

Unclassified
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SECRET

A-1
(BR) B-360/char
SERVICE

Classification cancelled
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AUTH: AFSC-ATC Security Classification Guide 1 Jan 64
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Signature and Grade
AFSC 1966 8 March 67



Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

Consolidated **GRB-36D**

Republic **RF-84F**

GRB-36D { SIX R-4360-41
PRATT & WHITNEY
Plus
FOUR J47-GE-19

RF-84F { ONE J65-W-3 or B-3
WRIGHT or BUICK

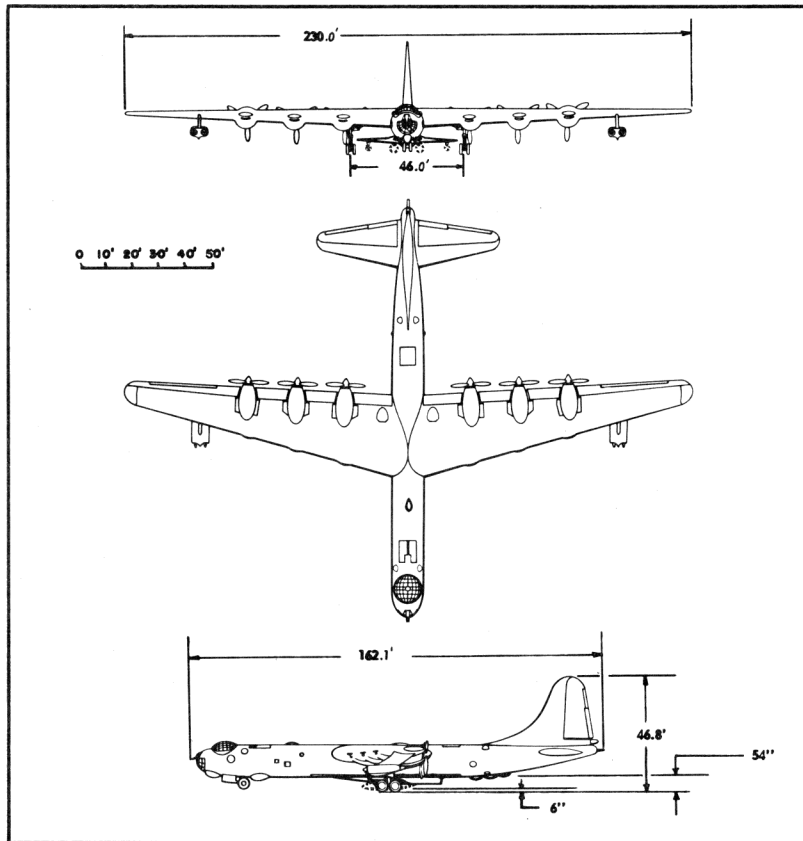
GRB-36D/
RF-84F

7 MAY 54

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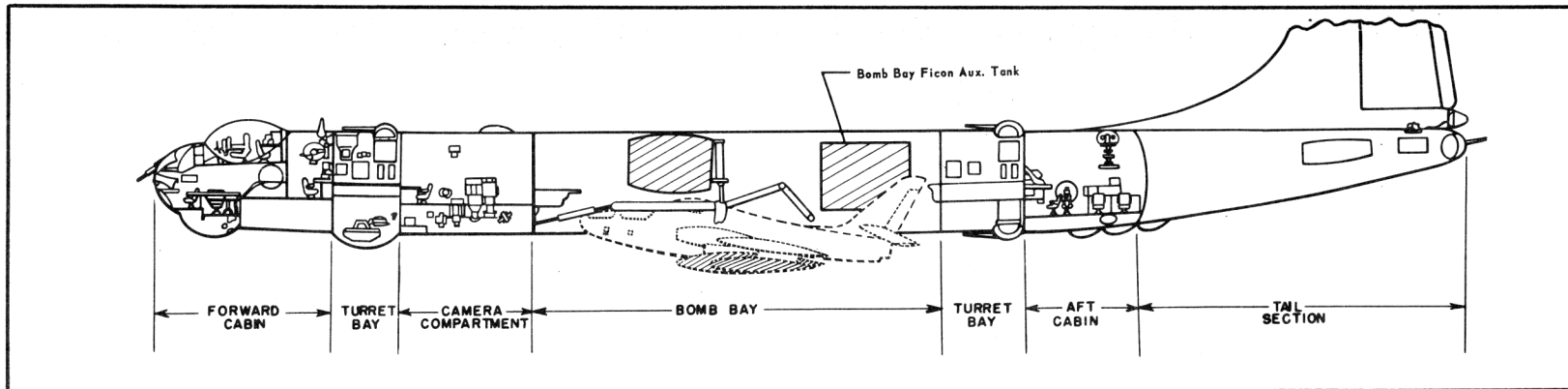
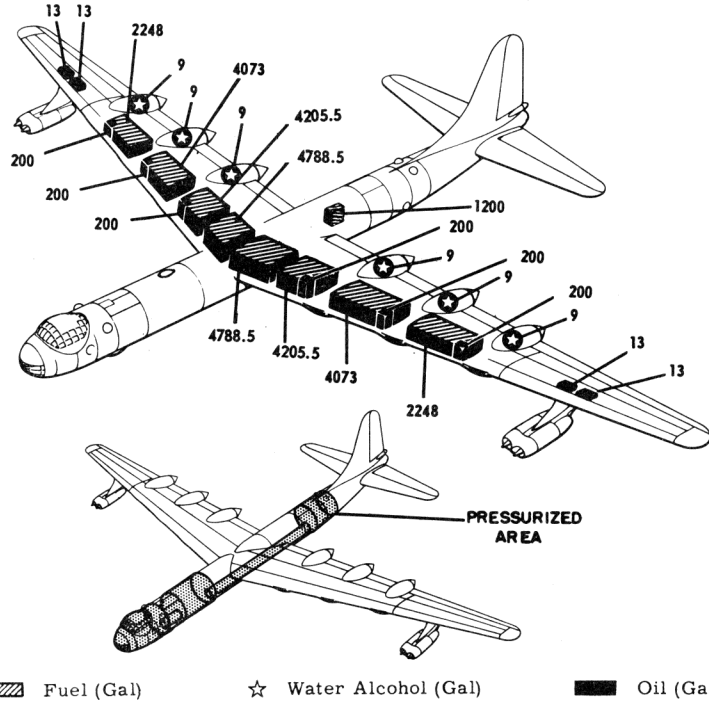
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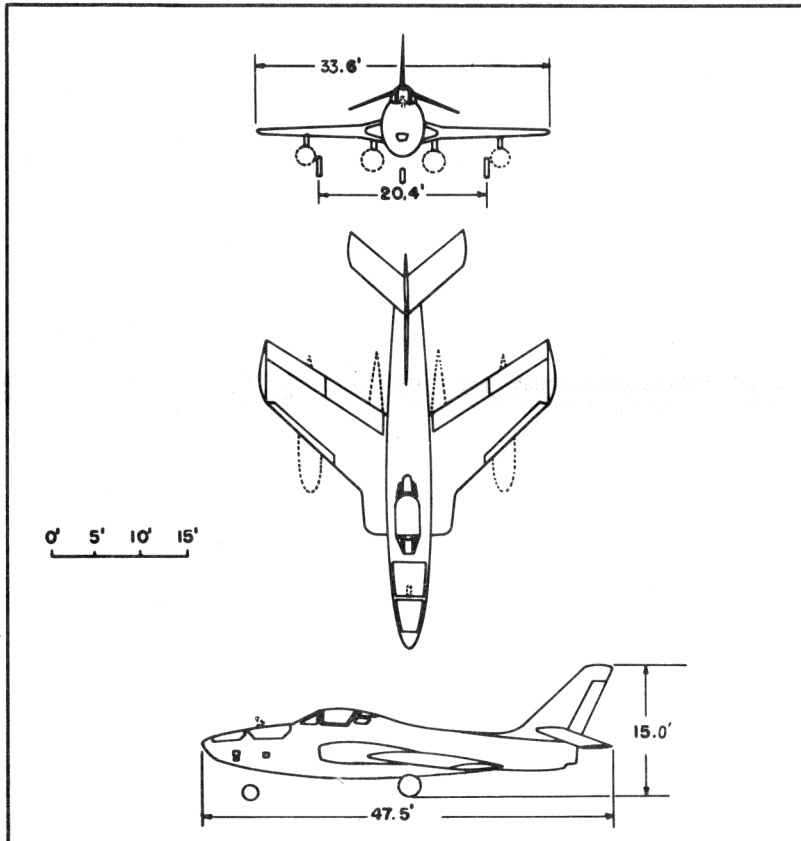
