Space Shuttle and the Shuttle has cleared the tower.
CAPCOM	Roger. Columbia Houston, you're go at throttle up.
SC	Roger, go at throttle up.
CAPCOM	Roger Columbia on the nice ride. You're lofting a little bit so I think you'll probably be slightly high at staging.
PAO	One minute forty five seconds, coming up on go/no go.
CAPCOM	Columbia, you're negative seats.
PAO	That callup says that Columbia, the altitude is too high for ejection seat use.
CAPCOM	Columbia, you are go for SRB sep.
PAO	Two minutes, four seconds, standing by for SRB sep confirmation.
PAO	Mark two minutes twenty seconds, confirm solid rocket booster sep.
PAO	Mark two minutes 30 seconds, on board guidance system converging as programmed, Columbia is now steering for its precise window in space for main engine cutoff. Mark two minutes forty seconds Columbia now 39 nautical miles in altitude 42 nautical miles downrange. Mark two minutes 50 seconds Columbia. . .
CAPCOM	Columbia, you're looking a little hot. All your calls will be a little early.
SC	Okay
PAO	Columbia now has two engine Rota capability.
SC	. . .looks good here.
PAO	Mark, three minutes. Young and Crippen really moving out now, velocity now reading 6200 feet per second. Mark 3 minutes 15 seconds, Columbia now 51 nautical miles in altitude, 66 nautical miles downrange, velocity now reading 6500 feet per second. Mark 3 minutes 30 seconds, Columbia now 55 nautical miles altitude, 78 nautical miles downrange. Mark 3 minutes forty seconds, standing by for a return status check in mission control by Flight Director Neil Hutchinson. Columbia given a green to continue.
PAO	. . .40 sec., standing by for a return status in Mission Control by Flight Controller Neil Hutchinson. Columbia given a green to continue. Mark 3 min. 55 sec., standing by for a press to MECO.
CAPCOM	Stand by press to MECO.
PAO	Columbia continues flying forward. Coming up on an emergency turn.
CAPCOM	Ready for press to MECO.
SC	Roger, press to MECO.
PAO	Mark 4 min. 8. . .
CAPCOM	Columbia, stand by for negative return. Mark negative return.

Continued on Page 4



Space Shuttle Hailed as "Incredible Flying Machine"

Spaceship Columbia roared into orbit April 12 from Florida's Kennedy Space Center.

Maneuvering through space and circling Earth 36 times, Astronauts John Young and Robert Crippen tested its systems, then landed like an airplane on schedule: 2 days, 6 hours, 20 minutes and 52 seconds later.

The world hailed Columbia as the first true spaceship — an incredible flying machine. It heralded the beginning of the era of manned round-trip travel from Earth.

The launch preceded with a message nine minutes before liftoff from President Ronald Reagan. It was read by George Page, Shuttle launch director:

"You go forward this morning in a daring enterprise, and you take the hopes and prayers of all Americans with you," said the President's message.

"As you hurtle from Earth in a craft unlike any other ever constructed, you will do so in a feat of American technology and American will."

Rising on a throne of 6.6 million pounds of thrust, Columbia at first flew steeper than programmed, its three main hydrogen-powered engines and two solid rocket motors driving skyward.

Columbia made a 100-degree roll to the right, heading for its imaginary target. Two minutes and 12 seconds later, the solid rocket boosters were jettisoned, to be recovered later 151 miles downrange.

Eight minutes and 34 seconds later, the main engines cut off. The speed was 25,670 feet per second. The external tank was jettisoned and broke up over the Indian Ocean, debris landing as programmed 21,000 miles downrange from Kennedy Space Center.

Columbia's Orbital Maneuvering System (OMS) took over at 10 minutes, firing for 1 minute and 27 seconds, to establish an orbit of 132 by 57 nautical miles. A second OMS burn achieved a 130-mile circular orbit. A third at 6 hours, 20 minutes set the orbit at 148 by 131.7 miles and a fourth added 30 feet-per-second to set the circular orbit at 149.3 by 147.6.

Columbia then began a series of tests. Its payload bay doors were opened twice, allowing astronauts to utilize the space radiator cooling systems.

The morning of Day 3 arrived and Astronauts Young and Crippen readied for the crucial test of a winged Earth entry and wheels-downing landing. Previous spacecraft returned to Earth with parachutes and splashdown.

Earth entry lasted about 31 minutes, as the spacecraft Columbia entered the atmosphere 400,000 feet above Earth. At this point, Columbia was about 4,390 miles from the Edwards landing strip in California.

