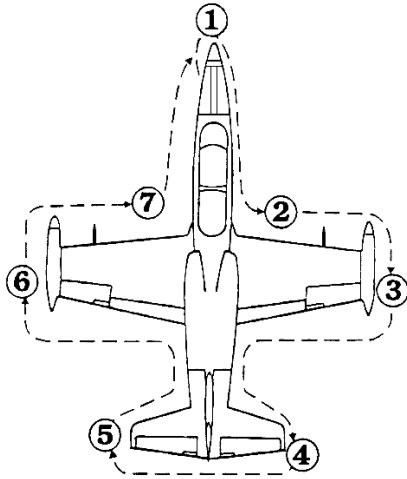


L-39ZA

N107ZA
743107



PRE-FLIGHT

EXTERIOR INSPECTION

1. Check the general surroundings of the aircraft:

- Chocks - In place
- Fluid leaks - None

2. Check aircraft for proper configuration.

Nose section (area 1)

- De-icing sensor cover - Remove
- Nitrogen pressure gauge - 120 to 150 kg/cm²
- Side panels - Closed and secured
- Nose wheel - Check strut, tire, light, pole and microswitch
- Tire inflation - 3.5 to 4 kg/cm² ~ 56 psi
- Gear down light - Condition

Fuselage RH side (area 2)

- Canopy - Condition
- Air intake - Clear
- Temperature probe - Condition
- Speed brakes - Retracted and condition
- Right main gear - Check strut, tire, brake assembly, gear down light and pole
- Tire inflation - 5.5 to 6 kg/cm² ~ 85 psi
- Access panels - Closed

Wing RH side (area 3)

- Pitot tube and static ports - Condition, cover off
- Landing / taxi light - Condition
- Position light - Condition
- Tip tank filler cap - Closed
- Aileron - Movement, trim tab
- Flap - Condition
- Pylons, stores - Condition, attached

Tail section RH side (area 4)

- Oil quantity - Check 4.5 to 7.5 liters
- Antenna under fuselage - Condition
- Rudder - Condition
- Radio antenna - Condition
- Static wicks - Condition
- Elevator - Movement, trim tab
- Exhaust cone - No cracks, dents or fuel leaks

Fuselage, wing and tail LH side

- (areas 5, 6, and 7) - Same as 2, 3, and 4 (repeat)
- Hydraulic fluid level - Check full
- APU oil quantity - At least ¼ full
- Magnetic plug - Examine for metal chips
- APU exhaust cone - No cracks, dents or fuel leaks

SOLO CHECK (AFT COCKPIT)

- Cockpit - Clear, no foreign objects
- Miscellaneous CB / Switch panel - All on
- Parachute harnesses - Secured
- Solo cover - In place
- Suit ventilation - Closed (CW)
- Oxygen interconnect - Open (CCW)
- Oxygen supply valve - Closed (CW)
- Fuel shut-off lever - Forward and guarded
- Throttle cut-off lock gate - Open
- All guarded switches - Covered
- Fwd/Aft cockpit EGT - Forward
- Gear lever - Neutral position
- Emergency brake - Forward, safety-wired
- Pitot fault simulators - Normal, left position
- GMK correction - Variation zero
- Emergency levers - Forward, safety-wired
- Canopy - Closed and locked

COCKPIT ENTRANCE

From steps

- Cockpit - Clear, no foreign objects
- Canopy - Clean
- Main CB / switch panel - All off
- Aft CB / switch panel - All on
- Ejection seats - Inspect
- Pilot weight - Set
- Emergency oxygen pressure - 130 to 150 kg/cm²
- ORK-9 upper part - Attached to parachute
- Anti-G valve - According to flight suit
- Signal flares switch - Off
- Canopy jettison lever - Basic position, safety-wired

After cockpit entry

- | | | |
|-----------------------------------|---|---------------|
| Harness and equipment | - | Fasten |
| Seat bucket height | - | Adjust |
| Shoulder harness arrestment lever | - | Verify |
| Rudder pedals | - | Adjust |
| Flight controls | - | Free movement |

INTERIOR INSPECTIONS

- | | | |
|--------------------------|---|--|
| Battery switch | - | On |
| External power indicator | - | Illuminates (when external power attached) |

