Revision D
11 November 2020

BN-2T Islander

for X-Plane 11

TORQUESIM
AIRCRAFT DEVELOPMENT

AIRPLANE INFORMATION MANUAL

NOT FOR FLIGHT - FOR SIMULATION USE ONLY

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Acknowledgments

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Our Customers: Thank you for supporting us – We look forward to integrating your feedback and making this plane even better!

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The BN-2T Islander is Proudly Sold Exclusively through X-Aviation

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Section 1

General

Table of Contents

Introduction

The BN-2 Islander is a light twin designed in the 1960's as a regional airliner and utility aircraft, and is still widely flown today. Thanks to its rugged construction and excellent short field performance, this aircraft can be found with operators all over the world.

The model simulated is the BN-2T, the turboprop version of the Islander originally derived from the -2A series. It comes equipped with two Allison 250-B17C's flat rated down to 320 horsepower, giving it a significant power margin over its piston cousins.

The addition of tip tanks gives the 2T an extra 89 gallons of fuel and increases the wing span to 53'. In sum, this allows the MTOW to be raised to 7000 lbs, while retaining much of the excellent slow speed handling that makes the Islander so useful. At high power settings, the 2T will even cruise 30 knots faster, giving it a top speed of 170 knots.

If you liked the 2B, we believe you'll love the 2T!

The TorqueSim rendition of this fantastic aircraft includes all the features from our 2B, as well as many improvements worked out over the course of the intervening months. In addition to the beautiful 3D and textures, there are many custom systems including a fully custom electrical system, fuel manager, lighting, and more! Avionics were picked to represent a true workhorse aircraft. The KFC225 Autopilot, GTX345 Transponder, KR87 ADF, and M800 Chronometer were built custom for the aircraft. The default GNS530 and GNS430 is also installed as the GPS of choice, and the RXP GNS and GTN series are also supported.

Customer Support Information
X-Aviation (Sales, Installation, Activation): torques.im/xasupport
X-Pilot Forum (Support, Discussion, Help): torques.im/forum
TorqueSim (Aircraft Problems, Comments): torques.im/support

The Airplane

Engine

Number of Engines.....2

Engine Manufacturer.....Detroit Diesel Allison

Engine Model 250-B17C

Horsepower Rating.....320 hp flat rated @ 2030 rpm

Propeller

Propeller Manufacturer..... Hartzell

Propeller Type ..... Constant Speed, Three Blade

Model Number.....HC-C3YF-5F/FC 8475FK-6

Feathering .....Fully Feathering, Beta, Reverse

Fuel

Total Capacity..... 226 U.S. Gallons

Usable Capacity ..... 215 U.S. Gallons

Approved Fuel Grades:

Jet A or A1, Jet B, JP1, JP4, JP5, JP8, Diesel No. 1

Oil

Oil Capacity .....12 U.S. Quarts

Oil Grades:

MIL-L-7808G or MIL-L-23699

Performance

(At 7,000 lb. Take-Off Weight)

Take-off Run (ft)	837
Take-off Distance over 50 ft. obstacle (ft)	1,250
Best Rate of Climb Speed (IAS kts)	65
Rate of Climb (fpm)	1,050
Best Angle of Climb Speed (IAS kts)	65
Best Single Engine Rate of Climb Speed (IAS kts)	65
Single Engine Rate of Climb (left engine feathered) (fpm)	215
Absolute Ceiling (ft)	25,000+
Service Ceiling (ft)	25,000
Single Engine Absolute Ceiling (left engine feathered) (ft)	10,000
Single Engine Service Ceiling (left engine feathered) (ft)	10,000
Top Speed (IAS kts)	183
Maximum Cruising Speed (IAS kts)	170
Economical Cruising Speed (IAS kts)	150
Stalling Speed - Flaps down (IAS kts)	45
Landing Roll (ft)	747
Landing Distance over 50 ft. Barrier (ft)	1110
Cruising Range (nm)	728

Section 2
Design Information
Table of Contents

Electrical System

The electrical system on the BN-2B-26 Islander consists of 1 lead-acid battery, and 2 alternators, one on each engine. The aircraft is equipped with three busses, the Emergency Bus, the Main Bus, and the Avionics Bus.

