

## **INDEPENDENT ANALYSIS**

The attached AIRCRAFT COMPARATIVE DATA was made by a first class research organization which did not wish to be identified, as it was a contractor to the Department of Defense and major aircraft manufacturers. This organization had ready access to the figures on all three aircraft during the competition.

**AIRCRAFT COMPARATIVE DATA**

**BURNELLI TURBOPROP**

**DEHAVILLAND AC II**

**FAIRCHILD M258K**

9 March 1962

# AIRCRAFT COMPARATIVE DATA

## CONTENTS

<b>DESIGN PARAMETERS.....</b>	<b>1</b>
AIRCRAFT DESIGN PARAMETERS COMPARISON (1).....	Fig. a
AIRCRAFT DESIGN PARAMETERS COMPARISON (2).....	Fig. b
AIRCRAFT WEIGHT PARAMETERS COMPARISON.....	Fig. c
CABIN DIMENSION COMPARISON.....	Fig. d
CABIN VOLUME COMPARISON.....	Fig. e
<b>MISSION SUMMARY.....</b>	<b>2</b>
SHORT RANGE PAYLOAD COMPARISON.....	Fig. c
MEDIUM RANGE PAYLOAD COMPARISON.....	Fig. d
LONG RANGE PAYLOAD COMPARISON.....	Fig. e
<b>MAXIMUM PERFORMANCE TAKE-OFF DISTANCE VS. GROSS WEIGHT.....</b>	<b>Fig. 1</b>
<b>MAXIMUM PERFORMANCE LANDING DISTANCE VS. GROSS WEIGHT.....</b>	<b>Fig. 2</b>
<b>RADIUS MISSION PAYLOAD VS. DISTANCE.....</b>	<b>Fig. 3</b>
<b>CARGO COMPARTMENT LAYOUT.....</b>	<b>Fig. 4</b>
<b>AIRCRAFT DRAWINGS.....</b>	<b>Fig. 5</b>

# AIRCRAFT COMPARATIVE DATA

## DESIGN PARAMETERS

<u>PARAMETER</u>	<u>BURNELLI</u>	<u>DH AC II</u>	<u>FAIRCHILD M258K</u>
Wing span	86 ft	96 ft	95 ft
Wing area	630 sq ft	920 sq ft	754 sq ft
Wing aspect ratio	5	10	12
Fuselage equivalent wing area	800 sq ft	--	--
Wing loading, lb/sq ft	31.5	41.3	51.0
Power loading, lb/T.O.ESHP	7.9	6.66	6.75

## CABIN DIMENSIONS:

Length	216 in	378 in	480 in
Width	228 in	105 in	90 in
Height (entrance)	78 in	78 in	80 in
Volume (main cabin)	2430 cu ft	1570 cu ft	2000 cu ft

## ENGINES:

(2) General Electric T-64-GE-8 turboprop

## WEIGHTS:

Take-off	45000 lb	38000 lb	38500 lb
Landing	43500 lb	32500 lb	38000 lb
Operational Empty (3 men)	22250 lb	21050 lb	26882 lb
Useful load	22750 lb	15950 lb	11618 lb
Internal fuel	19500 lb	11000 lb	11089 lb
Maximum payload	20000 lb	11450 lb	10018 lb

### DESIGN PARAMETERS - Aircraft

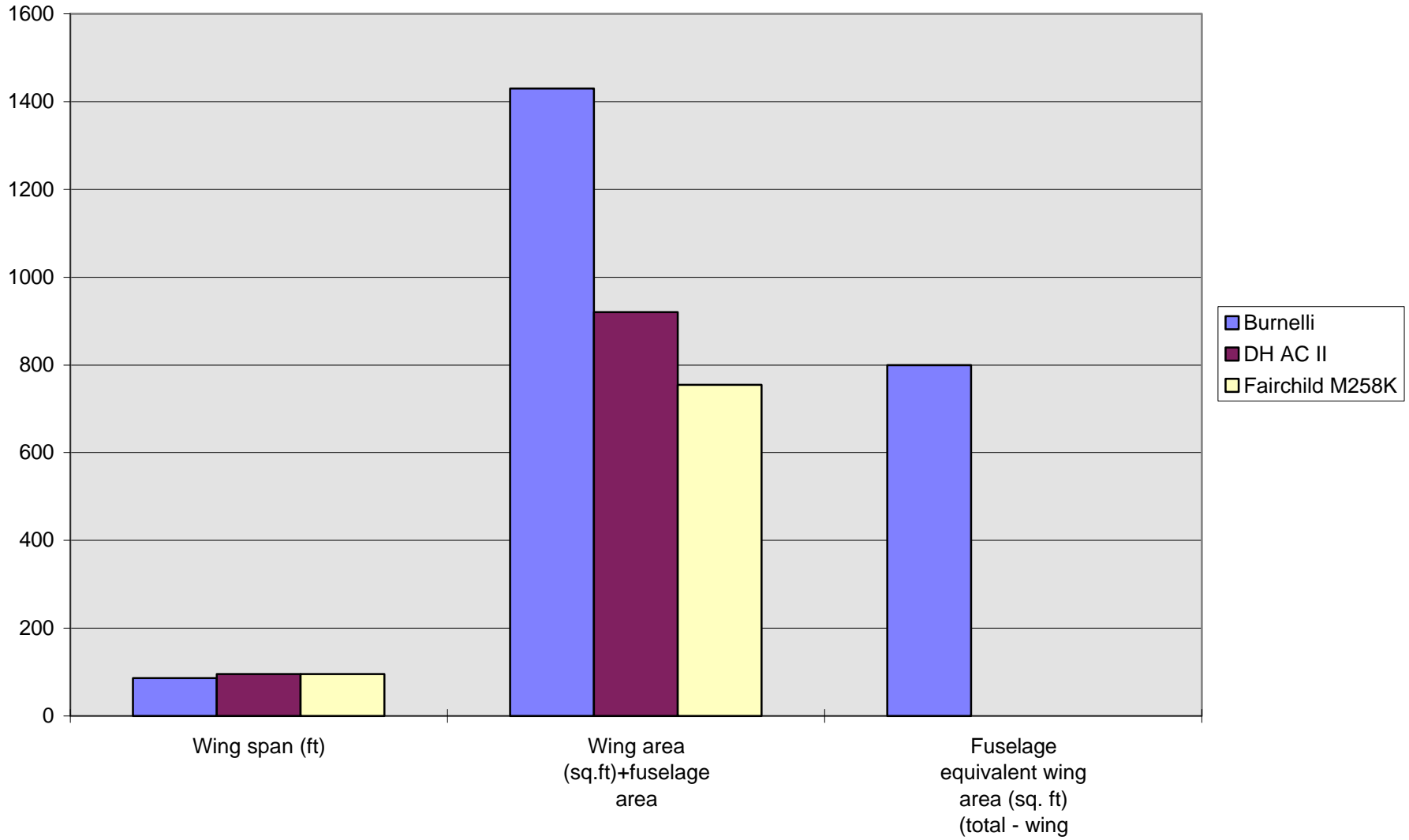
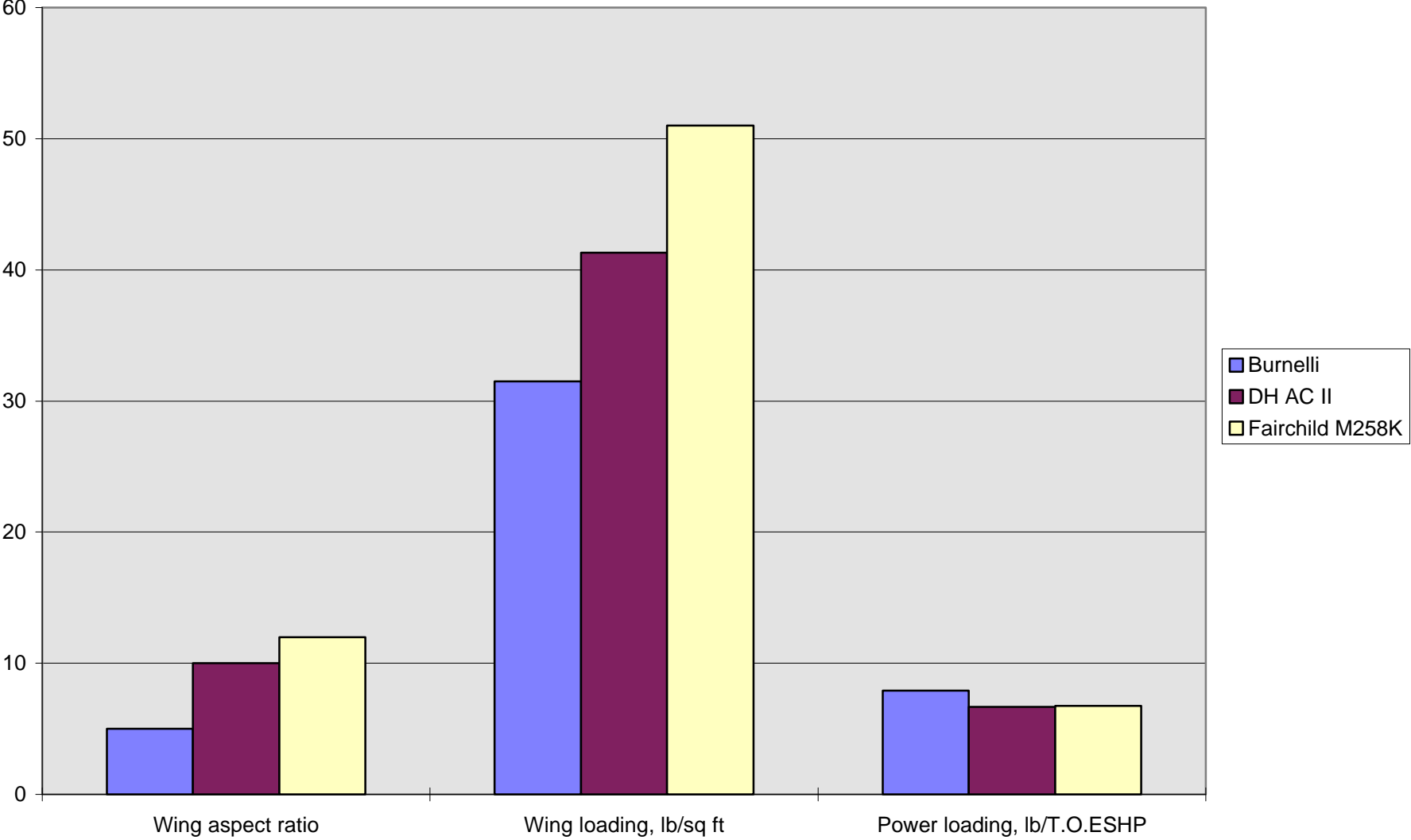


