

Classification cancelled

or changed to:

AUTH:

By

*Issue of 1 Sep 1960*  
*12/7/60*

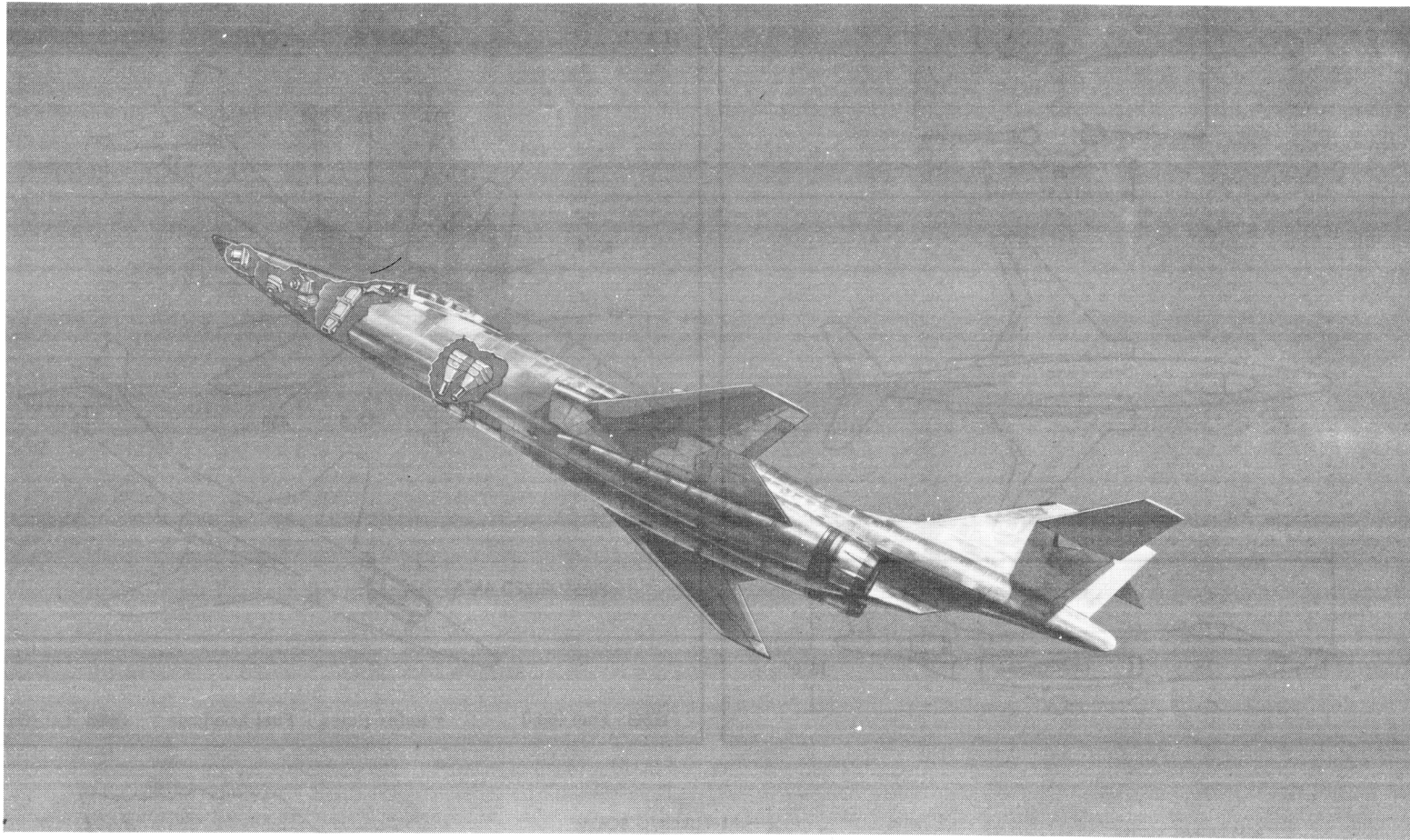
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**CONFIDENTIAL**