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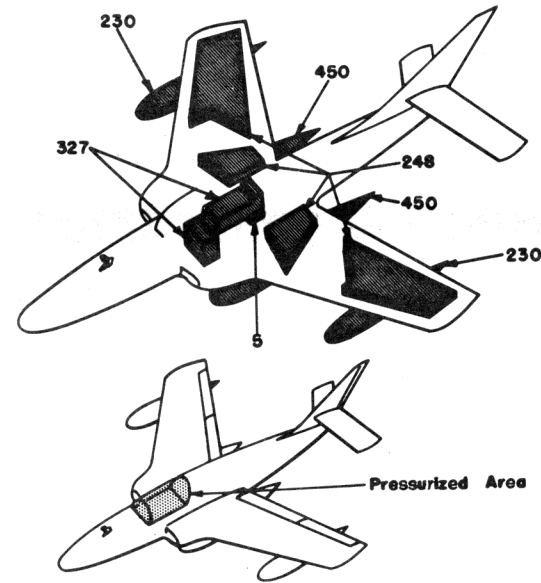
Wing Area 4772 sq ft
 Aspect Ratio 11.08
 M. A. C. 280.7 in.

Wing Section
 (root) NACA 63, 4-422A
 (tip) NACA 63, 4-517A
 A=1.0 (modified)

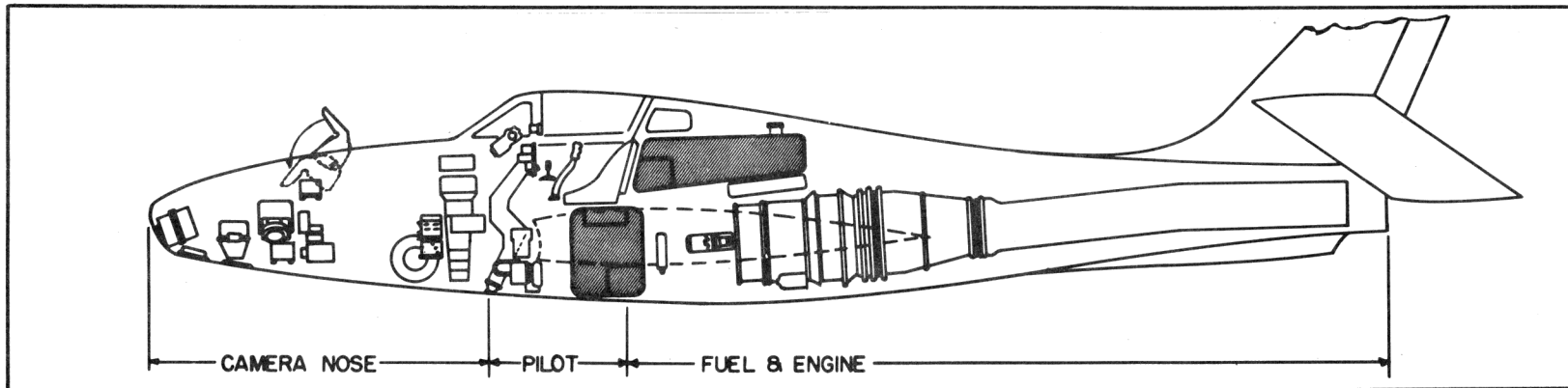




Wing Area 325 sq ft Wing Section . . . NACA 64, A010
 Aspect Ratio 3.47 M. A. C. 120.45"



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



POWER PLANT

No. & Model (6)R-4360-41
 Mfr Pratt & Whitney
 Engine Spec No. A-7063-E
 Superch 1 stg, 1 spd
 Turbo Superch (2) BH-1
 Turbo Mfr General Electric
 Red. Gear Ratio 0.375
 Prop Mfr Curtiss
 Blade Design No. 1129-17C6-24
 Prop. Type CS, FF, Reverse
 No. Blades 3
 Prop Dia 19'-0"
 Augmentation Water/alcohol
 plus
 No. & Model (4) J47-GE-19
 Mfr General Electric
 Engine Spec No. E-589
 Type Axial
 Length 144"
 Diameter 39"
 Weight (dry) 2495 lb
 Tail Pipe Fixed Area

