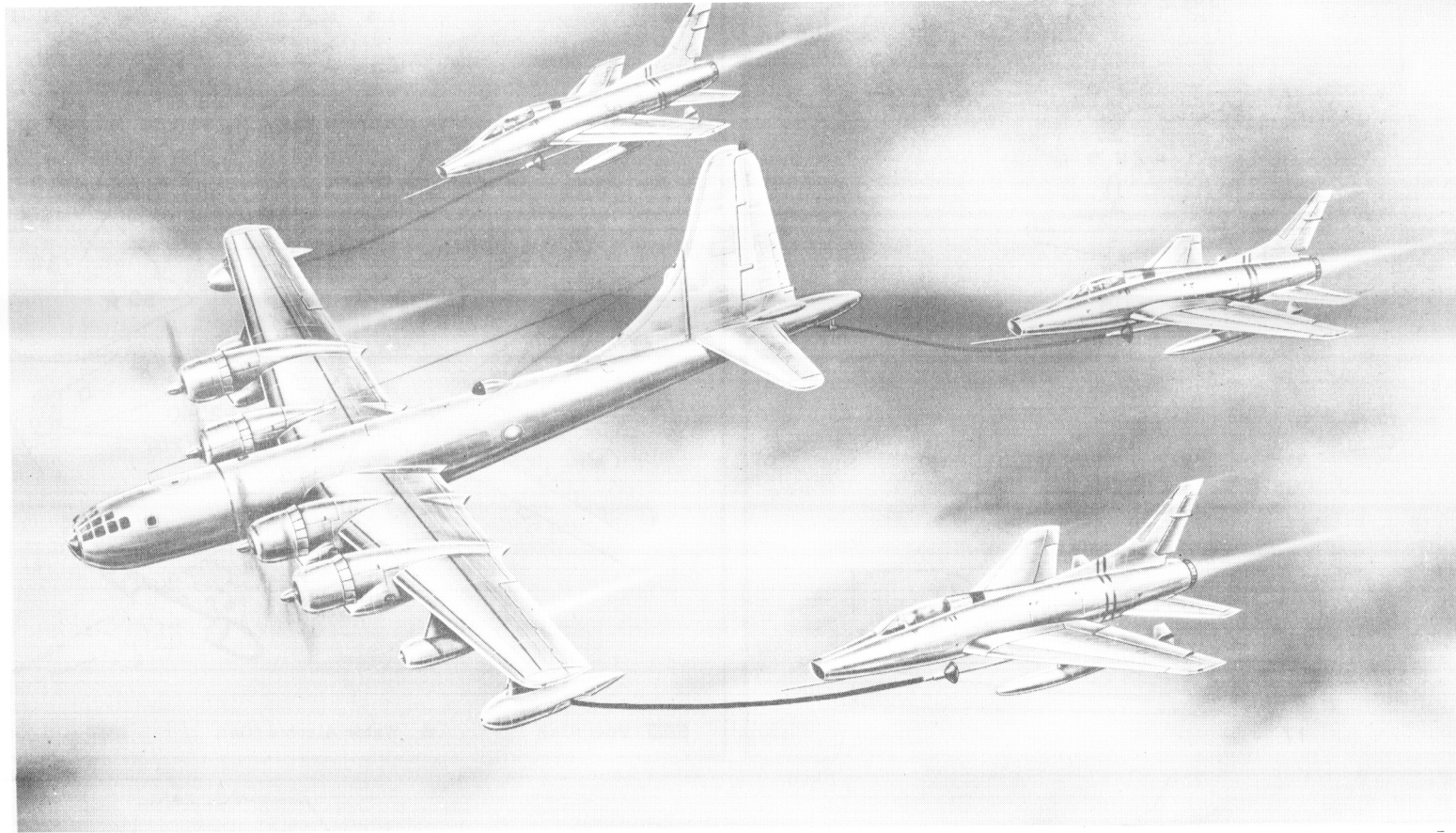


U N C L A S S I F I E D

AI
(K)B-50J/char SERVICE



Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

KB-50 J&K

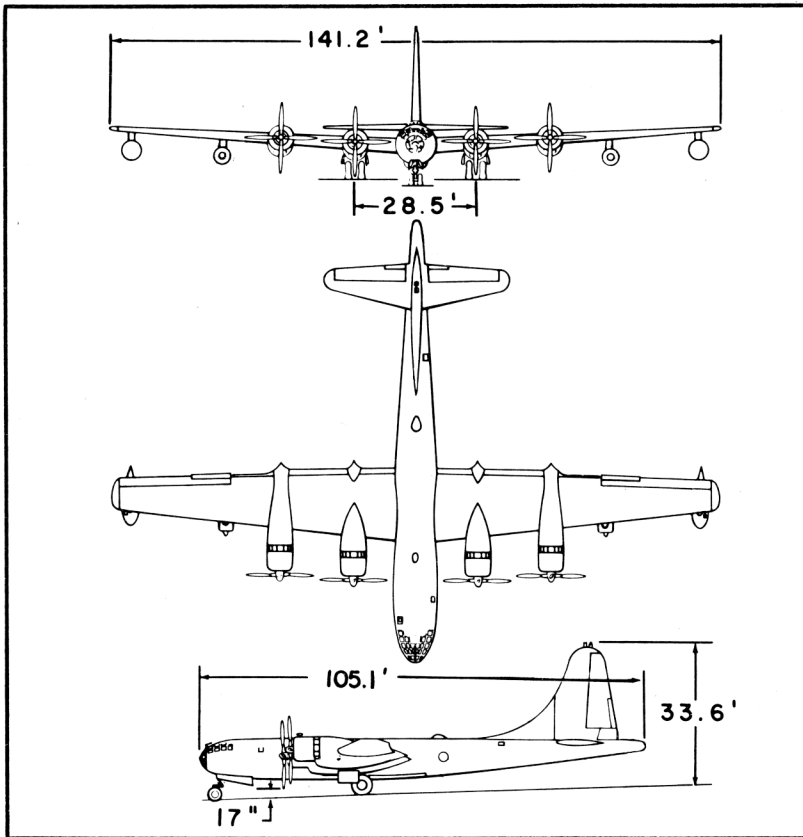
Boeing (Hayes Aircraft)