Battery

The Islander is equipped with one 25-amp-hour lead-acid battery. This battery is capable of powering the plane for short durations before engine start-up and after engine shut-down. During phases of flight when the alternators are running, they should be engaged and the battery will charge. In the case of dual-alternator failure, the battery is capable of powering essential systems for a duration based on electrical load, landing as soon as possible and reducing electrical usage to the absolute minimum is required.

Alternators

The Islander is equipped with two alternators, one on each engine. Both alternators are capable of providing 50 amps of current to the aircraft. The electrical load will naturally balance between both alternators when both are running.

Emergency Bus

The Islander's main electrical bus is the Emergency Bus. The top row of circuit breakers are tied to the electrical bus.

The electrical items on this bus are:

- Auxiliary Fuel Pump 2 (Port and Starboard)
- Fuel Contents Indicators (Port and Starboard)
- Nav Lights
- Map Light
- Turn and Bank Indicator
- Stall Warning
- Stall Heater
- Pitot Heater
- Tachometer
- Audio Panel
- VHF 1 Radio (Part of GNS 530)

Main Bus

The Islander's secondary bus is the Main Bus. The circuit breakers on this bus are on the left and middle of the second and third row, and the whole of the auxiliary panel. The bus is interconnected through the Main to Emergency Busbar Isolation.

The electrical items on this bus are:

- Auxiliary Fuel Pump 1 (Port and Starboard)
- Landing Light (Port and Starboard)
- Cabin Lights
- Panel Lights
- Beacon Lights
- Wing Flaps
- Tank Selector (Left and Right)
- Starter Relays
- Engine Cluster (Port and Starboard)
- Airframe deice
- Cabin heat
- Rudder Servo
- Aileron Servo
- Elevator Servo
- Electric Trim

Avionics Bus

The Islander's tertiary bus is the Avionics Bus which powers the main avionics onboard. The Avionics Bus is connected to the Main Bus through the Avionics switch. The Avionics switch should be turned off during the connection and disconnection of alternators and when starting the engines.

The electrical items on this bus are:

- ADF
- VHF 2 Radio (Part of GNS 430)
- Marker Beacon
- Autopilot (KFC225)
- Transponder (GTX345)
- RMI
- GPS 1 (GNS 530)
- GPS 2 (GNS 430)
- DME

Starter

The starter is connected to the battery through the External Power/Starter Isolation switch. This switch must be turned on for the starters to function. This is a safety feature to prevent inadvertent starter engagement.

Main Switch Panel

Circuit Breaker Panel

Engines

The Turbine Islander uses two Allison 250-B17C engines flat rated to 320 hp each.

The Islander is capable of flight on a single engine, though maximum altitude and climb performance are severely reduced, and this mode should not be used in any case except emergencies.

Airframe Systems

Deicing Systems

This aircraft can optionally be equipped with anti-ice boots for the wings, tailplane, and rudder leading edges for flight in cold climates. The Islander is not certified for flight into known icing, however, and no such maneuver should be attempted.

The deicing systems can be turned on or off from within the UI Menu system accessible from the left edge of the screen. While they are off, all deice boots, switches, and associated systems are hidden from view and cannot be activated.

Pitot and stall warning heating systems come standard with the aircraft.

Deicing switches when equipped and hidden

Fuel System

The wings each house a single integral fuel tank able to hold 68.5 gallons of Jet A, as well as tip tanks each holding an additional 44.5 gallons, for a total of 226 gallons. Dual fuel selectors overhead the cockpit allow for each engine to feed from either tank independently.