~~C O N F I D E N T I A L~~

*A-1*  
*(R) F-101C/char*

SERVICE

*Classification cancelled*  
*and unclassified*  
*See Dir 5200.10*  
*BY A. R. Tomblin 30 Dec 70*  
*(DATE)*



# Standard Aircraft Characteristics

BY AUTHORITY OF  
THE SECRETARY  
OF THE AIR FORCE

## RF-101C

**VOODOO**  
**McDonnell**

TWO J57-P-13

PRATT & WHITNEY

SEP 15 1958

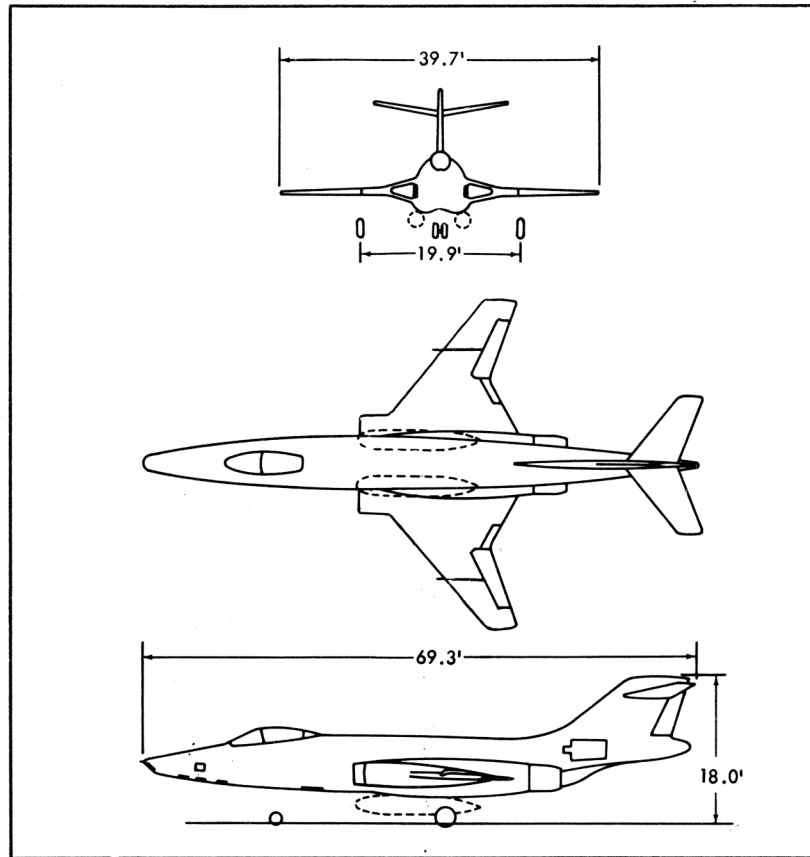
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GREEN BOOK

