

WORLD

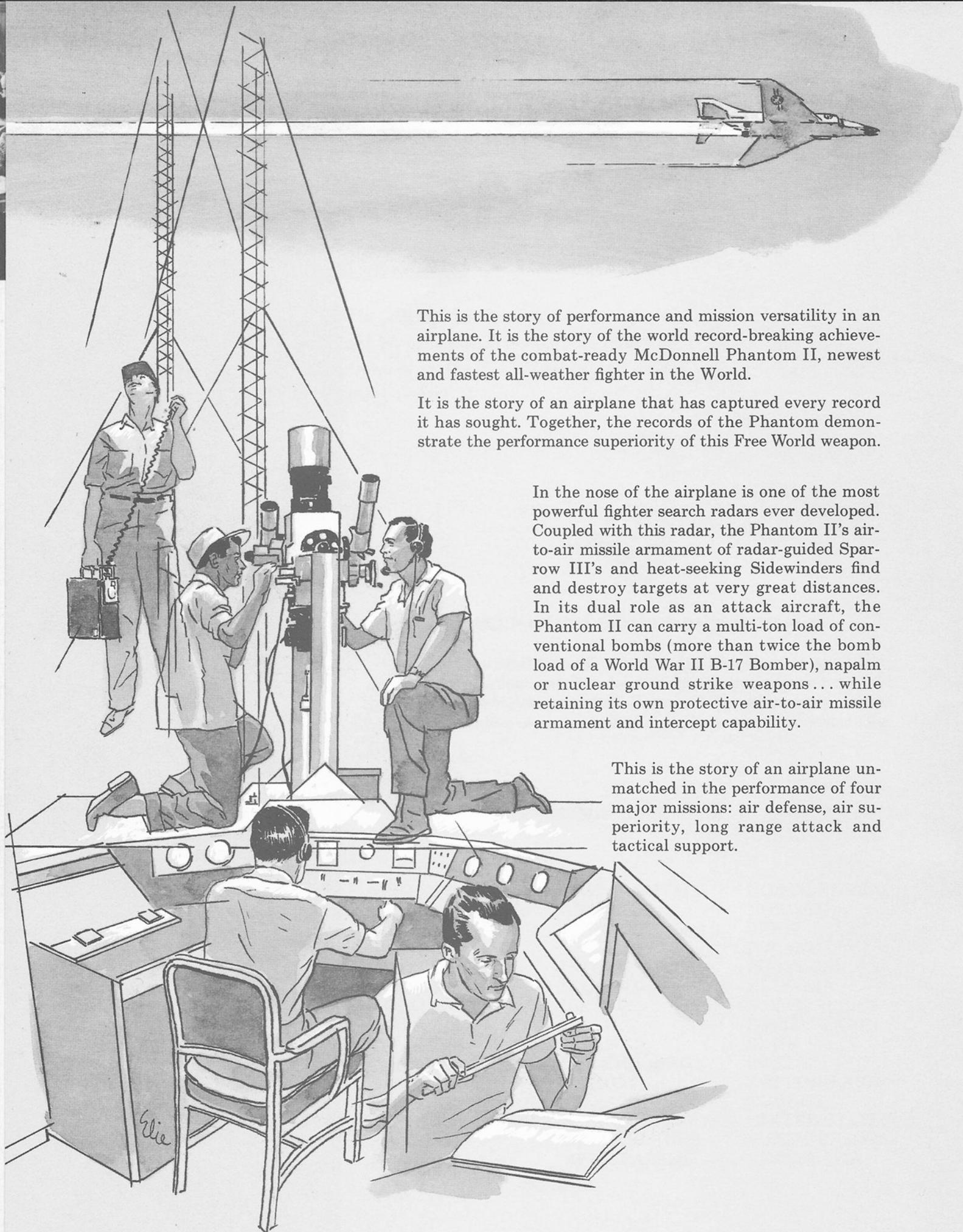
RECORDS

OF THE

MCDONNELL

F4H

PHANTOM II



This is the story of performance and mission versatility in an airplane. It is the story of the world record-breaking achievements of the combat-ready McDonnell Phantom II, newest and fastest all-weather fighter in the World.

It is the story of an airplane that has captured every record it has sought. Together, the records of the Phantom demonstrate the performance superiority of this Free World weapon.

In the nose of the airplane is one of the most powerful fighter search radars ever developed. Coupled with this radar, the Phantom II's air-to-air missile armament of radar-guided Sparrow III's and heat-seeking Sidewinders find and destroy targets at very great distances. In its dual role as an attack aircraft, the Phantom II can carry a multi-ton load of conventional bombs (more than twice the bomb load of a World War II B-17 Bomber), napalm or nuclear ground strike weapons... while retaining its own protective air-to-air missile armament and intercept capability.

This is the story of an airplane unmatched in the performance of four major missions: air defense, air superiority, long range attack and tactical support.



NATIONAL AERONAUTIC ASSOCIATION

The NAA is the sole United States Representative of the FAI.

It documents and registers all national and international record attempts by U.S. aircraft and spacecraft, both military and civil.

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“TOP FLIGHT”

