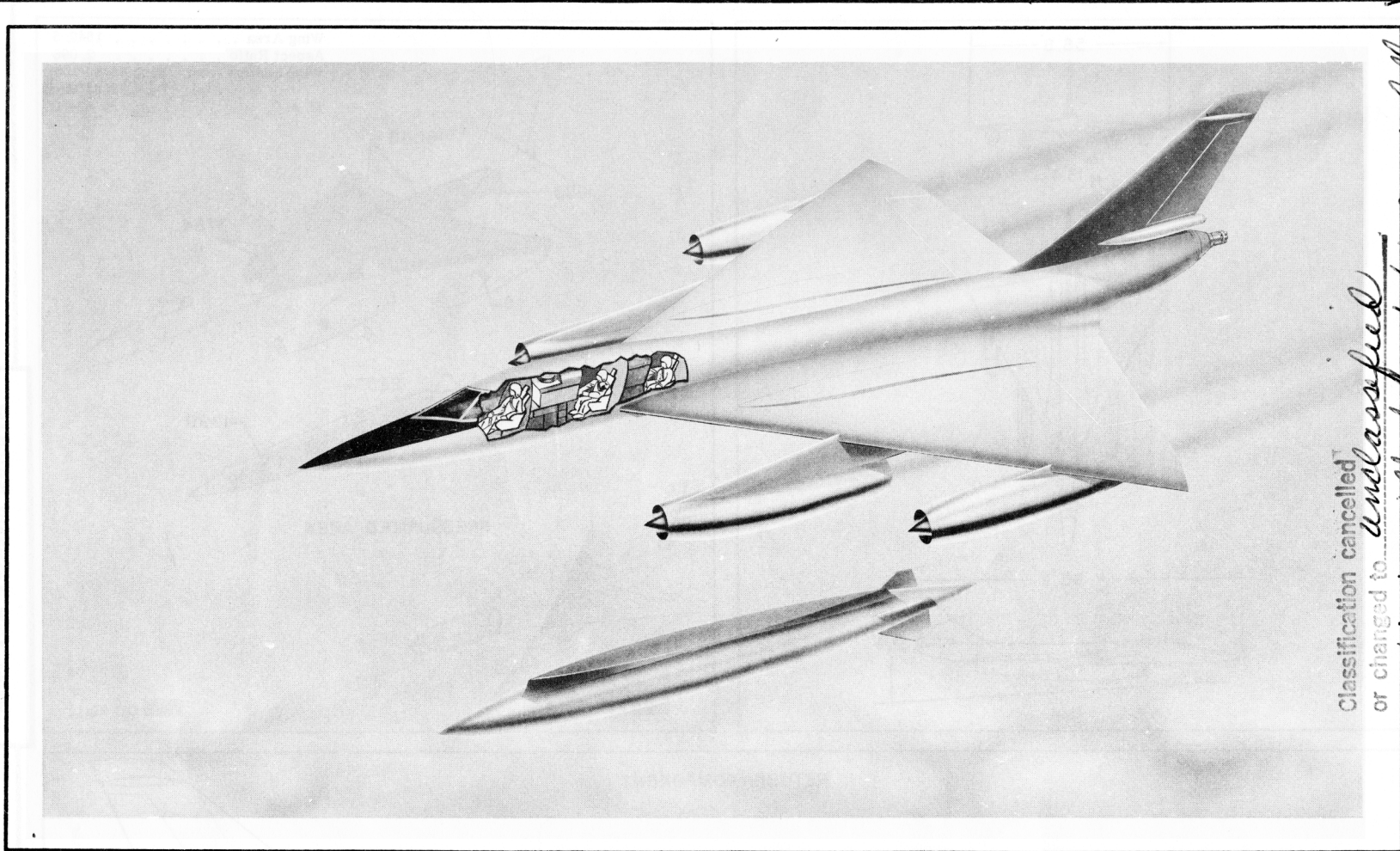


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CONFIDENTIAL SECRET

A-1
(R) B-58A/char

SERVICE

**RESTRICTED DATA
ATOMIC ENERGY ACT 1954**



Classification cancelled
or changed to *unclassified*

AUTH: ASD/AFSC (by del) 4/15/76 J.S.M. Callam
By *Curran M. White, GS-4, 3/24/77*
Signature and Grade