ENGINE RATINGS

BHP	-	RPM	-	ALT	-	MIN
T. O. *	*3500	-	2700	-	Turbo	- 5
	3250	-	2700	-	Turbo	- 5
Mil:	*3500	-	2700	-	Turbo	- 30
	3250	-	2700	-	Turbo	- 30
Nor:	2650	-	2550	-	Turbo	- Cont
* Wet						
					plus	
S. L. Static	LB	-	RPM	-	MIN	
Max:	5200	-	7950	-	5	
Mil:	5200	-	7950	-	30	
Nor:	4730	-	7630	-	Cont	

DIMENSIONS

Wing
 Span 230.0'
 Incidence (root) 3°
 (tip) 1°
 Dihedral 2°
 Sweepback (LE) 15°5'
 Length 162.1'
 Height 46.8'
 Tread 46.0'
 Prop. Grd. Clearance 54"

Mission and Description

Navy Equivalent: None

Mfr's Model: 36

The principal mission of the GRB-36D/RF-84F Composite System is to provide long range, high speed, low and high altitude day or night reconnaissance.

Alternate mission is long range, high speed bombing.

The standard carrier is a conventional RB-36D modified by addition of the mechanisms necessary for stowing, aerial servicing, releasing and retrieving RF-84F parasite, and inclusion of the APX-29 rendezvous equipment.

Ferret ECM equipment is removed from the bomb bay and relocated in a more aft position. Defensive armament and cameras remain unchanged.

Considerable versatility is afforded by this system in that carrier and parasite need not operate from the same base. Mid-air pick-up of the RF-84F while enroute to the target area may be performed as well as on-the-ground hook-up prior to take-off. There are provisions for retrieving operations during night missions.

Development

First Flight Prototype (Composite)	Jan 52
First Flight test (production) (Composite)	(est) Nov 54
First Delivery (GRB-36D carrier)	(est) Sep 54
(RF-84F parasite)	(est) Nov 54

WEIGHTS

Loading	Lb	L. F.
Empty . . .	169,341 (C)	
Basic . . .	178,507 (C)	
Design . .	370,000	2.0
Max T. O. .	*370,000	2.0
Max Land .	*357,500	

(C) Calculated

* Limited by strength

FUEL

Location	No. Tanks	Gal
Wg, outbd*	2	4496
Wg, ctr*	2	8146
Wg, inbd	2	8411
Center, sec	2	9577
	Total	30,730
Grade		115/145
Specification		MIL-F-5572

OIL

Outboard (Jet)	6	(tot) 52
Wing (Recip)	2	1200
Grade	(Recip) 1100	
	(Jet) 1005	
Specification (Recip)	MIL-L-6082A	
(Jet)	MIL-L-6081A	
	WATER/ALCOHOL	
Eng. Nacelle . .	6	(tot) 54

* Partial Self-Sealing

Note: Provisions for utilization of 1200 gal bomb bay tank for Aerial Servicing of RF-84F.

BOMBS

No provisions for carrying bombs.

Launch weight of the RF-84F parasite is 29,273 lb.

GUNS

No.	Type	Size	Rds.ea	Loc
2..	M24A1..	20mm .400	/Fus,nose	
4..	M24A1..	20mm .600	Fus,up,fwd	
4..	M24A1..	20mm .600	Fus,up,aft	
4..	M24A1..	20mm .600	Fus,lw,aft	
2..	M24A1..	20mm .600	..Fus,tail	

CAMERAS

No.	Type	Lens
1 . . .	K-22A, Fwd oblique	12"
3 . . .	K-17C; Tri metrogon	6"
2 . . .	K-38, Split Vertical	24"
2 . . .	K-22A, Side oblique	24"
1 . . .	K-17C, Vertical	6"
5 . . .	K-38, Multiple	36"
5* . .	K-40, Multiple	48"
1* . .	T-11, Vertical	6"
1* . .	K-37, Vertical	12"
1* . .	K-22A, Vertical	6",12",24"

* Alternate Provisions

ELECTRONICS

UHF Command . . .	AN/ARC-27
Liaison	AN/ARC-8
Interphone	USAF Combat
Nav. Radar	AN/APQ-24
Loran	AN/APN-9
Glide Path	AN/ARN-5B
Marker Beacon . . .	RC-193A
Radio Compass . . .	AN/ARN-7A
Range Receiver . . .	BC-453
IFF	AN/APX-6
Blind Approach . . .	RC-103D
Gun Laying Radar . .	AN/APG-32
Rendezvous Equip. .	AN/APX-29
Defensive & Ferret ECM	

POWER PLANT

No. & Model (1) J65-B-3
 or (1) J65-W-3
 Mfr Buick or Wright
 Engine Spec No. . . . Bulletin 870K
 Type Axial
 Length 138.6"
 Diameter 37.5"
 Weight (dry) 2875 lb
 Tail Pipe ATO Fixed Area
 No. & Model LR 63-AJ-1
 Mfr Aerojet
 Engine Spec No. ATS-L4, 133
 Fuel Type JP-4
 Oxidizer WFNA
 No. Cyl 1
 Fuel Feed centrif, turbine pump

ENGINE RATINGS

S. L. Static	LB - RPM - MIN
Max:	7220 - 8300 - 5
Mil:	7220 - 8300 - 30
Nor:	6400 - 8000 - Cont
	ATO
Thrust (lb)	5000
Duration (sec)	35

DIMENSIONS

Wing
 Span 33.6'
 Incidence (root) 1°30'
 (tip) 1°30'
 Cathedral 3°30'
 Sweepback 40°
 Length 47.5'
 Height 15.0'
 Tread 20.4"
 Stowed Grd. Clearance 6"
 Horizontal Tail(cathedral) 23°

Mission and Description

Navy Equivalent: None Mfr's Model: AP-23T

The principal mission of the RF-84F parasite is to fly into the target area alone after being launched from the GRB-36D carrier and accomplish photo-reconnaissance. Alternate mission is high speed bombing.