98,557 FEET

6 DECEMBER 1959

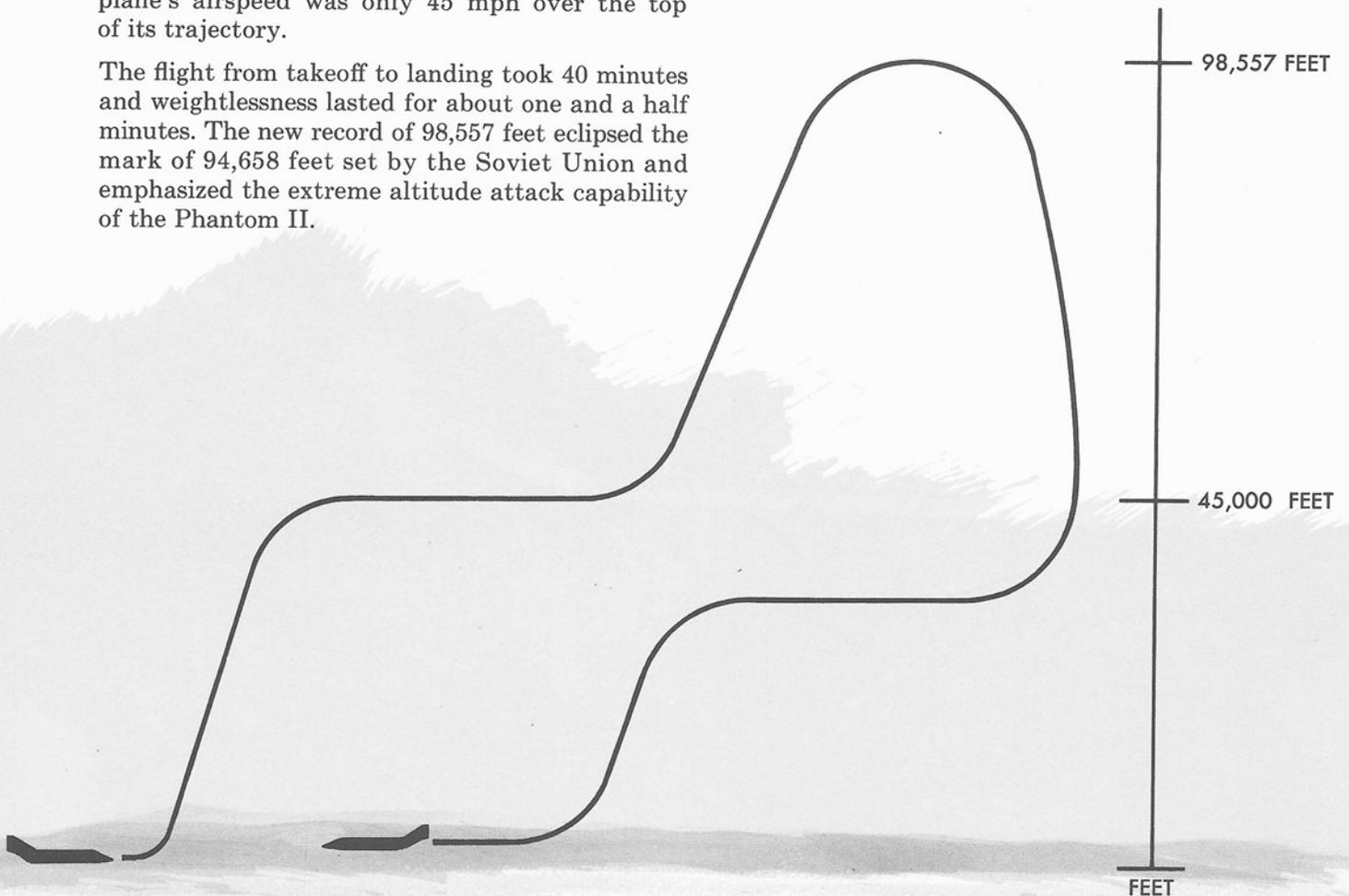


HOW IT WAS DONE

Commander Lawrence E. Flint, Jr. took off from Edwards Air Force Base, California. The flight marked the last phase of the Phantom II's rugged testing program in preparation for fleet trials and the beginning of a mass compilation of world records.

Commander Flint leveled off at about 50,000 feet. Upon clearance from the ground, he pulled the stick back and headed straight up. The plane assumed a ballistic trajectory and as he approached peak altitude, Commander Flint experienced weightlessness. At 98,557 feet, his view was comparable to that seen by an astronaut on the fringes of space. Far below, he could see the haze layer that marked his entry into the stratosphere during the climb. The plane's airspeed was only 45 mph over the top of its trajectory.

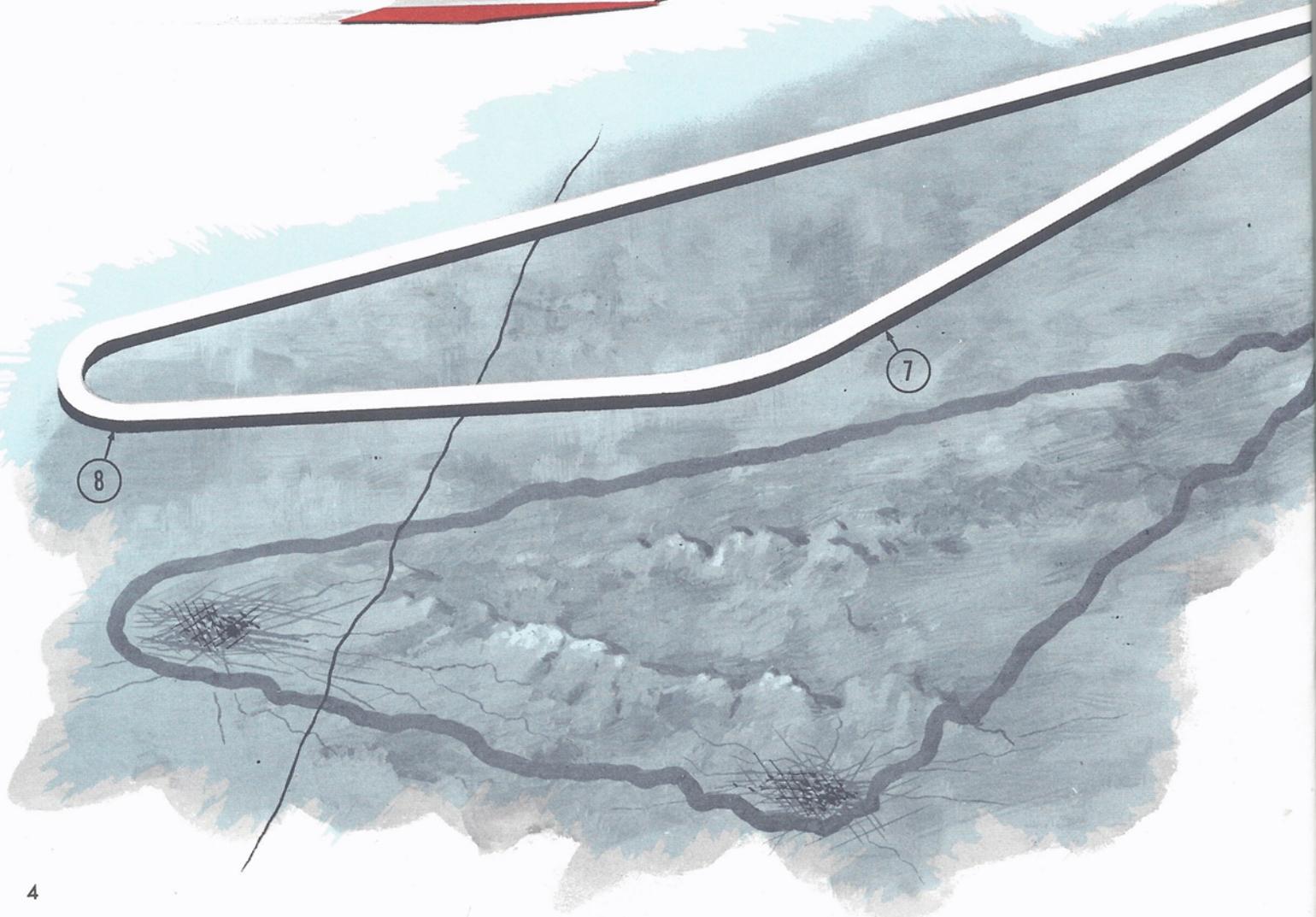
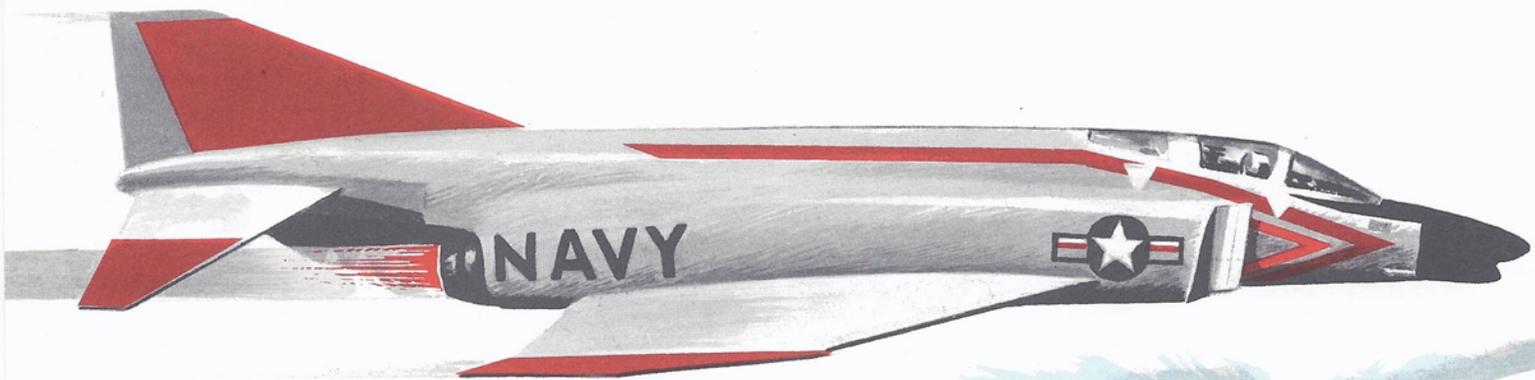
The flight from takeoff to landing took 40 minutes and weightlessness lasted for about one and a half minutes. The new record of 98,557 feet eclipsed the mark of 94,658 feet set by the Soviet Union and emphasized the extreme altitude attack capability of the Phantom II.