Standard Aircraft Characteristics

B / RB - 58A

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

FOUR J79-GE-5
GENERAL ELECTRIC

Classification cancelled
or changed to ~~unclassified~~ **HUSTLER**
Convair

AUTH: *DOD DIR 5200.10*
By *Curran M. White*
Signature and Grade

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B/RB-58A

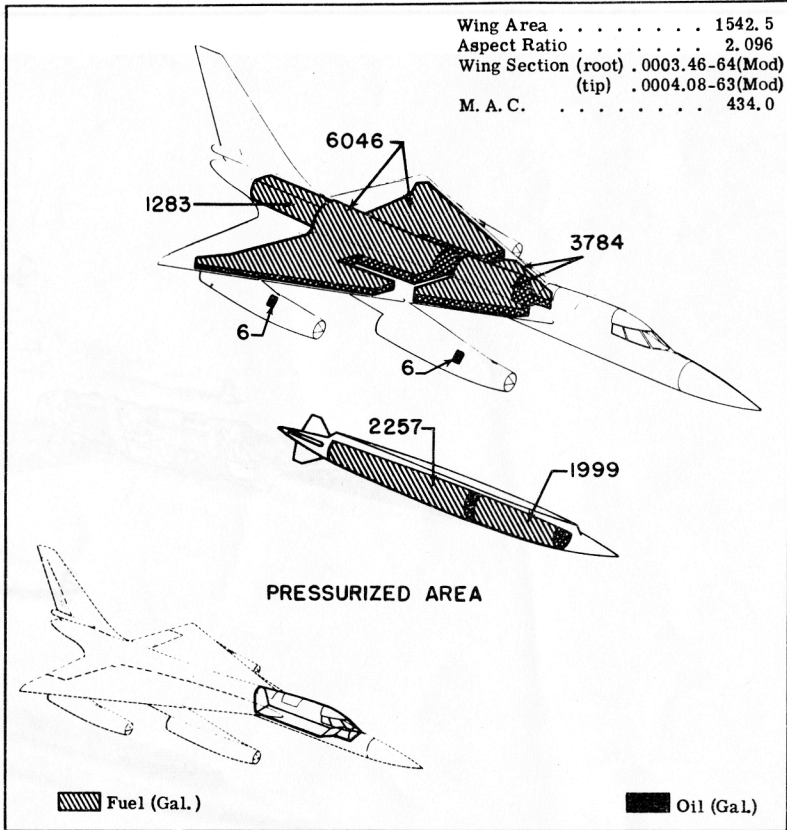
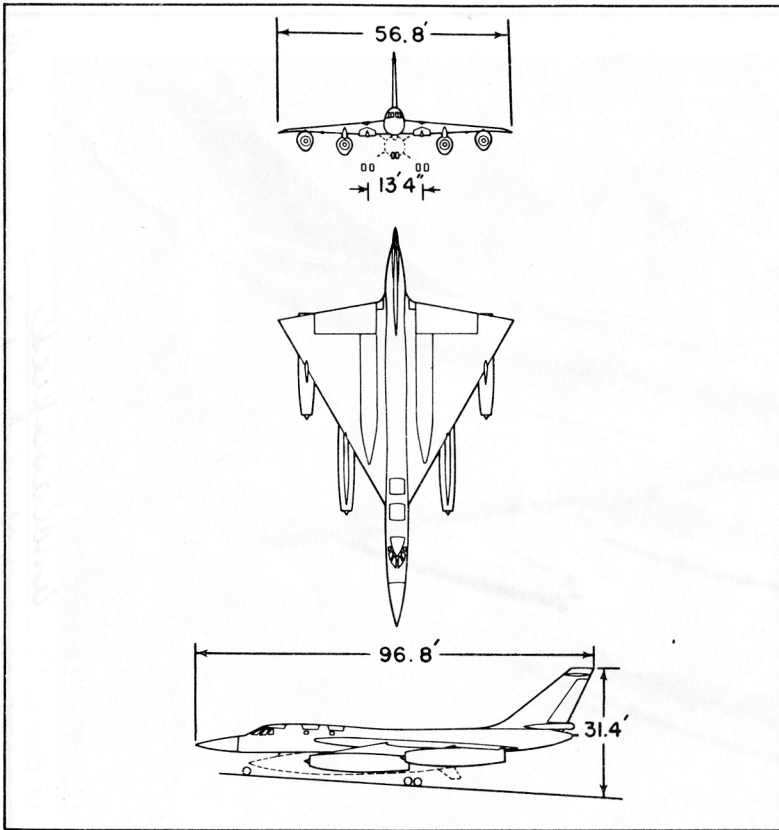
5/90 addn # 15
CLASSIFICATION CHANGED TO *RESTRICTED DATA*
BY AUTHORITY OF *DOD DIR 5200.10*
(INDIVIDUAL OR WRITTEN AUTHORITY)
By *J.R. Donahoe 29 Mar 67*
NAME & GRADE OF INDIVIDUAL MAKING CHANGE (DATE)

10 JUL 59

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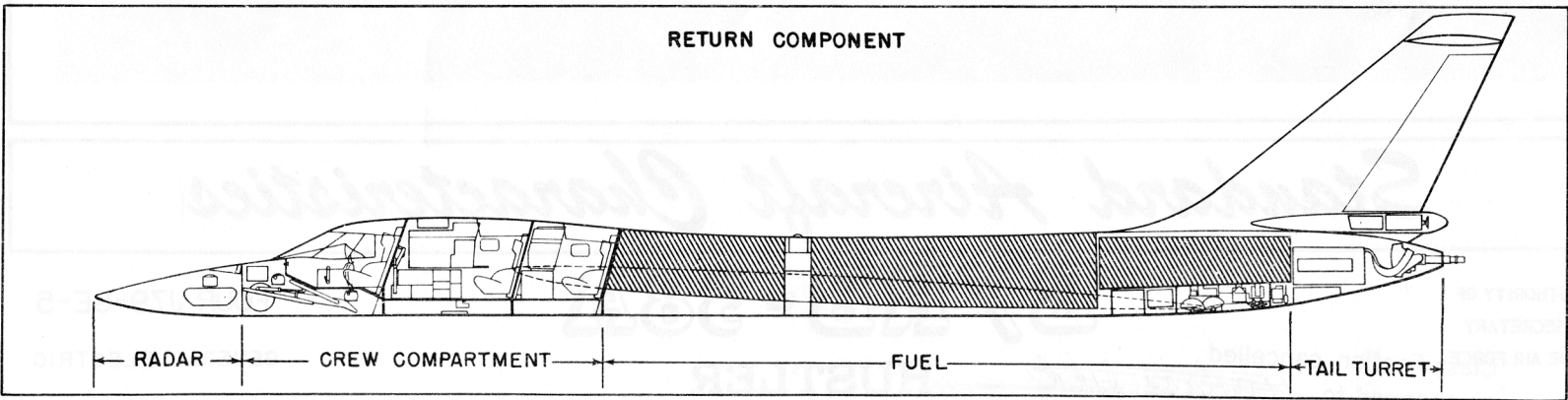
SERVICE

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Wing Area 1542.5
 Aspect Ratio 2.096
 Wing Section (root) .0003.46-64(Mod)
 (tip) .0004.08-63(Mod)
 M. A. C. 434.0

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B/RB-58A
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WEIGHTS

Loading	Basic Airplane		With MB-1C Pod	
	Lb.	L.F.	Lb.	L.F.
Empty	51,061(c)		53,581(c)	
Basic	51,501(c)		54,021(c)	
Design	158,000 .2.00		158,000 .2.00	
Combat	*107,250 .3.00			
Max T.O.	±90,000 .3.00		158,000 .2.00	
Max Inflight	±125,147 .2.00		**158,000 .2.00	
Max Land	#95,000 .1.33		#95,000 .1.33	

(c) Calculated *For Basic Mission ±Limited by space #Limited by gear strength **Refueled ±Limited by c.g.