The RF-84F parasite is a conventional RF-84F modified by the addition of a nose probe and latch mechanism, fuselage latches, and redesigned stabilizer surfaces incorporating a 23 degree cathedral and a 13 percent increase in area.

After mission is accomplished the parasite is retrieved by the carrier and may be transported back to base or released for separate base.

Development

For information on development of the GRB-36D/RF-84F System see preceeding page 4.

WEIGHTS

Loading	Lb	L. F.
Empty	14,161 (C)	
Basic	14,518 (C)	
Design	19,000	9.33
Combat	*20,000	
Launch	**29,273	

(C) Calculated
 * For Basic High Altitude Reconnaissance Mission
 ** Limited by mission

FUEL

Location	No. Tanks	Gal
Wgs*	2	248
Fus*	2	327
Wg, drop, inbd	2	900
Wg, drop, outbd	2	460
	Total	†1935

Grade JP-4
 Specification MIL-F-5624A

OIL

Fuselage 1 (tot) 5
 Grade 1010
 Specification MIL-L-6081A

*Self-Sealing
 †Total fuel capability is possible only when aerial serviced prior to release

BOMBS

No.	Class(lb)
1 .. Special Store	3575
40 .. M-123 Photo Flash Cart	7

GUNS

No.	Type	Size	Rds.ea	Loc
4 ..	M-3	.50 cal	*100	.. Wings

* Spaceprovisions for 200 rds/gun

CAMERAS

No.	Type	Lens
	For day missions	
2 ..	K-38, Split Vertical	36"
2 ..	K-17C, Tri-metrogon	6" or 12"
1 ..	K-22, Fwd oblique	24"

For night missions

3 ..	K46, Tri-metrogon	6" or 12"
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ELECTRONICS

UHF Command AN/ARC-33
 Radio Compass AN/ARN-6
 IFF AN/APX-6
 Interphone AN/AIC-10
 Grd Position Indicator ASN-6
 Toss Bomb Computer M-1
 LABS MA-1
 Wire Recorder ANH-2

Provisions for AN/APN-76A

Loading and Performance - Typical Mission

- CONDITIONS - HIGH ALTITUDE RECONNAISSANCE MISSIONS		BASIC		STRIPPED		HIGH SPEED		FERRY RANGE
		COMPOSITE	PARASITE	COMPOSITE	PARASITE	COMPOSITE	PARASITE	COMPOSITE
TAKE-OFF WEIGHT	(lb)	I 370,000	II —	III 370,000	IV —	V 370,000	VI —	VII 370,000
Fuel at 6.0/6.5 lb/gal(grade 115/145/JP-4)	(lb)	151,485	12,580	171,940	12,580	151,485	12,580	169,695
Payload (Parasite)	(lb)	29,233	—	29,233	—	29,233	—	16,415
Payload (Cameras)	(lb)	1389	515	None	515	1389	515	1389/515
Wing loading	(lb/sq ft)	77.5	90.0	77.5	90.0	77.5	90.0	77.5
Stall speed (power off)	(kn)	107	—	107	—	107	—	107
Take-off ground run at SL ①	(ft)	4430	—	4430	—	4430	—	4430
Take-off to clear 50 ft ①	(ft)	5735	—	5735	—	5735	—	5735
Rate of climb at SL ③	(fpm)	920	—	955	—	920	—	920
Rate of climb at SL (one eng. out) ②	(fpm)	955	—	995	—	955	—	955
Time: SL to 10,000 ft ③	(min)	12	—	12	—	12	—	12
Time: SL to 20,000 ft ③	(min)	28	—	26	—	28	—	28
Service ceiling (100 fpm) ③	(ft)	31,200	—	33,100	—	31,200	—	31,200
Service ceiling (one eng. out) ②	(ft)	29,100	—	29,900	—	29,100	—	29,100
LAUNCH WEIGHT	(lb)	—	29,233	—	29,233	—	29,233	—
Service ceiling (100 fpm) ③	(ft)	—	27,200	—	27,200	—	27,200	—
COMBAT RANGE ④	(n. mi)	—	—	—	—	—	—	5815
COMBAT RADIUS	(n. mi)	—	3100	—	3840	—	1705	—
Individual radii ④	(n. mi)	2035	1065	2775	1065	890	815	—
Average cruise speed	(kn)	170	466	176	466	321	520	166
Initial cruise altitude	(ft)	5000	25,000	5000	25,000	27,500	25,000	5000
Launch - retrieve altitude	(ft)	25,000	25,000	25,000	25,000	25,000	25,000	—
Target speed ③	(kn)	—	489	—	489	—	525	—
Target altitude	(ft)	—	35,700	—	35,700	—	25,000	—
Final cruising altitude	(ft)	20,000	45,000	24,700	45,000	38,900	25,000	20,400
Individual endurance	(hr)	28.7	4.6	36.3	4.6	9.4	3.2	—
Total mission time	(hr)	—	28.8	—	36.3	—	9.0	34.9
COMBAT WEIGHT	(lb)	—	22,100	—	22,100	—	22,700	210,620
Combat altitude	(ft)	—	35,700	—	35,700	—	25,000	5000
Combat speed ②	(kn)	—	513	—	513	—	540	269
Combat climb ②	(fpm)	—	680	—	680	—	1920	2520
Combat ceiling (500 fpm) ②	(ft)	—	37,600	—	37,600	—	37,100	44,100
Service ceiling (100 fpm) ③	(ft)	—	37,100	—	37,100	—	36,400	45,100
Max rate of climb at SL ②	(ft)	—	4820	—	4820	—	4660	2650
Max speed at optimum altitude ②	(kn/ft)	—	565/S. L.	—	565/S. L.	—	565/S. L.	347/39,500
Basic speed at 35,000 ft ②	(kn)	—	516	—	516	—	515	340
RETRIEVE WEIGHT	(lb)	—	17,080	—	17,080	—	17,080	—
LANDING WEIGHT	(lb)	215,795	—	196,230	—	215,795	—	210,620
Ground roll at SL	(ft)	2090	—	1900	—	2090	—	2040
Ground roll (auxiliary brake) ⑤	(ft)	1820	—	1670	—	1820	—	1780
Total from 50 ft	(ft)	3550	—	3350	—	3350	—	3500
Total from 50 ft (auxiliary brake) ⑤	(ft)	3270	—	3120	—	3270	—	3230

NOTES

- ① Take-off power
- ② Max power
- ③ Normal power

- ④ Detailed descriptions of Radius and Range missions given on page 10 & 11
- ⑤ Props reversed

Performance Basis:

- (a) Data source: Contractor's estimated data
- (b) Performance is based on powers shown on page 11.