Additional fuel selector switches beneath the indicator gauges allow switching between main and tip tanks. Indicator lights illuminate depending on selection. Tip tank lights are dimmable, main tank lights are either on or off, depending on the selection made with the central dimmer switch.

Under normal flight conditions, cross-feed is not required, and the tanks should drain equally throughout a flight. It is not recommended to apply single-engine fuel tank selection procedures during flight (ie changing tanks every 20 minutes).

Note that the tip fuel tanks should be filled first and drained last! Take off and landing on the mains is prohibited, however, if the main tank indicators show less than 3 gallons remaining!

During startup, takeoff, and and landing, the auxiliary fuel pumps should be operated to support and back up the engine-driven fuel pumps.

Dual Vacuum System

The vacuum system of the Islander is cross-tied. Should one pump fail, the second one will maintain enough suction in the system to allow normal operation of all dependent instruments.

Fuel Selectors and Fuel Pump Switches

Avionics

M800 Chronometer

The M800 Chronometer has all three modes (UTC, Local Time, and Elapsed Time) are simulated. The mode “UT” will show the Simulator’s UTC time. The mode “LT” will show the Simulator’s Local time. The mode “ET” will show the Elapsed time, both count down and count up. To switch between modes, click the “Select” button. In the ET mode, clicking the “Control” button will start a count up timer. Clicking again will stop the timer, and clicking once more will reset the timer. Clicking and holding the button for three seconds will enter count down set mode. The “Control” button will adjust the digit, then “Select” will cycle through the four digits before starting the timer.

M800 Chronometer in UT mode, LT mode, and ET mode

KFC225 Autopilot

The KFC225 Autopilot includes a Yaw Damper, Heading Hold, Nav mode, Approach mode, Reverse Course mode, Altitude Hold mode, and Vertical Speed mode. The autopilot is equipped with an altitude preselector. Rotating the “Alt Sel” knob will adjust the altitude, the outer knob in 1000 ft increments, the inner knob in 100 ft increments.

> To arm the altitude selected, you **MUST** click the “ARM” button, otherwise the autopilot will not capture the altitude selected.

KR87 ADF

The KR87 Mode includes the primary ADF selection and standby ADF selection. Rotating the right knob will adjust the standby selection, the outer knob incrementing the selection in 100 increments, the inner knob in 1 increments. Clicking the FRQ/<-> Button will switch the standby frequency into the primary and the primary frequency into the standby.

GTX345 Transponder

The GTX345 Transponder is equipped with 3 main modes, Standby (SBY), On, and Altitude Reporting (ALT). Clicking these three buttons will set the transponder mode. The IDNT button will Ident the transponder. The VFR button will set the transponder to 1200. Clicking the button a second time will switch to 2000.

Pressure altitude is displayed to the right of the transponder code selection.

KFC225, KR87, and GTX345

Cockpit Features

The 1.1 update of the Islander has a few new cockpit features, which are outlined here.

HDR Lights

The 2T Islander has HDR lights.

Overhead Utility Lights

The overhead utility lights for both the pilot and copilot are functional. A small switch on the back of each activates the light itself, and the beam can be directed almost anywhere in the cockpit by clicking on and dragging the body of the light itself.

By nature of their function, these are HDR lights, which means that effects settings in X-Plane must be ‘High’ or ‘Maximum’. On ‘Medium’ or below, these lights will not work! This is a limitation of X-Plane’s rendering system.

Avitab Integration

The excellent Avitab tablet has been integrated with the 3d cockpit. Initially, it starts out hidden from view on every flight, but can be brought up by clicking on the glare-shield edge above the engine gauges.

By clicking and dragging the top and left edges of the tablet, it can be moved to a variety of positions above the glare-shield.

InHg/mmHg Switch

A click on the face of the pilot side altimeter switches the baro display between inches of mercury and millimeters of mercury.

Automatic Laminar 530/430 to RXP GTN 750/650 Change

This function requires a correct installation of the RXP GTN 750 and/or GTN 650 to work. If the automatic switch does not happen, please ensure that your RXP products are installed correctly. We cannot give assistance for any incorrect installation.