FUEL

Location	Basic Airplane		With MB-1C Pod	
	No. Tanks	Gal.	No. Tanks	Gal.
Fus/Wg, Fwd	1	3784	1	3784
Fus/Wg, Aft	1	6046	1	6046
Fus, Tail	1	1283	1	1283
Pod, Fwd. (drop)			1	1999
Pod, Aft (drop)			1	2257
Total	11,113		15,369	

Grade JP-4
Specification MIL-F-5624B

OIL
Nacelle 4 24
Grade Synthetic
Specification MIL-L-7808

ELECTRONICS

Navigation-Bombing System	Air-to-Air IFF System APX-48
Defensive ECM System	Station Keeping-Rendezvous Equip
Radar Warning System	Indirect Bomb Damage Assessment
Active Defense System MD-7	Inflight Printer
Civil Navigation Aids System ARN-50	
UHF Communications System ARC-57	
Interphone Integral Part of ARC-57	
Long Range Communication Set ARC-68	
Air-to-Ground IFF System APX-47	

NOTE: Air Force Model Designations do not apply

DIMENSIONS

Wing	
Span	56.8'
Incidence	3°0'
Dihedral (Outbd. of Sta. 56.5)	2°14'
Sweepback (LE)	60°0'
Length	96.8'
Height	31.4'
Tread	13.3'

WARHEAD

Model	W-39
Designation	Class C
Weight	6230 lbs

GUNS

No.	Type	Size	Rds. ea.	Location
1	M-61	20mm	580	Tail, tur

Note: Capacity for 1040 rds.

Mission and Description

Navy Equivalent: None Mfr's. Model: 4

The principal mission of the B/RB-58A is to deliver a warhead in a free fall bomb pod, over a distant target, while traveling at supersonic speed, and the performance of electronic reconnaissance missions.

The crew consists of pilot, navigator-bombardier and a defense systems operator. The entire crew compartment is air conditioned; each crew station is equipped with an ejection seat.

Special features are the tailless design with a "delta" wing planform and the droppable pod housing the warhead and fuel for the outbound portion of the flight.

Other features include automatic pilot, power operated controls, braking parachute, and provisions for single-point ground and air refueling.

Development

Design Initiated 17 Feb. 51
First Flight 11 Nov. 56

POWER PLANT

No. & Model	(4)J79-GE-5
Mfr	General Electric
Engine Spec No.	E714C
Type	Axial
Length	202.0"
Diameter35.2"
Weight (Dry)	3570 lb
Tail Pipe	Auto. Var. Area
Augmentation	Afterburner

ENGINE RATINGS

S.L. Static	LB	RPM	Min
Max:	*15,600	7460	
Mil:	10,000	7460	
Nor:	9700	7460	cont.

* With Afterburner

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Loading and Performance - Typical Mission

C O N D I T I O N S		I	II	III	IV
		BASIC MISSION	MAXIMUM RADIUS	500 N. MI. COMBAT ZONE @ M = 2.0	FERRY RANGE
REFUELED MISSION					
TAKE-OFF WEIGHT	(lb)	158,000	158,000	158,000	155,329
Fuel at 6.5 lb/gal (JP-4)	(lb)	96,338	96,338	96,338	99,897
Payload (Warhead)	(lb)	6230	6230	6230	None
Take-off ground run at SL	(ft)	5870	5870	5870	5650
Take-off to clear 50 ft	(ft)	9030	9030	9030	8700
Rate of climb at SL	(1) (fpm)	14,780	14,780	14,780	15,100
Rate of climb at SL (one engine out)	(1) (fpm)	9250	9250	9250	9450
REFUELED WEIGHT	(lb)	158,000	158,000	158,000	155,329
Transferred fuel	(lb)	64,100	64,100	64,100	64,000
Refuel radius	(n.mi)	2500	2500	2500	2500
Wing loading	(lb/sq ft)	102.3	102.3	102.3	100.7
Service ceiling (100 fpm)	(1) (ft)	47,900	47,900	47,900	48,300
Service ceiling (one engine out)	(1) (ft)	38,300	38,300	38,300	38,700
COMBAT RANGE	(ft)	--	--	--	8416
COMBAT RADIUS	(n.mi)	3910	4225	3200	--
Combat zone radius	(n.mi)	100	--	500	--
Combat zone speed	(2) (kn)	1147	--	1147	--
Target altitude	(ft)	52,700	38,800	53,000	--
Target speed	(2) (kn)	1147	552	1147	--
Average cruise speed outside combat zone	(kn)	544	539	544	533
Initial cruise altitude	(ft)	30,000	30,000	30,000	30,000
Final cruise altitude	(ft)	50,350	50,150	50,700	49,500
Total mission time	(hr)	14.7	16.18	11.3	16.28
COMBAT WEIGHT	(lb)	107,250	111,030	105,050	62,150
Combat Altitude	(ft)	58,500	42,700	58,850	49,500
Combat speed	(2) (kn)	1147	1147	1147	1147
Combat climb	(1) (fpm)	1000	15,600	1,000	17,800
Combat ceiling (500 fpm)	(1) (ft)	59,000	58,300	59,350	66,400
Service ceiling (100 fpm)	(1) (ft)	59,400	58,700	59,750	67,000
Service ceiling (one engine out)	(1) (ft)	48,750	48,000	48,250	58,000
Maximum rate of climb at SL	(1) (fpm)	38,000	36,800	38,300	64,000
Maximum speed at service ceiling	(2) (kn)	1147	1147	1147	1147
Basic speed at 35,000 ft	(2) (kn)	1131	1131	1131	1131
LANDING WEIGHT	(lb)	58,800	59,400	57,900	62,150
Ground roll at SL	(ft)	2700	2730	2660	2845
Ground roll (parachute)	(ft)	2055	2080	2010	2200
Total distance from 50 ft	(ft)	5060	5100	5015	5225
Total distance from 50 ft (parachute)	(ft)	4415	4450	4365	4580

NOTES (1) Max. Power
 (2) High speeds restricted by engine and airframe structural limit
 (3) Data based on airplane carrying Free Fall Bomb Pod (MB-1C) with W-39 Warhead.