Temperatures ranged from 2,500 to 3,000 degrees Fahrenheit on some parts of the tiles. Commander Young took manual control of Columbia about 115,000 feet up.

Twin sonic booms announced the arrival of Columbia while the vehicle was still at an altitude of 54,000 feet. About 400 feet above the desert, landing gears were lowered.

Columbia landed on Runway 23 of Rogers Dry Lake at Edwards Air Force Base in the Mohave Desert, rolling 8,993 feet — within 200 feet of the estimate.

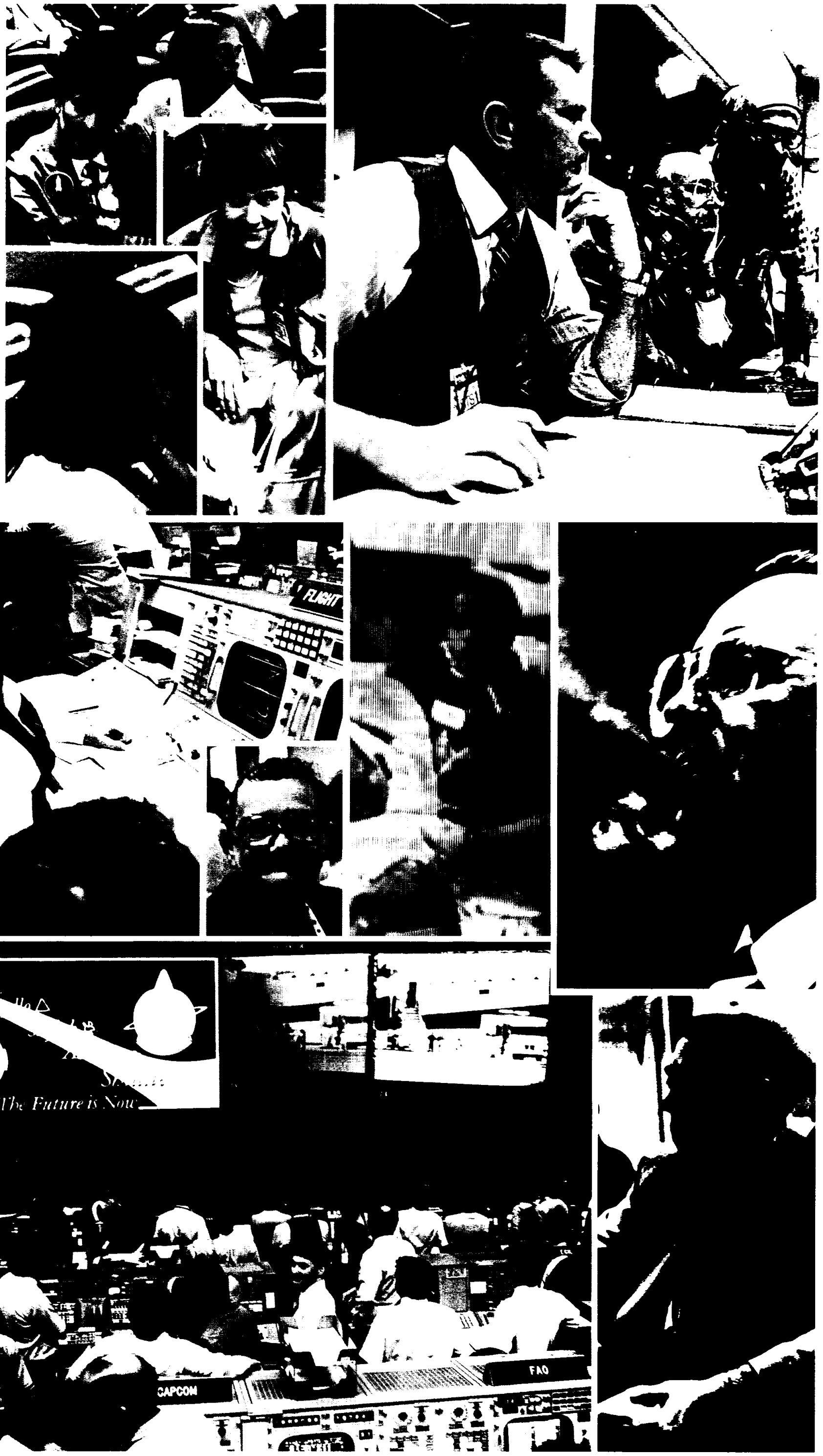
Shuttle program officials and astronauts said Columbia exceeded performance expectations and dubbed it their "incredible flying machine."