If you own (and have correctly installed) the RXP GTN 750 or GTN 650, you can use these in the Islander 3d cockpit. Simply select them from the Plugins menu, and assign any of the 7xx to GTN1 and any of the 6xx to GTN2. The RXP GTNs are integrated with both the normal and G5 versions of the Islander.

Be aware that limitations in the 3d model mean that you cannot use the GTN 6xx in the GTN1 slot or the GTN 7xx in the GTN2 slot.

Noise Cancelling Headphones

The headphones in the Islander model feature adjustable noise cancellation. With the headphones active, simply click and drag the highlighted manipulator or scroll with the mouse wheel to adjust the level of cancellation.

This setting is saved between sessions.

Section 3

Normal Procedures

Table of Contents

Preflight Checks

Walkaround

Before starting the walk around inspection remove the pitot head cover, control locks, and battery vent plug. During the external inspection, perform a general check of airframe condition and the security of all fasteners and control hinges and attachments.

Cabin

Ignition Switches ..... ALL OFF

Parking Brake ..... ON

All Electrical Switches ..... OFF

Battery Master Switch ..... ON

Pitot Heater Switch ..... ON

Stall Warning Vane ..... Deflect and listen for stall horn.

Pitot Head ..... Check heat.

Rotating Beacon ..... ON, CHECK, OFF

Navigation Lamps ..... ON, CHECK, OFF

Battery Master Switch ..... OFF

> Leaving the Battery Master Switch in the on position for an extended period of time during walkaround can drain the battery. If this happens, use 'Charge Battery' in the UI Menu to restore power.

Left Engine

Propeller ..... CONDITION

Oil ..... CHECK

Gascolator ..... DRAIN AS NECESSARY

Left Undercarriage

Oleo ..... EXTENSION

Brake Discs and Pads ..... CONDITION

Brake Lines ..... CHECK FOR LEAKAGE

Tires ..... INFLATION, CUTS, CREEP

Left Leading Edge

Pitot Head ..... PRESSURE, STATIC VENTS, DRAIN HOLE CLEAR

De-Icer Boots ..... CONDITION

Left Trailing Edge

Aileron ..... FREEDOM

Fuel Sump ..... DRAIN AS NECESSARY

Fuselage Left Side

Passenger Doors ..... SECURED, UNLOCKED

Baggage Bay Door ..... SECURED, UNLOCKED

Tail Surfaces

Rudder/Elevator ..... CONDITION and FREEDOM

Trim Tabs ..... CONDITION

Fuselage Right Side

Passenger Door ..... SECURED, UNLOCKED

Right Trailing Edge

Fuel Sump ..... DRAIN AS NECESSARY

Aileron ..... FREEDOM

Right Leading Edge

De-Icer Boots ..... CONDITION

Right Undercarriage

Oleo ..... EXTENSION

Brake Discs and Pads ..... CONDITION

Brake Lines ..... CHECK FOR LEAKAGE

Tires ..... INFLATION, CUTS, CREEP

Right Engine

Propeller ..... CONDITION

Oil ..... CHECK

Gascolator ..... DRAIN AS NECESSARY

Fuselage Nose

Nose Oleo ..... EXTENSION

Nose Wheel ..... INFLATION, CUTS, CREEP

Nose Cone ..... CONDITION

Windscreen ..... CLEANLINESS, CONDITION

Pre Starting Checks

Battery/Master Switch ..... ON

Pilot's Seat..... ADJUST, SECURE

Rudder Pedals..... ADJUST, SECURE

Doors .....CLOSED AND LOCKED

Safety Belts .....FASTENED

Parking Brake ..... ON

Trim Tabs .....FULL MOVEMENT, NEUTRAL

Fuel Selectors ..... FREEDOM, ON

OAT .....CHECK

Altimeters..... CROSS CHECK

Timepiece .....CHECK AND SET

Cabin Heater .....AS REQUIRED

Fuel Contents Indicators .....CHECK

Compasses .....CHECK

Circuit Breakers .....PUSHED IN

Flight Controls .....FREEDOM

Flaps.....Operate over full range. Check visually and against indicator.

