

Mushshak, The proficient, robust, light-weight, how to three seater, single engine, metal body, with tricycle fixed landing gear. It can operate from unprepared strip. The super Mushshak (The Agile) an upgraded version of Mushshak with advanced avionics and more powerful engine with air conditioned cockpit.

# MUSHSHAK & SUPER MUSHSHAK

## PRIMARY FLYING TRAINING AIRCRAFT

### Features

Mushshak meets the requirement of a modern primary training syllabus and is an ideal basic trainer. Aircraft is ideal for:

- Basic flight training
- Instrument flying
- Aerobatics, stalls and deliberate spins
- Night flying
- Navigation flying
- Formation flying

#### Army Co Operation Role

Besides primary flying training, Mushshak is also suited for a wide range of army co-operation missions including:

- Forward air control
- Forward area support with droppable supply containers
- Reconnaissance
- Camouflage inspection
- Liaison
- Artillery fire observation
- Border patrol
- Target flying and target towing for training of ground units

### Technical Features

#### Mushshak Engine

- Type: Textron Lycoming IO-360 A1B6
- Power: 200 HP (at 2700 RPM at standard sea level conditions)
- Cylinder: 04

#### Super Mushshak Propeller

Super Mushshak has been qualified with both three and two blade propellers from McCauley and Hartzell of USA respectively.

#### Fuel System

- Based on two integral fuel tanks holding a total of 47 US gallons
- Bendix RSA type fuel injection system
- Houses engine driven fuel pump for normal operation
- Electric fuel pump for emergency conditions

#### Mushshak Propeller

A Hartzell, USA two-blade constant speed metal propeller is installed on the engine.

#### Time Between Overhaul (TBO)

- TBO for engine is 2000 hours.
- Power: 260 HP (at 2700 RPM at ISA conditions)
- Cylinder: 06

#### Flight Control System

Efficient dual flight controls including conventional centre stick type control columns and adjustable rudder pedals. Primary control surfaces are operated through a direct mechanical linkage.

#### Super Mushshak Engine

- Type: Textron Lycoming IO-540 V4A5
- Power: 260 HP

#### Cockpit

Spacious side by side cockpit giving contact between the pilot and the co-pilot / observer or between the student and the instructor for effective "watch me" instruction

- Adjustable seats fitted with straps incorporating auto lock inertia reels
- Typical avionics equipment configuration includes UHF/ VHF radio, GPS, VOR, Transponder, ADF etc
- Third crew member can be accommodated in the rear cabin

### Design Criteria

The basic design philosophy behind Mushshak offers an aircraft with:

- Flexibility, covering both army co-operation and primary flying training
- Excellent forward and downward visibility supplemented by a good rearward visibility
- Good ground clearance even with bulky under wing stores and high crosswind capability for operation from narrow strips and roads
- Up to 300 Kg/660 lbs external load carrying capability (including pylons)
- Heavy duty landing gear
- Large baggage compartment in the rear part of the cabin easily accessible through a door on the port side of the fuselage.
- This space can also accommodate a third crew member
- Good handling characteristics
- Good short/rough field performance
- Full aerobatic capability, maximum limit load factor +6/-3 in Aerobatics category
- Ease of maintenance and repair even in field
- Structure life of 9500 hrs

#### Optional Equipment

The following optional equipment can also be made available on request:

- Blind Flying Screen: There is a provision for installation and removal of blind screen for instrument flying.
- Sun Blinds: Canopy perspex as well as rear cabin perspex can be provided with adjustable sun-blind.
- Third Seat: Aircraft incorporates fitting for the installation of third seat in the rear portion of the cabin.
- Electric Trim: Reliable and effective elevator and rudder electrical cum manual trim can be installed easily.
- Air Conditioner: One of the most effective and reliable Enviro R-134 environmental friendly air conditioning system can be installed.
- Avionics suite: Customized avionics suit or glass cockpit can be added as per customers request.

#### Vertical Tail

- Height: 1.32 m/4 ft 4 in
- Area: 1.52 m<sup>2</sup>/16.3 sq ft
- Airfoil Thickness: 12%
- Sweep, Leading Edge: 36°
- Sweep, Trailing Edge: 8°

#### Wings

- Wing Area: 11.9 m<sup>2</sup>/128 sq ft
- Sweep Forward: 5°
- Airfoil Thickness: 10%
- Dihedral: 1.5°

#### Main Data

- Length: 7 m/23 ft (Mushshak)
- 7.15 m/23.5 ft (Super Mushshak)
- Height: 2.60 m/8 ft 6 1/2 in
- Span: 8.85 m/29 ft
- Wheel Track: 2.2 m/7 ft 2 1/2 in
- Wheel base : 1.58 m/5 ft 2 1/2 in

#### Horizontal Tail

- Span: 2.80 m/9 ft 2 in
- Area: 2.10 m<sup>2</sup>/22.6 sq ft
- Sweep: 0°
- Airfoil Thickness: 12%
- Dihedral: 0°

#### Users

- Pak Army
- Pakistan Air Force
- Iran
- Syria
- Norway
- Denmark
- South Africa
- RSAF
- Oman
- Sweden