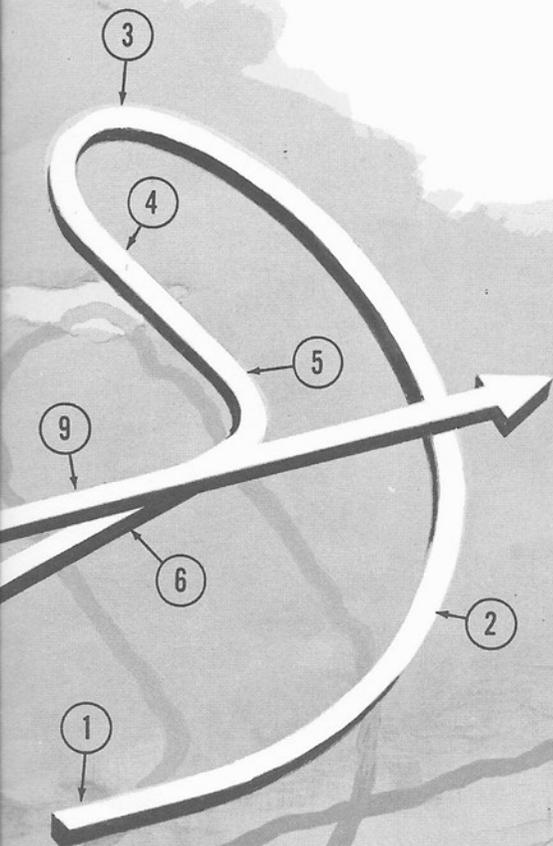
1216.76 MPH

500-KILOMETER
CLOSED COURSE

5 SEPTEMBER 1960



HOW IT WAS DONE



The 500-kilometer closed course on the Mojave Desert is laid out in a triangle; the principle flight requirement being that the contest aircraft depart the course at the same or higher than entry altitude.

Lieutenant Colonel Thomas H. Miller, USMC, flew the course in a clockwise direction. External fuel tanks were carried on the climb-out and approach to the course to provide maximum possible fuel aboard for the continuous use of afterburning.

Because of course proximity to populated areas, tank jettison could not be accomplished in an ideal location with respect to the course entry gate. Thus the 600-gallon centerline tank was jettisoned over the desert just prior to entering the course and there was not sufficient distance remaining for acceleration to optimum course entry speed.

Five hundred (500) kilometers is 311 statute miles. Since the Phantom II necessarily flew a longer course around the triangle, the actual distance flown was 334 miles. Thus, though the official speed credited was 1216.76 mph, the actual speed averaged over the total course distance flown was approximately 1305 mph (Mach 2.0). The flight took one hour from takeoff to touchdown. Actual time on the course was 15 minutes 19.2 seconds, total afterburner time on the flight was 25 minutes 30 seconds, and total flight path distance, takeoff to touchdown, was approximately 776 miles.

This record emphasized the Phantom II's outstanding maneuverability and high speed long range intercept capability.

- | | | |
|--|--|---|
| <p>1 TAKEOFF
IN AFTERBURNER
3 EXTERNAL TANKS
G.W. = 49,500 LBS.</p> | <p>4 LIGHT AFTERBURNERS
1.50 MILES FROM
STARTING GATE
36,000 FT.
MACH .92</p> | <p>7 FIRST TURN
START: 50,000 FT.
MACH 2.04</p> |
| <p>2 CLIMB-OUT
IN MILITARY POWER
TO 38,000 FEET</p> | <p>5 DROP CENTERLINE TANK
30 MILES FROM GATE
48,000 FT.
MACH 1.6</p> | <p>8 SECOND TURN
START: 49,000 FT.
MACH 2.05</p> |
| <p>3 DROP WING TANKS
OVER SALTON SEA
38,000 FT.
MACH .80</p> | <p>6 START
42,200 FT.
MACH 1.76</p> | <p>9 FINISH
46,000 FT.
MACH 2.10
GATE-TO-GATE=
15 MIN. 19.2 SEC.</p> |