Avionics ..... OFF

External Lights.....AS REQUIRED

Throttles ..... CLOSED, ALPHA

Condition Controls .....CUTOFF

External Supply Switch..... EXTERNAL SUPPLY (UP)

Aux Fuel Pumps ..... OFF

Generators ..... OFF

When starting from internal battery, the External Supply switch must be turned on to permit the battery to power the starters. Once start has been achieved, return the switch to the OFF/STARTER ISOL position.

WARNING

AVOID HEAVY PROLONGED USE OF THE STARTER TO PREVENT OVERHEATING OF THE COMPONENTS.

To prevent overheating the engines on the ground, the following precautions are strongly advised.

1. Avoid unnecessary ground running.
2. Ensure the airplane faces the wind.
3. Confine propeller pitch to the full fine position.

Starting

The right hand engine is normally the first to be started. Select the starter isolation switch to ON (UP) prior to using the starter.

Set fuel selectors ..... LH to Port Tank, RH to Starboard Tank

Aux Fuel Pumps .....ON, Check FUEL PRESS LOW 'OFF'

Throttle ..... CLOSED, ALPHA

Ignition ..... ON

CHECK ALL CLEAR

Observe normal turbine starting procedures.

Starter ..... ON

Oil Pressure ..... RISING

Above 14% N1, introduce fuel by moving the condition lever past the detent.

ITT ..... <850 °C

N1 ..... RISING

Oil Pressure ..... RISING

Release starter >50% N1. ITT and Oil Pressure should stabilize within 30 seconds. N1 should stabilize around 64%.

Repeat for left engine.

After Starting

N1 ..... STABLE @ 64%

Aux Fuel Pumps ..... OFF

Generators ..... ON, Check for low-volt lights extinguished

Vacuum Gauge ..... 3-5 in Hg

Ammeter ..... Indicator within green sector

Ammeter Selector ..... BATT

Oil Pressure ..... ABOVE RED LINE MINIMUM

Fuel Pressure Warning ..... OFF

Flight Instruments ..... Indicating normally

Avionics ..... ON

Cabin Heat ..... AS REQUIRED

Ice Protection Systems ..... CYCLE, OFF

Check ammeter reading 2-5 amps in the green sector. Check generator balance.

Check voltmeter for voltage between 27 and 29 volts.

Taxi

Test brakes for effectiveness during taxi.

Pre-Take-Off Checks

Passenger Notices ..... ON

Doors and Windows ..... CLOSED

Condition Controls ..... FULL FORWARD

Trims ..... NEUTRAL

Flaps ..... T.O.

Fuel ..... Check contents, selection, and pressure.

Aux Fuel Pumps ..... ON

Engine Instruments ..... CHECKED

Flight Instruments ..... CHECKED AND SET

Pitot Heater ..... ON AS REQUIRED

Ice Protection ..... ON AS REQUIRED

Autopilot ..... OFF

Flight Controls ..... FULL AND FREE MOVEMENT

Take-Off Procedure

Advance throttle slowly, monitoring ITT and torque for limits. Rotate the aircraft at a speed 4 knots less than the scheduled 50 ft safety speed. The aircraft is capable of taking off in a 30 knot crosswind without resort to differential throttle.

Climb out should occur at no less than 64 knots. Avoid retracting the flaps at a height of less than 200 ft AGL, as the aircraft may experience a brief sink during flap retraction. Trim for resultant nose heaviness.

Turn Aux fuel pumps off at a safe altitude.

Engine RPM may be maintained at 2030 RPM throughout flight.

Handling In Flight

The airplane is easy to fly at all speeds and has no unusual features.