PERFORMANCE BASIS:
 (a) Data source: Contractor's estimated data

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Loading and Performance - Typical Mission

C O N D I T I O N S NON-REFUELED MISSION	V	VI	VII	VIII
	BASIC MISSION	MAXIMUM RADIUS	500 N. MI. COMBAT ZONE @ M = 2.0	FERRY RANGE
TAKE-OFF WEIGHT (lb)	158,000	158,000	158,000	155,329
Fuel at 6.5 lb/gal (JP-4) (lb)	96,338	96,338	96,338	99,897
Payload (Warhead) (lb)	6230	6230	6230	None
Wing loading (lb/sq ft)	102.3	102.3	102.3	100.7
Take-off ground run at SL (ft)	5870	5870	5870	5650
Take-off to clear 50 ft (ft)	9030	9030	9030	8700
Rate of climb at SL (1) (fpm)	14,780	14,780	14,780	15,100
Rate of climb at SL (one engine out) (1) (fpm)	9250	9250	9250	9450
Time: SL to 20,000 ft (2) (min)	6.9	6.9	6.9	6.7
Time: SL to 30,000 ft (2) (min)	13.7	13.7	13.7	13.5
Service ceiling (100 fpm) (1) (ft)	47,900	47,900	47,900	48,300
Service ceiling (one engine out) (1) (ft)	38,300	38,300	38,300	38,700
COMBAT RANGE (n.mi)	--	--	--	5634
COMBAT RADIUS (n.mi)	2250	2720	1690	--
Combat zone radius (n.mi)	200	--	500	--
Combat zone speed (kn)	1147	--	1147	--
Target Altitude (ft)	55,900	43,200	56,100	--
Target speed (kn)	1147	552	1147	--
Average cruise speed outside combat zone (kn)	544	539	544	533
Initial cruise altitude (ft)	30,000	30,000	30,000	30,000
Final cruise altitude (ft)	50,600	50,300	50,900	49,700
Total mission time (hr)	7.9	10.13	5.24	10.58
COMBAT WEIGHT (lb)	85,500	89,000	84,450	61,900
Combat altitude (ft)	63,100	48,000	63,500	49,700
Combat speed (3) (kn)	1147	1147	1147	1147
Combat climb (4) (fpm)	1000	15,600	1000	18,000
Combat ceiling (500 fpm) (ft)	63,600	63,000	64,000	66,600
Service ceiling (100 fpm) (ft)	64,000	63,400	64,400	67,200
Service ceiling (one engine out) (ft)	53,600	52,900	53,900	58,200
Maximum rate of climb at SL (ft)	47,800	45,800	48,200	64,200
Maximum speed at service ceiling (4) (kn)	1147	1147	1147	1147
Basic speed at 35,000 ft (3) (kn)	1131	1131	1131	1131
LANDING WEIGHT (lb)	58,200	59,000	57,500	61,900
Ground roll at SL (ft)	2680	2710	2645	2825
Ground roll (parachute) (ft)	2020	2060	1990	2185
Total distance from 50 ft (ft)	5040	5075	5000	5205
Total distance from 50 ft (parachute) (ft)	4380	4425	4345	4565

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NOTES ① Max power
 ② Military Power
 ③ High speeds restricted by engine and airframe structural limit
 ④ Data based on airplane carrying Free Fall Bomb Pod (MB-1C) with W-39 Warhead.

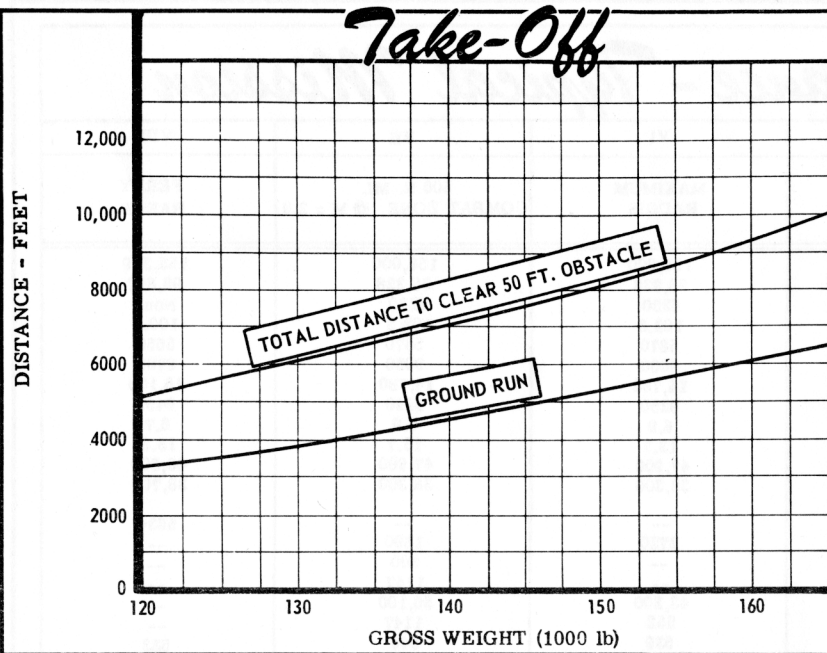
PERFORMANCE BASIS:
 (a) Data source: Contractor's Estimated Data

