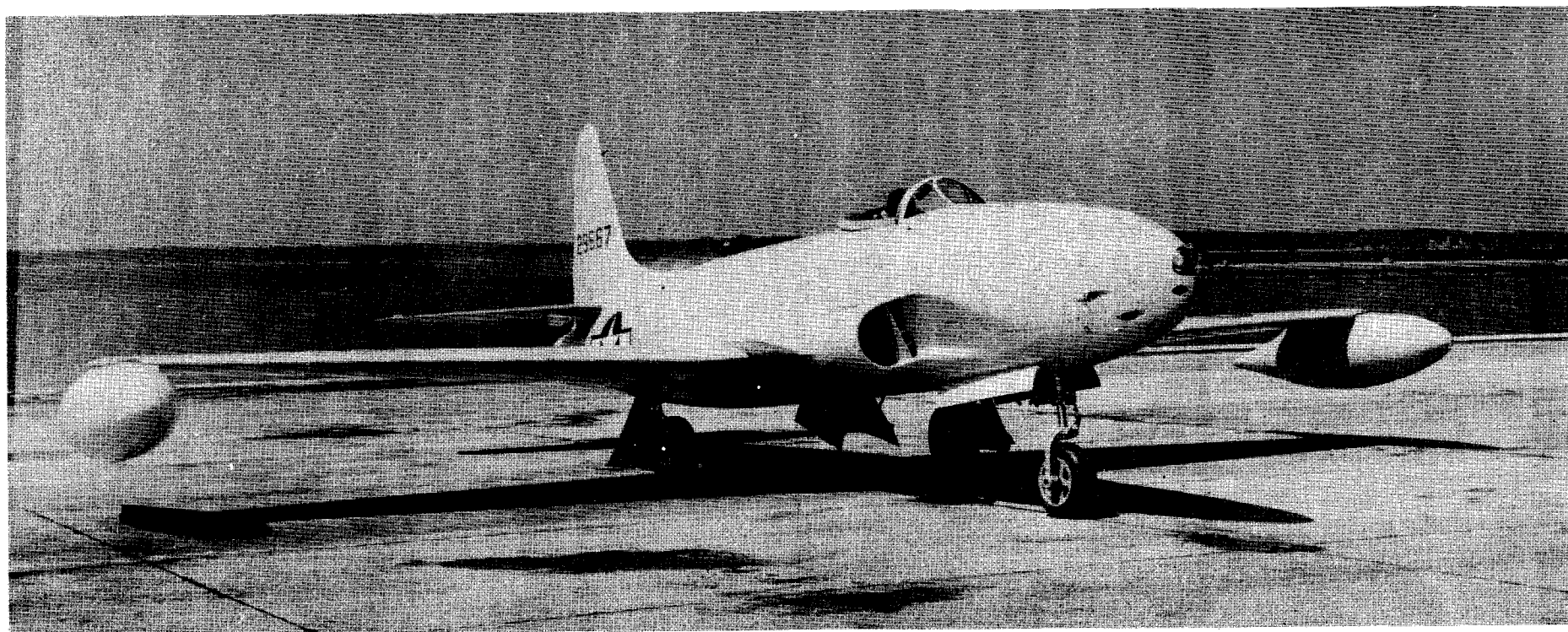


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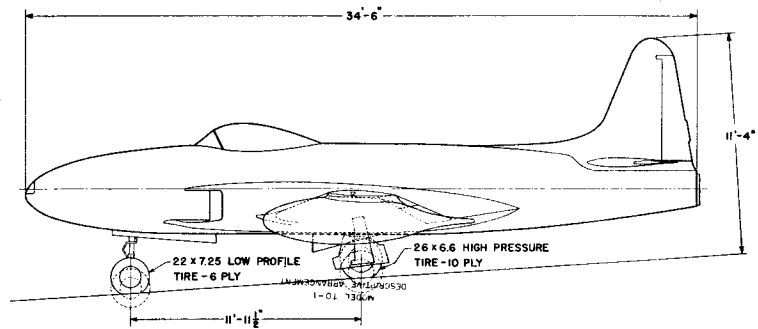
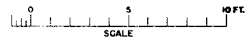
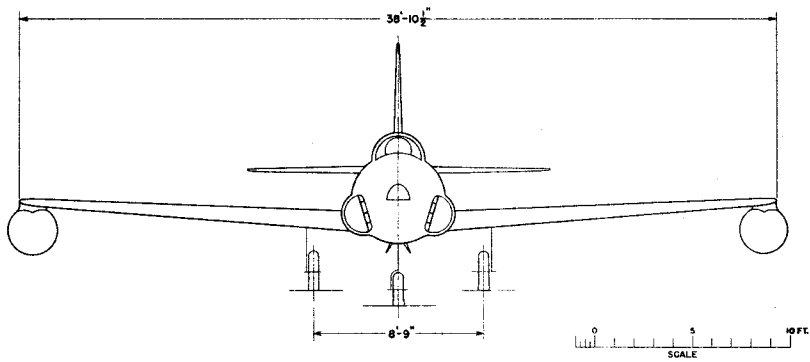
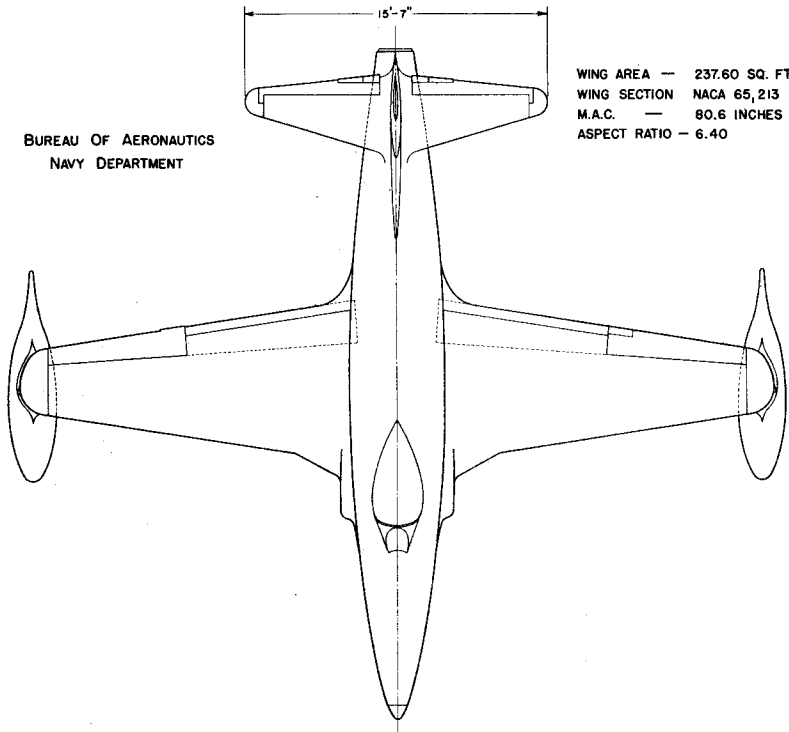
# STANDARD AIRCRAFT CHARACTERISTICS T-1 "SHOOTING STAR"

LOCKHEED

UNCLASSIFIED

BUREAU OF AERONAUTICS  
NAVY DEPARTMENT

WING AREA — 237.60 SQ. FT.  
WING SECTION NACA 65,213  
M.A.C. — 80.6 INCHES  
ASPECT RATIO — 6.40



DESCRIPTIVE ARRANGEMENT

## MISSION AND DESCRIPTION

The primary mission of the TO-1 is the transition and training of pilots for jet type fighter aircraft and as an instrument trainer for pilots of jet type fighter aircraft.