1390.24 MPH

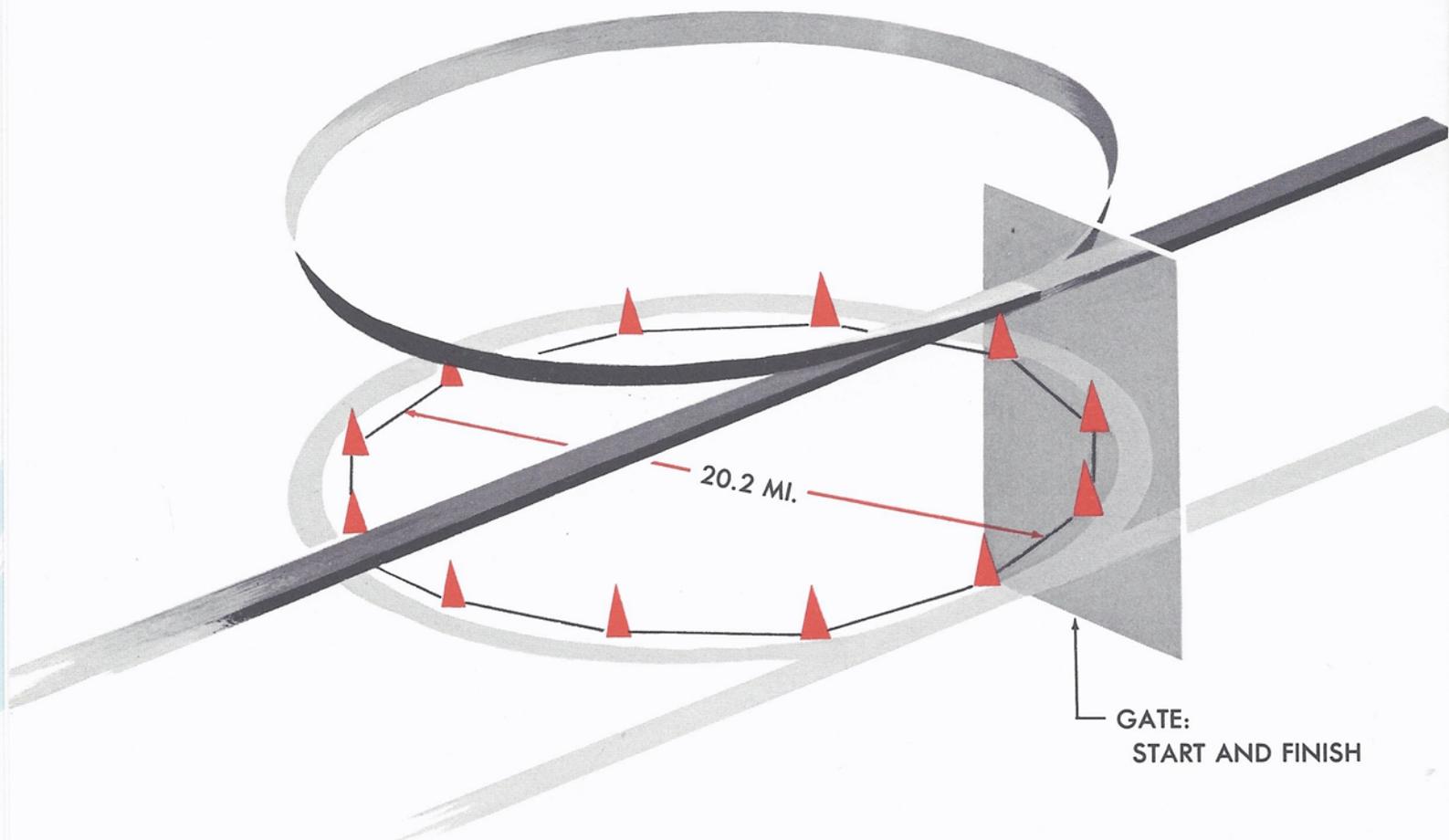
100-KILOMETER
CLOSED COURSE

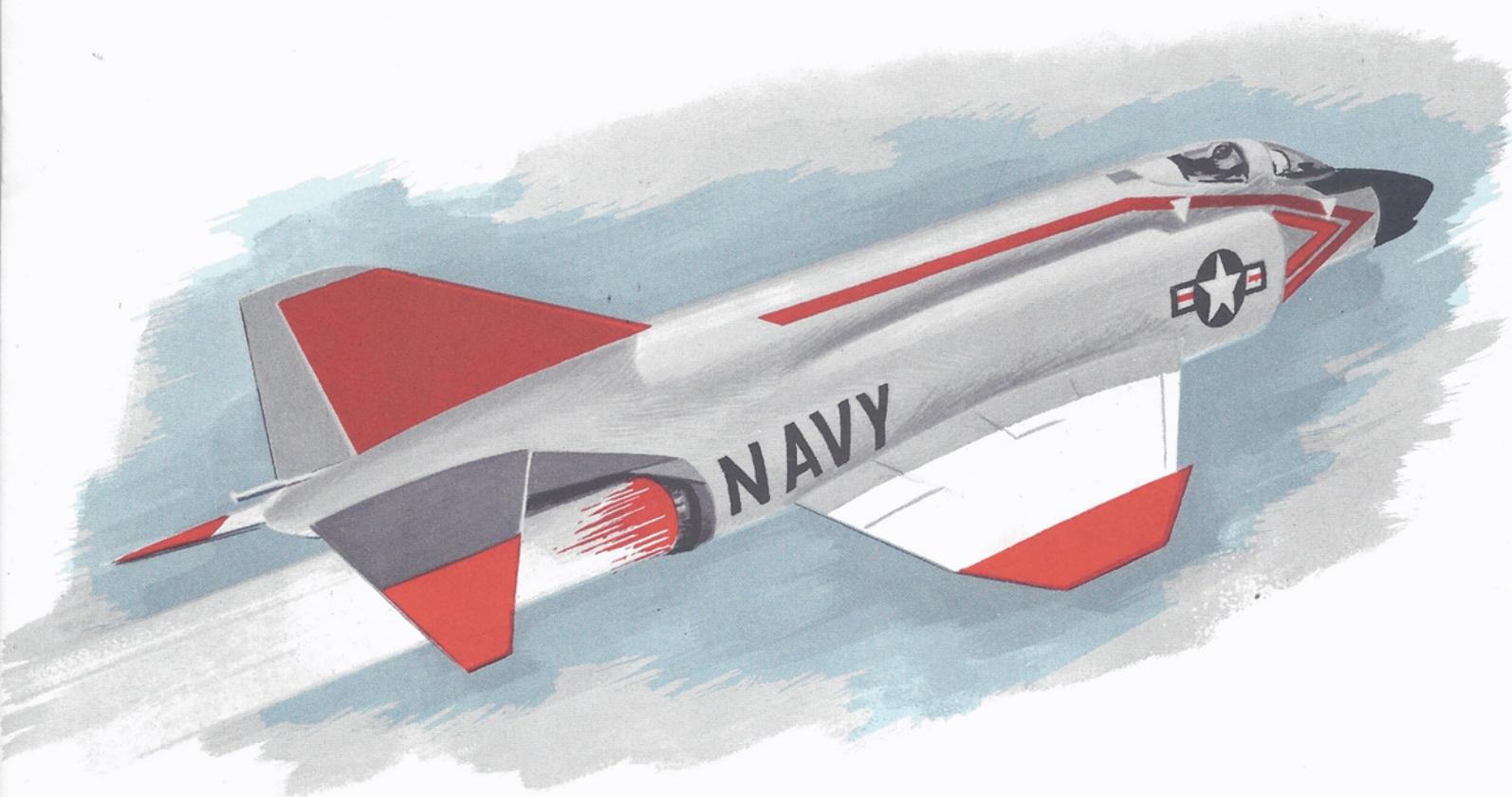
25 SEPTEMBER 1960

START
MACH 2.31
45,000 FT.

FINISH
MACH 2.21
47,000 FT.

START TO FINISH: 2 MIN., 40.9 SEC.





HOW IT WAS DONE

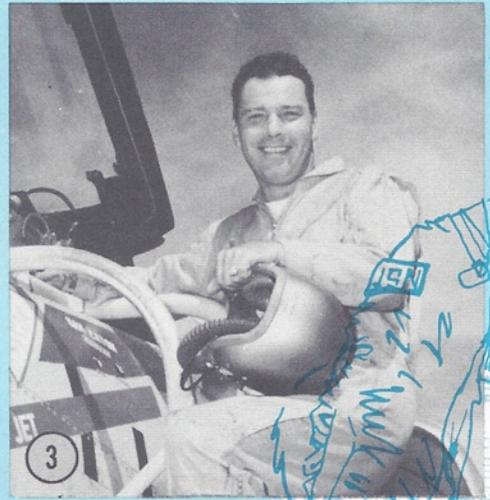
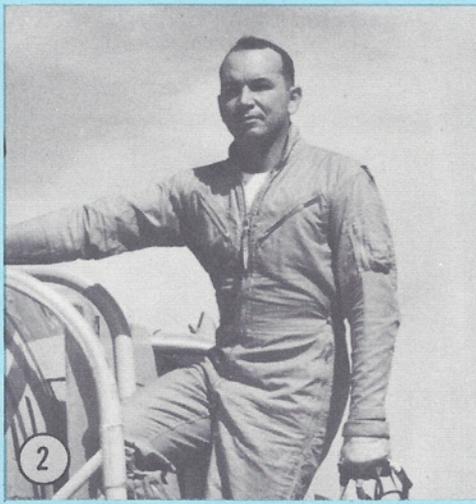
The 100-kilometer closed course at Edwards Air Force Base, California, is laid out as a 12-point circle approximately 20.2 miles in diameter. However, the 100-kilometer distance is measured in straight lines between points—or pylons—therefore, the actual circular distance around the pylons is 102 kilometers. At today's high speeds, maintaining a constant circle of only 102 kilometers circumference represents a severe test of airplane maneuverability and pilot skill. The Phantom II, in setting a new world record, averaged about 70 degrees of bank and 3 g all the way around the turn.