Left Console

- | | | |
|-------------------------------|---|---|
| Oxygen supply | - | Open (CCW) |
| Oxygen controls: | | |
| - Diluter demand | - | Normal |
| - Emergency switch | - | Off |
| Fuel shut-off lever | - | Forward and guarded |
| Pitot heat buttons | - | Off |
| FDR switch | - | Off, green light illuminates |
| Audio panel | - | Set |
| Throttle | - | Full and free movement, adjust friction |
| Pitot tube selector | - | Main |
| Emergency/parking brake lever | - | Forward (apply) |
| Instrument lights | - | White |
| Landing / taxi light | - | Off |
| Oxygen pressure | - | 150 kg/cm ² |

Instrument Panel

- | | | |
|--|---|---------------------------------------|
| L/G control lever | - | Down, rear neutral |
| Accelerometer | - | Reset, check "+1g" |
| Gyro unit arrestment lever | - | FIXED |
| Airspeed / mach | - | Check |
| Radar altimeter | - | Check indication, set decision height |
| RMI | - | Check |
| VSI | - | Zero |
| Clock | - | Set |
| Cabin pressure / altimeter elevation | - | Check field altitude, difference zero |
| Voltammeter | - | External power voltage |
| Engine instruments | - | Check |
| Diffuser and suit temperature controls | - | AUT., set temperature |
| Diffuser | - | Set direction, close |

Center pedestal

- | | | |
|------------------------------------|---|----------------------------------|
| Signal flares buttons | - | Check basic position |
| Armament panel | - | All off |
| Main brake pressure | - | Zero |
| Emergency brake pressure indicator | - | Condition |
| Trim indicator | - | Condition |
| Fire signal test switch | - | I and II, fire light illuminates |

Right Console

- | | | |
|---------------------------------|---|-----------------------------|
| Pressurization / ECS | - | Off, aft position |
| Auxiliary switch panel: | | |
| - CABIN HEATING | - | Automatic |
| - ENGINE INDICAT. EMERG. | - | Off |
| - ANTI-ICING | - | Off |
| - NAVIG. LIGHTS | - | As required |
| Four hydraulic emergency levers | - | Forward and safety-wired |
| C&W lights intensity: | | |
| - Check | - | Lights illuminating |
| - Brightness | - | Adjust |
| Hydraulic gauge | - | Condition |
| GMK control box: | | |
| - Mode switch | - | MC |
| - Hemisphere | - | Set |
| - Latitude selector | - | Set |
| EGT regulator test | - | I and II, lights illuminate |

ENGINE START

BEFORE START

1. BATTERY switch - On
2. Signal lights:
 - AIRCONDIT OFF - On
 - CANOPY UNLOCKED - On
 - HYD. SYS. FAIL - On
 - GENERATOR - On
 - EMERGENCY GENERATOR - Flashing
 - ENG. MIN. OIL PRESS - On
 - DON'T START - On
 - INV. 3x26 V FAIL - On
 - WING TIP TANKS - On
3. ENGINE switch - On, DON'T START and INV. 3x36 FAIL lights out within 5 seconds
4. Fuel indicator - Check quantity
5. Engine Vibration - Depress check button
6. Throttle - Back to STOP
7. Voltammeter - Check, 22V minimum
8. Aft canopy - Close and lock
9. Aft cockpit CANOPY UNLOCKED light - Comes off

ENGINE START

1. TURBO start button, stop watch - Depress for 2 seconds and release, start watch
2. TURBINE STARTER light - On by 25 seconds max.
3. ENGINE start button, stop watch - Depress, reset and start watch
4. Throttle - Idle within 3-6 seconds
5. RPM, triple gauge, EGT indicators - Check values
6. Any conditions not met: - Abort start by retarding throttle to STOP
 - HPC RPM - Rise within 8 seconds
 - RPM - 20% minimum within 15 seconds
 - EGT - 500° C maximum
 - HPC RPM - Continuous rising
 - 41.5 – 44.5% - TURBINE STARTER light out
 - Idle RPM - Within 50 seconds
 - Oil pressure at idle - 2 kp/cm² minimum
7. Caution and warning lights - Out following: HYD. SYS. FAIL., ENG. MIN. OIL PRESS

