

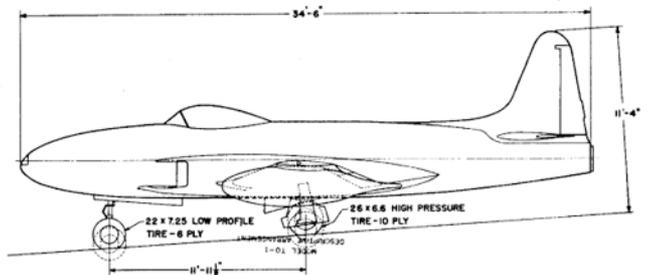
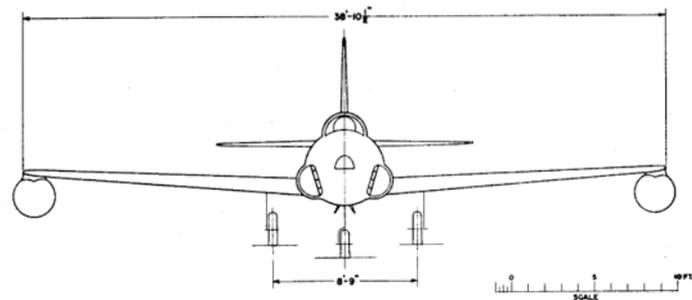
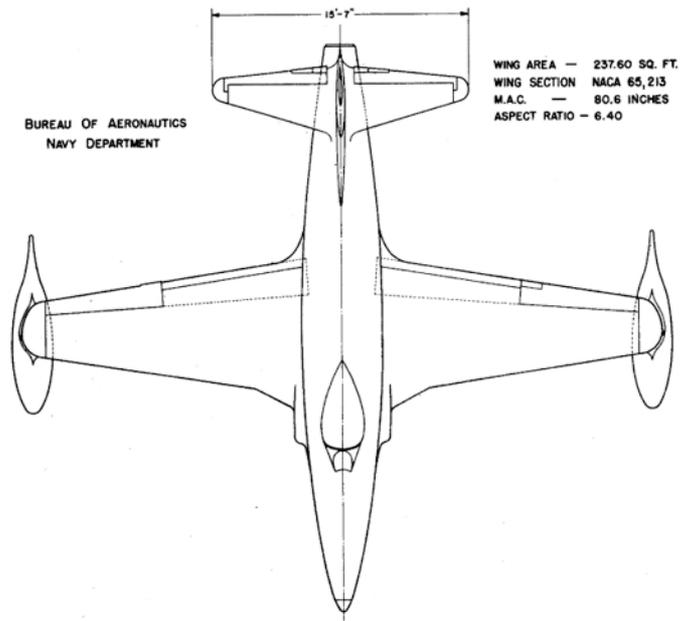


# STANDARD AIRCRAFT CHARACTERISTICS T-1 "SHOOTING STAR"

LOCKHEED

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

Standard Aircraft Characteristics NAVAER 1335B (REV. 1-49)

**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-O-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. 5,400 11,750 S.S.L.  
(wet)

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.