FOUR R-4360-35 or -35A

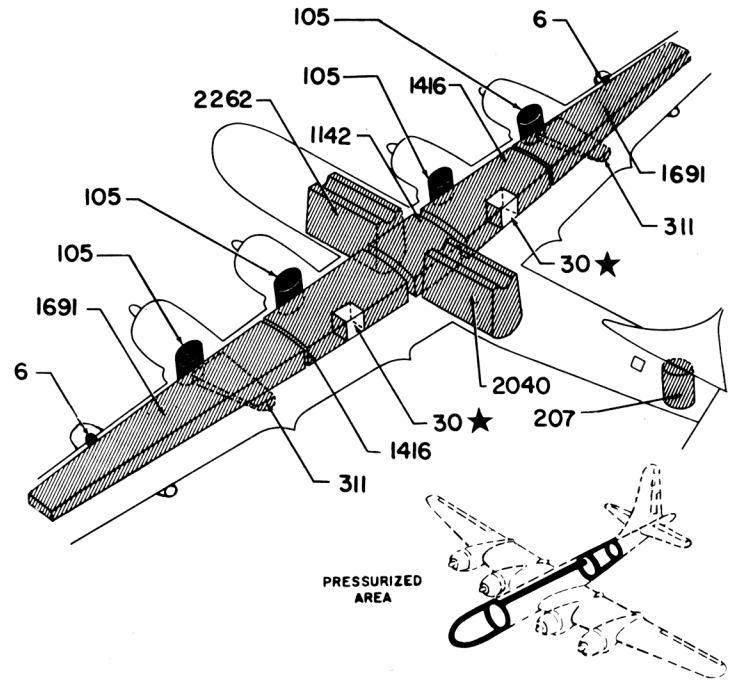
PRATT & WHITNEY

TWO J47-GE-23

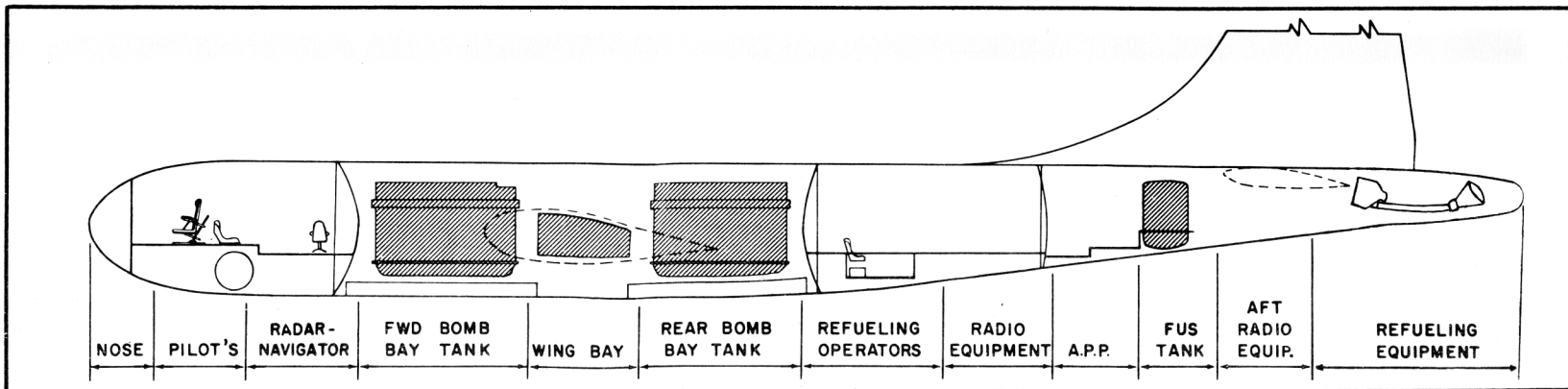
GENERAL ELECTRIC



Wing Area 1720 sq ft Wing Section Boeing 117
 Aspect Ratio 11.5 M. A. C. 154.41"



▨ Fuel (Gal) ★ Water Alcohol (Gal) ■ Oil (Gal)



A1
(K)B-50J/char

POWER PLANT

Nr & Model (4) R-4360-35 or -35A
Mfr Pratt & Whitney
Engine Spec Nr A-7051-F
Superch 1 stg, 1 spd
Turbo Superch (1) CH-7-B1
Turbo Mfr General Electric
Red. Gear Ratio 0.375
Prop Mfr Curtiss
Blade Design Nr 1052-20C4-30
Prop Types Elect. CS, FF, Rev'r
Nr Blades 4
Prop Dia 16.8"
Augmentation Water/Alcohol
plus
Nr & Model (2) J47-GE-23
Mfr General Electric
Engine Spec Nr E591 B
Type Axial
Length 145.0"
Diameter 39.5"
Weight (dry) 2525 lb
Tail Pipe Fixed Area

ENGINE RATINGS

BHP - RPM - ALT - MIN
T.O: *3500 - 2700 - S.L. - 5
3250 - 2700 - S.L. - 5
Mil: *3500 - 2700 - Turbo - 30
3250 - 2700 - Turbo - 30
Nor: 2650 - 2550 - Turbo - Cont
*Wet (Approx. 8 min water supply)
plus
S.L. Static LB - RPM - MIN
Max: 5910 - 7950 - 5
Mil: 5620 - 7800 - 30
Nor: 5270 - 7630 - Cont

DIMENSIONS

Wing
Span 141.2'
Incidence (root) 4°
Dihedral 4°29'
Sweepback (LE) 7°1'
Length 105.1'
Height 33.6'
Height (fin folded) 20.6'
Tread 28.5'
Prop Grd Clearance 17"

Mission and Description

Navy Equivalent: None Mfr's Model: ----
This principal mission of the KB50J & K airplanes is the simultaneous aerial refueling of three fighter type aircraft by the probe and drogue method.

The airplanes are equipped with A-12B-1 refueling reels installed in pylon mounted pods near each wing tip and in the aft tail section of the fuselage. The two refueling operator's control stations are located in the aft pressurized section at the side blisters.

Two jettisonable bomb bay fuel tanks are equipped with an automatic CG control system.

The fuel system has a capability of transferring 287 gallons per minute at 50 psi drogue pressure to each of three receivers simultaneously. Transfer volume can be increased to 327 gallons per minute per receiver when low pressure drop fuel systems are utilized.

The fuel jettison system is capable of discharging 1075 gallons per minute through an outlet in the tail of the airplane.

Other features incorporated in the airplane are heating, ventilating and pressurization, two single-point refueling receptacles, one for servicing all tanks carrying JP-4 fuel and one for servicing all tanks carrying gasoline.

Development

The KB-50J and K airplanes are identical except by origin. The KB-50J's are modified B-50D and TB-50D aircraft. The KB-50K's are modified TB-50H's. Major modifications are; the addition of J47-GE-23 engines in pods suspended on pylons in place of external fuel tanks and pylons, and incorporation of a fuselage refueling reel, extended fairlead mechanism which results in a six feet increase in fuselage length.

First Flight Dec 57
First Acceptance Jan 58
Production Completion (128 A/C) Oct 58

PERSONNEL

Crew (normal) 6
Pilot
Co-Pilot
Engineer
Radar-Navigator
Refueling Operators (2)

REFUEL EQUIP.