Columbia - A SPACE

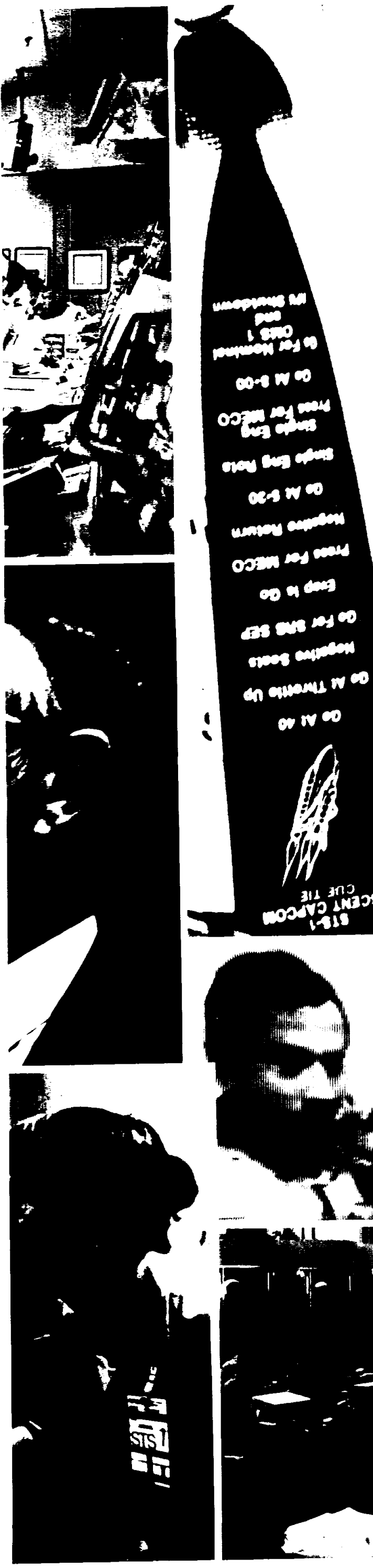
Everyone at JSC deserves a measure of credit for the magnificent STS-1 mission. Regardless of our role here, a little bit of each of us rode with Columbia and its crew. John Young and Bob Crippen join with me in thanking all of you, civil service and contractor, for helping to make the first mission a monumental success.

You have retained the dedication, ability and pride with which you established this Center's reputation years ago. Thank you for that. Now, let's set our sights on STS-2. I know I can count on you.

Christopher C. Kraft, Jr.
Director



SHUTTLE FOR ALL MANKIND



HAIL

From Page 1

PAO Mark 4 min 25 sec with that call up from CAPCOM Brandenstein. Columbia now committed to space travel. Young and Crippen can no longer turn around and return to launch site.

SC What a view, what a view!

CAPCOM Glad, you are enjoying it.

PAO Mark 5 min 15 sec. Columbia now 75 nautical miles altitude, 202 nautical miles downrange. Lofting now reading 11,000 feet per second. A status check in Mission Control by Flight Director Neil Hutchinson.

CAPCOM Columbia, Houston you are go at 5:30, MECO 8 + 34.

PAO Mark 5 min 40 sec. That callup from CAPCOM Brandenstein says Columbia projective navigation and engine performance are good.

CAPCOM Columbia, you are single engine press to MECO.

PAO Mark 7 min 20 sec. That report says that Young and Crippen can achieve orbit insertion even if two engines go out. Mark 7 min 30 sec. Columbia 67 nautical miles altitude, 485 nautical miles downrange. G force is building for Young and Crippen, now. Up to 3 g's. Mark 7 min 45 sec. Columbia's main engine slowly needs throttle back now, should be throttled at 65 percent, that is 6 sec before main engine cutoff. Status check in the Control Center.

CAPCOM Columbia, Houston, you are go at 8.

PAO Mark 8 min 4 sec.

SC Looking good.

PAO Columbia now 63 nautical miles altitude, 606 nautical miles downrange. Mark 8 min 15 sec. Columbia now 63 nautical miles altitude, 650 nautical miles downrange. Standing by now for main engine cutoff.

SC Okay, MECO, 25, 6, 7, 0 up and doing it at 20 fps.

CAPCOM Roger, Columbia, MECO.

PAO Confirm shutdown. Columbia, the gem of the ocean, now in space, not yet in orbit. Standing by now for external tank seperation.

CAPCOM Roger, Columbia, MECO. Confirm shutdown, Columbia, the gem of this new ocean now in space not yet in orbit. Standing by now for external tank separation. Roger, we confirm the sep, Columbia. Nine minutes 3 seconds, confirm external tank separation. Columbia now performing an evasive maneuver moving below and beyond the translative and north of the external tank. Young should see it moving away out of his window. Nine minutes and 40 seconds go-no-go status check emission control for the first OMS burn. Give it a Go. Columbia, Houston, you are go for nominal/OMS 1 and for APU shut down on time.