This airplane incorporates an aileron control hydraulic boost mechanism, provisions for carrying droppable fuel tanks, bombs or chemical tanks and provisions for water-alcohol injection (2x30 gal. tanks).

A pilot ejection seat is installed. The cockpit has a heating, cooling and pressurization system and "G" suit provisions. Two hydraulically operated dive recovery flaps are incorporated in the bottom of the fuselage. Gyro instruments are electrically operated. Provisions are made for JATO. Gasoline (AN-F-48) must be used for all startings and purging prior to shut-offs below temperatures of  $-17^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ). Current plans call for conversion of TO-1's to accommodate either kerosene or gasoline for in-flight operation; gasoline to be used for all starting.

## DIMENSIONS

WING AREA.....238 sq. ft.  
SPAN.....38' - 11"  
LENGTH.....34' - 6"  
HEIGHT.....11' - 4"  
TREAD.....8' - 9"  
M.A.C.....6' - 8"

## WEIGHTS

Loadings	Lbs.	L.F.
EMPTY.....	8,240.....	
BASIC.....	9,035.....	
DESIGN.....	12,200.....	7.33
COMBAT.....	12,859.....	
MAX.T.O.....	15,736.....	
MAX.LAND.....	15,736.....	

All weights are actual.

## FUEL AND OIL

Gal.	No. Tanks	Location
218	4	Wings, S.S.
207	1	Fuse., S.S.
330	2	Wings, Drop

FUEL GRADE.....JP-1  
FUEL SPEC.....AN-F-32

## OIL

CAPACITY (Gals.).....3  
GRADE.....1010  
SPEC.....AN-0-9

## ELECTRONICS

VHF.....AN/ARC-3  
IFF.....SCR-695A  
MF RADIO COMPASS.....AN/ARN-6

## POWER PLANT

NO. & MODEL.....(1) J33-A-23  
MFR.....Allison  
ENG. LENGTH.....107"  
ENG. DIA.....51"

## RATINGS

	Lbs.	@ Rpm	@ Alt.
T. O. (wet)	5,400	11,750	S.S.L.
MIL.	4,600	11,750	S.S.L.
NORM.	3,900	11,250	S.S.L.

SPEC. NO. 258-D

## ORDNANCE

### GUNS

No.	Size	Location	Rds.
6	.50 cal.	Nose	1,800

### BOMBS & ROCKETS

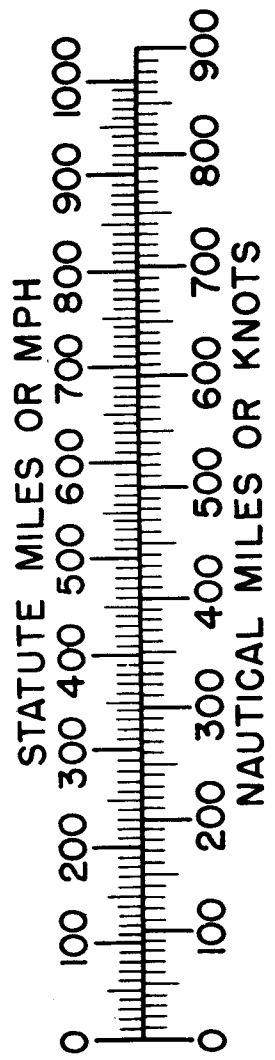
Type	Size	Location	No.
Bomb	100#	Wing Tip	2
Bomb	250#	Wing Tip	2
Bomb	500#	Wing Tip	2
Bomb	1,000#	Wing Tip	2

### FIRE CONTROL

Gun Sight.....K-14B

MAX. BOMB CAP.....2,000 lbs.