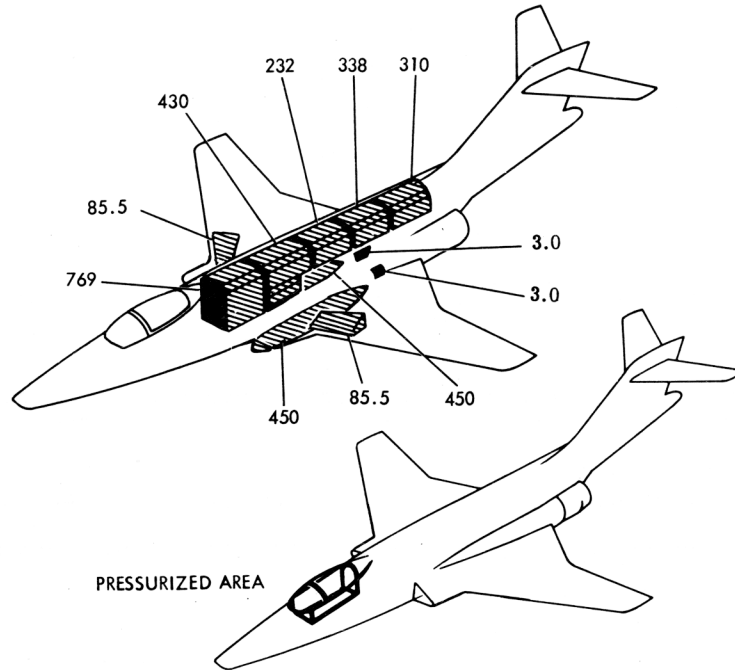
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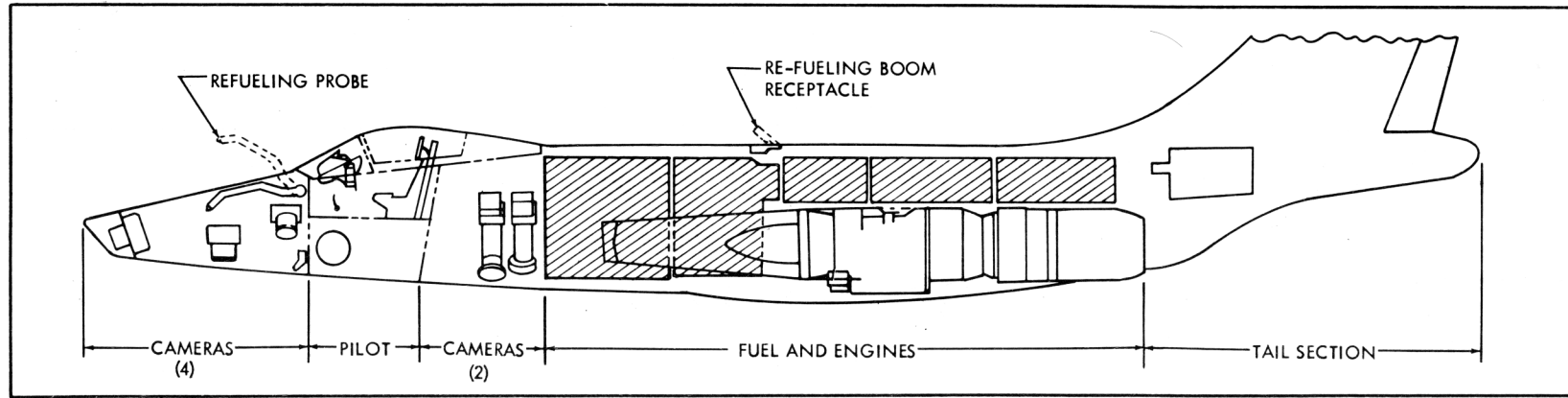
RF-101C



Wing Area . . . . . 368 Sq. Ft.      Wing Section  
 Aspect Ratio . . . . . 4.28          (Root) . . . NACA65A007 (MOD)  
 M.A.C. . . . . . 122.9 In.          (Tip) . . . NACA65A006 (MOD)



▨ Fuel (Gal)      \* Refer Notes - Fuel Loadings      ■ Oil (Gal)



**POWER PLANT**

Nr & Model . . . . . (2) J57-P-13  
 Mfr . . . . . Pratt & Whitney  
 Engine Spec. Nr . . . . . A-1688D  
 Type . . . . . Axial  
 Length . . . . . 211.0"  
 Diameter . . . . . 40.3"  
 Weight (Dry) . . . . . 5025 lb  
 Tail Pipe . . . . . Two-Position  
 Augmentation . . . . . Afterburning

**ENGINE RATINGS**

S. L. Static LB- RPM - MIN  
 Max: \*15,000 - 6150/9900 - 5  
 Mil: 10,200 - 6150/9900 - 30  
 Nor: 8700 - 5900/9650 - Cont

\*With afterburner operating

First figure represents the RPM of the low pressure spool while the second that of the high pressure spool.