Commander J. F. Davis, USN, flew the course at approximately 46,000 feet. FAI (Federation Aeronautique Internationale) rules require that the course be entered from a level or climbing straightaway of

at least 1000 meters (3280 feet). Commander Davis entered the course from a climbing, wings-level straightaway of approximately 100 miles. He used this distance for accelerating to course entry speed at the optimum altitude. Upon entering the course, he rolled into a steep bank to the left and maintained that attitude for 360 degrees.

The Phantom II completed the circle in two minutes and 40.9 seconds, having achieved an average speed of 1390.24 mph for the 100-kilometer course. The Phantom II flew an actual distance of about 104.9 kilometers at a speed of approximately 1459 mph (Mach 2.24).

This record dramatized the Phantom II's maneuverability and stability at lightning speeds and ability to attack and re-attack evasive targets.





THESE ARE THE MEN WHO SET THE RECORDS

- ① Commander LAWRENCE E. FLINT, Jr., U S N
- ② Lieutenant Colonel THOMAS H. MILLER, U S M C
- ③ Commander JOHN F. DAVIS, U S N
- ④ Lieutenant RICHARD F. GORDON, U S N (Left)
Lieutenant (jg) BOBBIE R. YOUNG, U S N (Right)
- ⑤ Lieutenant HUNTINGTON HARDISTY, U S N (Left)
Lieutenant EARL H. DeESCH, U S N (Right)
- ⑥ Lieutenant Colonel ROBERT B. ROBINSON, U S M C
- ⑦ Commander GEORGE W. ELLIS, U S N



Below:

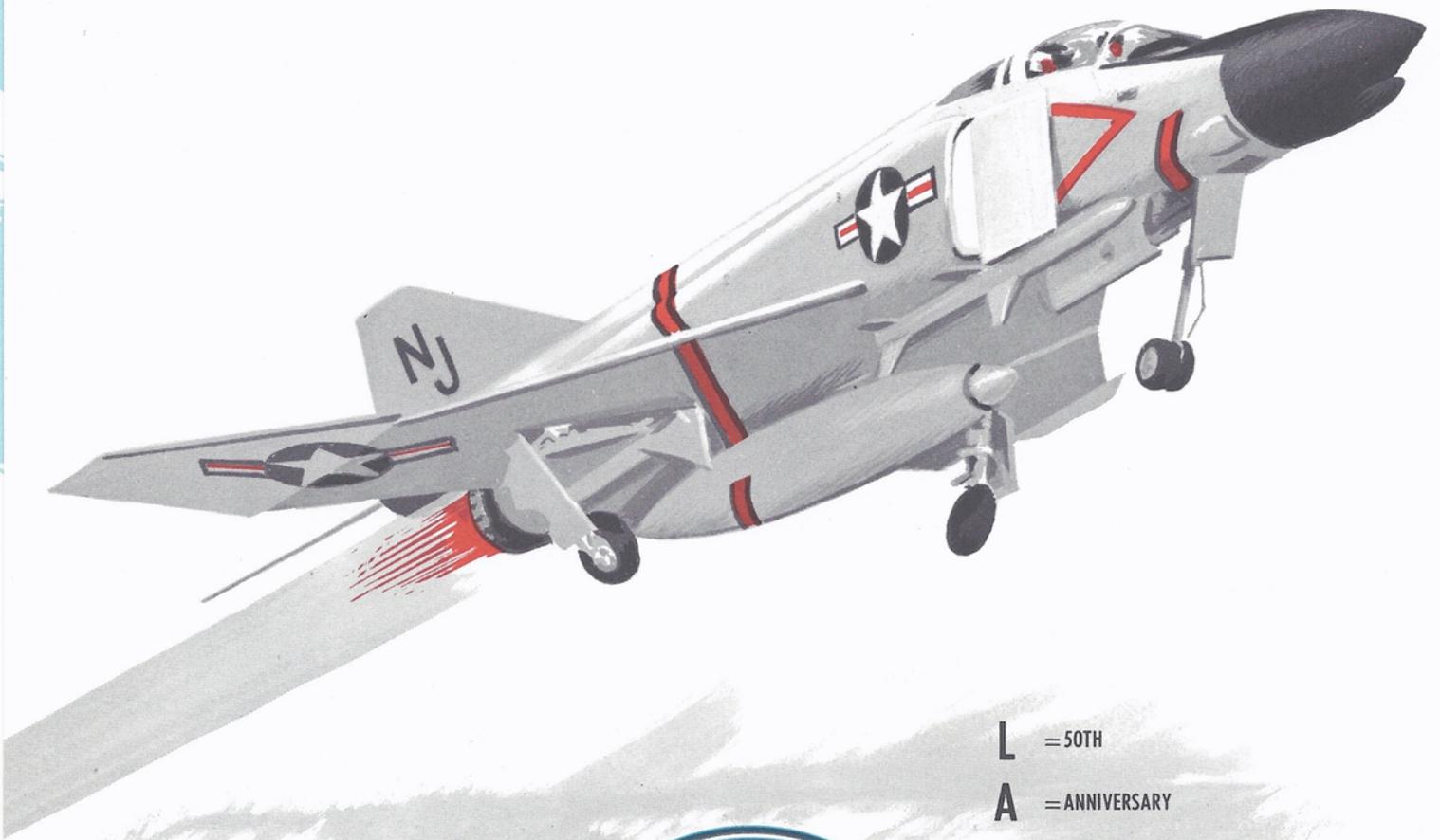
LANA PILOTS AND RADAR INTERCEPT OFFICERS



“LOS ANGELES TO NEW YORK”

170 MINUTES

24 MAY 1961



L = 50TH
A = ANNIVERSARY
N = NAVAL
A = AVIATION



HOW IT WAS DONE

On May 24, 1961 five Phantom II's took off, at timed intervals, from Ontario Field, Los Angeles, California. The goal—a new west to east transcontinental speed record. Earlier, tanker aircraft had left their bases to take up refueling stations. Aerial refuelings were scheduled over New Mexico, Missouri and Ohio. The first three Phantoms were the competing aircraft and the other two were spares.

At the first refueling rendezvous, the Phantoms dropped to the tanker's altitude of 35,000 feet and slowed to subsonic tanker speed. Then, fuel replenished, they swiftly climbed to 50,000 feet and were off again at their blistering Mach 2+ pace.