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## PERFORMANCE SUMMARY

LOADING CONDITION		(1) TRAINER 2x165 Gal. Tank		
TAKE-OFF WEIGHT	lbs.	15,336		
Fuel (Fixed/Drop)	lbs.	2,849/2,211		
Bombs	lbs.	—		
Wing/Power Loading (A)	lbs/sq.ft; lbs/bhp.	64.5/-		
Stall Speed--Power off	kn.	106.0		
Stall Speed--Power off - No Fuel	kn.	86.8		
Stall Speed--Power on	kn.	104.0		
Maximum Speed/Alt (B)	kn/ft.	408/25,000		
Take-off Distance, deck -- calm	ft.	3,080(2,020)		
Take-off Distance, deck	kn. ft.	—		
Take-off Distance, Airport	ft.	4,360(3,140)		
Rate of climb -- sea level (B)	ft/min.	2,570		
Service Ceiling (B)	ft.	36,000		
Time-to-climb 20,000 ft. (B)	min.	10.9		
Time-to-climb 30,000 ft. (B)	min.	22.6		
Combat Range/V av (Climb)	ft. n.mi/kn.	1,200/382		
Combat Radius/V av	ft. n.mi/kn.	—		
LOADING CONDITION		(2) TRAINER	(3) TRAINER	(4) TRAINER
GROSS WEIGHT	lbs.	12,859	12,859	12,859
Engine power		Military (wet)	Military (dry)	Normal
Fuel	lbs.	2,849	2,849	2,849
Bombs/Tanks		None	None	None
Max. speed at sea level	kn.	499	462	430
Max. speed/Alt	kn/ft.	504/7,000	476/13,000	444/22,000
Combat speed/Alt	kn/ft.	See Notes	439/35,000	431/35,000
Rate of climb SL	ft/min.	6,850	4,450	3,310
Ceiling for 500 fpm R/C	ft.	See Notes	40,500	37,000
Time-to-climb/Alt.	min/ft.	—	—	—

### NOTES

- (A) BHP at Maximum Critical Altitude
- (B) Normal BHP

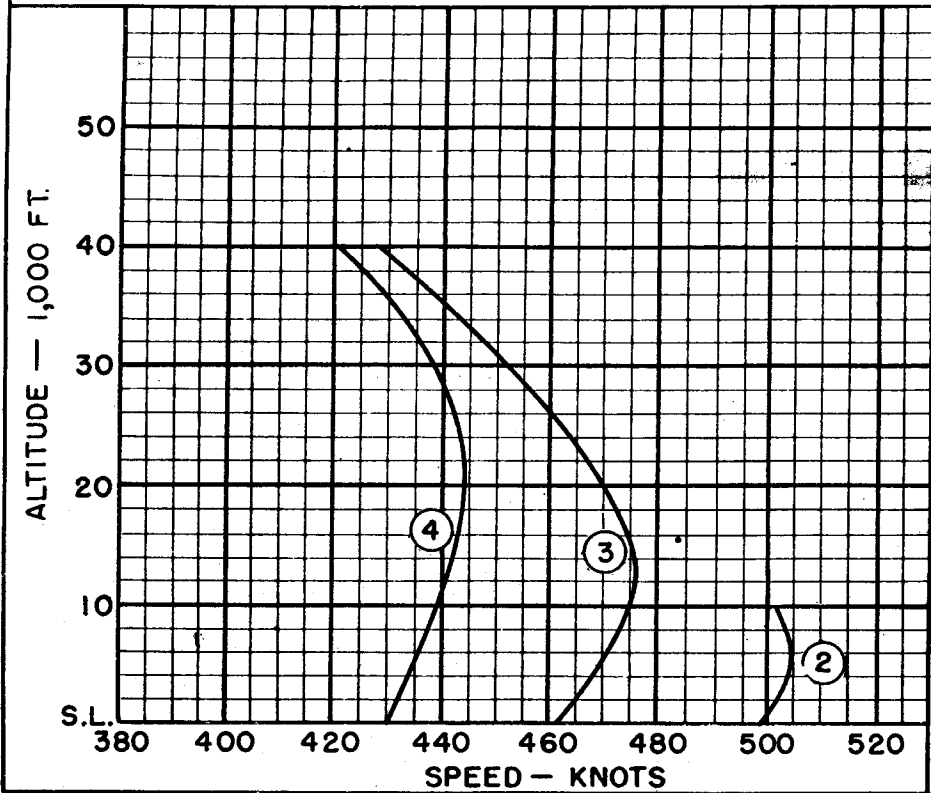
Performance is based on flight test of F-80C. Range and radius are based on flight test fuel consumption increased by 5%.