**DIMENSIONS**

Wing  
 Span . . . . . 39.7'  
 Incidence (root) . . . . . 1°  
     (tip) . . . . . 1°  
 Dihedral . . . . . 0°  
 Sweepback (25% chord) . . . . . 36°36'  
 Length . . . . . 69.3'  
 Height . . . . . 18.0'  
 Tread . . . . . 19.9'

*Mission and Description*

Navy Equivalent: None Mfr's Model: 36X

The principal mission of the RF-101C is long range high and low altitude reconnaissance.

Cameras and related equipment are located in the nose and forward portion of the fuselage and are readily accessible from the ground. A photographic, navigation viewfinder and velocity-altitude comparator, with drift and wide angle optical objective systems, is provided. The Simplified Universal Camera Control System (SUCCS) is provided for camera control.

Special features of this aircraft include swept-back wing and tail, hydraulic power-operated irreversible flight controls, all movable stabilizer, anti-fatigue autopilot (MB-1) and in-flight refueling provisions (both the Probe-Drogue and Flying Boom method). Speed brakes are provided for rapid deceleration and a drag chute for assistance in stopping after landing.

The cockpit is provided with ejection seat, 5.0 PSI differential pressurization, pressure suit provisions, liquid oxygen system, and a jettisonable canopy.

*Development*

Same as the RF-101A except for strengthening of the internal structure thereby allowing the maneuvering load factor to be increased to 7.33 g.

Contract date . . . . . Mar 56  
 First flight . . . . . Sep 57  
 First acceptance . . . . . Sep 57  
 Production status . . . . . In Production

**WEIGHTS**

Loading	LB	L. F.
Empty . . . . .	26,136(E)	
Basic . . . . .	26,271 (E)	
Design . . . . .	37,000	6.33
Combat . . . . .	*36,586	
Max T. O. . . . .	†51,000	
Max Land . . . . .	†44,000	

(E) Estimated  
 \* For basic mission  
 † Limited by landing gear strength  
 ‡ Maximum design landing weight

**F U E L**

Location	Nr Tanks	Gal
Fuselage . . . . .	5	2079
Wing . . . . .	6	171
Fus. Ext. Drop . . . . .	2	900
	† Total	3150
Grade . . . . .		JP-4
Specification . . . . .		MIL-F-5624A

**OIL**

Eng. Integral . . . . . (tot) 600  
 Specification . . . . . MIL-L-7808  
 \* Self-Sealing (430 gal sump tank only)  
 † See fuel loading page 6

**C A M E R A S**

Nr	Station	Type	Lens
HIGH & LOW ALT. DAY MISSION			
1..	Fwd Firing	KA-2	12"
2..	Split Vert	KA-1	36"
3..	Tri-Metrogen	KA-2	6"