SUPPLEMENTAL *Loading and Performance - Typical Mission*

- CONDITIONS - LOW ALTITUDE RECONNAISSANCE MISSIONS		BASIC		STRIPPED		HIGH SPEED		FERRY RANGE
		COMPOSITE	PARASITE	COMPOSITE	PARASITE	COMPOSITE	PARASITE	COMPOSITE
TAKE-OFF WEIGHT	(lb)	VIII 370,000	IX _____	X 370,000	XI _____	XII 370,000	XIII _____	XIV 370,000
Fuel at 6.0/6.5 lb/gal (grade 115/145/JP-4)	(lb)	151,485	12,580	171,940	12,580	151,485	12,580	169,695
Payload (Parasite)	(lb)	29,233	_____	29,233	_____	29,233	_____	16,415
Payload (Cameras)	(lb)	1389	515	None	515	1389	515	1389/515
Wing loading	(lb/sq ft)	77.5	90.0	77.5	90.0	77.5	90.0	77.5
Stall speed (power off)	(kn)	107	_____	107	_____	107	_____	107
Take-off ground run at SL	(ft)	4430	_____	4430	_____	4430	_____	4430
Take-off to clear 50 ft	(ft)	5735	_____	5735	_____	5735	_____	5735
Rate of climb at SL	(fpm)	920	_____	955	_____	920	_____	920
Rate of climb at SL (one eng. out)	(fpm)	955	_____	995	_____	955	_____	955
Time: SL to 10,000 ft	(min)	12	_____	12	_____	12	_____	12
Time: SL to 20,000 ft	(min)	28	_____	26	_____	28	_____	28
Service ceiling (100 fpm)	(ft)	31,200	_____	33,100	_____	31,200	_____	31,200
Service ceiling (one eng. out)	(ft)	29,100	_____	29,000	_____	29,100	_____	29,100
LAUNCH WEIGHT	(lb)	_____	29,233	_____	29,233	_____	29,233	_____
Service ceiling (100 fpm)	(ft)	_____	27,200	_____	27,200	_____	27,200	_____
COMBAT RANGE	(n. mi)	_____	_____	_____	_____	_____	_____	5815
COMBAT RADIUS	(n. mi)	_____	3020	_____	3755	_____	1585	_____
Individual radii	(n. mi)	2085	935	2820	935	905	680	_____
Average cruise speed	(kn)	170	470	176	470	320	514	166
Initial cruise altitude	(ft)	5000	25,000	5000	25,000	27,500	25,000	5000
Launch - retrieve altitude	(ft)	25,000	25,000	25,000	25,000	25,000	25,000	_____
Target speed	(kn)	_____	517	_____	517	_____	518	_____
Target altitude	(ft)	_____	S. L.	_____	S. L.	_____	S. L.	_____
Final cruising altitude	(ft)	20,000	45,000	24,700	45,000	38,900	25,000	20,400
Individual endurance	(hr)	28.8	4.0	36.3	4.0	9.0	2.7	_____
Total mission time	(hr)	_____	28.7	_____	36.3	_____	9.4	34.9
COMBAT WEIGHT	(lb)	_____	22,350	_____	22,350	_____	23,300	210,620
Combat altitude	(ft)	_____	S. L.	_____	S. L.	_____	S. L.	5000
Combat speed	(kn)	_____	565	_____	565	_____	565	269
Combat climb	(fpm)	_____	4750	_____	4750	_____	4510	2520
Combat ceiling (500 fpm)	(ft)	_____	37,400	_____	37,400	_____	36,500	44,100
Service ceiling (100 fpm)	(ft)	_____	36,800	_____	36,800	_____	35,800	45,100
Max rate of climb at SL	(ft)	_____	4750	_____	4750	_____	4510	2650
Max speed at optimum altitude	(kn/ft)	_____	565/S. L.	_____	565/S. L.	_____	565/S. L.	347/39,500
Basic speed at 35,000 ft	(kn)	_____	516	_____	516	_____	513	340
RETRIEVE WEIGHT	(lb)	_____	17,080	_____	17,080	_____	17,080	_____
LANDING WEIGHT	(lb)	215,795	_____	196,230	_____	215,795	_____	210,620
Ground roll at SL	(ft)	2090	_____	1900	_____	2090	_____	2040
Ground roll (auxiliary brake)	(ft)	1820	_____	1670	_____	1820	_____	1780
Total from 50 ft	(ft)	3550	_____	3350	_____	3550	_____	3500
Total from 50 ft (auxiliary brake)	(ft)	3270	_____	3120	_____	3270	_____	3230

NOTES

- ① Take-off power
- ② Max power
- ③ Normal power

- ④ Detailed descriptions of Radius and Range missions given on page 10 & 11.
- ⑤ Props reversed