PAO Mark nine minutes 55 seconds. Columbia now maneuvering through its OMS 1 burn attitude. Using the two 6,000 pounds thrust engine OMS 1 will be posi-grade. Moving Columbia forward on her flight path placing Columbia in orbit. Standing by for ignition 10 minutes 22 seconds — Columbia 67 nautical miles in altitude, 1100-1160 miles downrange.

SC Okay, we got 102 on the left and 101 on the right.

CAPCOM Roger, Columbia. You're looking good to us. A status check of the Control Center. Columbia, Houston, we have 40 seconds until LOS. Configure LOS. You're looking good. We'll see you in Madrid.

SC Seconds to go. We are in a 97 by 42 right now.

PAO This is Shuttle Control Houston at 15 minutes 30 seconds MET. Jay Greene reports the OMS 1 burn was normal. Time of ignition 10 minutes 37 seconds MET Delta V 164.7 feet per second. Duration of the burn 1 minute 27 seconds. Resulting orbit apogee 132 nautical miles, perigee 57 nautical miles so Columbia is now in orbit. Also Columbia weighed 4 and one half million pounds at launch. She now weighs about 214,000 pounds.

SC Okay. We're looking good, the burn looked normal. The OMS 1 burn.

PAO We have a report that the solid rocket boosters chutes worked okay. Both solid rocket boosters in the water floating normally. This is Shuttle Control Houston, 49 min Mission Elapsed Time, we have a report from the surgeon that Bob Crippen's heart rate at liftoff was 130 and John Young's heart rate ranged between 85 and 90 at liftoff.

PAO This is Shuttle Control at 59 min MET, coming up on loss of signal through Yaragadee. The next station to acquire will be Orroral Valley. We had a report from the crew aboard Columbia that they performed the OMS 2 burn as programmed and are presently moving into OPS 2, the on-orbit, onboard computer program.

SC You're missing one fantastic sight. Here comes the right door and boy that is really beautiful out there.

CAPCOM We appreciate the great view updates.

SC Roger that.

CAPCOM Right door now open.

SC We can see a little trash floating out of the payload bay, but nothing really all that significant.

SC All the latches work just fine and the door looks like she's doing her thing.

CAPCOM Columbia, Houston. We are about 30 sec from TBA or port door is now closed.

SC OK. I just got the right door closed. All that came back nicely. We are getting ready to latch it back up.

SC I can stop it up, up here if you wish. OK. Doors all latched up beautiful. We are getting ready to open them back up again.

CAPCOM Roger.

PAO That report from Bob Crippen. . .

SC Ok, what camera are y'all looking at now, do you know

CAPCOM Roger, we're looking out the forward camera.

SC Ok, we're — we want to tell y'all here we do have a few tiles missing off both of them — off the starboard pod, basically it got what appears to be 3 tile and some smaller pieces and off the port pod — looks like — I see one full square and looks like a few little triangular shapes that are missing and we are trying to put that on TV right now.

PAO Young also reported that the tiles on the wing or wings appeared to be intact. Meanwhile JSC Engineering and Development Director Max Faget, is in the Control Center and watched the television transmission of the missing tiles. He reports that these are not critical tiles. These tiles that are missing represent no hazard to the vehicle or the crew. Dr. Faget further states that the worst that can happen is that after landing a small patch of skin underneath the tiles may have to be replaced.

PAO This is Mission Control Houston. Dekar has loss of signal. Quiet pass. The crew is busy donning their pressure suits. The de-orbit ignition time is 3 hours 29 min, 17 sec from now. That set an elapsed time of 2 days, 5 hours, 21 min 30 sec. The Delta V, or the change in velocity of that maneuver will be 297.6 fps. Duration of the burn 2 min, 39.5 seconds. Columbia will be flying tail first. There will be a retrograde maneuver, burning both the OMS engines. Entry interface expected to occur at an elapsed time of 2 days, 5 hours 49 min, 1 sec at an altitude of approximately 400,000 feet at a range from the landing site at Edwards of about 4400 miles. Blackout will begin at 2 days, 5 hours, 51 min, 44 sec at an altitude of approximately 330,000 feet and a range of 3,700 miles.

PAO Columbia maneuvering to burn attitude now.

PAO This is Mission Control. We are at mark 1 minute from de-orbit ignition.

SC Burn was on time and nominal. Three started fine also. We have got two and three running now.