Fig. a

**DESIGN PARAMETERS - Aircraft (2)**



**Fig. b**

### DESIGN PARAMETERS - Weights

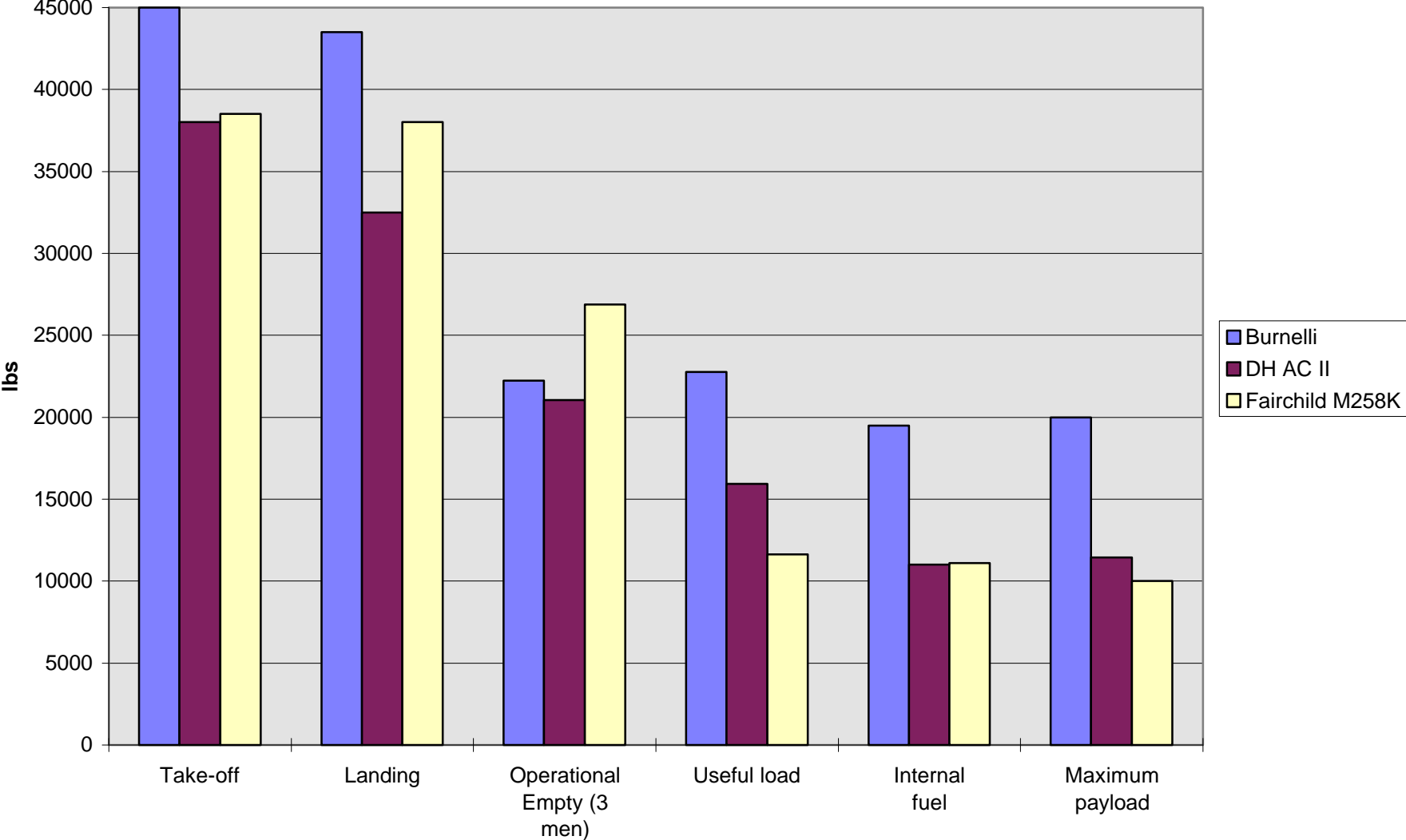