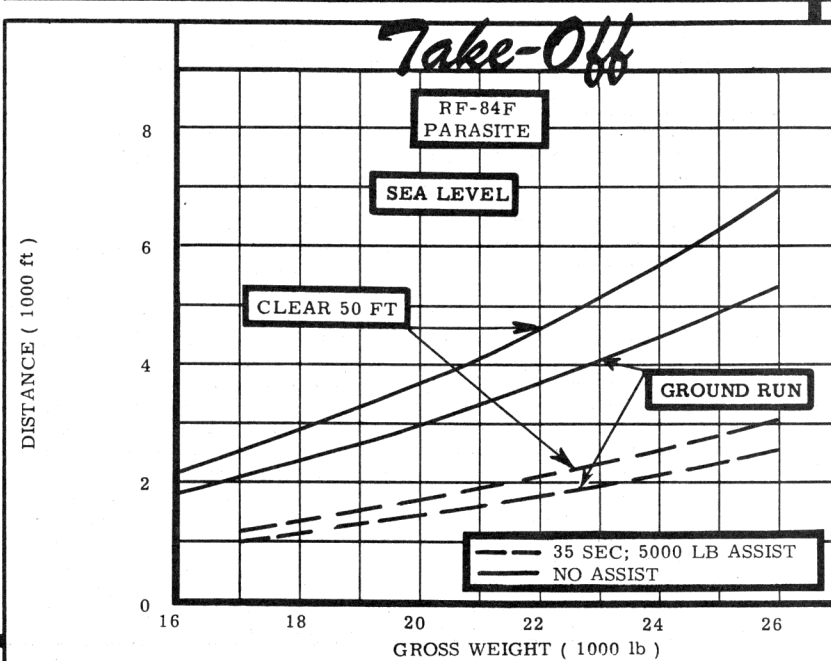
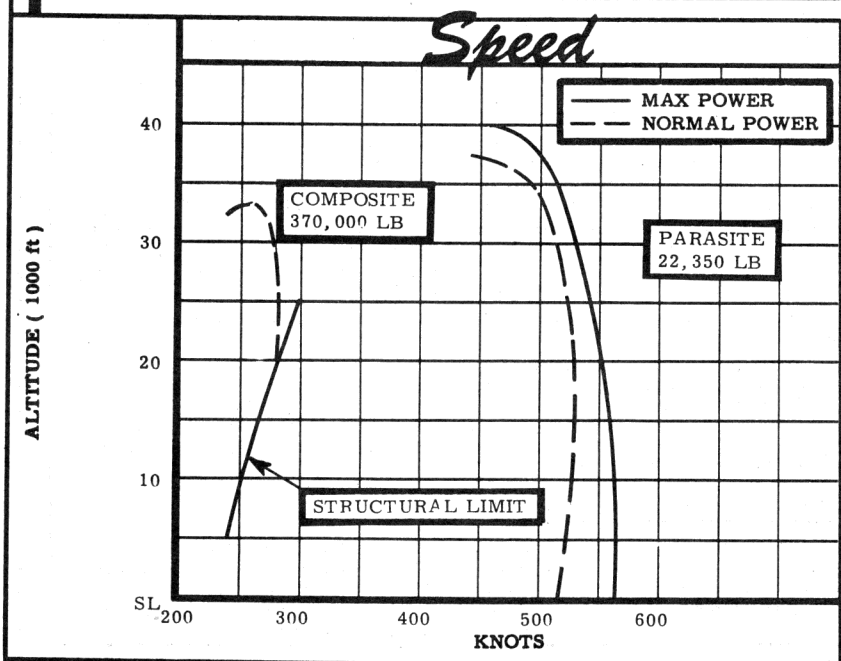
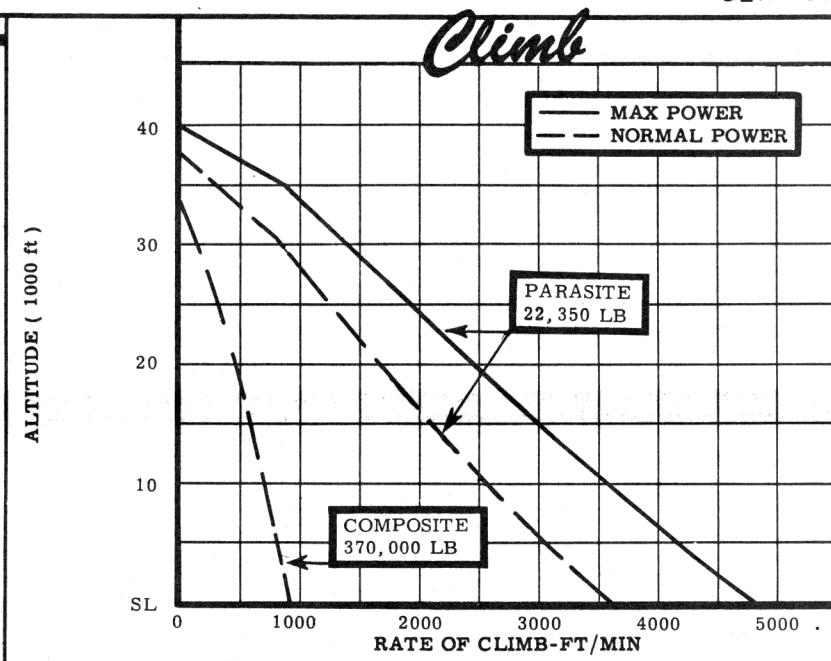
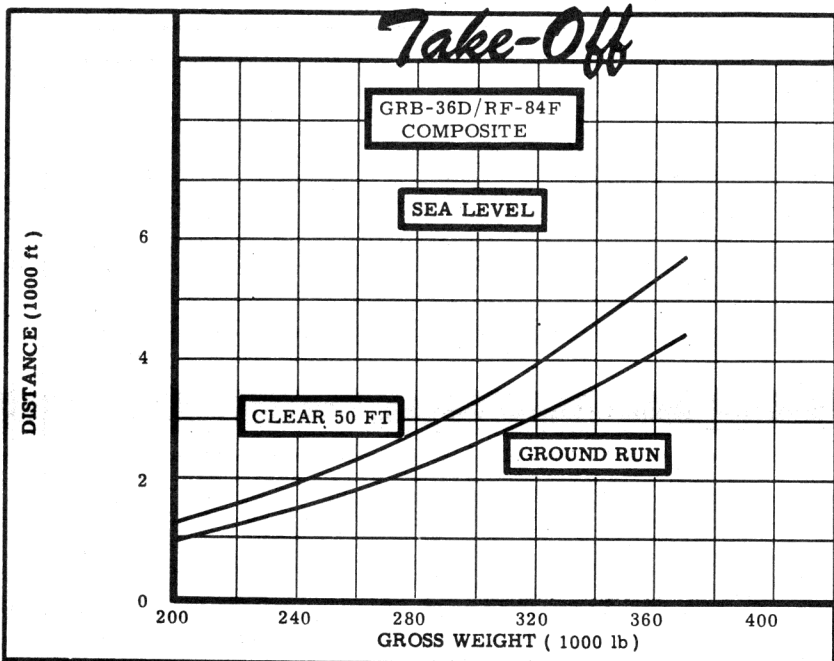
Performance Basis:
 (a) Data source: Contractor's estimated data
 (b) Performance is based on powers shown on page 11.