(3) Type A-12B-1 Flight Refueling Reels
Type MA-2 Reception Coupling
27 1/2" Dia. Drogue
75' Approx. usable length of hose
Paradrogue

WEIGHTS

Loading	Lb	L. F.
Empty . . .	93,155 (A)	
Basic . . .	96,666 (A)	
Design . . .	180,000	2.0
Combat . . .	*116,350	2.0
Max T.O. **	179,511	2.0
Max Land †	160,000	

(A) Actual
* For Basic Mission
† Limited by strength
** Limited by volume

F U E L

Location	Nr Tanks	Gal
Wg, outbd*	2	3382
Wg, inbd*	2	2832
Fus, aft	1	207
	Total	6421
Grade		115/145
Specification		MIL-F-5572
	plus	
Wg, ctr*	1	1142
Nacelle, outbd*	2	622
Bomb Bay, fwd	1	2262
Bomb Bay, aft	1	2040
	Total	6066
Grade		115/145
Specification		MIL-F-5572
	or	
Grade		JP-4
Specification		MIL-F-5624
Nacelles	OIL	(Tot) 420
Grade		1100
Specification		MIL-L-6082
Pylon	2	12
Grade		1005
Specification		MIL-L-6081A
	WATER/ALCOHOL	
Wg, inbd	2	(Tot) 60
* Self-Sealing		