Fig. c

### DESIGN PARAMETERS / Cabin Dimensions

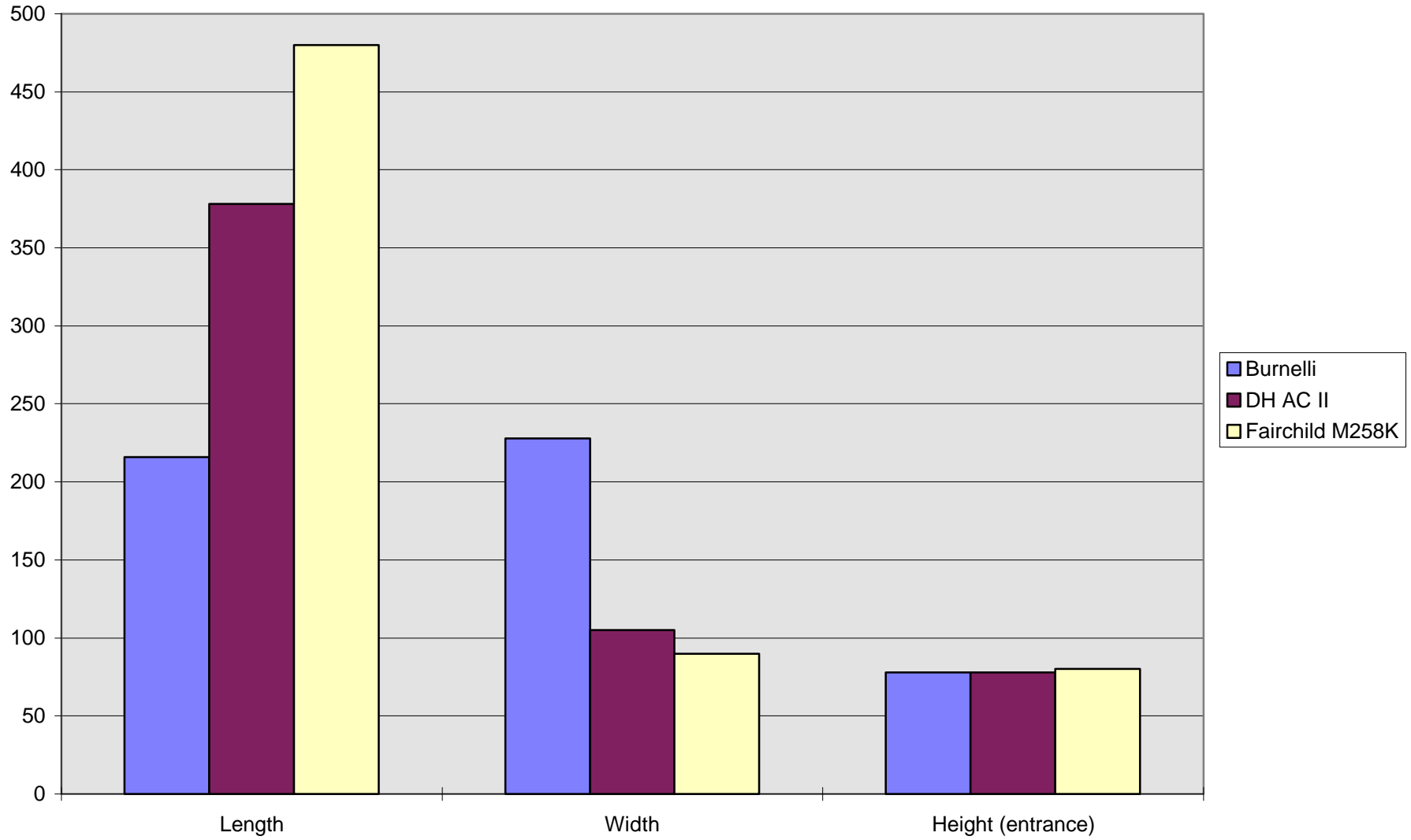
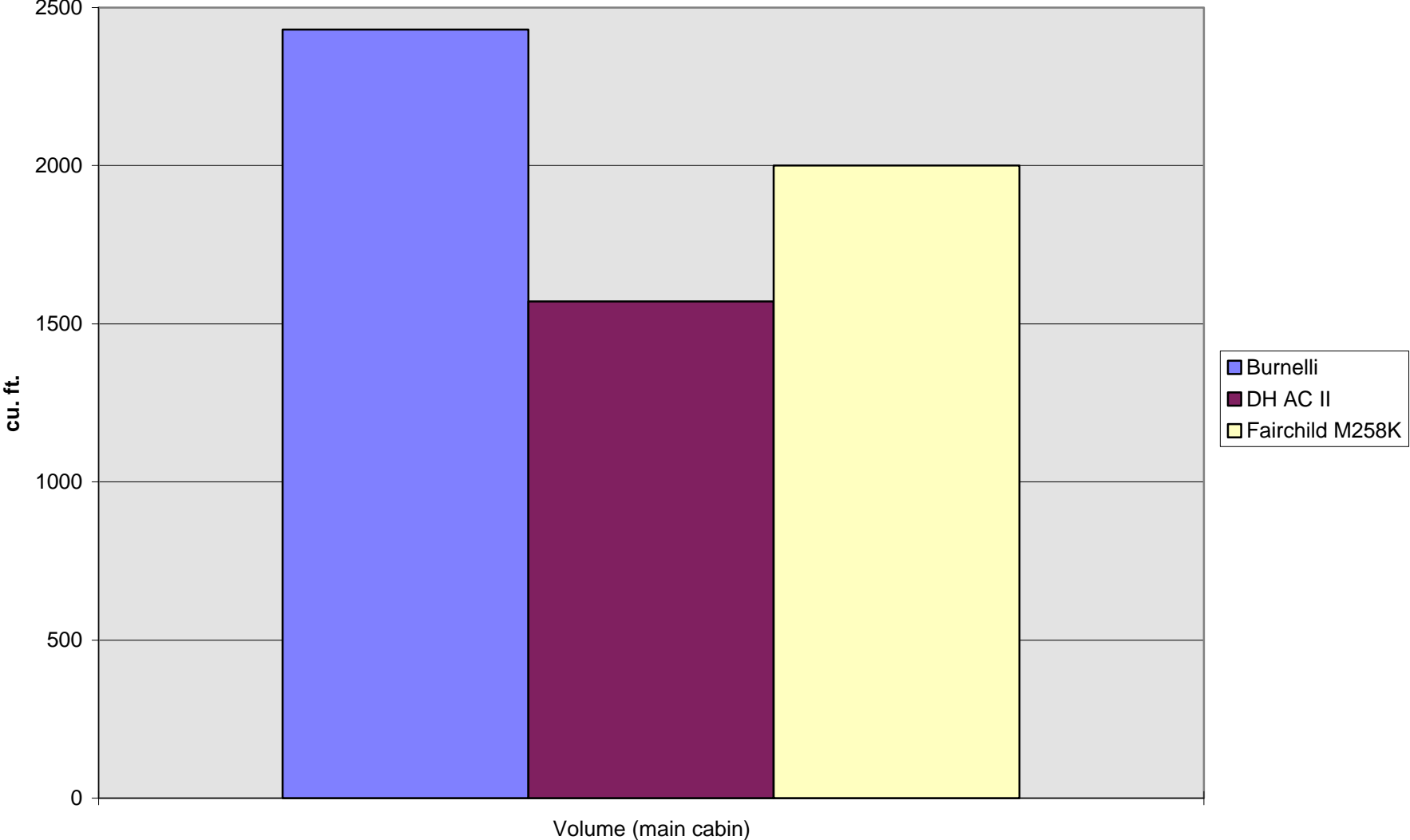