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 Performance is based on the use of JP-1 fuel with an assumed weight of 6.7 lb./gal.  
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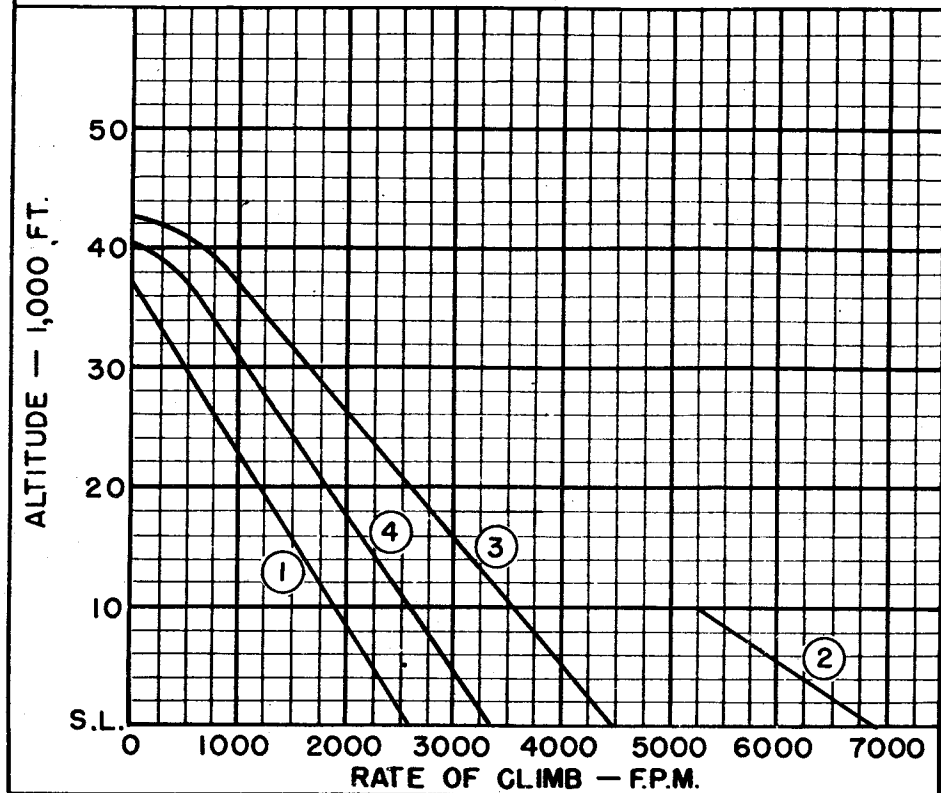
Take-off is with water injection. Figures in parentheses are with water injection and two 12 AS-1000 D4 Aerojet JATO units, each producing 1,000 lb. thrust for 12 sec. Weight of JATO units is