Instrument Flying

The aircraft is equipped for IFR flight.

Flying in Low Temperature Conditions

Propeller governors should be exercised regularly to keep the oil supply circulating and thus avoid sluggish or unresponsive propellers.

Flight at Reduced Speed

A comfortable attitude can be maintained at 78 knots. Airspeed in this configuration must not exceed 114 knots IAS.

Flying in Turbulence

The recommended air speed during turbulence is 88 knots IAS.

Stalling

Stalls are gentle in all configurations and from all attitudes normally encountered. Recovery is affected by pushing the nose down. Provided action is taken promptly, altitude loss will be minimal.

The stall horn and warning annunciator will activate at a safe margin above stall.

Pre Landing Checks

Harness ..... FASTENED
Pilot's Seat..... SECURE
Fuel ..... CONTENTS, SELECTION
Engine Instruments ..... CHECKED
Condition Controls ..... FULL FORWARD
Aux Fuel Pumps ..... ON, CHECK PRESSURE
Warning Lamps ..... EXTINGUISHED
Autopilot ..... OFF
Passenger Notices ..... ON
Brakes ..... OFF
Pitot Heat..... ON AS REQUIRED

Final Approach

After selection of flaps down (56 degrees), the speed may be progressively reduced to the appropriate threshold speed.

Approach can be flown comfortably at 65 knots at all permissible weights and CG conditions. This will result in a slight nose high attitude with very little flare required prior to touchdown.

Balked Landing

Apply full power smoothly and establish a positive rate of climb. Set flaps to T.O. and accelerate above 61 knots. Flaps should not be retracted before 200 ft AGL and 65 knots.

WARNING

FULL FLAP DEFLECTION CAUSES VERY HIGH DRAG AND MAY REDUCE CLIMB PERFORMANCE. IMMEDIATE FULL RETRACTION AT LOW SPEED MAY LEAD TO FURTHER ALTITUDE LOSS.

WARNING

APPLICATION OF FULL POWER WITH FULL FLAP DEFLECTION CAUSES A SIGNIFICANT NOSE UP MOMENT.

After Landing Checks

Aux Fuel Pumps ..... OFF

Flaps ..... UP

Pitot Heat ..... OFF

Unrequired Services ..... OFF

Trim ..... NEUTRAL

Cabin Heater ..... OFF

Engine Shutdown

Idle until temperatures drop. Stop the engines by moving the condition control past the detent into cutoff/feather.

Monitor ITT for sudden rise post-shutdown. If temperatures spike, run starters with no fuel until temperature stabilizes.

WARNING

FAILURE TO TURN OFF THE AVIONICS PRIOR TO STOPPING THE ENGINES CAN RESULT IN DAMAGE TO THE ELECTRONICS.

After-Shutdown Checks

Fuel Selectors ..... OFF

Ignition ..... OFF

Generators ..... OFF <10% N1

Other Services ..... OFF

Battery Master Switch ..... OFF <10% N1

Parking Brake ..... ON

Chocks ..... IN POSITION

Section 4
Emergency Procedures

Table of Contents

Electrical Failures

Failure of Right Generator

Right Generator Field Switch .....OFF

Right Generator Circuit Breaker .....TRIP

Failure of Left Generator

Left Generator Field Switch .....OFF

Left Generator Circuit Breaker .....TRIP

No load shedding is necessary except at the pilot's discretion.