Fig. d

**DESIGN PARAMETERS / Cabin Volume**



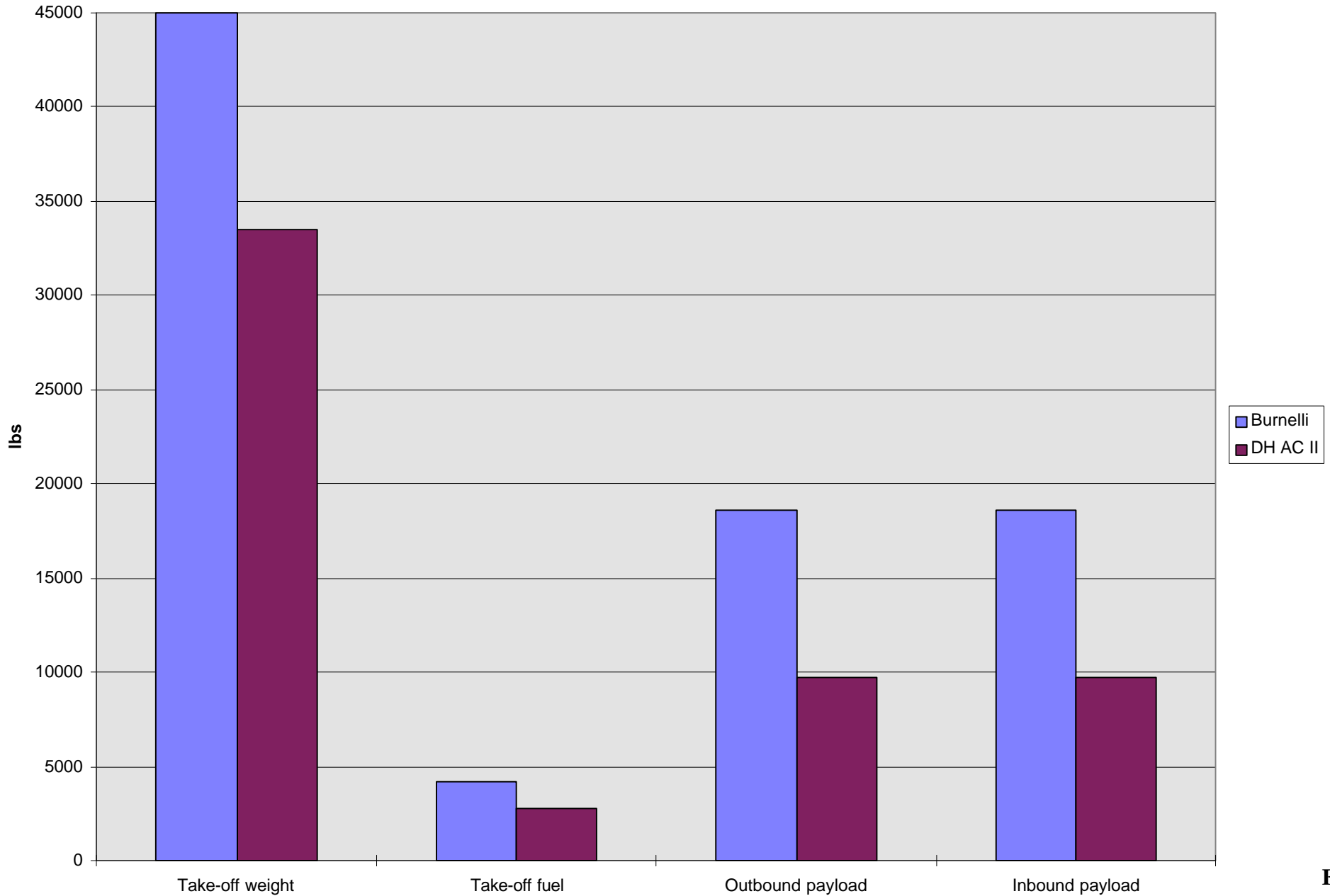
**Fig. e**

## AIRCRAFT COMPARATIVE DATA

### **MISSION SUMMARY**

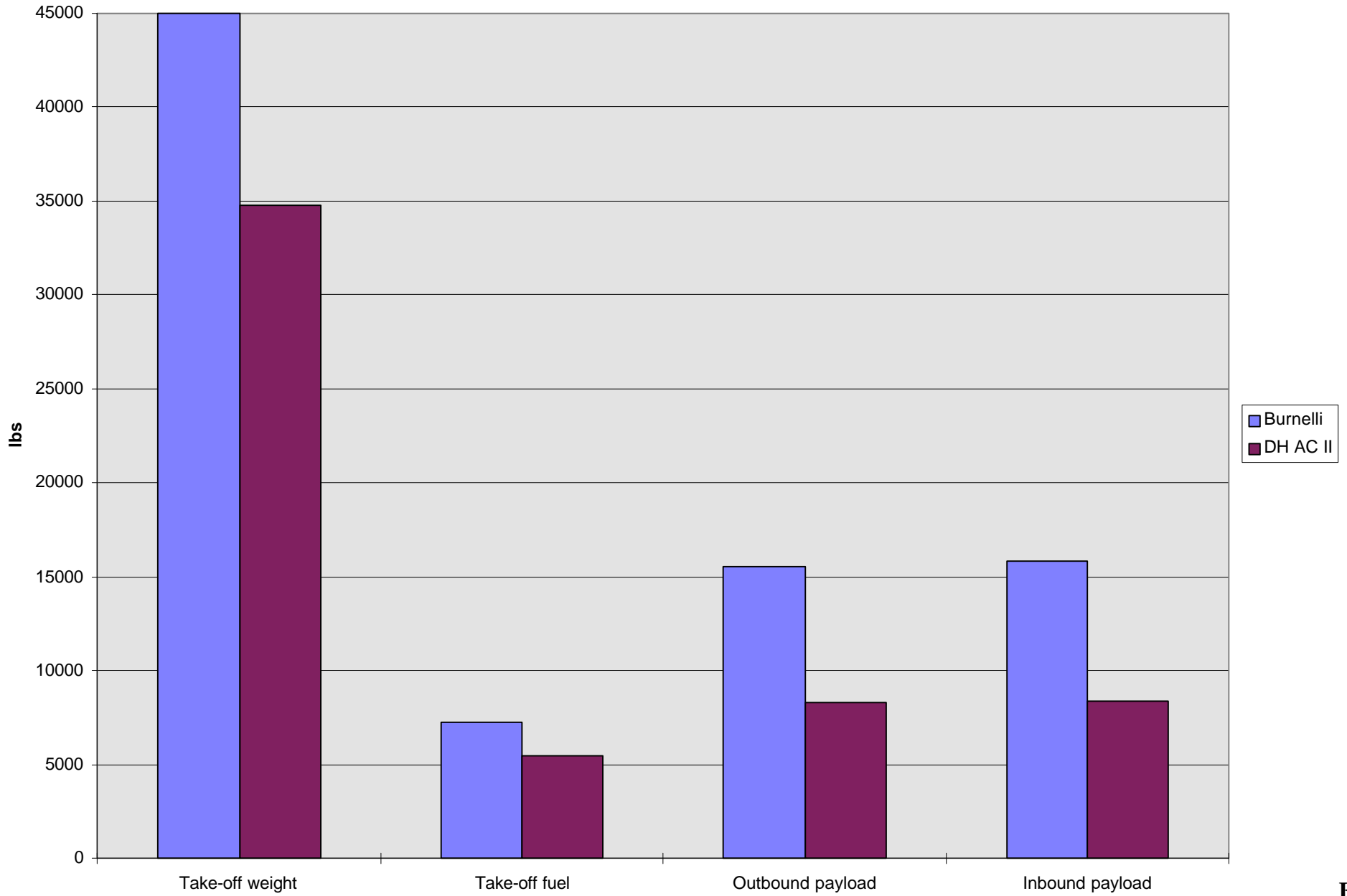
<u>MISSION</u>	<u>BURNELLI</u>	<u>DH AC II</u>	<u>FAIRCHILD M258K</u>
<b>SHORT RANGE—</b>			
Radius	100 nm	100 nm	--
Take-off weight	45000 lb	33500 lb	--
Take-off fuel	4180 lb	2740 lb	--
Outbound payload	18570 lb	9710 lb	--
Inbound payload	18570 lb	9700 lb	--
Cruise speed	200 kt	200 kt	--
Cruise altitude	1000 ft	1000 ft	--
Mission time	1.2 hr	1.2 hr	--
<b>MEDIUM RANGE—</b>			
Radius	250 nm	250nm	--
Take-off weight	45000 lb	34800 lb	--
Take-off fuel	7230 lb	5430 lb	--
Outbound payload	15520 lb	8320 lb	--
Inbound payload	15855 lb	8350 lb	--
Cruise speed	200 kt	200 kt	--
Cruise altitude	5000 ft	5000 ft	--
Mission time	2.9 hr	2.9 hr	--
<b>LONG RANGE—</b>			
Radius	500 nm	500 nm	495 nm
Take-off weight	45000 lb	36300 lb	38500 lb
Take-off fuel	11330 lb	8130 lb	6218 lb
Outbound payload	11420 lb	7120 lb	6000 lb
Inbound payload	15000 lb	7050 lb	6000 lb
Cruise speed	174 kt	172 kt	190 kt
Cruise altitude	10000 ft	10000 ft	10000 ft
Mission time	6.5 hr	6.55 hr	---