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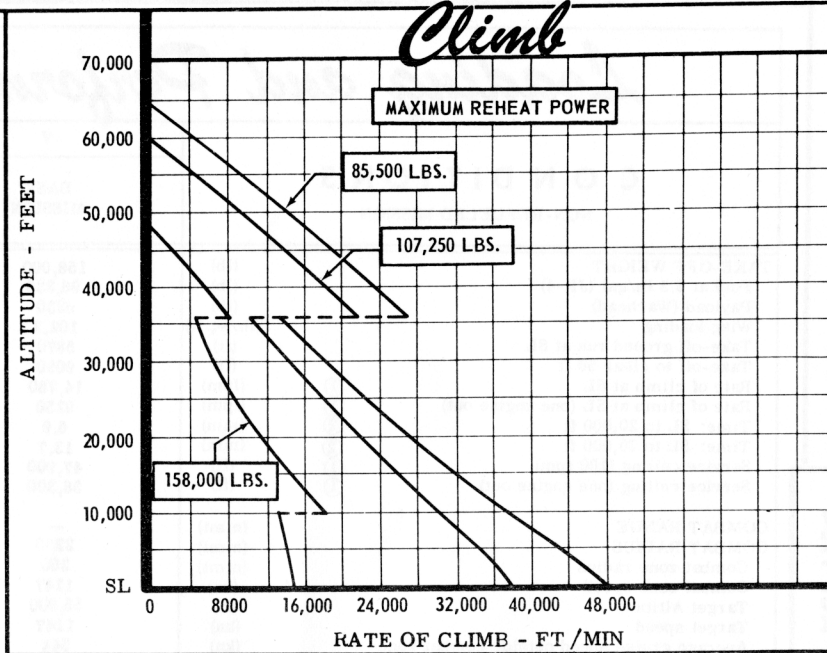
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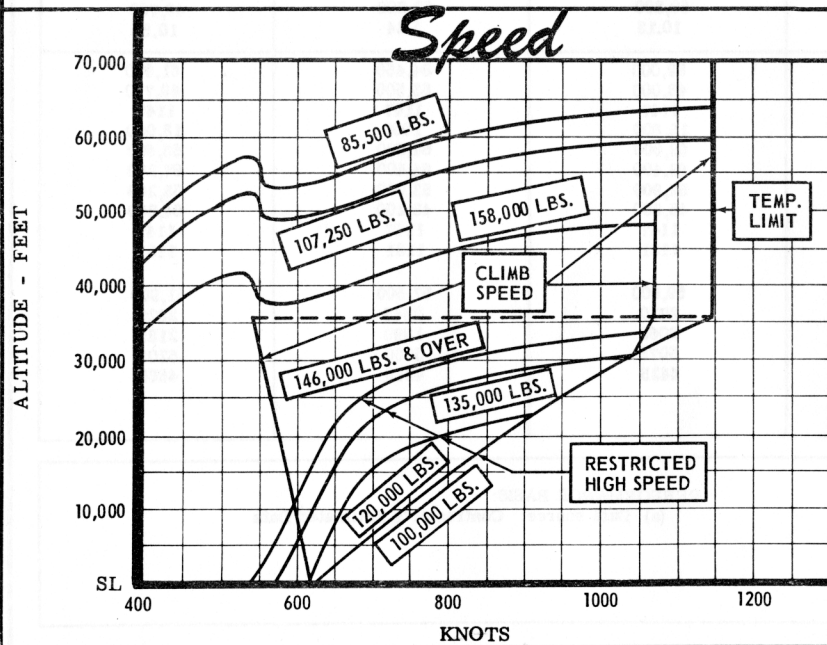
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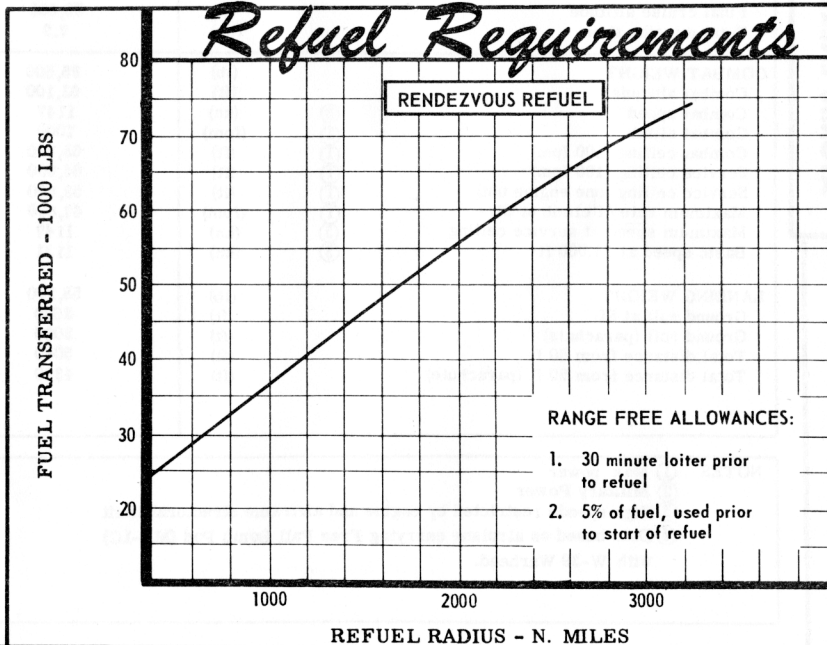
Climb