AFTER START CHECKS

1. Canopy - Close and lock, CANOPY UNLOCKED light out
2. Pressurization / ECS control lever - Fully forward, AIRCONDIT. OFF light out
3. Main CB / switch
 - GENERATOR MAIN, GENERATOR EMERG. - On, EMERGENCY GENERATOR and GENERATOR lights out
 - INVERTER I, INVERTER II - On
 - RADIO, MRP-RV, DE-ICING - On
 - WING TANKS - As required
4. External power - Disconnect, check voltage
5. Anti-ice mode switch - AUTOMATIC or MANUAL
6. Air diffuser - As required

BEFORE TAXI CHECKS

1. Aileron Trim - Neutral
2. Elevator trim:
 - Without stores - Neutral
 - With stores - 2 marks aft
3. Flight controls - Free movement, correct response
4. Power - 85% RPM for 1 minute
5. Oil temperature - -5° C minimum
6. Aircraft systems:
 - Intercom - Check
 - Radio altimeter - TEST button
 - Anti-G suit - 70%, depress button
 - De-icing system - Check
7. Voltammeter - 28.5 Volts
8. Hydraulic pressure - 135 to 150 kp/cm² else shut down engine
9. Speed brakes - Check extended and retracted positions
10. Flaps - Check LANDING and UP positions, set to TAKE-OFF
11. Throttle - Idle
12. Initial heading - Set bug
13. Altimeter - Check
14. Transponder - Proper code
15. Brakes - Apply, check pressure
16. Emergency/parking brake lever - Neutral (release)
17. Taxi clearance - Request

TAKE-OFF

BEFORE TAKE-OFF CHECKS

- | | | |
|---|---|--|
| 1. Trim | - | Confirm positions |
| 2. Speed brakes | - | In |
| 3. Flaps | - | TAKE-OFF position |
| 4. Fuel quantity and WING TIP TANKS light | - | Check |
| 5. Flight and engine instruments | - | Check |
| 6. Oxygen | - | Check quantity |
| 7. Canopy | - | Closed and locked, handle forward, light out |
| 8. Instrument hood | - | Retracted |
| 9. Parachute harness | - | Tight and locked |
| 10. Hydraulic pressure | - | Check |
| 11. Caution and warning | - | Check, lights out |
| 12. Flight controls | - | Check |
| 13. Pressurization / ECS | - | Fully forward |
| 14. Take-off clearance | - | Request |

LINE UP CHECKS

- | | | |
|-----------------------|---|------------------------|
| Nose wheel | - | Align with runway |
| Compasses | - | Check heading |
| Heading Gyro | - | Press alignment button |
| Pitot tube heating | - | As required |
| Landing / taxi lights | - | As required |
| Transponder | - | Squawk altitude |

TAKE-OFF

- | | | |
|---------------------|---|--|
| Engine instruments | - | Check within limits:
RPM, EGT, Oil press. |
| Caution and warning | - | Check, lights out |
| Clock | - | Start flight time |
| Throttle | - | MAX POWER |
| Wheel brakes | - | Release |
- Maintain control by differential braking, rudder becomes effective at approximately 35 KIAS.
- At 82 KIAS raise nose gear, take-off 97-103 KIAS.
- Positive rate of climb, 120 KIAS, 75' AGL minimum:
- | | | |
|--------------------------|---|---------------------|
| - Landing gear lever | - | Up |
| - Landing gear indicator | - | Sequence, three red |
| - Mechanical indicators | - | Check |
| - Pitch | - | Approximately 8° |
- Airspeed 135 KIAS, altitude 200' AGL minimum:
- | | | |
|--|---|-------|
| - Flaps | - | Up |
| - Electrical and mechanical indicators | - | Check |
- | | | |
|----------|---|---------------------------------------|
| Throttle | - | Retard to 103% |
| Airspeed | - | 160 KIAS initially, maintain 190 KIAS |
| Trim | - | As required |

CROSS WIND TAKE-OFF

During a cross wind take-off, use the same procedures as for normal take-off. However, since during the take-off roll, the aircraft nose tends to crab into the wind, be prepared with the opposite rudder. Also as the speed increases the up-wind wing will tend to rise, be prepared with the ailerons into the wind. When airborne, be aware of the cross control situation and prepare to align controls to gain a coordinated flight.