**SHORT RANGE - 100 nm, 1000 ft. cruise alt. 1.2 hrs**



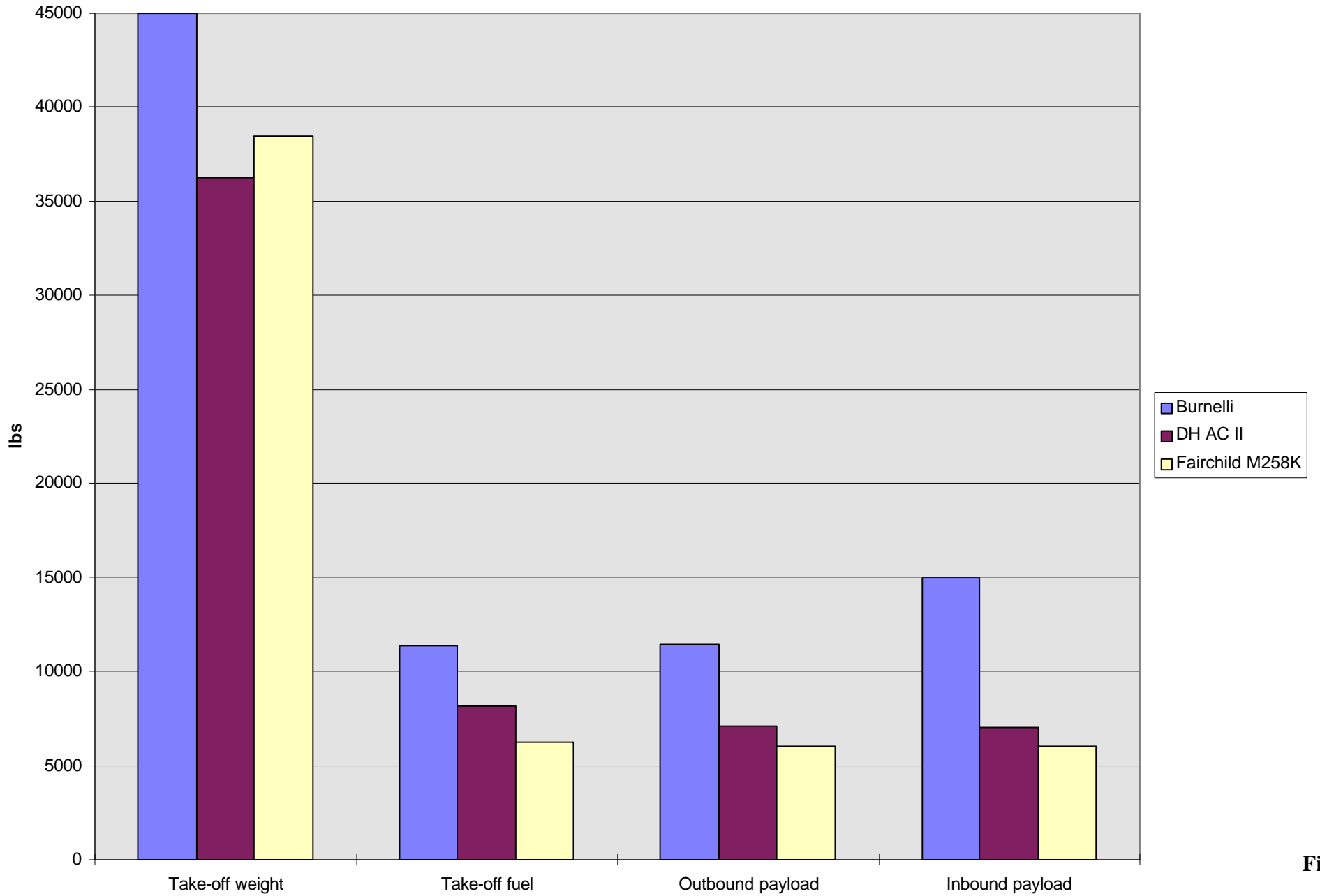
**Fig. f**

**MEDIUM RANGE - 250 nm, 5000 ft. cruise alt., 2.9 hrs**



**Fig. 8**

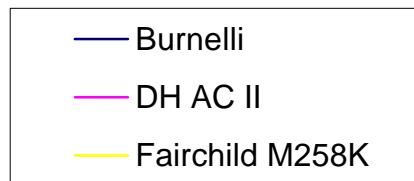
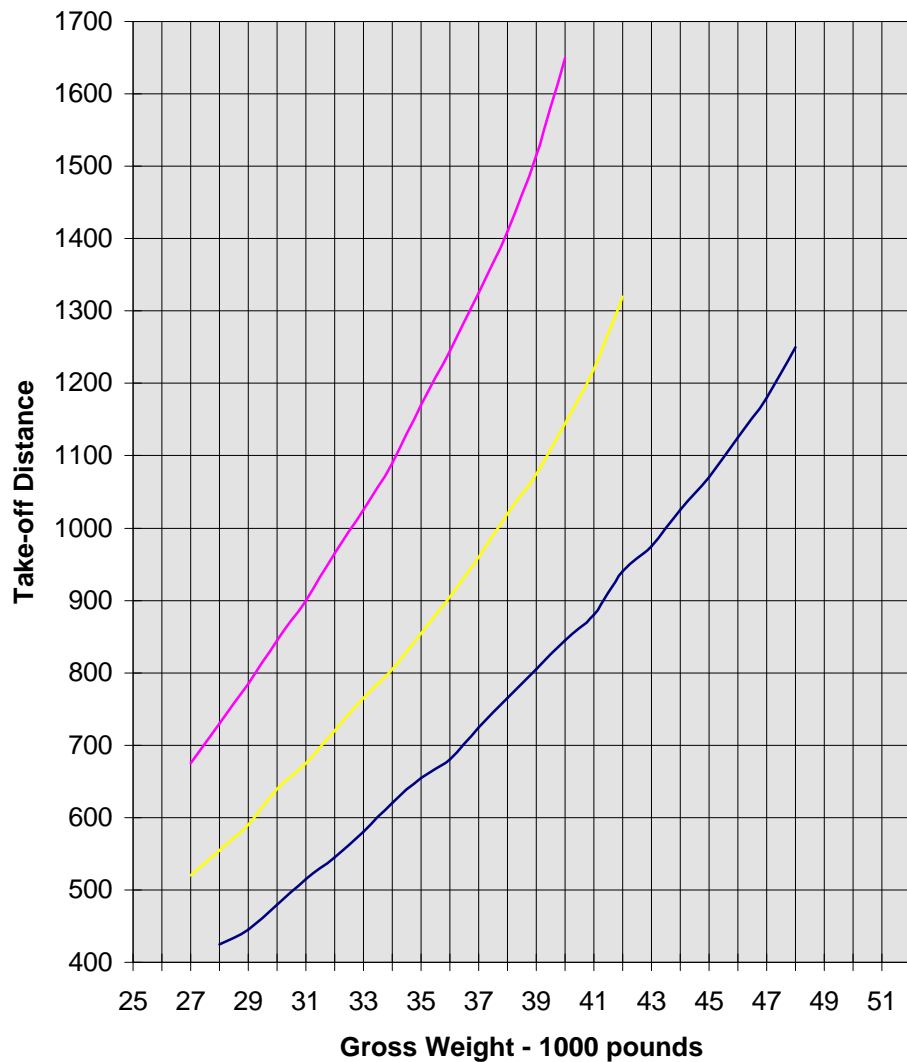