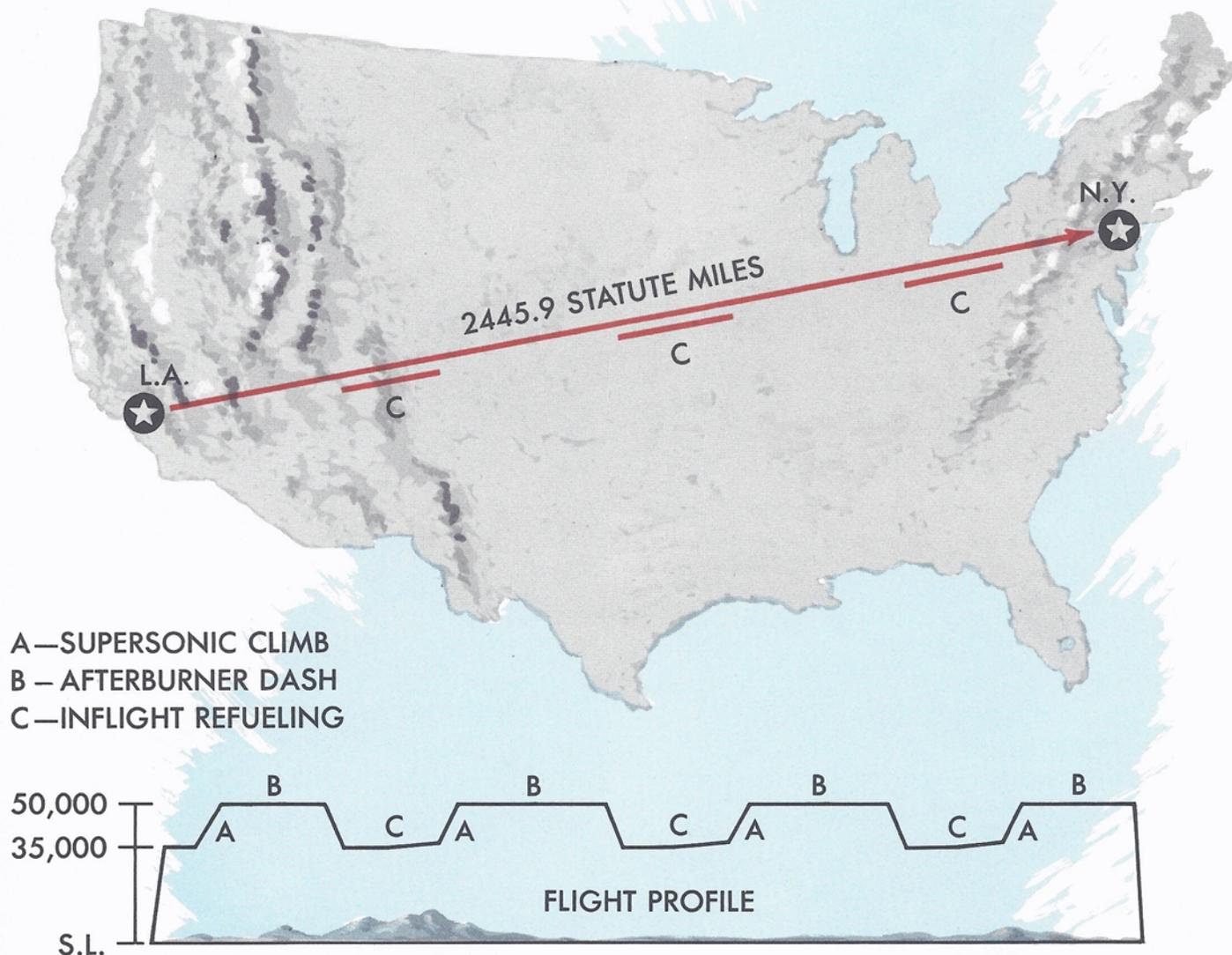
The first Phantom to make its winning pass across Floyd Bennett Field, Brooklyn, N. Y. was piloted by Commander J. S. Lake, with Lieutenant (jg)

E. A. Cowart, as RIO (radar intercept officer). Their cross country time of three hours five minutes was a new world record.

Right behind them were Commander L. S. Lamo-reaux and Lieutenant T. J. Johnson, with a new record time of two hours 50 minutes.

But even this was bettered by Lieutenant R. F. Gordon and Lieutenant (jg) B. R. Young in the third Phantom II. They had spanned the country (2445.9 statute miles) in two hours 48 minutes, at an average speed of over 869 mph, to set a new transcontinental speed record and win the Bendix Trophy.

These flights demonstrated the deployment capability of the Phantom II over great distances at high speeds.



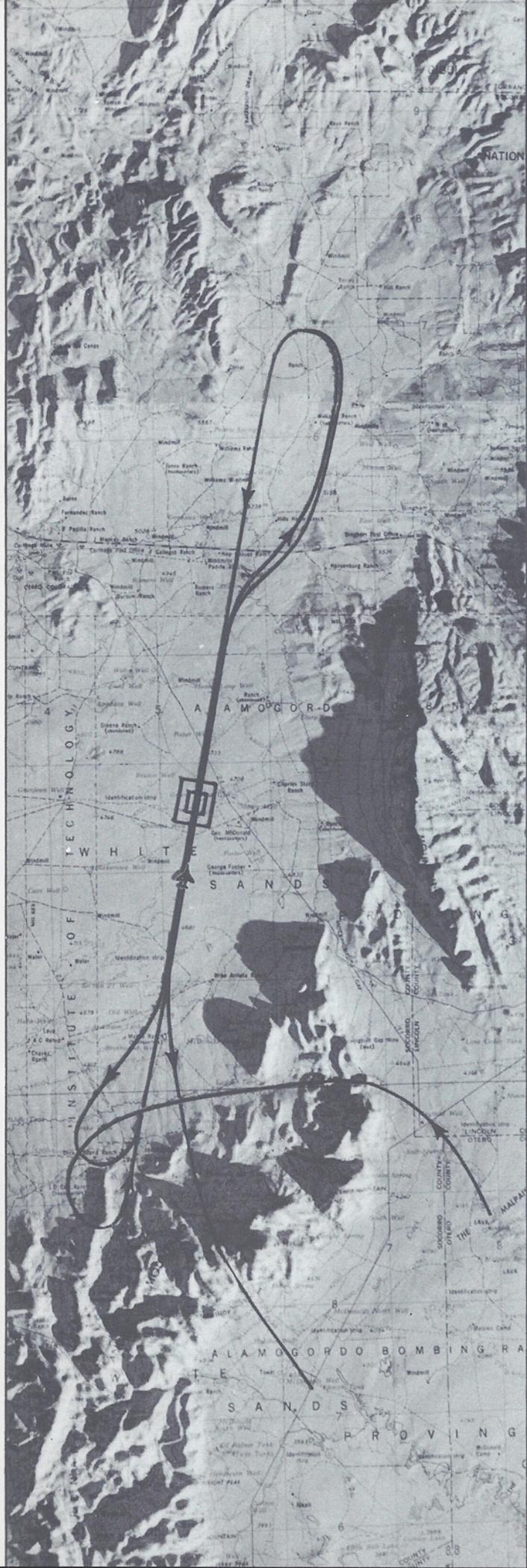
“SAGEBURNER”