SOFT FIELD TAKE-OFF

During a grass strip take-off, use the same procedures as for normal take-off. On wet or snow-covered surfaces, the aircraft can stay on brakes up to 88-98% RPM maximum. Aircraft acceleration is slower. Maintain directional control initially by differential braking up to 55 KIAS. Take-off roll distance may be longer by 50%. To decrease friction of NLG wheel, perform take-off roll with control stick pulled up. At 87-90 KIAS raise the nose wheel by pulling the stick fully aft. Aircraft will become airborne at approximately 102-110 KIAS.

CLIMB, CRUISE, DESCENT, APPROACH, AND LANDING

CLIMB

- | | |
|----------------------------------|---|
| 1. Throttle | - Retard to 103% |
| 2. Climb speed | - Maintain 190 KIAS |
| 3. Oxygen system | - 6,500' AGL check pressure and blinker |
| 4. Flight and engine instruments | - Check |
| 5. Fuel quantity | - Check |
| 6. Hydraulic pressure | - Check |
| 7. Cabin altimeter | - Check |
| 8. Altimeter | - 29.92 passing 18,000' |
| 9. Landing / taxi lights | - Check off |

LEVEL OFF

- | | |
|-----------------------|---------|
| 1. Fuel quantity | - Check |
| 2. Oxygen | - Check |
| 3. Engine instruments | - Check |

For cruise data, refer to "performance" in Appendix A of the POH.

DESCENT

- | | |
|----------------------------------|---------------|
| 1. Fuel quantity | - Check |
| 2. Flight and engine instruments | - Check |
| 3. Altimeter | - Set |
| 4. De-icing | - As required |

APPROACH CHECKS

- | | |
|--|---------------------------------|
| 1. Warning and advisory/caution panels | - Check |
| 2. Fuel quantity | - Check |
| 3. Hydraulic pressure | - 135 to 150 kp/cm ² |
| 4. Landing lights | - As required |
| 5. Shoulder and lap straps | - Tightened |
| 6. Visors | - Down as required |

INITIAL APPROACH PHASE

- | | |
|------------------------------------|--|
| 1. Speed | - 245 KIAS |
| 2. Power | - As required |
| 3. Altitude | - Descend to 1500' AGL |
| 4. Speed brakes | - As required |
| 5. Gun sight gyro arrestment lever | - FIXED (down) |
| 6. Speed | - Decrease to traffic pattern airspeed, 190 KIAS |

DOWN-WIND

As speed decreases below 180 KIAS:

- | | |
|--------------------------|--|
| 1. Landing gear lever | - DOWN |
| - Landing gear indicator | - Sequence, three green |
| - Mechanical indicator | - Check |
| 2. Airspeed | - 165 KIAS |
| 3. Trim | - As required |
| 4. Speed brakes | - Retract if extended, check indicator |

BASE LEG

As speed decreases below 160 KIAS:

- | | |
|---------------------------------|--|
| 1. Flaps | - TAKE-OFF position |
| 2. Position light | - Check |
| 3. Mechanical indicators | - Confirm |
| 4. Speed | - Maintain 150 KIAS (normally the required power will be 95-100%) |
| 5. Sink rate | - 750 – 1,000 fpm |
| 6. Hydraulic system | - Check 135 to 150 kp/cm ² (0 pressure in wheel brake system) |
| 7. Trim | - As required |
| 8. Altitude before turning base | - 1,300' AGL |

TURNING BASE

- | | |
|----------------------------|--------------------|
| 1. Altitude | - 1,000' AGL |
| 2. Distance from threshold | - 3 – 3.5 miles |
| 3. Flaps | - LAND position |
| - Indicators | - Confirm setting |
| 4. Sink rate | - 750 – 1,000 fpm |
| 5. Speed | - 140 KIAS minimum |
| 6. Altitude | - 800' AGL minimum |

FINAL APPROACH

When established on final, it is recommended to maintain a minimum of 70% RPM in order to assure optimum engine acceleration if required. Avoid 75 – 85% range where surge bleed valves operate; if RPM is not stable leave this range.