SUPPLEMENTAL Loading and Performance - Typical Mission

- CONDITIONS - BOMBER MISSIONS		BASIC		STRIPPED		COMBAT RANGE		HIGH SPEED		FERRY RANGE
		COMPOSITE	PARASITE	COMPOSITE	PARASITE	COMPOSITE	PARASITE	COMPOSITE	PARASITE	COMPOSITE
TAKE-OFF WEIGHT	(lb)	XV 370,000	XVI —	XVII 370,000	XVIII —	XIX 370,000	XX —	XXI 370,000	XXII —	XXIII 370,000
Fuel at 6.0/6.5 lb/gal (grade 115/145/JP-4)	(lb)	151,450	9650	171,900	9650	151,450	9650	151,450	9650	170,305
Payload (Parasite - Bomb)	(lb)	29,273	3575	29,273	3575	29,273	3575	29,273	3575	15,805
Payload (Cameras)	(lb)	1389	—	None	—	1389	—	1389	—	1389
Wing loading	(psf)	77.5	90.0	77.5	90.0	77.5	90.0	77.5	90.0	77.5
Stall speed (power off)	(kn)	107	—	107	—	107	—	107	—	107
Take-off ground run at SL	(ft)	4430	—	4430	—	4430	—	4430	—	4430
Take-off to clear 50 ft	(ft)	5735	—	5735	—	5735	—	5735	—	5735
Rate of climb at SL	(fpm)	920	—	955	—	920	—	920	—	920
Rate of climb at S.L. (one eng. out)	(fpm)	955	—	995	—	955	—	955	—	955
Time: SL to 10,000 ft	(min)	12	—	12	—	12	—	12	—	12
Time: SL to 20,000 ft	(min)	28	—	26	—	28	—	28	—	28
Service ceiling (100 fpm)	(ft)	31,200	—	33,100	—	31,200	—	31,200	—	31,200
Service ceiling (one eng. out)	(ft)	29,100	—	29,900	—	29,100	—	29,100	—	29,100
LAUNCH WEIGHT	(lb)	—	29,273	—	29,273	—	29,273	—	29,273	—
Service ceiling (100 fpm)	(ft)	—	27,200	—	27,200	—	27,200	—	27,200	—
COMBAT RANGE	(n. mi.)	—	—	—	—	—	—	—	—	5847
COMBAT RADIUS	(n. mi.)	2920	—	3650	—	4295	—	1452	—	—
Individual radii	(n. mi.)	2195	725	2925	725	2650	645	940	512	—
Average cruise speed	(kn)	170	479	176	479	174	480	321	525	166
Initial cruise altitude	(ft)	5000	25,000	5000	25,000	5000	25,000	27,500	25,000	5000
Launch - retrieve altitude	(ft)	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	—
Target speed	(kn)	—	515	—	515	—	519	—	515	—
Target altitude	(ft)	—	S. L.	—	S. L.	—	S. L.	—	S. L.	—
Final cruising altitude	(ft)	20,000	45,400	24,800	45,400	23,800	41,200	38,950	25,000	20,400
Individual endurance	(hr)	29.1	3.0	36.5	3.0	30.5	3.3	8.5	2.0	—
Total mission time	(hr)	29.1	—	36.5	—	30.5	3.3	8.5	—	35.1
COMBAT WEIGHT	(lb)	—	20,220	—	20,220	—	16,343	—	21,060	210,590
Combat altitude	(ft)	—	S. L.	—	S. L.	—	S. L.	—	S. L.	5000
Combat speed	(kn)	—	585	—	585	—	606	—	584	269
Combat climb	(fpm)	—	5750	—	5750	—	7840	—	6270	2520
Combat ceiling (500 fpm)	(ft)	—	41,200	—	41,200	—	47,300	—	40,200	44,100
Service ceiling (100 fpm)	(ft)	—	40,800	—	40,800	—	47,000	—	39,800	45,100
Max rate of climb at SL	(fpm)	—	5750	—	5750	—	7840	—	6270	2650
Max speed at optimum altitude	(kn/ft)	—	585/S. L.	—	585/S. L.	—	606/S. L.	—	584/S. L.	347/39,500
Basic speed at 35,000 ft	(kn)	—	530	—	530	—	544	—	530	340
RETRIEVE WEIGHT	(lb)	—	16,340	—	16,340	—	—	—	16,340	—
LANDING WEIGHT	(lb)	215,050	—	195,480	—	198,580	16,340	215,050	—	210,590
Ground roll at SL	(ft)	2080	—	1890	—	1930	2750	2080	—	2040
Ground roll (auxiliary brake)	(ft)	1820	—	1670	—	1690	—	1820	—	1780
Total from 50 ft	(ft)	3540	—	3340	—	3370	4150	3540	—	3500
Total from 50 ft (auxiliary brake)	(ft)	3260	—	3110	—	3130	—	3260	—	3230

NOTES

① Take-off power	⑤ Props reversed	Performance Basis: (a) Contractors estimated data (b) Performance is based on powers shown on page 11.
② Max power	⑥ Carrier only on return leg	
③ Normal power	⑦ Range	
④ Detailed descriptions of Radius and Range missions given on page 10 & 11.		



NOTESFORMULA: RADIUS MISSIONS I, III, VIII, X, XV & XVII (CARRIER)

Warm-up, take-off, and climb on course at normal rated power to 5000 feet. Cruise at long range speeds and altitudes to a point where climb is made to 25,000 feet. Following one minute for warm-up of parasite turbojet engine, launch parasite, loiter at 25,000 feet in area of launch, cruising at long range speeds during parasite mission plus 15 minutes for rendezvous and retrieve of parasite. Descend to optimum altitude for long range cruise and return to base. Range free allowances include 10 minutes of normal power fuel consumption for reciprocating engines plus 5 minutes of normal power jet engine fuel consumption for warm-up and take-off, loiter time at power for long range cruise at 25,000 feet for reciprocating engines only, 30 minutes of fuel consumption at sea level for long range speeds (reciprocating engines only) plus 5% of initial fuel load for landing and endurance reserve.