902.769 MPH

MACH 1.2 AT 125 FEET ABOVE TERRAIN

28 AUGUST 1961





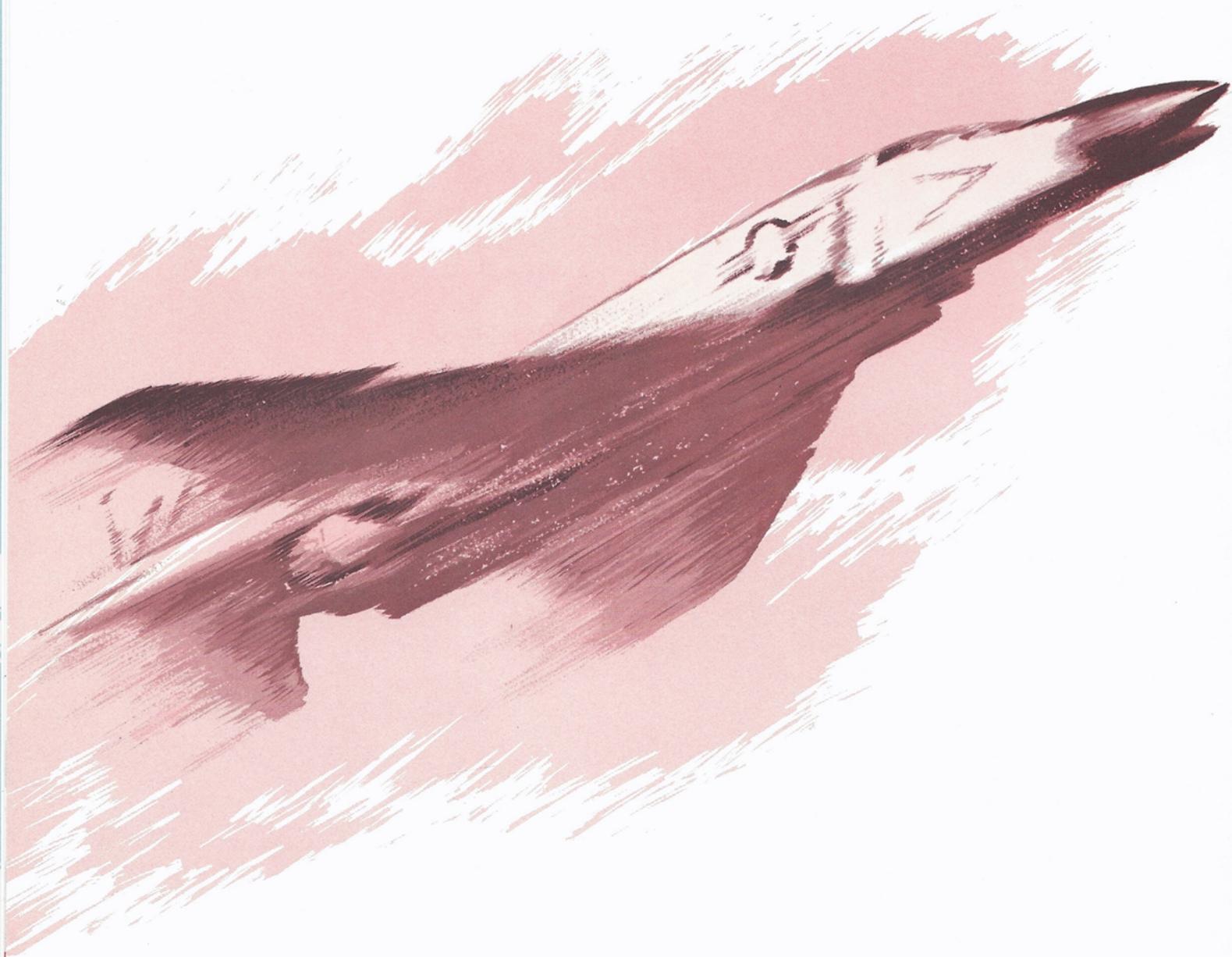
HOW IT WAS DONE

Lieutenant Hardisty's flight started at Holloman Air Force Base, New Mexico. The flight was an attempt to break the three-kilometer low altitude record that had stood for eight years.

The three-kilometer course was laid out at Stallion Sight, a valley on the White Sands Missile Range approximately 55 miles from Holloman. Stallion Sight is bordered on the west by the Rio Grande River, on the east and south by 10,000 foot mountain ranges and on the north by mountains exceeding 10,000 feet.

FAI rules restrict flight altitude as measured above the three-kilometer course to 100 meters (328 feet) through the course and 500 meters (1640 feet) at all other points. Course width is 1000 meters (3280 feet). Skimming over the rough terrain at heights as low as 50 feet required precise navigation which was shared by both the pilot and RIO. FAI regulations require four consecutive runs through the traps.

Lieutenant Huntington Hardisty, pilot, and Lieutenant Earl H. DeEsch, RIO, brought the McDonnell Phantom II into the three-kilometer (1.8 miles) course and flew it twice in each direction at a maximum altitude of 125 feet to set a new world's class record of 902.769 mph—attesting its low-level ground attack capability.



“SKYBURNER”

1606.3 MPH

MACH 2.5 +

22 NOVEMBER 1961

HOW IT WAS DONE

On November 22, 1962, a Phantom II, piloted by Lieutenant Colonel R. B. Robinson, USMC, took off from Edwards Air Force Base for its assault on the 15/25 kilometer world speed record.

Colonel Robinson used afterburner for takeoff and the first part of his climb. The Phantom II carried full internal fuel plus a centerline 600-gallon drop tank and two 370-gallon wing tanks for its flight over the licensed 15/25 kilometer course at Edwards. FAI rules require the contest aircraft to make two passes in opposite directions holding altitude within 100 meters (328 feet) from the time it crosses the outer marker inbound until the finish gate, 20 miles one way and 17 miles the other.

Ideally, the aircraft should have entered the straightaway headed for the starting gate at entry altitude with full internal fuel, high speed, and room to accelerate to top speed. However, it was not possible to achieve the best of all variables since tank drop areas are not ideally situated in relation to the record range.

Holding altitude within 100 meters was a severe test of pilot skill and aircraft stability during flight speeds reaching 1650 mph and continuous acceleration through the course. On the first pass, the Phantom II was at Mach 2.45 over the outer marker and had accelerated to Mach 2.57 in the few seconds it took to reach the finish gate.

The rules require that acceleration to entry speed be done in level flight. If the contest aircraft ever varies more than 500 meters (1640 feet) from the altitude at which it first enters the range, it is disqualified.

After dropping the centerline tank at 23,000 feet, Colonel Robinson lit the burners, accelerated to Mach 1.3, and continued climbing. The two wing tanks were dropped at Bristol Dry Lake range, 90 miles east of the starting gate, at entry altitude of 45,000 feet and Mach 1.3. It was full burner from that point to the finish gate on the first pass.

Once across the finish line the plan called for coming out of burner and back to idle to slow down for the turn for reentry. A slight left turn put the Phantom II south of the course, so Colonel Robinson rolled out of the turn on centerline for the second pass.

Ahead Point Mugs, speed had bled off to Mach 0.8, the speed for the turn, so he added power and cruised out to make the turn at 105 miles.

Coming back, without the task of dropping tanks, there was more room to accelerate. As a result, speed for the second run was at least 50 mph faster than the first pass.

The new world speed record of 1906.3 mph is dramatic evidence of the Phantom II's extreme intercept speeds and air-to-air superiority.



HOW IT WAS DONE

Commander George W. Ellis, USN, piloted the Phantom II to a world class record for horizontal flight at sustained altitude over the measured 15/25 kilometer course at Edwards Air Force Base, California. Under FAI rules, the contest aircraft, without payload, is required to make one pass over the

course without decelerating or descending more than 100 meters (328 feet) from entry to exit.

Commander Ellis cruised out 180 miles and at 40,000 feet made a 180-degree turn. Shortly after the turn he lit both burners and used full power from that point until crossing the exit gate.

SUSTAINED ALTITUDE

66,443.8 FEET

5 DECEMBER 1961

Forty miles from the entry gate the airplane was at 60,000 feet and had achieved Mach 2.2. A calibrated airspeed climb was scheduled from that point to the anticipated altitude for the record. The Phantom II entered the course at 66,443.8 feet and crossed the exit marker at 66,237.8 feet.