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.	---	---	---

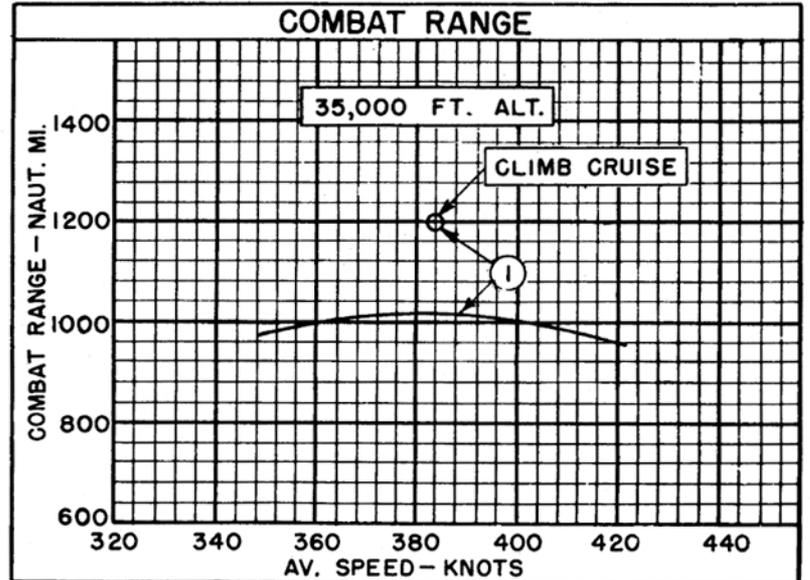
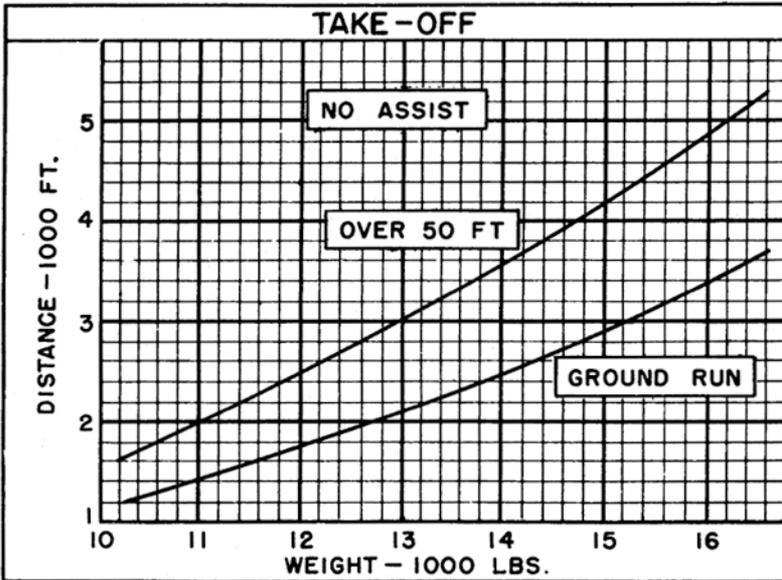
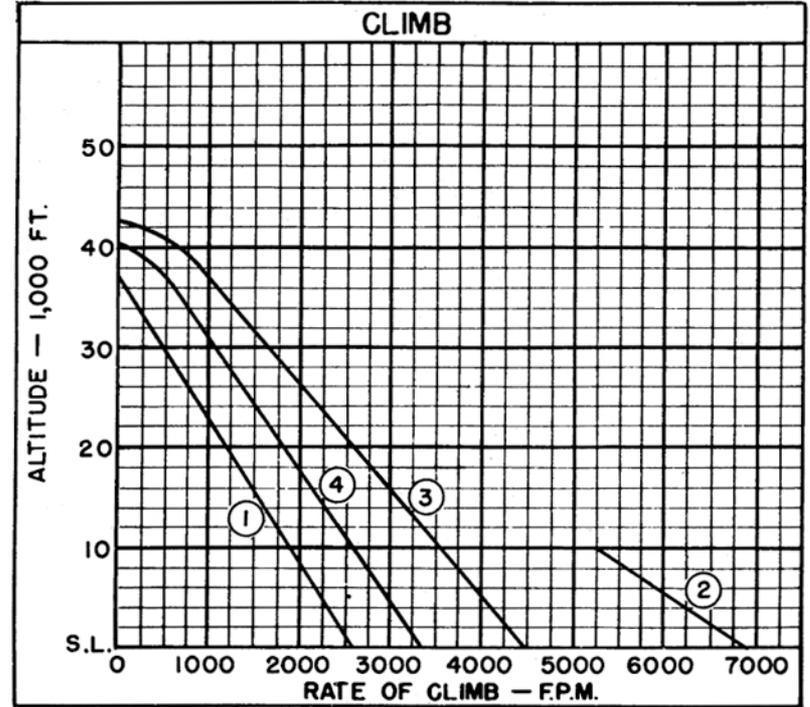
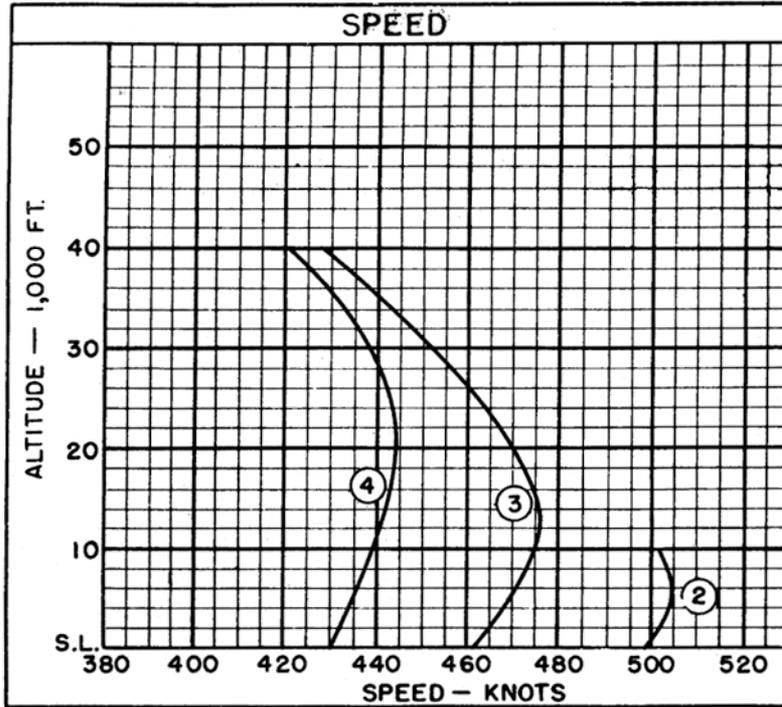
**NOTES**

- (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%.

Performance is based on the use of JP-1 fuel with an assumed weight of 6.7 lb./gal.

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 200 lbs. each.



○ LOADING CONDITION COLUMN NUMBER

Standard Aircraft Characteristics NAVAER 1335E (REV. 2-50)

# NOTES

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

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