Titan Tornado

AIRCRAFT CHECKLIST

WARNING

This manual is intended as a guide. It must be understood that all performance specifications will vary depending on the particular aircraft and load conditions.

NORMAL PROCEDURES

PREFLIGHT INSPECTION

1. Front Cabin

1. Pilot's Checklist – Available in Cockpit
2. Control Stick Lock – Release
3. Ignition Switch – OFF
4. Master Switch – ON

WARNING

When turning on the master switch, using an external power source, or pulling the propeller through by hand, treat the propeller as if the ignition switch was on. Do not stand, nor allow anyone else to stand, within the arc of the propeller, since a loose or broken wire, or a component malfunction, could cause the propeller to rotate.

5. Fuel Quantity Indicator – Check
6. Master Switch – OFF
7. Propeller Circuit Breaker – In
8. Propeller Control – Test Operation and Set for Takeoff
9. All Visible Cables, Nicos, and Hardware – Check Secure and in Good Condition
10. Flaps – 30 degrees (lowest notch)

2. Rear Cabin

1. Lower Control Stick – Check 2 Cotter Pins Secure
2. Throttle Cable – Check Secure
3. Remaining Visible Cables, Nicos, and Hardware – Check Secure and in Good Condition
4. Fuel Tank – Check Quantity Visually
5. Fuel Filler Cap – Secure
6. Visible Electrical Wiring – Secure
7. Rear Door – Closed and Latched
8. Right Wing Bolts (2) – Check Secure with Nuts

3. Nose

1. Nose Cone – Secure and Undamaged
2. Right Air Vent – Unobstructed
3. Pitot Tube – Secure and Unobstructed (Remove Cover)
4. Nose Wheel – Secure with (2) Cotter Pins in Place
5. Nose Tire – Check for Proper Inflation and Wear
6. Nose Wheel Pant – Secure
7. Left Air Vent – Unobstructed

4. Left Wing

1. Left Wing Bolts (2) – Check Secure with Nuts
2. Left Main Wheel – Secure
3. Left Main Tire – Check Inflation and Remove Tire Chocks
4. Left Main Wheel Pant – Secure
5. Flap Inspection Cover – Check Stop Nut Tight
6. Check Wing Skin/Leading Edge for Damage
7. Aileron – Check Freedom of Movement and Security
8. Flap – Check Security
9. Wing Tie-Down – Disconnect

5. Empennage

1. Control Surfaces – Check Freedom of Movement and Security
2. Stabilator Attachment Bolts – Check Secure with Cotter Pins
3. Stabilator Cables – Check Cables, Nicos, Clevis Pins, and Cotter Pins
4. Rudder Cables – Check Cables, Nicos Clevis Pins, and Cotter Pins
5. Stabilator Trim Tab – Check Secure
6. Rudder Top Attachment Point – Check Nut Secure
7. Tailwheel – Check Secure
8. Tailboom – Check Straight and Undamaged

6. Engine

1. Engine Mounts - Check Secure with Cotter Pins
2. Exhaust System – Secure with Springs Safety-Wired
3. Spark Plugs Wires – Secure
4. Electrical Connectors – Secure
5. Carburetors – Secure with Chokes OFF
6. Air Filter – Secure and Clean
7. Fuel Lines – Secure with Clamps
8. Fuel Pump Pressurization Line – Secure
9. Propeller – Check for Nicks and Security
10. Gear Box – Check Drain Nut and Oil Level, Bolts Safety-Wired
11. Gear Box – Check Fill Plug/Vent Plug Secure

7. Right Wing

1. Flap Inspection Cover – Check Stop Nut Tight
2. Right Main Wheel – Secure
3. Right Main Tire – Check Inflation and Remove Tire Chocks
4. Right Main Wheel Pant – Secure
5. Wing Tie-Down – Disconnect
6. Flap – Check Security
7. Aileron – Check Freedom of Movement and Security
8. Aileron Inspection Cover – Check Stop Nut Tight
9. Check Wing Skin/Leading Edge for Damage