**LONG RANGE - 500 nm, 10000 ft cruise alt., 6.5 hrs**



**Fig. h**

**Max Perf. Take-Off Dist. vs. Gross Wt.**

**Fig. 1**



Maximum Performance Take-Off Distance vs. Gross Weight

Comparative Data

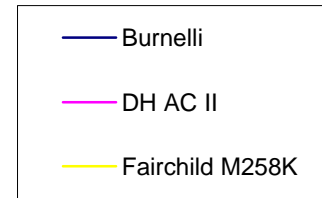
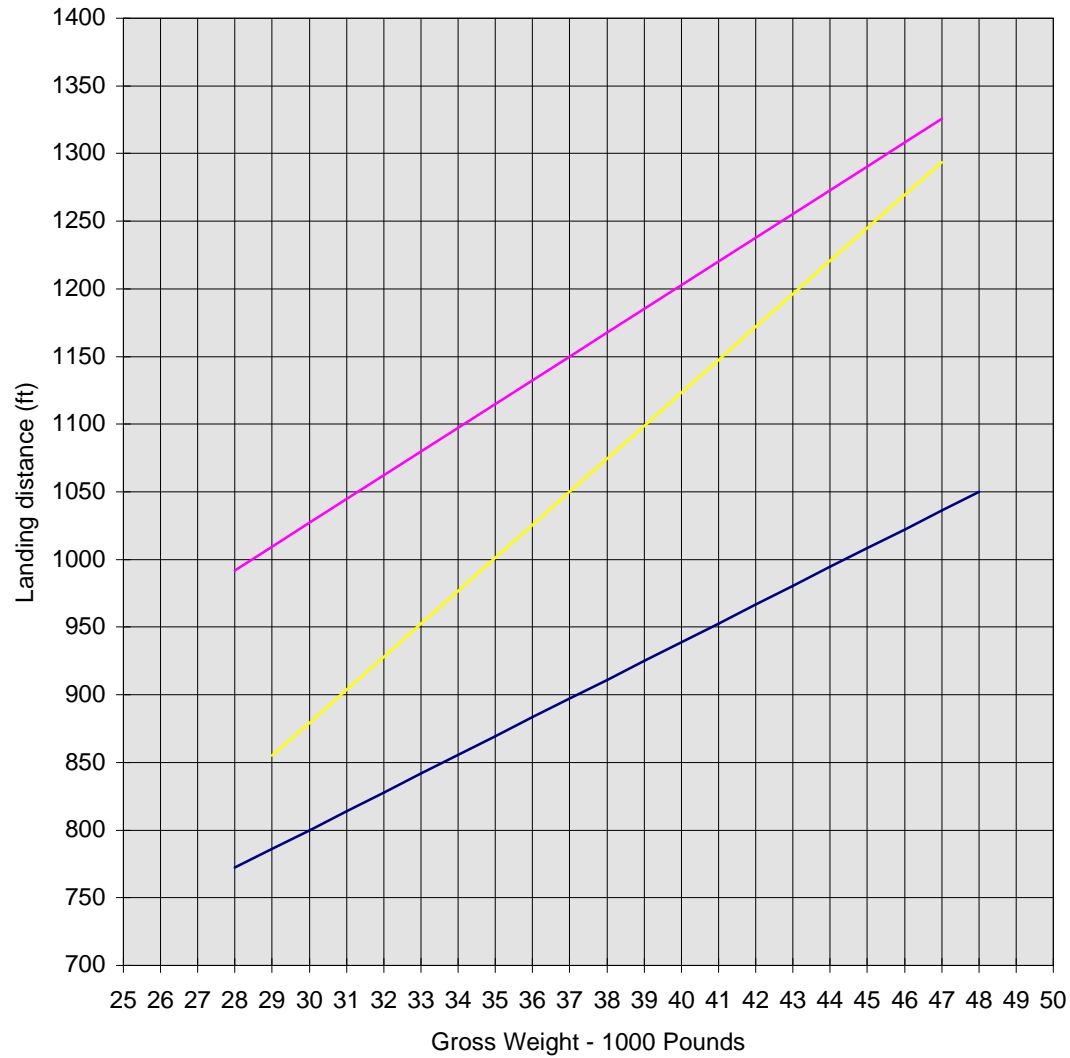
(2) General Electric T-64-8 Engines  
T.O. Rating - 2850 E.S.H.P.