CAPCOM Hey, Columbia, we are 50 sec from LOS. Everything looks perfect going over the hill. Nice and easy does it John, we are all riding with you.

SC Roger that.

CAPCOM Ten seconds until LOS. We will see you at about MACH 12.

SC Bye, bye. Looking forward to that.

PAO This is Mission Control. Guam here has lost its signal. Columbia is 1 min 32 sec away from entering the Earth's atmosphere. We are showing 34 min 21 sec to touchdown at Edwards Air Force Base. We will be out of communication with Columbia for approximately 21 min. No tracking stations before the west coast. And there is a period of about 16 min of aerodynamic reentry heating that communications are impossible during this entry however there are no tracking stations to receive any communications either. Columbia in good shape and the crew in good shape for this entry. Two experiments aboard Columbia as part of the Orbiter experiments program managed by NASA's Officer in nautical space technology will be conducted during this entry. One of them is the infrared imagery of Shuttle, the acronym IRIS, will be conducted from a C-141 operated by NASA's Ames Research Center in California using a 36-inch telescope aboard the C-141. They will attempt to get about 4 milliseconds of information from the underside and sides of the Orbiter. Objective is to obtain high resolution infrared imagery during entry from which surface temperatures and aerodynamic heating may be inferred. This C-141 is known as the Gerald P. Kiper airborne observatory. It is named for the late Dr. Kiper, the founder of the Lunar and Planetary Lab at the University of Arizona. He was active in ranger and surveyor missions, Mercury, Venus, and the Pioneer 10 mission to Jupiter. Columbia should see maximum surface temperatures during entry of 2,750 deg F on the wing leading edge that will diminish to less than 600 deg F on the upper fuselage. At Edwards Air Force Base and the Dryden Flight Research Center, enormous crowds are beginning to assemble.

PAO This is Shuttle Control, NASA/Dryden. The estimated 75,000 members of the public to view the Shuttle launch at Kennedy Space Center, may be more than doubled during the landing here on Rogers dry lake. An estimated 150,000 visitors are expected at the public viewing site on the west side of the lake bed. This number will be swelled to approximately 170,000 by those at the other viewing sites. A sonic boom should be audible to viewers here. Columbia should go subsonic just about the time it approaches from the west. And consequently the western edge of the lake bed.

PAO Now at 70,000 feet at MACH 1 point eight range 42 miles.

CAPCOM Columbia, we show you very slightly high in altitude, coming down nicely, and the tests is to go to off.

PAO MACH 1.3 at 58,000 feet, range 33 miles.

CAPCOM Out of 56 K, looking good.

PAO MACH 1 at 51,000 feet, range 28 miles.

CAPCOM Columbia, you're going subsonic now. Out of 50 K, looking good.

SC Roger.

PAO Everything looking good.

CAPCOM Columbia, you're approaching the HAC now. Right on the money.

PAO Range 28 miles

CAPCOM Columbia, you're going subsonic now aut at 50 K. Looking good.

PAO Everythig looking good.

CAPCOM Columbia, you're approaching the HAC now, right on the money.

PAO Now they're getting ready to start the big sweeping turn into the runway.

CAPCOM And Crip, the altimeter is 3009.

PAO Thirty-eight thousand feet, range 19 miles.

CAPCOM Columbia, you're coming right around the HAC, looking beautiful.

SC Oh, Yeah.

CAPCOM It's got about 30,000. . .

SC Alrighty

PAO Control very smooth.

CAPCOM Columbia, you're really looking good, right on the money. And we're seeing 1.3 Gs coming around the HAC.

CAPCOM And turning on the final, your winds on the surface are calm.

SC That's my kind of wind.

PAO Twenty-five thousand feet, MACH .6, range 13 miles, 22 thousand feet. Control looking very smooth. We have a television picture now.

CAPCOM You're right on the glide slope, Columbia.

CAPCOM Right on glide slope, approaching center line, looking great.

CAPCOM Airspeed 271 knots. FIDO says it couldn't be any better.

PAO Eleven thousand feet.

PAO Nine thousand, 280 knots.

CHASE ONE Clear (garble) they're down, pick up your feet. Five, four, three, two, one, touchdown. (garble) Welcome home, Columbia. Beautiful, beautiful.

SC Do I have to take it up to the hangar, Joe.

CAPCOM We're going to dust it off first.

SC This is the world's greatest flying machine, I'll tell you that. It worked super.

CONVOY Okay, convoy north, wheels stopped on Columbia, wheels stopped.

PAO This is Mission Control, Houston. The official touchdown time is 2 days, 6 hours, 20 minutes, 52 seconds.