Speed



Refuel Requirements



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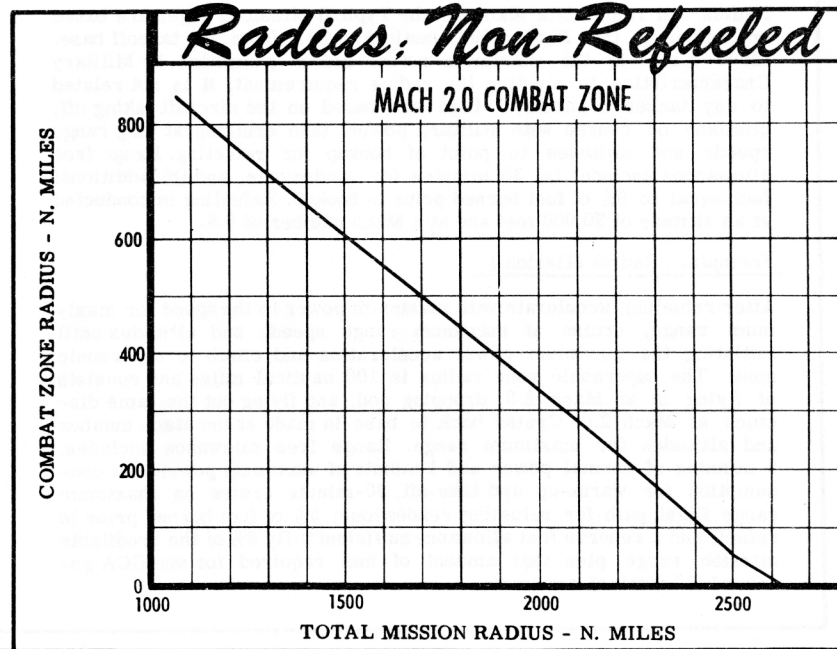
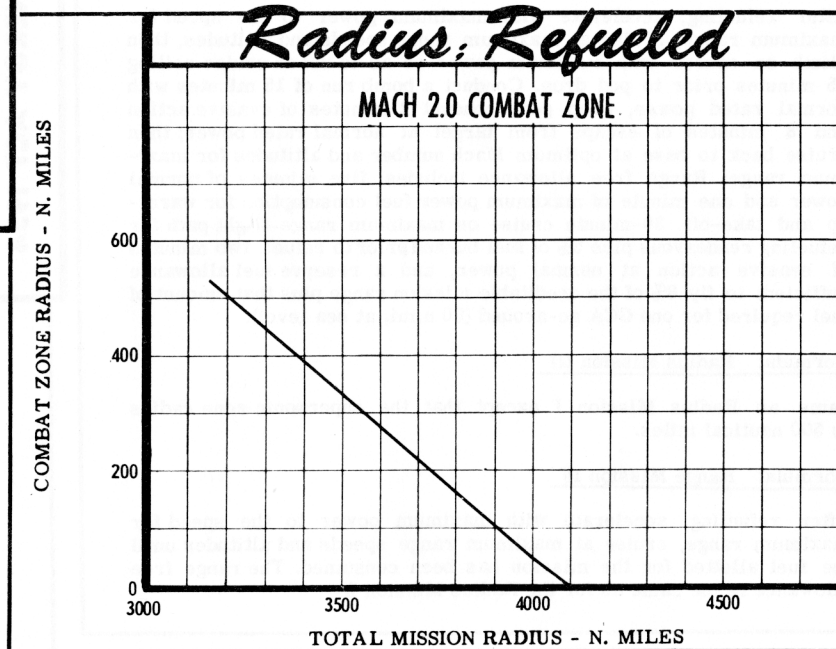
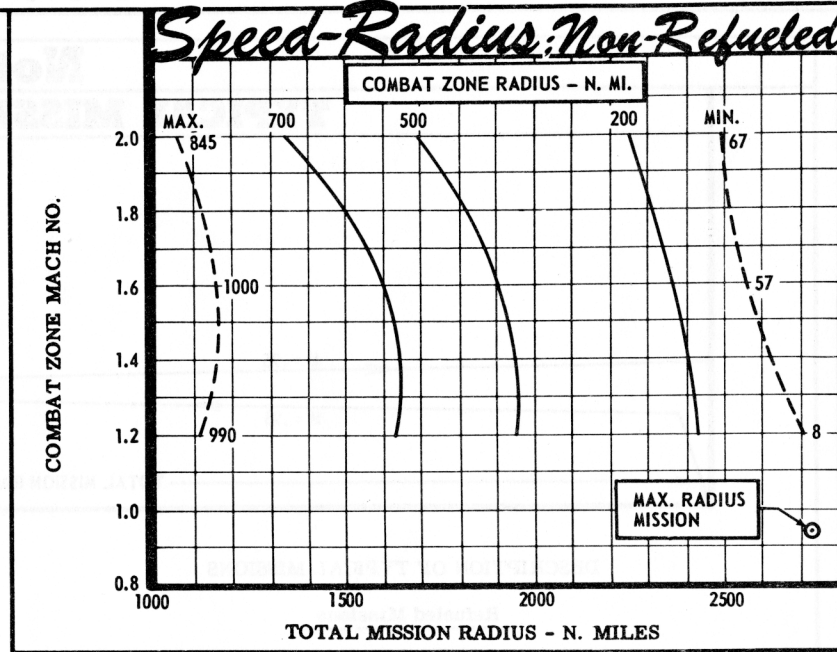
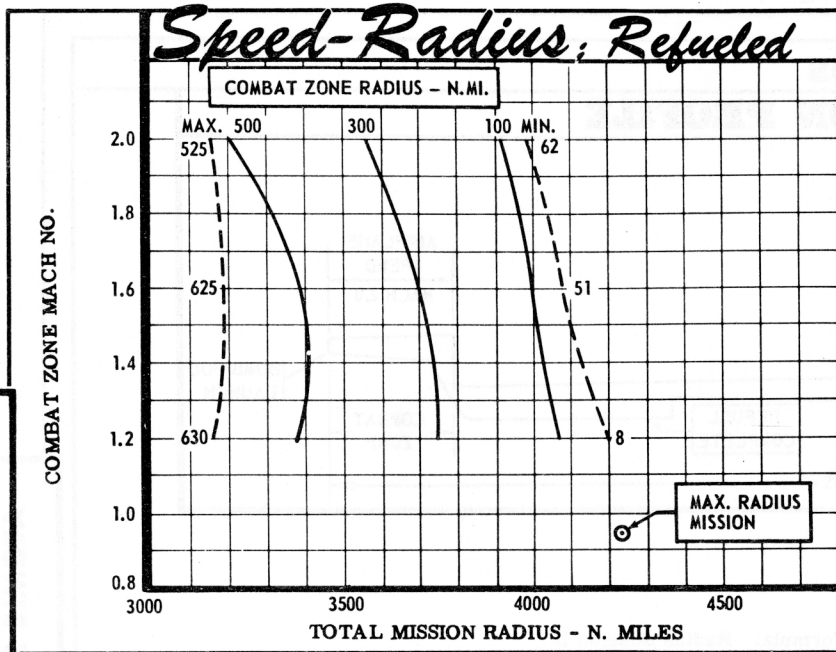
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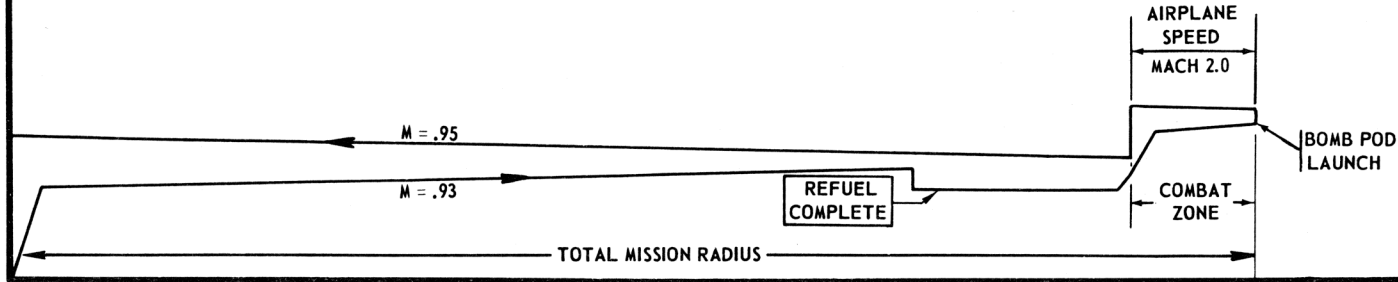
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Notes