Distance to clear 50 foot obstacle  
Sea level, Standard day

**Fig. 1**

Maximum Performance Landing Distance vs. Gross Weight

Fig. 2



Maximum Performance Landing distance vs. Gross Weight

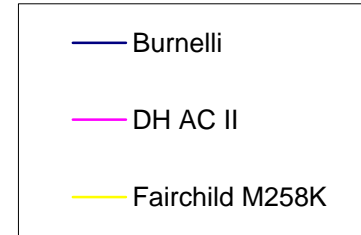
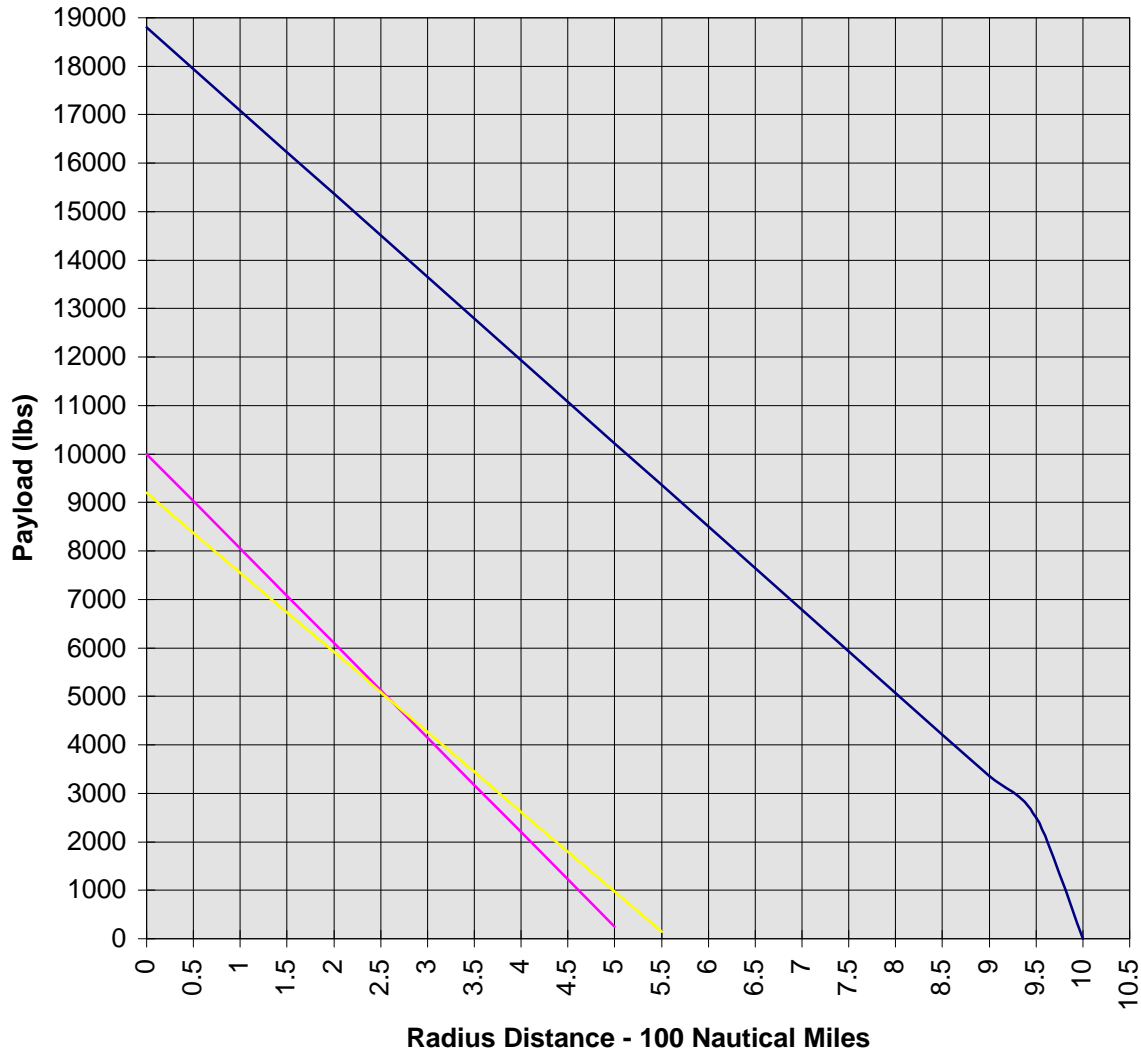
Comparative Data

(2) General Electric T-64-8 Engines

Distance from 50 foot obstacle  
Sea level, standard day

**Radius Mission Payload vs. Distance**

**Fig. 3**



Radius Mission Payload vs. Distance  
Comparative Data

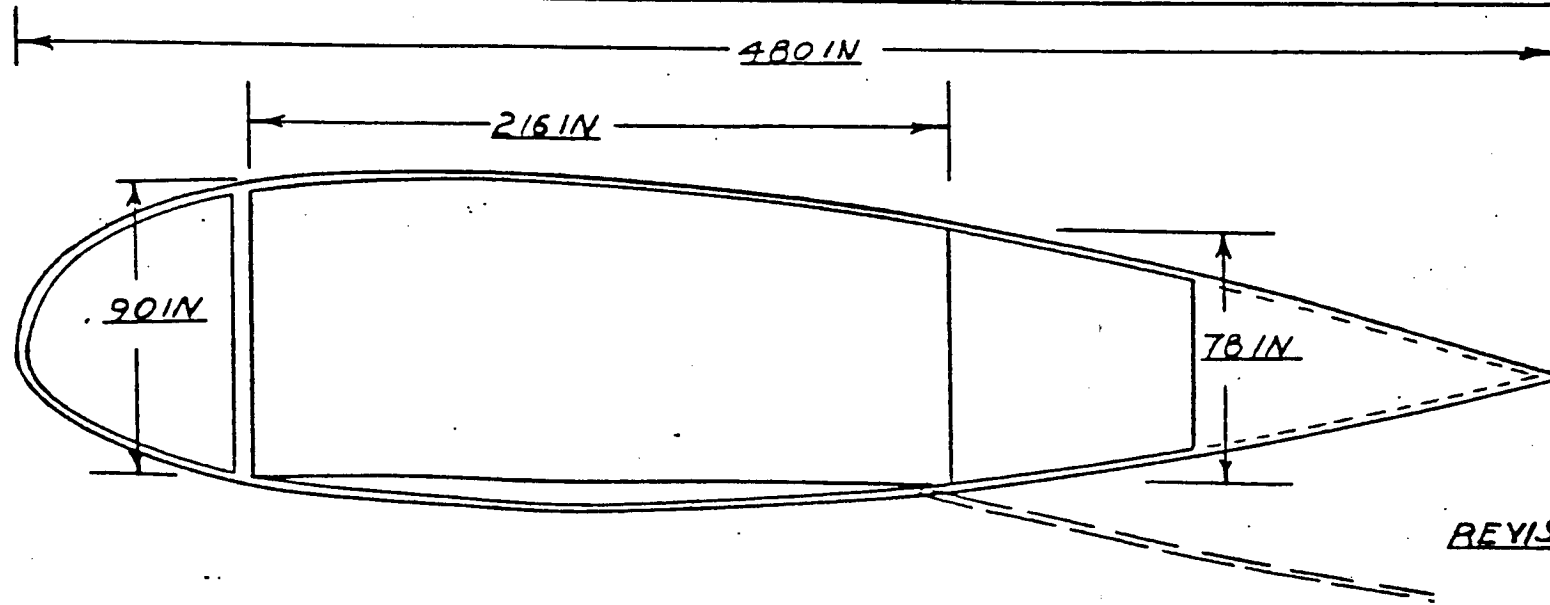
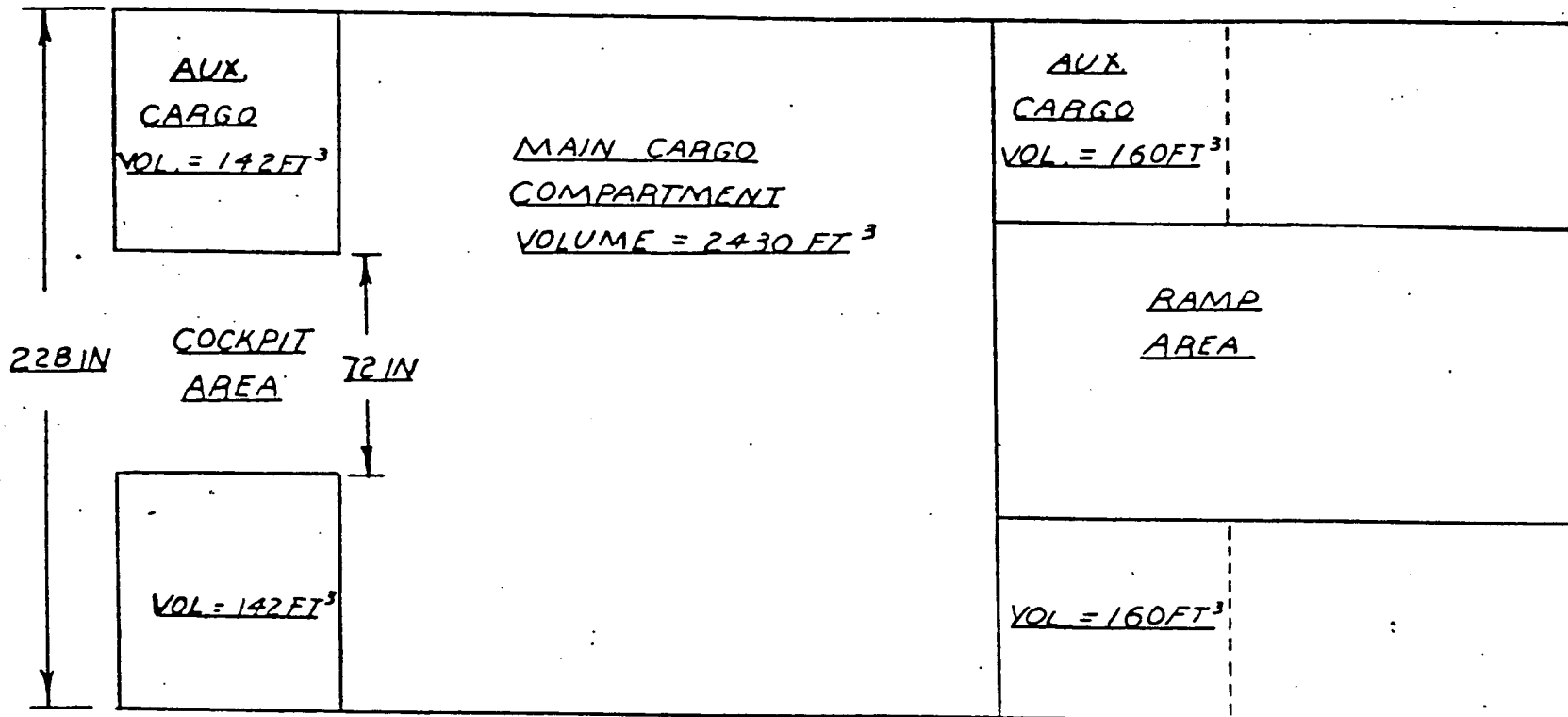
(2) General Electric T-64-8 Engines