**G U N S**

NONE

**ELECTRONICS**

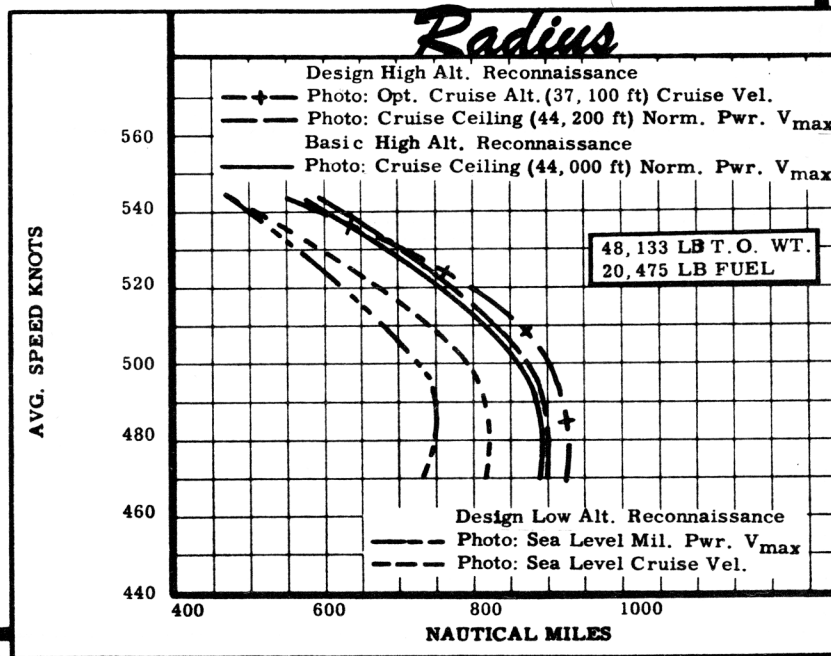
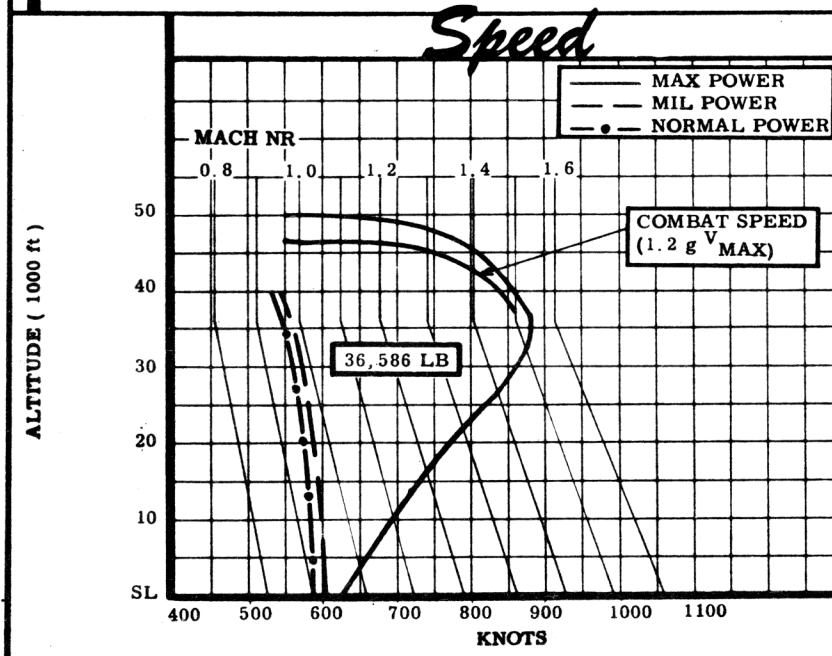
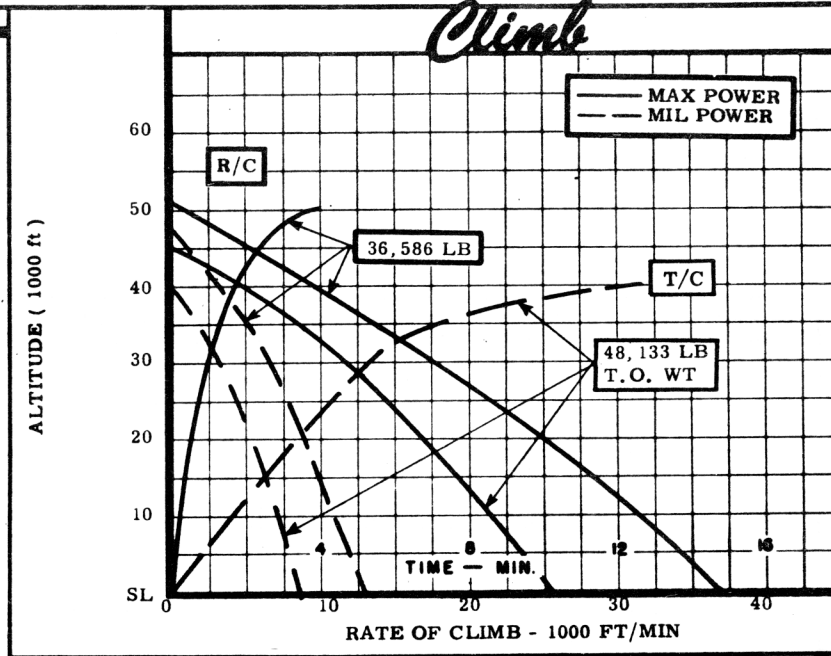
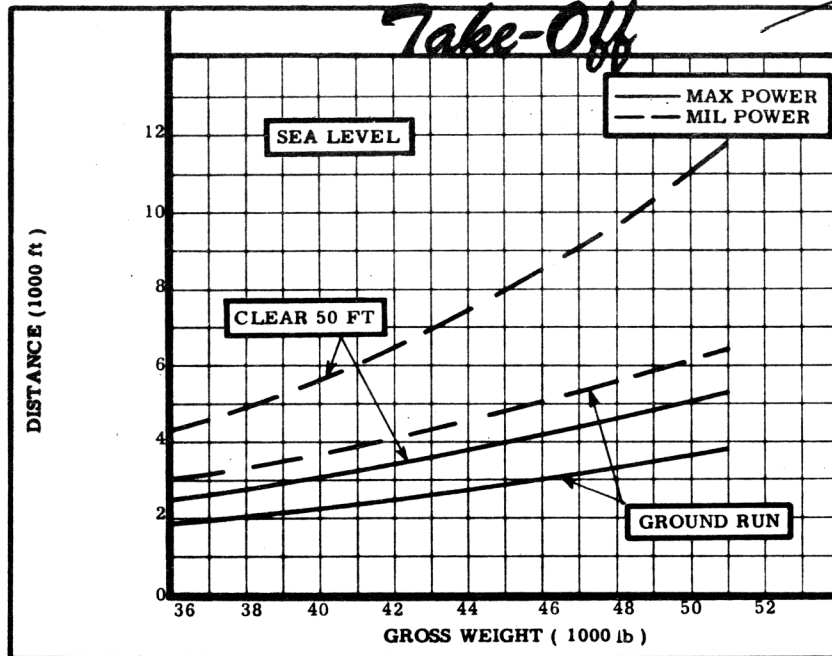
UHF Command . . . . . AN/ARC-34  
 Omni-Directional  
     Recv'r . . . . . AN/ARN-14D  
 Direction Finder . . . . . AN/ARA-25  
 IFF . . . . . AN/APX-6A  
 Ground Position  
     Indicator . . . . . AN/ASN-6  
 Radar Altimeter . . . . . AN/APN-22  
 Radar Warning . . . . . AN/APS-54  
 Intercommunication . . . . . AN/AIC-10