BEFORE STARTING ENGINE

1. Preflight Inspection – Complete
2. Seat Belts and Shoulder Harness – Adjust and Lock
3. Rear Seat Belts and Shoulder Harness – Secure if Unoccupied
4. Rudder Pedals – Adjust
5. Radios and Electrical Equipment – OFF
6. Brakes – Test and Hold

STARTING ENGINE

1. Prime – As Required (3 to 5 Strokes)
2. Throttle – Open 1/2 Inch
3. Propeller Area – Clear
4. Master Switch – ON
5. Ignition Switch – START (Release When Engine Starts)
6. Throttle – Adjust for 2000 to 3000 ROM (Smooth Operation)
7. Allow Engine to Warm Up (EGT 800 to 900) Before Moving

BEFORE TAXI

1. Headsets – Plug into Intercom and Set Volumes
2. Radio – ON

BEFORE TAKEOFF

1. Brakes – Hold
2. Cabin Doors – Closed and Latched
3. Flight Controls – Free and Correct
4. Flight Instruments – Set
5. Throttle – 3000 to 3500 RPM
    a. Magnetos – Check (RPM Drop Should Not Exceed 300 RPM)
    b. Engine Instruments and Voltmeter – Check
6. Prop – Cycle and Adjust so that the Maximum RPM of the Engine is not Exceeded
7. Radios – Set
8. Beacon, Nav Lights, and Strobes – On as Required
9. Brakes - Release

TAKEOFF

Normal Takeoff

1. Wing Flaps – 0 to 15 Degrees
2. Throttle – Full Open
3. Elevator Control – Lift Nose Wheel at 40 to 50 MPH
4. Climb Speed – 60 to 75 MPH
5. Flaps – Retract Slowly

Short Field Takeoff

1. Wing Flaps – 15 Degrees (1 Notch)
2. Brakes – Apply
3. Throttle – Full Open
4. Brakes – Release
5. Elevator Control – Slightly Tail Low
6. Climb Speed – 52 MPH (Until All Obstacles are Cleared)
7. Climb Speed – 60 MPH
8. Flaps – Retract Slowly

Enroute Climb

1. Airspeed – 70 MPH
   Note: If a maximum performance climb is required, use 55 MPH for the best rate of climb speed
2. Throttle – Full Open (6600 RPM Maximum for 2 Stroke Engines and 5800 RPM Maximum for 4 Stroke Engines)
3. Propeller Control – Set as Desired
4. Monitor Engine Instruments to Maintain within Limits

CRUISE

1. Power – Set (Do Not Exceed 6600 RPM for 2 Stroke Engines and 5800 RPM for 4 Stroke Engines)
2. Propeller Control – Set for Cruise
3. Elevator Trim – Adjust
4. Engine Instruments - Monitor

BEFORE LANDING

1. Seat Belts and Harnesses – Adjust and Lock
2. Clear Engine Regularly During Power Off Landings
3. Propeller Control – Set Forward for Takeoff RPM

LANDING

Normal Landing

1. Airspeed – 70 to 80 MPH on Downwind
2. Wing Flaps – As Desired (Below 80 MPH)
3. Airspeed – 65 MPH on Base
4. Propeller Control – Check Forward for Takeoff RPM
5. Airspeed – 60 MPH on Final
6. Touchdown – Main Wheels First
7. Landing Roll – Lower Nose Wheel Slowly
8. Braking – Minimum Required

Short Field Landing

1. Airspeed – 70 to 80 MPH on Downwind
2. Airspeed – 65 MPH on Base
3. Wing Flaps – 30 Degrees (2 Notches)
4. Propeller Control – Check Forward for Takeoff RPM
5. Airspeed – 55 MPH When Level on Final
6. Power – Reduce to Idle as Obstacle is Cleared
7. Touchdown – Main Wheels First
8. Brakes – Apply Heavily as Needed
9. Wing Flaps – Retract

Go-Around (Balked Landing)