TYPICAL MISSION PROFILE



DESCRIPTION OF TYPICAL MISSIONS

Refueled Missions

Radius and range data shown on the Typical Missions pages are based on refueling the B-58 2500 nautical miles from the takeoff base. (2500 n.mi. is the maximum refuel radius permitted by Military Characteristics in meeting the radius requirement; it is not related to any tanker capability.) Data are based on the aircraft taking off, climbing on course with Military power, then cruising at long range speeds and altitudes to point of hookup for refueling. Range free allowances include: (a) 30 minutes for rendezvous, and (b) additional fuel equal to 5% of fuel burned prior to hookup. Refueling is conducted at an altitude of 30,000 feet and at a Mach number of 0.8.

Formula: Radius Mission I

After refueling, accelerate with maximum power to the speed for maximum range, cruise at maximum range speeds and altitudes until initiating the maximum power acceleration and climb to supersonic zone. The supersonic zone radius is 100 nautical miles and consists of flying in at Mach 2.0, dropping pod, and flying out the same distance at Mach 2.0. Cruise back to base is made at the Mach number and altitudes for maximum range. Range free allowance includes: 5 minutes of normal power and 1 minute of maximum power fuel consumption for warm-up and take-off, 30-minute cruise on maximum range flight path for refueling rendezvous; 5% of fuel burned prior to refuel, and a reserve fuel allowance sufficient to fly 8% of the creditable mission range plus that amount of fuel required for one GCA go-around (80 n.mi. at sea level).

Formula: Radius Mission II

After refueling, accelerate with maximum power to the speed for maximum range, cruise at maximum range speeds and altitudes, then climb on course with maximum power so as to reach cruise ceiling 15 minutes prior to pod drop. Conduct a bomb run of 15 minutes with normal rated power, drop pod, conduct 2 minutes of evasive action and 8 minutes of escape from target at normal rated power; then cruise back to base at optimum Mach number and altitudes for maximum range. Range free allowance includes: five minutes of normal power and one minute of maximum power fuel consumption for warm-up and take-off, 30-minute cruise on maximum range flight path for refueling rendezvous plus 5% of fuel burned prior to refuel, two minutes of evasive action at normal power, and a reserve fuel allowance sufficient to fly 8% of the creditable mission range plus that amount of fuel required for one GCA go-around (80 n.mi. at sea level).

Formula: Radius Mission III

Same as Radius Mission I except that the supersonic zone radius is 500 nautical miles.

Formula: Range Mission IV

After refueling, accelerate with maximum power to the speed for maximum range, cruise at maximum range speeds and altitudes until the fuel allotted for the mission has been consumed. The range free allowance is the same as for the Radius Mission I.

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Non-Refueled Missions

Formula: Radius Mission V

Takeoff, climb on course with Military power to the altitude for maximum range, cruise at maximum range speeds and altitudes until the maximum power acceleration and climb to supersonic zone is initiated. The supersonic zone radius is 200 nautical miles and consists of flying in at Mach 2.0, dropping pod, and flying out the same distance at Mach 2.0. Cruise back to base is made at the Mach number and altitudes for maximum range. Range free allowance includes 5 minutes of normal power and 1 minute of maximum power fuel consumption for warm-up and take-off and a reserve fuel allowance sufficient to fly 8% of the creditable mission range plus that amount of fuel required for one GCA go-around (80 n.mi. at sea level).

Formula: Radius Mission VI

Takeoff, climb on course with Military power to the altitude for maximum range, cruise at speeds and altitudes for maximum range, and then climb on course with maximum power in order to reach cruise ceiling 15 minutes prior to pod drop. Conduct a bomb run of 15 minutes with normal rated power, drop pod, conduct 2-minute evasive action,

and 8-minute escape from target at normal rated power; then cruise back to base at the Mach number and altitudes for maximum range. Range free allowance includes five minutes of normal power and one minute of maximum power fuel consumption for warm-up and take-off, the two minutes of evasive action at normal power, and a reserve fuel allowance sufficient to fly 8% of the creditable mission range plus that amount of fuel required for one GCA go-around (80 n.mi. at sea level).

Formula: Radius Mission VII

Same as Radius Mission V except that the supersonic zone radius is 500 nautical miles.

Formula: Range Mission VIII

Takeoff, climb on course with Military power to the altitude for maximum range, and cruise at maximum range speeds and altitudes until the fuel allotted for the mission has been consumed. The range free allowance is the same as for Radius Mission V.