# Loading and Performance - Typical Mission

C O N D I T I O N S	BASIC MISSION	DESIGN MISSION	HIGH LOW HIGH	LOW LOW HIGH	LOW LOW LOW	HIGH ALT. REFUEL	FERRY RANGE
	I	II	III	IV	V	VI	VII
<b>TAKE-OFF WEIGHT</b> (lb)	48,133	48,133	48,133	48,133	48,133	48,133	48,083
Fuel at 6.5 lb/gal (grade JP-4) ⑦ (lb)	20,475	20,475	20,475	20,475	20,475	20,475	20,475
Payload (Photo Equip) (lb)	652	652	652	652	652	652	652
Wing loading (lb/sq ft)	130.8	130.8	130.8	130.8	130.8	130.8	130.7
Stall speed (power off) ⑨ (kn)	172	172	172	172	172	172	172
Take-off ground run at SL ① / ② (ft)	3380/5650	3380/5650	3380/5650	3380/5650	3380/5650	3380/5650	3375/5630
Take-off to clear 50 ft ① / ② (ft)	4630/9710	4630/9710	4630/9710	4630/9710	4630/9710	4630/9710	4620/9680
Rate of climb at SL ② (fpm)	8300	8300	8300	8300	8300	8300	8310
Time: SL to 20,000 ft ② (min)	3.21	3.21	3.21	3.21	3.21	3.21	3.20
Time: SL to 30,000 ft ② (min)	5.50	5.50	5.50	5.50	5.50	5.50	5.50
Service ceiling (100 fpm) ② (ft)	38,900	38,900	38,900	38,900	38,900	38,900	38,900
<b>COMBAT RANGE</b> ④ (n mi)	—	—	—	—	—	—	1864
<b>COMBAT RADIUS</b> ④ (n mi)	888 ⑧	897	745	571	457	1422	—
Average cruise speed (kn)	479	479	478	430	374	477	478
Initial cruising altitude (ft)	34,100	34,100	34,100	5000	5000	34,100	34,100
Target speed ③ (kn)	509	506	595	595	595	510	—
Target altitude (ft)	44,000	44,100	S. L.	S. L.	S. L.	41,400	—
Final cruising altitude (ft)	42,100	42,100	42,100	42,100	5000	42,100	42,200
Total mission time (hr)	3.73	3.73	3.08	2.58	2.34	5.97	3.90
Refueling altitude (ft)	—	—	—	—	—	38,600/32,900	—
Refuel distance from target outbound (n mi)	—	—	—	—	—	525	—
Fuel added outbound (lb)	—	—	—	—	—	11,388	—
<b>COMBAT WEIGHT</b> (lb)	36,586	36,554	37,022	35,657	37,483	41,357	29,529
Combat altitude (ft)	44,000	44,100	S. L.	S. L.	S. L.	41,400	42,200
Combat speed ① (kn)	768	765	637	637	637	784	842
Combat climb ① (fpm)	6070	6010	36,150	37,600	35,650	6280	11,140
Combat ceiling (500 fpm) ① (ft)	50,600	50,600	50,400	51,100	50,100	48,200	54,800
Service ceiling (100 fpm) ② (ft)	45,200	45,200	45,000	45,800	44,800	42,800	49,600
Max rate of climb at SL ① (fpm)	36,600	36,650	36,150	37,600	35,650	32,100	45,550
Max speed at 35,000 ft ① (kn)	875	875	875	876	875	871	879
Basic speed at 35,000 ft ① (kn/ft)	875	875	875	876	875	871	879
<b>LANDING WEIGHT</b> (lb)	29,579	29,579	29,579	29,579	29,579	29,579	29,529
Ground roll at SL (ft)	4225	4225	4225	4225	4225	4225	4220
Ground roll (auxiliary brake) ⑤ ⑥ (ft)	2950	2950	2950	2950	2950	2950	2940
Total from 50 ft ⑤ (ft)	5525	5525	5525	5525	5525	5525	5510
Total from 50 ft (auxiliary brake) ⑤ ⑥ (ft)	4230	4230	4230	4230	4230	4230	4220

**NOTES**

- ① Max power
  - ② Military power
  - ③ Normal power
  - ④ Detailed description of RADIUS and RANGE missions given on page 6.
  - ⑤ Speed brakes extended
  - ⑥ Using 15.6 ft drag chute
  - ⑦ Fuel loads defined on page 6
  - ⑧ By using afterburner for take-off the radius is reduced to 844 nautical miles
  - ⑨ Recommended minimum speed
- PERFORMANCE BASIS:**
- (a) Data source: Based on Phase IV flight tests
  - (b) Performance is based on powers shown on page 3.