Failure of Both Generators

Left Generator Field Switch .....OFF

Right Generator Field Switch .....OFF

Left Generator Circuit Breaker .....TRIP

Right Generator Circuit Breaker .....TRIP

Master Battery Switch ..... ON

Check that the circuit breakers for the following services are engaged and that the services are operating or ready for use as indicated:

a. Auxiliary fuel pumps - Limit to 5 minutes for landing only
b. Wing flaps - Limit to essential operation only
c. Fuel contents indicators
d. Landing lights - Limit to 2 minutes for landing only
e. Navigation lights - Night operations only
f. Engine instruments cluster
g. Map light - Night operations only
h. Turn-and-bank indicator
i. Stall warning
j. Rotating beacons
k. Stall warning heater
l. Pitot head heater
m. Magnesyn compass
n. Tachometer
o. Audio system
p. One essential radio navigational aid
q. One essential radio communications transmitter/receiver - Limit to 5

minutes use during cruise and 2.5 minutes minutes while landing

All other electrical services ..... OFF/CIRCUIT BREAKERS TRIPPED

Under the above conditions the aircraft battery should have sufficient capacity to allow a flight of 25 minutes duration at night or 30 minutes duration by day.

Failure of Main Busbar

Left Generator Field Switch ..... OFF

Right Generator Field Switch ..... OFF

Left Generator Circuit Breaker ..... TRIP

Right Generator Circuit Breaker ..... TRIP

Failure of Battery

Battery Switch ..... OFF

Left Generator ..... ON

Right Generator ..... ON

Pitot and Stall Heaters ..... OFF

Nav Lights ..... OFF

Landing Lights ..... OFF

Cabin Lights ..... OFF

Passenger Notices ..... OFF

Rotating Beacons ..... OFF

All De-Ice systems ..... OFF

Cabin Heater ..... OFF

When electrical loading of the main busbar is reduced sufficiently, both left and right generators will come back online; this can be verified by the ammeter pointer registering in the green sector when selected to the generators, and the voltmeter registering between 27 and 29 Volts. As the generators are not completely stable without the battery, heavy loads may cause them to go offline again, at which point electrical load should be reduced until generator power is restored.

Fires

Fire on the Ground - Engine Fire

Condition Controls ..... CUTOFF

Ignition ..... OFF

Battery Master ..... OFF

Fuel Tanks ..... OFF

Deal with the fire by using the fire extinguisher bottle located beneath the pilot's seat or any similar ground appliance.

Fire in the Air - Fire in the Cabin

Deal with the fire immediately using the fire extinguisher located under the pilot's seat. Although the fumes given off by the extinguisher are non toxic, the cabin should be well ventilated by opening the direct view window and selecting the cabin ventilating blower ON as soon as the fire has been completely extinguished.

Fire in the Air - Engine Fire

On the first indication of a fire, take the following steps after identifying the affected engine:

Condition Control ..... CUTOFF

Throttle ..... CLOSED

Fuel Tank ..... OFF

Ignition ..... OFF

Fuel Pumps ..... OFF

Generator ..... OFF

When the fire has died away, do not attempt to restart the affected engine. In the case of a persistent fire, a landing must be made at the first available opportunity.

Engine Failure

Failure of One Engine during Take Off

If one engine fails before the take off safety speed is reached, close the throttles and brake to a stop.

Failure of One Engine after Take Off

Immediate Action

In the event of an engine failing after take off safety speed is reached, and whilst the aircraft is climbing, the following procedure must be effected:

Identify the inoperative engine

Condition Control ..... CUTOFF
Throttle ..... CLOSED
Fuel Tank ..... OFF
Ignition ..... OFF
Fuel Pump ..... OFF
Generator ..... OFF

Ensure that the generator of the operative engine is ON. Allow airspeed to build to 65 kts prior to selecting flaps UP.

> Warning
>
> It is essential to raise the flaps to the fully up position to achieve the optimum climb gradient

Handling on One Engine

General

The aircraft is perfectly docile on one engine and should maintain a height of 10000 ft at a gross weight of 7000 lbs in ISA conditions.

Fuel System Management

Should an engine failure be experienced during the early part of the flight the operative engine can be fed, alternately, from either fuel tank to balance the fuel load. This can be done by using the tank selector, applicable to the operating engine, as indicated by the inscribed markings. It is recommended that the tanks be switched at intervals of approximately 30 minutes.

Unfeathering Sequence

Identify the engine to unfeather.