Standard Day, Zero Wind  
Cruise Altitude - 5,000 Ft  
3 man crew  
MIL C-5011A Fuel Reserves

\*Actual Burnelli Performance is slightly better than shown.

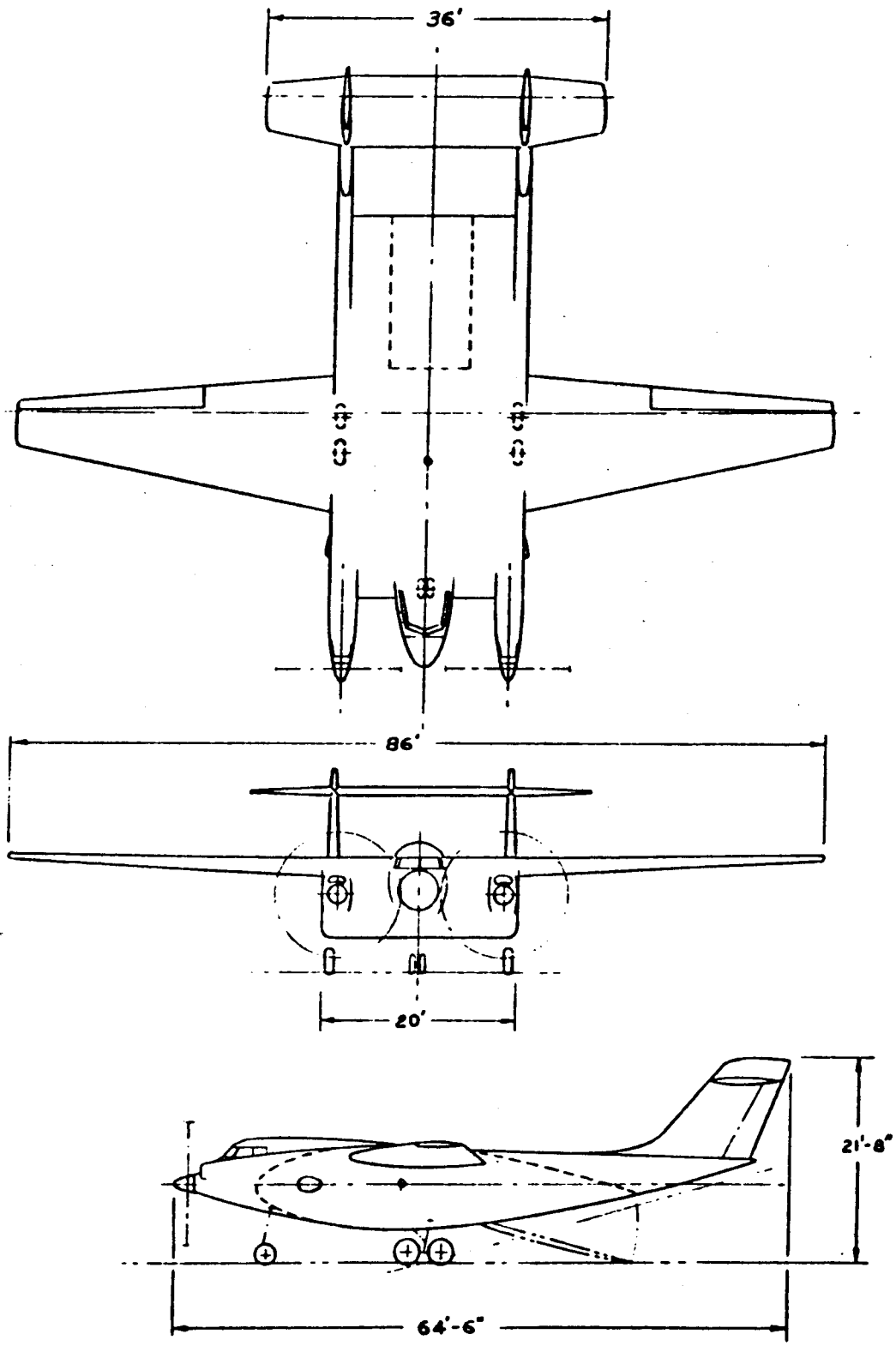
CARGO COMPARTMENT

TOTAL VOLUME = 3034 FT<sup>3</sup>



REVISED 9-3-62

Fig. 4



REVISED:

DRAWN	<i>W. H. H. / H. H. H.</i>	APPR'D		GENERAL ARRANGEMENT CARGO TRANSPORT	REV.	MODEL	VOL.
CHECK		APPR'D			PROPOSAL		
APPR'D		APPR'D			DRAWING NO.		

Fig. 5