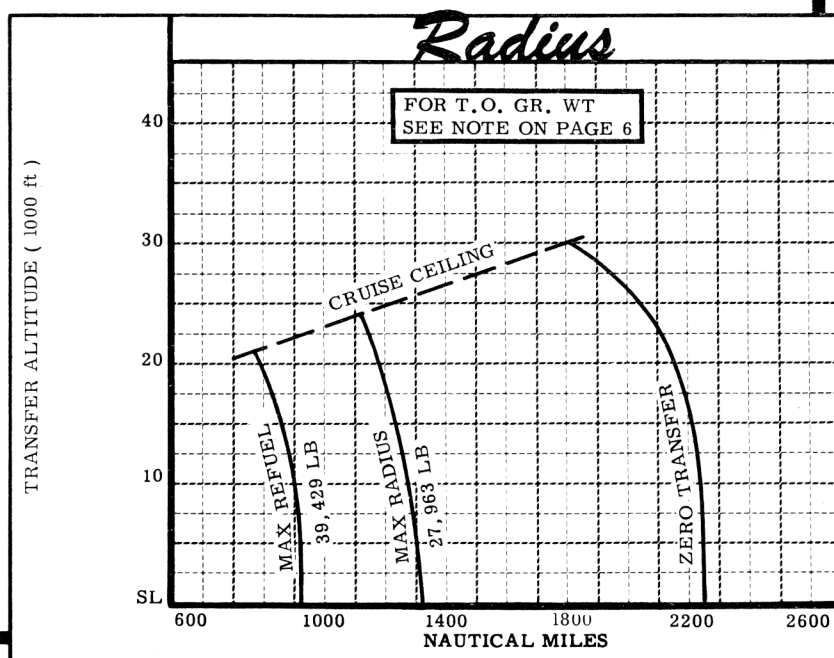
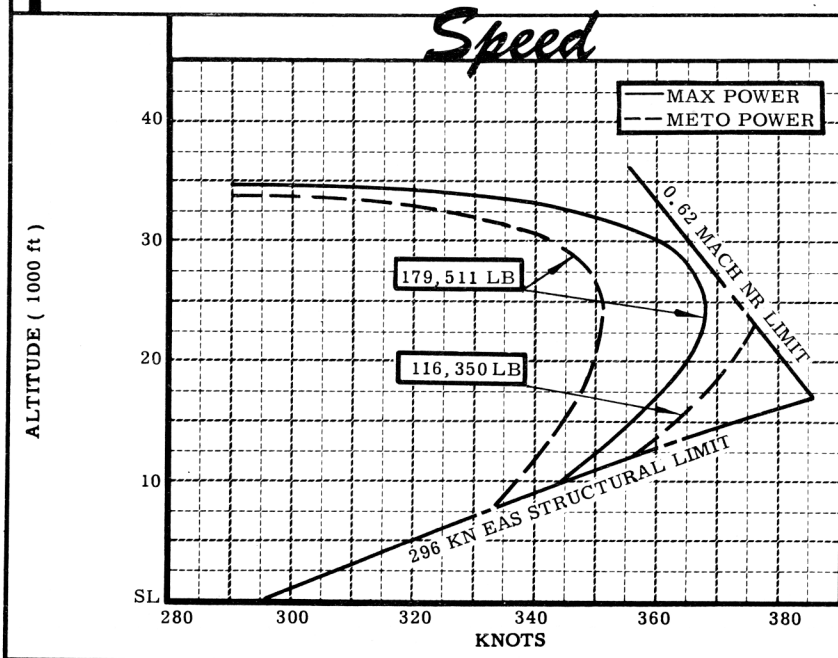
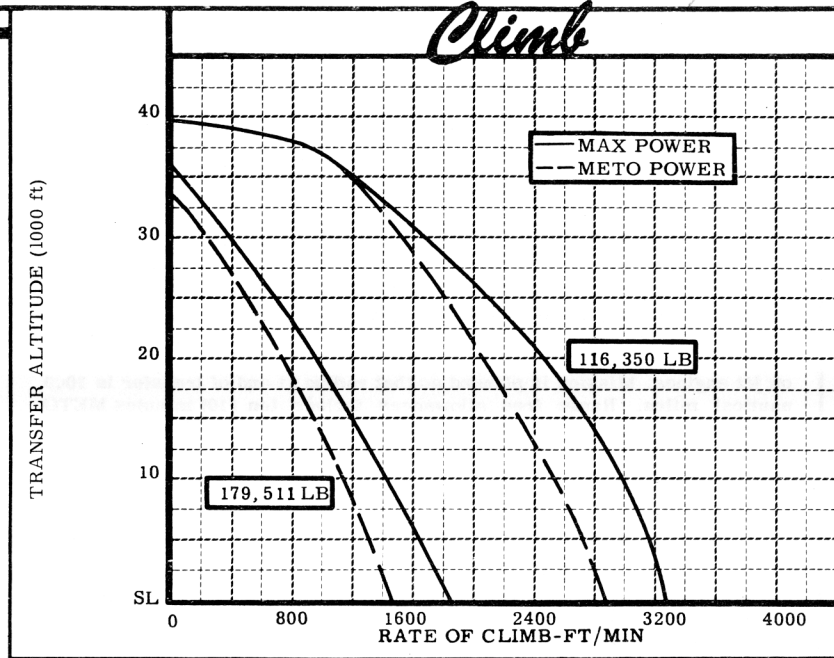
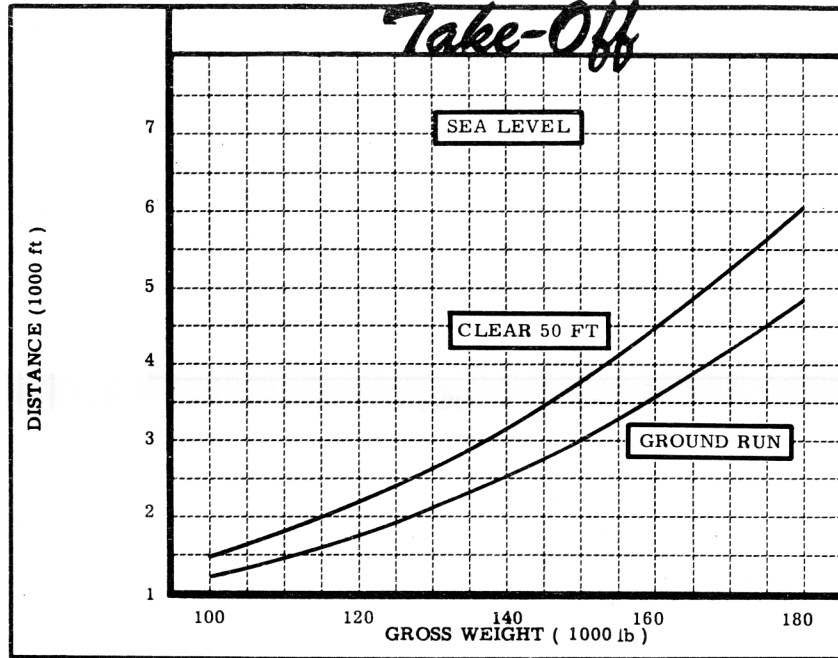
ELECTRONICS

UHF Command AN/ARC-27A
VHF Command AN/ARC-36
UHF Direction Finder AN/ARA-25
Radio Compass AN/ARN-6
Marker Beacon AN/ARN-12
Omni Range AN/ARN-14
Glide Path AN/ARN-18
Dist Measuring Equip. AN/ARN-21
Interphone AN/AIC-10
Loran AN/APN-70
Radar AN/APS-23A
continued on page 6