The world's class record for horizontal flight at sustained altitude is an exacting test of an airplane's ability to maintain extreme altitudes. The new record broke by more than 11,000 feet the previous world record and gave further proof of the Phantom II's outstanding performance and sustained high altitude capability.

Lieutenant Commander
DEL W. NORDBERG, USN

Lieutenant Commander
JOHN W. YOUNG, USN

Lieutenant Commander
F. TAYLOR BROWN, USN

Lieutenant Commander
DEL W. NORDBERG, USN

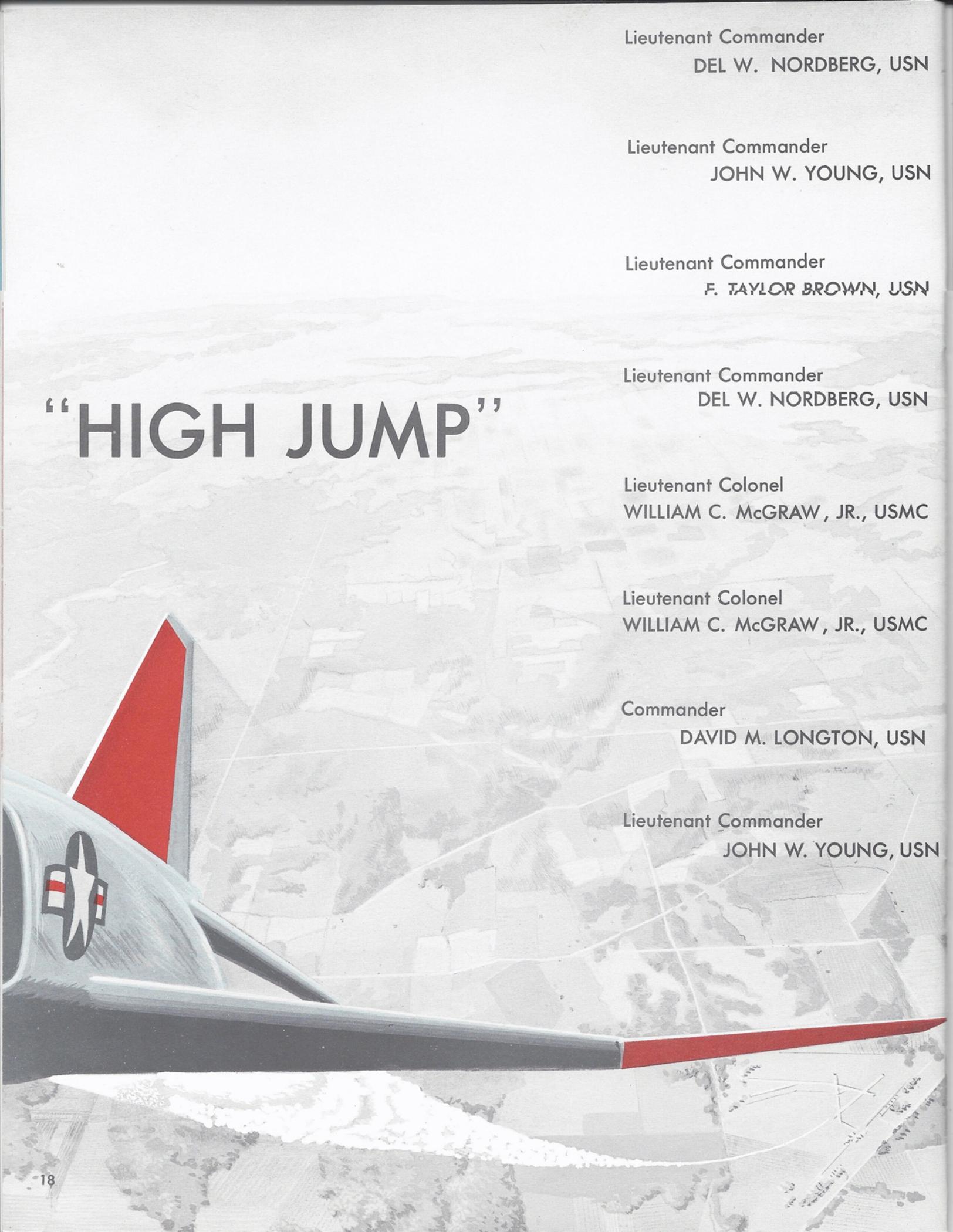
“HIGH JUMP”

Lieutenant Colonel
WILLIAM C. MCGRAW, JR., USMC

Lieutenant Colonel
WILLIAM C. MCGRAW, JR., USMC

Commander
DAVID M. LONGTON, USN

Lieutenant Commander
JOHN W. YOUNG, USN



30,000 METERS
(98,425 FEET)
371.43 SECONDS

12 APRIL 1962

HOW IT WAS DONE

The Phantom II set eight world time-to-climb records. The records for 3, 6, 9, 12 and 15 thousand meters were set at the Naval Air Station, Brunswick, Maine; 20, 25 and 30 thousand meter records were set at Point Mugu Naval Air Station, California.

FAI rules require the contestant aircraft to better the preceding record by a margin of at least three percent. The record time is the number of seconds taken by the aircraft to reach the designated altitude above the point of take-off from a standing start (brake release on order from NAA official).

On each flight the pilot was required to fly the airplane to a flight plan prepared especially for the record being sought. The object was to convert the airplane's energy into altitude as quickly as possible.

No-flap takeoffs were accomplished for each of the record flights. The pilot quickly raised the gear and after reaching a predetermined speed, pulled the aircraft into a climb at a planned g rate and aimed for a planned peak g. He then held that g until the airplane reached the prescribed climb angle.

The flight profile was modified for the 20, 25 and 30 thousand meter records. The takeoff procedure and method for achieving climb angle were the same as above. However, when the airplane reached a prescribed interim altitude, the pilot leveled off for re-acceleration. After reaching the proper Mach number, the pilot established a new specified climb angle which allowed him to pass through the desired altitude in optimum time.

Pilot and airplane performance had to be precise. If the pilot did not achieve the exact g rate or planned peak g, the aircraft would not arrive at the desired altitude on time. If he pulled more than the specified g or established an improper climb angle, the aircraft would not attain the desired altitude.

It is significant to note that in establishing the 30,000 meter time-to-climb record the airplane eclipsed its own "TOP FLIGHT" mark by zooming to an altitude of over 100,000 feet.

Setting eight time-to-climb records demonstrated the outstanding reaction capability of the Phantom II to reach any altitude in record time from a standing start.

25,000 METERS
(82,021 FEET)
230.44 SECONDS

3 APRIL 1962

20,000 METERS
(65,617 FEET)
178.50 SECONDS

31 MARCH 1962

15,000 METERS
(49,212.5 FEET)
114.54 SECONDS

1 MARCH 1962

12,000 METERS
(39,370 FEET)
77.15 SECONDS

1 MARCH 1962

9,000 METERS
(29,527.5 FEET)
61.62 SECONDS

1 MARCH 1962

6,000 METERS
(19,685 FEET)
48.78 SECONDS

21 FEBRUARY 1962

3,000 METERS
(9,842.5 FEET)
34.52 SECONDS

21 FEBRUARY 1962



Lieutenant Commander
JOHN W. YOUNG, USN



Commander
DAVID M. LONGTON, USN



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USMC



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F. TAYLOR BROWN, USN