FORMULA: RADIUS MISSIONS II & IV (PARASITE)

One minute maximum power warm-up and immediate launch at 25,000 feet, cruise at long range speeds and altitudes to a point 50 nautical miles from target. Cruise at this altitude (combat altitude) 50 nautical miles to target, conduct 2 minutes evasive action and cruise out 50 nautical miles at normal power. Climb at maximum power to optimum altitude long range flight path and cruise at long range speeds to rendezvous point and descend to 25,000 feet to be retrieved. Range free allowances include one minute maximum power warm-up immediately prior to launch, 2 minutes at normal power for evasive action, and a reserve of 30 minutes cruise at sea level for rendezvous, retrieve and reserve plus 5% of initial fuel reserve.

FORMULA: RADIUS MISSIONS IX & XI (PARASITE)

One minute maximum power warm-up and immediate launch at 25,000 feet, cruise at long range speeds and altitudes to a point 50 nautical miles from target. Descend to sea level, conduct 50 nautical mile run-in to target, 2 minutes of evasive action over target and 50 nautical miles run out at normal power. Climb at maximum power to optimum altitude long range flight path and cruise at long range speeds to rendezvous point and descend to 25,000 feet to be retrieved. Range free allowances include one minute maximum power warm-up immediately prior to launch, 2 minutes at normal power for evasive action, and a reserve of 30 minutes cruise at sea level for rendezvous, retrieve and reserve plus 5% of initial fuel reserve.

FORMULA: RADIUS MISSIONS XVI & XVIII (PARASITE)

One minute maximum power warm-up and immediate launch at 25,000 feet, climb on course to optimum altitude for cruise at long range speeds. Cruise to within 50 nautical miles of target and descend to sea level. Cruise at normal power 50 nautical miles to target, drop bomb, conduct 2 minutes of evasive action over target and 50 nautical miles run out at normal power. Climb at maximum power to optimum altitude long range flight path and cruise at long range speeds to rendezvous point and descend to 25,000 feet to be retrieved. Range free allowances include one minute maximum power warm-up immediately prior to launch, 2 minutes at normal power for evasive action, and a reserve of 20 minutes cruise at sea level for rendezvous, retrieve and reserve plus 5% of initial fuel reserve.

FORMULA: RADIUS MISSIONS V, XII & XXI (CARRIER)

This entire mission with the exception of loiter, is flown at normal rated power. Warm-up, take-off and climb on course to optimum altitude for high speed; cruise at these altitudes to a point where descent is made to 25,000 feet. Following one minute for warm-up of parasite turbojet engine, launch parasite, loiter at 25,000 feet in area of launch, cruising at long range speeds during parasite mission plus 15 minutes for rendezvous and retrieve of parasite. Climb to optimum altitude for high speed cruise and cruise back to base. Range free allowances are the same as for Radius Mission I.

FORMULA: RADIUS MISSION VI (PARASITE)

One minute maximum power warm-up and immediate launch at 25,000 feet, cruise at normal power at optimum altitude (25,000 feet) for high speed to target. Conduct 2 minutes evasive action, cruise to rendezvous at normal power to be retrieved. Range free allowances are the same as for Radius Mission II.

FORMULA: RADIUS MISSION XIII (PARASITE)

One minute maximum power warm-up and immediate launch at 25,000 feet, cruise at normal power at optimum altitude (25,000 feet) for high speed to within 50 nautical miles of target and descend to sea level. Cruise at sea level to target, conduct 2 minutes evasive action and 50 nautical miles run out, all at normal power. Climb at maximum power to optimum altitude for high speed cruise and cruise at normal power to rendezvous point and retrieve. Range free allowances are the same as for Radius Mission II.

FORMULA: RADIUS MISSION XXII (PARASITE)

One minute maximum power warm-up and immediate launch at 25,000 feet, cruise at normal power at optimum altitude (25,000 feet) for high speed to within 50 nautical miles of target and descend to sea level. Cruise at sea level to target, drop bomb, conduct 2 minutes evasive action and 50 nautical miles run out, all at normal power. Climb at maximum power to optimum altitude for high speed cruise and cruise at normal power to rendezvous point and retrieve. Range free allowances are the same as for Radius Mission XVI.

FORMULA: RANGE MISSION XIX (CARRIER)

Same as Radius Mission I except that carrier does not loiter and begins cruise back to base immediately after launch of parasite and descent to optimum altitude flight path. Range free allowances are the same except for omission of loiter time.

FORMULA: RANGE MISSION XX (PARASITE)

One minute maximum power warm-up and immediate launch at 25,000 feet, climb on course to optimum altitude for cruise at long range speed. Cruise to target, drop bomb and land. Range free allowances include one minute maximum power warm-up immediately prior to launch and a reserve at 20 minutes of cruise at sea level plus 5% of initial fuel.

N O T E S

FORMULA: RANGE MISSIONS VII, XIV & XXIII (COMPOSITE)

Warm-up, take-off and climb on course to 5000 feet at normal power. Cruise at optimum altitude for long range cruise until all usable fuel is consumed. Range free allowances are the same as for Radius Mission I except for omission of loiter time.

GENERAL DATA:

(a) Take-off at 370,000 lb gross weight is not authorized until the airplane is released for operation at this gross weight after completion of landing gear modification.

(b) Carrier engine rating shown on page 3 are manufacturer's guaranteed ratings. Power values used for performance calculations are as follows:

(6) R-4360-41	(4) J47-GE-19
BHP - RPM - **ALT - MIN	S. L. Static LB - RPM - MIN
T. O: *3500 - 2700 - S. L. - 5	T. O: 5200 - 7950 - 5
Max: 3250 - 2700 - 34,100- 30	Max: 5200 - 7950 - 30
Nor: 2650 - 2550 - 39,400- Cont	Nor: 4730 - 7630 - Cont
*Wet	
**Turbosupercharger limitation	

(c) Parasite engine ratings shown on page 5 are manufacturer's guaranteed ratings. Power values used for performance calculations are as follows:

(1) YJ65-W-1			
S. L. Static	LB	RPM	MIN
T. O:	7220	8300	5
Max:	7220	8300	30
Nor:	6400	8000	Cont

PERFORMANCE REFERENCE:

CONVAIR REPORT FZA-36-308, dated 1 January 1954.

REVISION BASIS: To conform with MIL-C-5011A.

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