Loading and Performance—Typical Mission

C O N D I T I O N S	BASIC MISSION I	MAX REFUEL II	MAX RADIUS III	FERRY RANGE IV
TAKE-OFF WEIGHT (lb)	178,629	179,511	178,629	176,478
Fuel at 6.0 lb/gal (grade 115/145) (lb)	45,810	38,526	49,110	74,922
Payload (transfer fuel @ 6.5 lb/gal) (lb)	31,263	39,429	27,963	—
Wing loading (lb/sq ft)	104	104	104	103
Stall speed (power off) (kn)	116	116	116	115
Take-off ground run at SL ① (ft)	4750	4820	4750	4590
Take-off to clear 50 ft ① (ft)	5940	6020	5940	5740
Rate of climb at SL ③ (fpm)	1470	1455	1470	1505
Rate of climb at SL(one engine out) ② (fpm)	1265	1255	1265	1290
Time: SL to 10,000 ft ③ (min)	7.3	7.4	7.3	7.0
Time: SL to 20,000 ft ③ (min)	16.7	17.0	16.7	16.3
Service ceiling (100 fpm) ③ (ft)	32,200	32,100	32,200	32,600
Service ceiling (one engine out) ② (ft)	27,200	26,950	27,200	27,850
COMBAT RANGE ④ (n mi)	—	—	—	4727
COMBAT RADIUS ④ (n mi)	1000	759	1118	—
Average cruise speed (kn)	219	217	220	191
Initial cruising altitude (ft)	5000	5000	5000	5000
Refuel speed ③ (kn)	354	351	356	—
Refuel altitude (ft)	23,000	21,000	24,000	—
Final cruising altitude (ft)	23,000	21,000	24,000	5000
Total mission time (hr)	10.1	7.9	11.1	24.8
COMBAT WEIGHT (lb)	116,350	112,864	117,698	106,052
Combat altitude (ft)	23,000	21,000	24,000	5000
Combat speed ⑤ ⑦ (kn)	376	379	375	319
Combat climb ② (fpm)	2250	2495	2120	3520
Combat ceiling (500 fpm) ② (ft)	38,800	39,250	38,700	39,900
Service ceiling (100 fpm) ③ (ft)	39,700	40,000	39,550	40,500
Service ceiling (one engine out) ③ (ft)	37,200	38,200	36,900	39,200
Max rate of climb at SL ② (fpm)	3260	3350	3200	3570
Max speed at 17,000 ft ⑤ ⑧ (kn)	386(363)	386(364)	386(363)	386(365)
Basic speed at 5000 ft ⑤ (kn/ft)	319	319	319	319
LANDING WEIGHT (lb)	104,597	104,232	104,761	106,052
Ground roll at SL (ft)	2290	2285	2295	2320
Ground roll (auxiliary brake) ⑥ (ft)	1150	1145	1150	1170
Total from 50 ft (ft)	3090	3080	3100	3135
Total from 50 ft (auxiliary brake) ⑥ (ft)	1955	1950	1955	1980

N O T E S	① Take-off power	⑥ With full reverse thrust on four engines plus braking	PERFORMANCE BASIS: (a) Data source: Flight test (b) Performance is based on powers shown on page 6
	② Max power	⑦ These speeds are for hoses and drogues extended or retracted	
	③ Meto power	⑧ Speeds in parenthesis are for all hoses and drogues extended and maximum power	
	④ Detailed descriptions of RADIUS and RANGE missions given on page 6		
	⑤ The speeds shown are limit airspeeds and can be attained at power settings less than maximum		



N O T E S

FORMULA: RADIUS MISSION I

Take-off using take-off power for four reciprocating engines and 100% RPM on two jet engines. Climb on course to 5000 feet with reciprocating engines at METO power and jet engines at 98.1% RPM. Cruise out at 5000 feet with jets windmilling. Start climb, at METO power with jets windmilling, so as to arrive at refuel altitude immediately prior to rendezvous (one hour at long range speeds for rendezvous and hook-up, no distance credit) transfer fuel at the rate of 980 gallons per minute while continuing to proceed outbound at METO power on reciprocating engine and 98.1% RPM on jet engines. Mission is planned so that radius at end of transfer is 1000 nautical miles. Range free allowances include ten (10) minutes METO power fuel consumption for the reciprocating engines and five minutes at METO power for the jet engines for starting engines and take-off, one hour long range fuel consumption at re-fuel altitude for rendezvous, and 30 minutes long range fuel consumption at sea level plus 5% initial gasoline (115/145) load for landing and endurance reserve.