1. Throttle – Full Open
2. Airspeed – 55 to 60 MPH
3. Wing Flaps – Retract Slowly above 60 MPH

AFTER LANDING

1. Flaps – Retract

SECURING AIRPLANE

1. Brakes – Hold
2. Radios and Electrical Equipment – OFF
3. Engine – Idle at Lowest Smooth RPM for 2 Minutes
4. Ignition Switch – OFF
5. Master Switch – OFF
6. Propeller Control Circuit Breaker – Pull Out
7. Control Stick – Control Lock Installed
8. Aircraft – Tie Down and Install Wheel Chocks
9. Pitot Cover – Install

LIMITS

AIRSPEEDS

1. Vso – 43 MPH
2. Vs1 – 38 MPH
3. Vx – 55 MPH
4. Vy – 60 MPH
5. Vfe – 80 MPH
6. Va – 88 MPH
7. Vne – 120 MPH (Single Seat) or 150 MPH (Two Seat)

ENGINE LIMITS

2 Stroke Engines

CHT

Normal – 355 to 430 degrees F
Maximum – 480 degrees F
Max Difference between 2 Cylinders – 36 degrees F

EGT

Normal – 860 to 1080 degrees F
Maximum – 1200 degrees F
Max Difference between 2 Cylinders – 45 degrees F

RPM

Maximum – 6800 RPM
Minimum – 2000 RPM

4 Stroke Engines

CHT

Normal – 190 to 220 degrees F
Maximum – 240 degrees F

RPM

Maximum – 5800 RPM
Minimum – 1600 RPM

EMERGENCIES

AIRSPEEDS FOR EMERGENCY OPERATION

Engine Failure after Takeoff – 60 to 70 MPH
Maneuvering Speed – 88 MPH
Maximum Glide Speed – 60 to 70 MPH
Precautionary Landing with Engine Power – 60 MPH
Landing without Engine Power – 60 MPH

ENGINE FAILURES

Engine Failure During Takeoff Run

1. Abort
2. Throttle – Idle
3. Brakes – Apply
4. Ignition Switch – OFF
5. Master Switch – OFF

Engine Failure Immediately After Takeoff

1. Airspeed – 60 to 70 MPH
2. Ignition Switch – OFF
3. Master Switch – OFF
4. Wing Flaps – As Required

Engine Failure During Flight

1. Airspeed – 60 to 70 MPH
2. Primer – IN
3. Ignition Switch – START

Emergency Landing without Engine Power

1. Airspeed – 60 MPH
2. Ignition Switch – OFF
3. Wing Flaps – As Required (30 Degrees Recommended)
4. Mater Switch – OFF
5. Touchdown – Slightly Tail Low
6. Brakes – Apply Heavily

FIRES

Fire During Engine Start on the Ground

1. Cranking – Continue to get a start which would suck the flames and accumulated fuel through the carburetor and into the engine.

If Engine Starts

2. Power – 2500 to 3000 RPM for a few minutes
3. Engine – Shutdown and inspect for damage

If Engine Fails to Start

4. Cranking – Continue in an effort to obtain a start
5. Fire Extinguisher – Obtain
6. Engine – Secure
    a. Ignition Switch – OFF
    b. Master Switch – OFF
7. Fire – Extiguish using fire extinguisher, wool blanket, or dirt
8. Fire Damage – Inspect and repair aircraft and components before conducting another flight

Engine Fire in Flight

1. Throttle – Idle
2. Ignition Switch – OFF
3. Master Switch – OFF
4. Cabin Heat and Air – OFF
5. Airspeed – 80 MPH (If fire is not extinguished, increase glide speed to find and airspeed which will provide an incombustible mixture)
6. Forced Landing – Execute (see Emergency Landing without Engine Power on previous page)

Electrical Fire or Cabin Fire in Flight

1. Master Switch – OFF
2. All Other Switches (except Ignition Switch) – OFF
3. Vents/Cabin Air/Heat – Closed
4. Fire Extinguisher – Activate

WARNING

After discharging extinguisher, ventilate the cabin

If Fire Appears Out and Electrical Power is needed for Flight

5. Master Switch – ON
6. Radio/Electrical Switches – ON, one at a time, with a delay after each until short circuit is localized

Vents/Cabin Air/Heat – Open, if fire is confirmed out

1419 State Route 45 South
Austinburg, Oh 44010
Phone: 440-275-3205
Fax: 440-275-3192