- | | |
|---------------------|--------------------------|
| 1. Landing gear | - Verify down and locked |
| 2. Speed | - 125 KIAS minimum |
| 3. Altitude | - 400' AGL minimum |
| 4. Landing lights | - As required |
| 5. Threshold speed | - 110 KIAS |
| 6. Flare altitude | - 20 – 25' AGL |
| 7. Throttle | - Idle |
| 8. Float | - Up to 3' AGL |
| 9. Touch-down speed | - 98 KIAS |

NORMAL LANDING

For landing speeds and ground run distances, refer to performance data in Appendix A of the POH.

If possible, use aerodynamic braking to slow the aircraft.
Retraction of flaps allows for longer aerodynamic braking.

Lower the nose and bring the nose-wheel into contact with the runway before the elevator becomes ineffective.

WARNING

- ◆ The wheel brakes will operate **ONLY** when the nose-wheel is firmly in contact with the ground.
- ◆ Be prepared to use the emergency brake lever if there is no response from the normal brakes. Push the stick forward when braking failure is experienced in order to increase the nose-wheel loading.

Start braking gently, increase the brakes application as required and maintain directional control by use of rudder. At higher speeds, brake **ONLY** with the rudder pedals centered; if necessary, release braking completely then regain direction and re-apply brakes equally.

At speeds below approximately 60 KIAS, use differential braking to maintain control.

CROSS-WIND LANDING

Cross-wind landing is performed by using normal landing procedures. The aircraft is most sensitive to wind-induced banking at about 60 KIAS. However, while using normal approach speeds, counteract drift by using the “crab” or “dipped wing” methods or a combination of both. Level wings just prior to touchdown.

In case of strong cross-wind and/or gusts with the possibility of wind-shear, use TAKE-OFF flaps.

After touchdown, keep the control stick into the wind and lower the nose-wheel smoothly on the runway as soon as practical, maintaining the center line track with rudder. Crabbing on touchdown must be avoided.

GRASS STRIP LANDING

Grass strip landing is performed using normal landing procedures. The aircraft tends to lower the nose-wheel at higher speeds, so hold the stick aft fully after touchdown. Brake more gently than during hard-surface landings.

SHORT FIELD (MINIMUM RUN) LANDING

For minimum run landing, fly an accurate final approach and touchdown speeds. After touchdown, lower the nose-wheel, retract the flaps and push the control stick fully forward. These actions will introduce more weight on the wheels thus reducing tire skidding. Apply brakes gently in a single smooth application with constantly increasing pressure as the speed decreases. Do not use differential braking at high speeds; if necessary, release braking completely the regain direction and re-apply brakes with rudder pedals centered.

MISSED APPROACH

Make the decision to go-around as early as possible and do not hesitate to use maximum power.

- | | |
|-----------------------------------|---|
| 1. Throttle | - MAX POWER |
| 2. Speed-brake | - In, if extended |
| 3. Flaps | - TAKE-OFF |
| 4. Speed | - 115 KIAS |
| 5. Attitude | - Take-off ~ 8° |
| 6. Speed | - 125 – 135 KIAS |
| 7. Positive rate of climb | - Gear UP |
| 8. Accelerating through 140 KIAS: | |
| - Flaps | - Up |
| - Landing lights | - As required |
| 9. Trim | - As required |
| 10. Configuration | - Check landing gear, speed-brake and flaps mechanical indicators |

NOTE

If a touchdown cannot be avoided, do not attempt to keep the aircraft off the ground. Continue to fly the aircraft to touchdown and when touchdown is made, lower the nose slightly, avoiding nose-wheel contact with the ground. Accelerate to take-off speed, then establish take-off attitude and allow the aircraft to fly off the ground. Once airborne, adopt normal missed approach procedure.

TOUCH AND GO LANDING

Touch and go landings encompass all aspects of landing and take-off in a relatively short time. Be constantly alert for possible malfunction and execute procedures promptly and precisely during this critical phase of flight.

- | | |
|-----------------------|-------------------|
| 1. Throttle | - MAX POWER |
| 2. Speed brakes | - In, if extended |
| 3. Flaps | - TAKE-OFF |
| 4. Engine instruments | - Check |
- Continue as per normal take-off.