FORMULA: RADIUS MISSIONS II & III

Same as for Radius Mission I, except that the refuel radius is limited by tanker fuel capacity.

FORMULA: RANGE MISSION IV

Take-off, and climb on course to 5000 feet at METO power for reciprocating engines and 98.1% RPM for jet engines. Cruise out at long range speeds with jet engines windmilling until all usable fuel is consumed. Range free allowances are the same as for Radius Mission I, except for omission of rendezvous.

GENERAL DATA:

- (a) Data are based on KB-50J flight tests.
- (b) Since the gross weight limitation of the aircraft has been increased to 180,000 lb., the fuel tanks are now capable of being filled to capacity simultaneously.
- (c) All mission calculations shown are based on use of jet engines for take-off, climb to 5000 feet, and fuel transfer.
- (d) Engine ratings shown on page 3 are engine manufacturer's guaranteed ratings. Power values used in performance calculations are as follows:

(4) R4360-35				
	BHP	RPM	ALT	MINUTES
T. O.	*3350	2700	S. L.	5
Max	3240	2700	25,000	30
METO	2650	2550	**36,700	Cont

* Wet
** Level flight critical altitude

Plus

(2) J47-GE-23			
S. L. STATIC	LB	RPM	MINUTES
Max	5910	7950	5
Mil(METO)	5620	7800	Cont

(e) RADIUS BLOCK - page 5

MISSION T. O.	GR. WT.	TRANSFER FUEL
Max Refuel	179,511	39,429 Lb
Max Radius	178,629	27,963 Lb
Zero Trans.	176,478	0

PERFORMANCE REFERENCE:

Hayes Report Nr ER-195, dated 20 Nov 56 and ER-301, dated 20 Jan 58 and ER-451 dated 1 Sep 59.

REVISION BASIS:

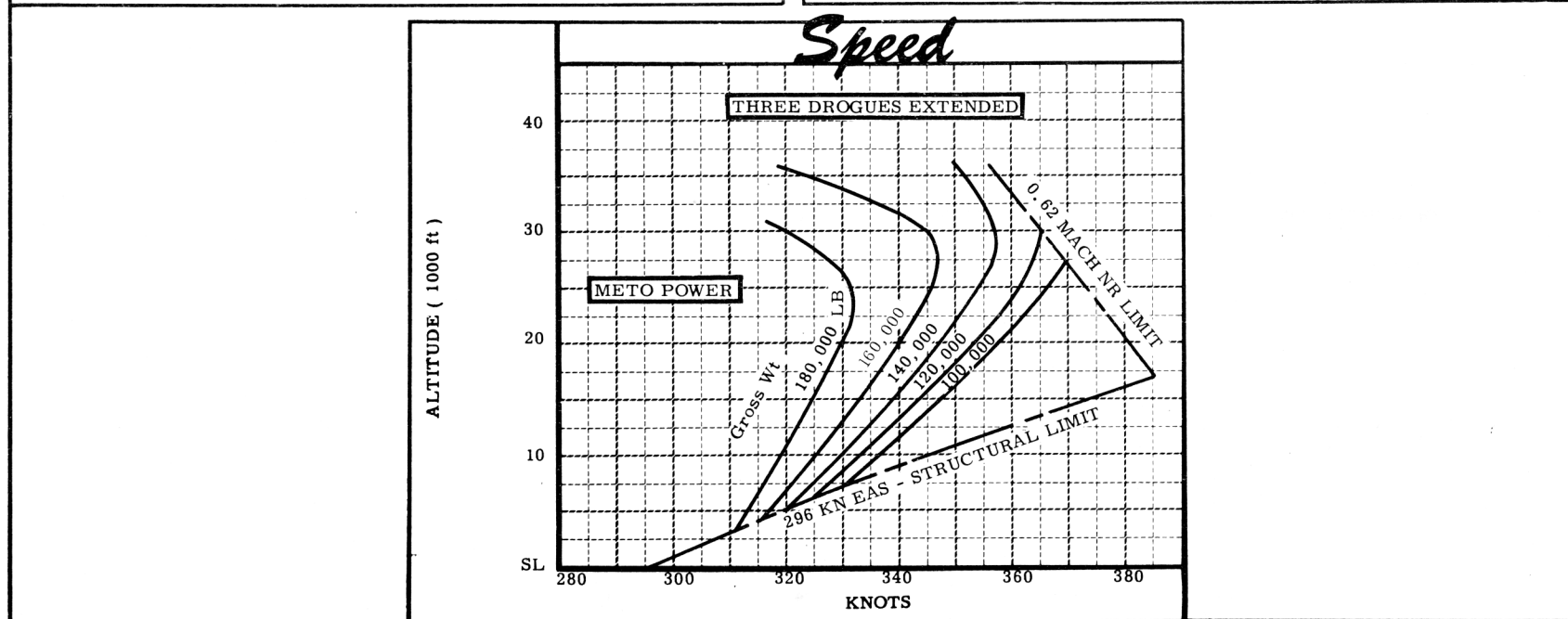
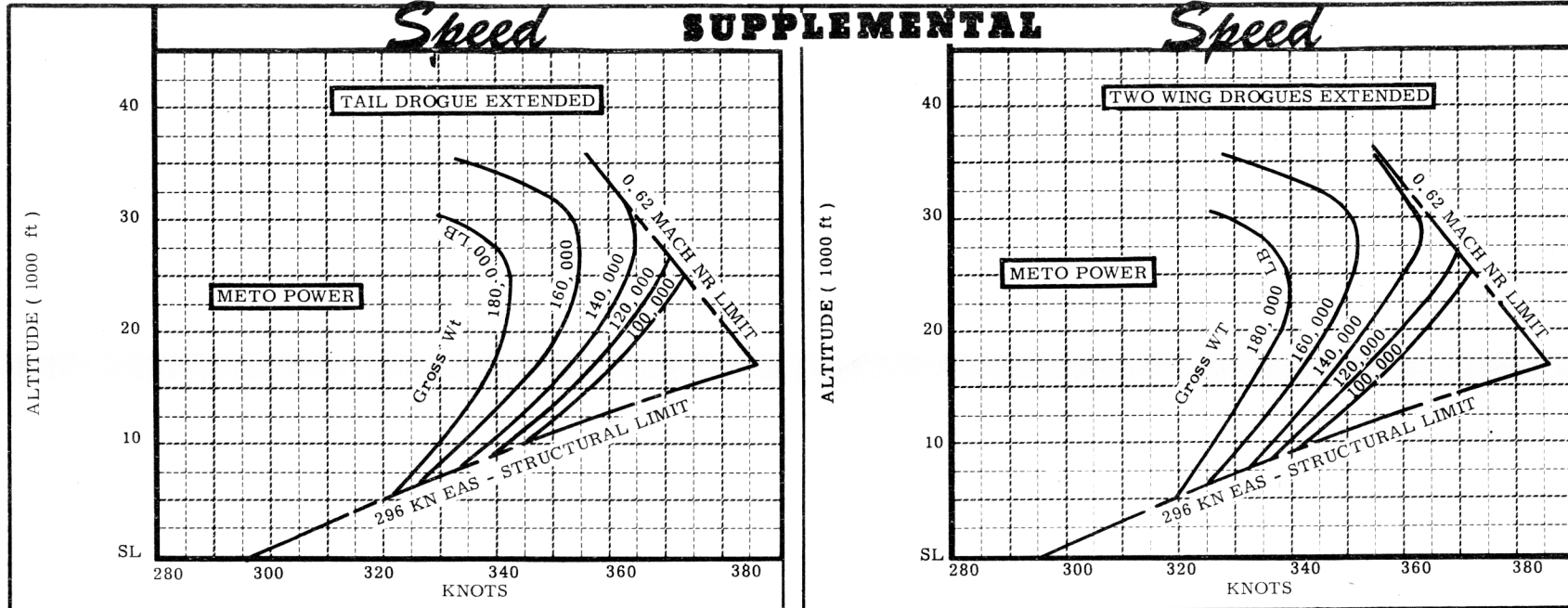
To incorporate current flight test data, increased gross weight and revised fuel system.

ELECTRONICS - continued from page 3

- IFF Transponder . . . AN/APX-25
- IFF Interr. Responder *AN/APX-29
- Radar Altimeter SCR-718C
- Radio Range Rec'vr BC-453B
- HF Transceiver . . . Collins 618 S-1
- Emergency Keyer . . . AN/ARA-26

*APX-29A on later aircraft.

A1
(K)B-500/char



~~SECRET~~

RESTRICTED DATA
ATOMIC ENERGY ACT 1954

Classification cancelled
~~or changed to~~ *Page classified only*
because of position in supplement.
AUTH: _____
By *J. Janis* *12/7/60*

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