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RF-101C

GREEN BOOK

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## NOTES

FORMULA: RADIUS MISSION I

Take-off with military power, climb on course with military power to initial cruise altitude, cruise at cruise altitude at maximum range speeds, climb on course with military power to cruise ceiling, conduct a 15 minute normal power reconnaissance strip run, allow 2 minutes for normal power evasive action, and conduct an 8 minute normal power escape, cruise back to base at cruise altitude at maximum range speed. Range free allowances include 5 minutes at normal power at sea level for starting engines and take-off 2 minutes of combat with normal power at cruise ceiling and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance (two engines) and 5% of initial fuel load.

FORMULA: RADIUS MISSION II

Take-off with military power, climb on course with military power to initial cruise altitude, cruise at cruise altitude at maximum range speeds, climb on course with military power to cruise ceiling conduct a 100 nautical mile, normal power reconnaissance strip run, conduct a 100 nautical mile, normal power run-out, cruise back to base at cruise altitude at maximum range speeds. Range free allowances include 5 minutes at normal power at sea level for starting engines and take-off and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance (two engines) and 5% of initial fuel load.

FORMULA: RADIUS MISSION III

Take-off with military power, climb on course with military power to initial cruise altitude, cruise at cruise altitude at maximum range speeds, descend to sea level, conduct a 50 nautical mile, military power reconnaissance strip run, conduct a 50 nautical mile, military power run-out, climb on course with military power to initial cruise home altitude, cruise back to base at cruise altitude at maximum range speeds. Range free allowances include 5 minutes at normal power at sea level for starting engines and take-off and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance (two engines) and 5% of initial fuel load.

FORMULA: RADIUS MISSION IV

Take-off with military power, climb on course with military power to 5000 feet, cruise out at 5000 feet at maximum range speeds, descend to sea level, conduct a 50 nautical mile, military power reconnaissance strip run, conduct a 50 nautical mile, military power run out, climb on course with military power to initial cruise home altitude, cruise back to base at cruise altitude at maximum range speeds. Range free allowances include 5 minutes at normal power at sea level for starting engines and take-off, and a reserve of 20 minutes loiter at sea level for speeds for maximum endurance (two engines) and 5% of initial fuel load.

FORMULA: RADIUS MISSION V

Take-off with military power, climb on course with military power to 5000 feet, cruise out at 5000 feet at maximum range speeds, descend to sea level, conduct a 50 nautical mile, military power reconnaissance strip run, conduct a 50 nautical mile, military power run out, climb on course with military power to 5000 feet, cruise back to base at 5000 feet at maximum range speeds. Range free allowances include 5 minutes at normal power at sea level for starting engines and take-off, and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance (two engines) and 5% of initial fuel load.

FORMULA: RADIUS MISSION VI

Same as Mission I except refuel at outbound point of no return. Fuel and distance allowances are made for period of fuel transfer.

FORMULA: RANGE MISSION VII

Take-off with military power, climb on course with military power to initial cruise altitude, cruise at cruise altitude at maximum range speeds, to remote base. Range free allowances include 5 minutes at normal power at sea level for starting engines and take-off, and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance (two engines) and 5% of initial fuel load.

GENERAL NOTES:

(a) 2-450 gal. tank configuration: tanks are dropped simultaneously when both are empty unless otherwise specified.

PERFORMANCE REFERENCE:

(a) McDonnell Report Nr 5447, "Model F-101A/C and RF-101A/C Performance Data Substantiation Report", 15 June 1957.

REVISION BASIS:

Data reCOORDINATED.

FUEL LOADINGS - MISSIONS I, II, III, IV, V, VI, & VII

Fuel load includes 900 gal of external fuel (2-450 gal tanks). Internal capacity is limited by inflight refuel boom receptacle to 2250 gal and includes 171 gal of integral wing fuel. Radius is reduced approximately 51 nautical miles if integral wing fuel is not carried.

( AUG 57)