INSTRUMENT APPROACHES

ILS APPROACH

Entry

- | | | |
|---------------|---|-------------------------------|
| Configuration | - | Cruise |
| Speed | - | 200 KIAS |
| Power | - | As required to maintain speed |

Approach to Glide-Slope

- | | | |
|-----------------|---|----------------------------|
| 1. Speed | - | Below 180 KIAS |
| 2. Landing gear | - | Down, check indicators |
| 3. Speed brakes | - | In, check indicators |
| 4. Speed | - | Below 160 KIAS |
| 5. Flaps | - | TAKE-OFF, check indicators |
| 6. Trim | - | As required |
| 7. Speed | - | 140 KIAS |

Maintain speed and configuration until glide-slope intercept.

Glide-Slope Intercept / Final Approach

- | | | |
|---------------------|---|--|
| 1. Flaps | - | LAND position |
| 2. Landing gear | - | Verify down and locked |
| 3. Speed | - | 125 KIAS |
| 4. Power | - | As required to maintain 125 KIAS minimum |
| 5. Landing lights | - | As required |
| 6. Threshold speed | - | 110 KIAS |
| 7. Flare altitude | - | 20 – 25' AGL |
| 8. Throttle | - | IDLE |
| 9. Float | - | Up to 3' |
| 10. Touchdown speed | - | 98 KIAS |

MISSED APPROACH (INSTRUMENT)

- | | | |
|---|---|--|
| 1. Throttle | - | MAX POWER |
| 2. Speed brakes | - | In |
| 3. Flaps | - | TAKE-OFF |
| 4. Attitude with positive rate of climb | - | Approximately 8° |
| 5. Landing gear | - | UP |
| 6. Flaps | - | UP |
| 7. Power | - | Retard throttle to 103% to attain 190 KIAS, then as required to maintain 190 KIAS and attitude |

AFTER LANDING CHECKS

- | | | |
|---------------------|---|-------------|
| Landing/taxi lights | - | As required |
| Flaps | - | Up |
| Speed brakes | - | In |
| Trims | - | Neutral |
| De-icing | - | Off |
| Pitot tube heating | - | Off |

ENGINE SHUT DOWN

Avoid applying the parking brake if brakes are suspected to be exceptionally hot.

- | | | |
|-------------------------|---|---|
| 1. Parking brake | - | Apply |
| 2. Throttle | - | IDLE |
| 3. Engine cooling | - | Two minutes |
| 4. Pressurization / ECS | - | Off (lever aft) |
| 5. Electrical switches | - | Off, except ENGINE, BATTERY, and JPT REG |
| 6. Throttle | - | To STOP |
| 7. Engine run down | - | Check (from idle to 0% RPM: 20 sec. HPC, 25 sec. LPC) |
| 8. ENGINE and JPT REG | - | Off |
| 9. FDR | - | Off |
| 10. Battery | - | Off |
| 11. Canopy | - | Open |

SECURE

- | | | |
|---------------|---|-----------------------------|
| Wheel chocks | - | In place |
| Parking brake | - | Release |
| Oxygen valve | - | Close (CW) |
| ORK-9 leads | - | Disconnect |
| Control stick | - | Lock, if desired |
| Aircraft | - | Leave |
| Canopy | - | Close and lock, if required |

EMERGENCY PROCEDURES

GROUND EMERGENCIES

ENGINE FIRE DURING START

CAUTION

The latch preventing the movement of the throttle from IDLE to STOP is, in the front cockpit a rotating lever and in the aft cockpit a spring-loaded push pin.

Indications: Fire warning light in warning panel. Any other signs of fire (smoke, ground crew report, etc.)

Actions:

Immediately perform the following:

1. Throttle - To STOP
2. ENGINE switch - OFF
3. Fuel SHUT-OFF lever - CLOSE

If fire persists:

4. FIRE EXTINGUISHER - Depress button
5. Emergency evacuation - Perform

EMERGENCY EVACUATION

In a situation where a rapid abandonment of the aircraft is required, proceed as follows:

1. ECS / Pressurization lever - AFT position
2. Canopy lock - AFT position

WARNING

On the ground, when the aircraft is stationary, canopies must be jettisoned as they may fall back and injure the crew.