Fuel Tank.....ON

Ignition.....ON

Fuel Pumps.....ON

Throttle Lever..... CLOSED

Condition Control.....CUTOFF

Isolation Switch.....ON/UP

Starter.....ACTIVATE

When engine spools past 14% N1, apply fuel.

Check engine TEMPS and PRESSURES.

Condition Control.....ADJUST TO CRUISE SETTINGS

Auxiliary Fuel Pumps.....OFF

Isolation Switch..... OFF/DOWN

Generator.....ON

Critical Engine

Failure of the left engine has the most adverse effect on the handling and performance characteristics of the engine.

Landing with One Engine Inoperative

Make an initial approach at 65 kts IAS with the flaps selected to T.O.

When committed for landing, select FLAPS DOWN and reduce speed over the threshold to touch down normally.

Emergency Evacuation of Aircraft

Operation of Cabin Doors

All three cabin doors are placarded as emergency exits and should be opened in the normal way as the first resort in making an exit from the cabin. In the case of the pilot's door, however, the left engine ignition should first be switched OFF, thus allowing the solenoid operated interlocking mechanism to be released. Should this action be overlooked, or if there is an insufficient time available, the interlocking mechanism can be overridden by operating the lock-release lever with one hand whilst operating the internal door handle with the other hand.

Operation of Cabin Window Exits

If the cabin doors cannot be opened, and particularly if the aircraft comes down on to water, each emergency 'pull-in' window must be removed as follows:

1. Grip the red handle at the top corner of the cabin door window trimming
2. Pull inwards and rearwards as hard as possible.

It is necessary to dislodge the window from its groove in the rubberized moulding and considerable physical effort may be required, especially in cold conditions.

Section 5
Performance Data

Table of Contents

TAKEOFF SAFETY SPEED	
WEIGHT	KNOTS
4000	48
4500	50
5000	51
5500	53
6000	54
6500	56
7000	57

TAKEOFF DISTANCE IN FT AT ISA +30 C				
	TOW			
ALTITUDE	4000	5000	6000	6600
0	850	1150	1450	1600
1000	1000	1300	1600	1750
2000	1150	1450	1700	1900
3000	1250	1550	1850	2000
4000	1400	1700	1950	2150
5000	1500	1800	2050	2250
6000	1600	1950	2200	2400
7000	1750	2100	2350	2500

WIND AND AIRFIELD SLOPE ARE NOT CONSIDERED IN THIS CHART

Maximum Takeoff and Landing Weight

The BN-2T shall not exceed a take-off weight of 7,000 lbs, landing weight of 6,800 lbs, and zero fuel weight of 6,600 lbs during normal operations.

MTOW ..... 7,000 lbs

MLW ..... 6,800 lbs

MZFW ..... 6,600 lbs

Cruise Performance

Cruise at maximum continuous power (ITT <810 °C) will result in an airspeed of 170 kts IAS. Economical cruise at 75% power will result in an airspeed of 150 kts IAS.

Landing Performance

Landing Distance

LANDING DISTANCE IN FT AT ISA +30 C				
	LANDING WEIGHT			
ALTITUDE	4000	5000	6000	6600
0	1300	1400	1480	1590
1000	1340	1450	1550	1640
2000	1410	1500	1590	1700
3000	1470	1560	1660	1760
4000	1540	1620	1720	1830
5000	1580	1680	1770	1880
6000	1650	1740	1840	1940
7000	1700	1800	1900	2000

*SUBTRACT 50FT FOR EVERY 10 C LOWER

**A 5 KNOT TAIL WIND MAY INCREASE LANDING DISTANCE BY UP TO 250 FT

WIND AND AIRFIELD SLOPE ARE NOT CONSIDERED IN THIS CHART

Safe Landing Speed

SAFE LANDING SPEED	
WEIGHT	KNOTS
4000	51
4500	53
5000	54
5500	56
6000	57
6500	59
7000	60