13

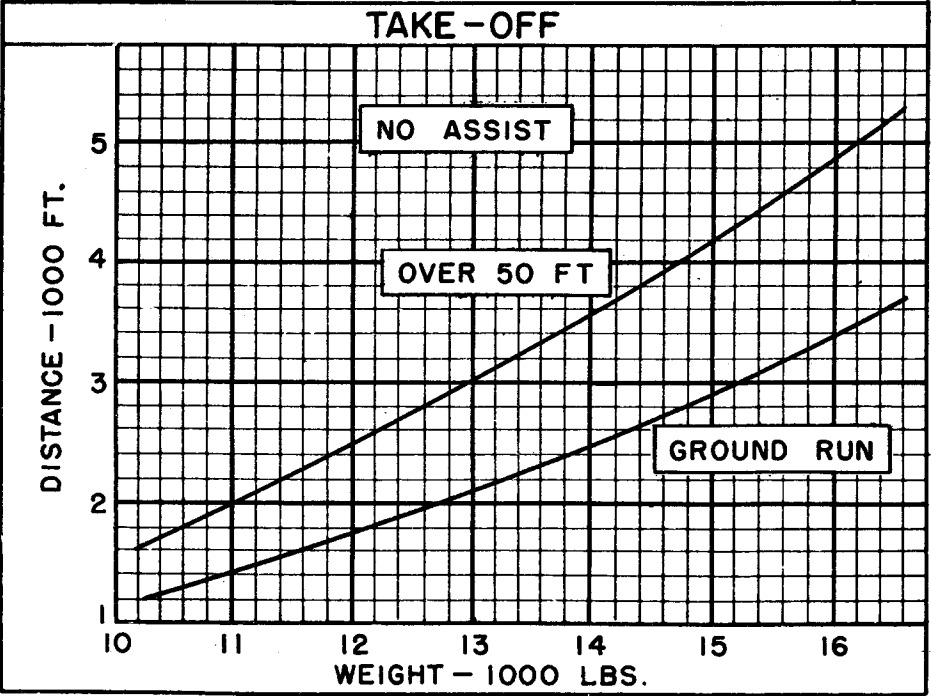
### SPEED



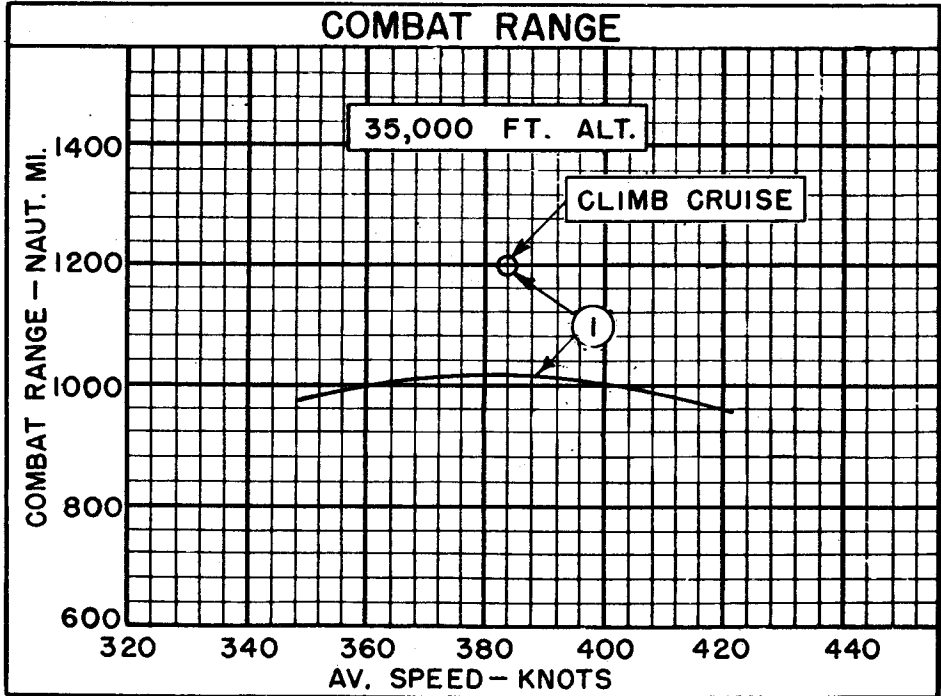
### CLIMB



### TAKE-OFF



### COMBAT RANGE



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**NOTES**

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Water injection not used above 10000 feet in climb because of danger of flame-out.

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Altitude at start of cruise -- 36,000 feet. Altitude at end of cruise -- 41,500 feet.  
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