SUPPLEMENTAL DATA

The curves on page 10 complete the coverage of the mission performance capabilities of the B-58. The upper plot shows target coverage capabilities of the B-58 flying a Mach 2.0 zone at altitude; the lower plot shows target coverage for the B-58 flying a sea level zone.

Three basic types of mission are depicted:

- (1) non-refuel, radius missions with radius zones and with pre-target zones.
- (2) refuel, radius missions with radius zones and with pre-target zones.
- (3) refuel, 2000 n.mi. post-strike stage missions with pre-target zones.

For both the high altitude and the sea level missions, the plots show target distance vs. zone radius for missions with a radius zone and vs. zone range for missions with a pre-target zone.

Revision Basis:

To reflect current model designation and changes to Power Plant and Armament Blocks.

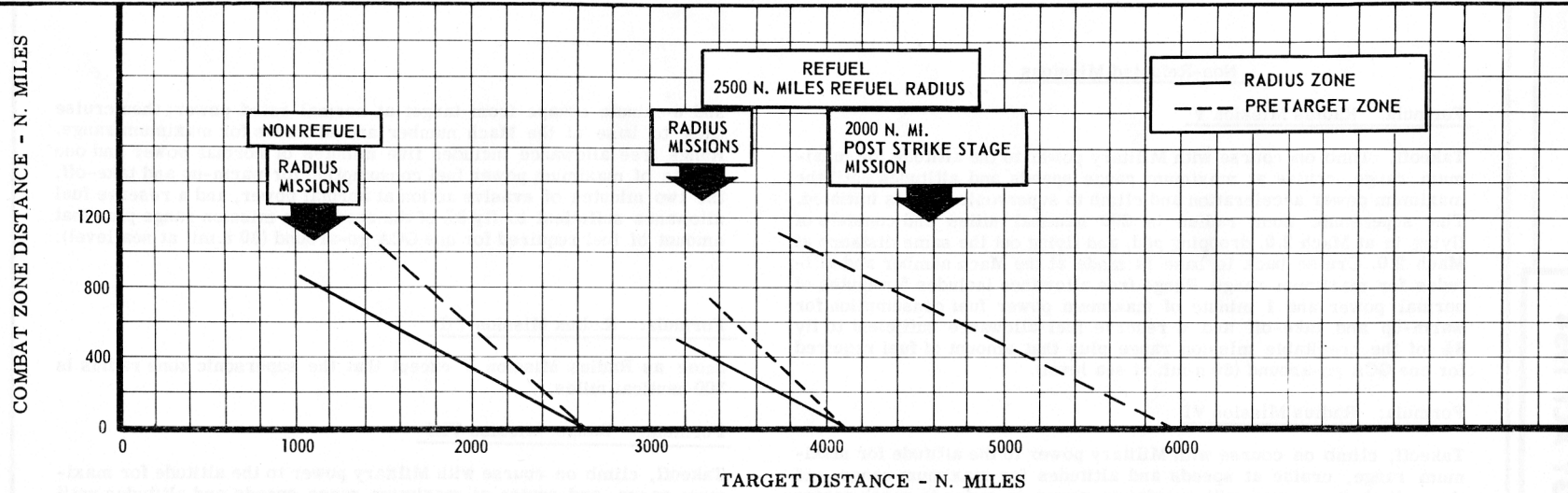
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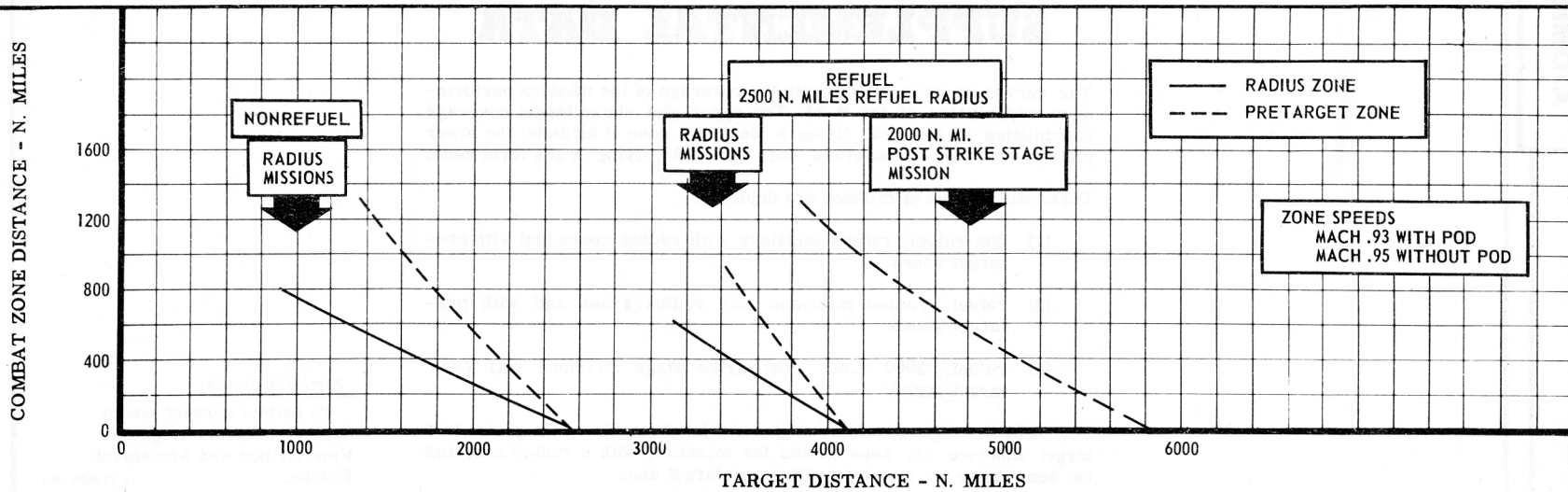
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SUPPLEMENTAL DATA

M=2.0 HIGH ALTITUDE ZONE



SEA LEVEL ZONE



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