3. Parachute harness - Unlock
4. ORK-9 quick disconnect - Pull
5. BATTERY switch - Off
6. Aircraft - Abandon

EMERGENCY BRAKING

Indication: Loss of normal braking capability

Actions:

1. EMERGENCY BRAKE - Pull gradually

NOTE

Use the emergency brake with care as the anti-skid system is deactivated and a careless use may result in a blown tire.

- ◆ Do not use the emergency brake from both cockpits simultaneously.

HOT BRAKES

Indications: Perform the following after any event which requires excessive braking (e.g. aborted take-off, landing at high GW's or speed, etc.) or when hot brakes are suspected (smoking brakes, ground crew confirmation, etc.)

Actions:

Request fire fighting equipment and proceed directly to the designated hot brake area or nearest area which is clear of other aircraft and personnel.

WARNING

Any leaking hydraulic fluid may be ignited by hot wheel and brake surfaces. In particular, hot wheels and brakes may ignite fuel drained overboard during engine shutdown.

When in the hot brake area:

Align aircraft with nose into wind if possible.

Use only chocks, if available, or minimum possible hand brake pressure to hold aircraft stationary until engine is shut down.

WARNING

Do not use the parking brake.

Delay engine shutdown until arrival of fire fighting equipment.

If a brake fire occurs:

Go to EMERGENCY EVACUATION, this section.

TAKE-OFF EMERGENCIES

ABORTED TAKE-OFF

NOTE

Aborting take-off at high speeds should not be taken lightly.

Once a decision to abort has been made, accomplish the following immediately:

- Throttle - To STOP
- Brake - Normal braking
- Radio - Declare ABORT
- “Barrier” - As required

Assess the situation (consult with control tower) and decide on the course of action: Emergency evacuation, clearing the runway, taxiing back, etc.

ENGINE FAILURE DURING TAKE-OFF

Indication: Loss of power.

Actions:

If possible:

- Abort take-off - Follow abort take-off procedure

If airborne:

- 1. Throttle - MAX POWER.
Consider controlling engine by means of the secondary circuit

CAUTION

With the emergency fuel controller, a rapid movement of the throttle may result in a flame-out or an excessive EGT.

Move the throttle with care while closely monitoring RPM and EGT.

- 2. SEC. REG. Switch - On
- 3. External stores - Jettison

If thrust is insufficient to maintain a safe climb:

- 4. Forced landing - Perform

ENGINE FIRE DURING TAKE-OFF

Indications: FIRE light or an outside report from the control tower or another aircraft.

Actions:

If possible:

- 1. Abort take-off - Follow aborted take-off procedure
- 2. Fuel shut-off lever - Close
- 3. FIRE EXTINGUISHER button - Depress
- 4. BATTERY switch - Off
- 5. Emergency evacuation - Perform

If airborne:

- 1. Throttle - MAX POWER
- 2. Landing gear handle - UP
- 3. External stores - Jettison

At flame-out landing conditions, if fire persists:

- 4. Throttle - To STOP
- 5. Fuel shut-off lever - Close
- 6. FIRE EXTINGUISHER button - Depress

WARNING

Do not attempt to restart engine after fire has been extinguished.

- 7. Forced landing - Perform

BLOWN TIRE DURING TAKE-OFF

Indications: Aircraft “pulls” to one side accompanied by a rough run.

NOTE

At high speed, if directional control can be maintained, it is recommended to get the aircraft airborne rather than risking a high speed aborted take-off.

Actions:

At low speed:

1. Runway center line - Maintain with available brakes, rudder, and by deflecting the control stick towards the “good” tire

When airborne:

- Gear and Flaps - DO NOT RETRACT
- Airspeed - 160 KIAS maximum
- Land - Refer to “Landing with a blown tire”

EMERGENCY STORES JETTISON

NOTE

Jettison is only possible when airborne.

1. EMERG. JETTIS. - On switch

TAKE-OFF ABNORMALITIES

GEAR RETRACTION FAILURE

<u>Indications:</u>	One or more gear components do not retract or lock in up position (confirmed by electrical and mechanical indicators).
---------------------	--

Actions:

1. Airspeed - Below 180 KIAS
2. Check back-seat lever - If DOWN move to position NEUTRAL
3. Landing gear lever - DOWN
4. Gear circuit breakers - Check ON
5. Electrical and mechanical indicators - Check
6. Land as soon as practicable

FLAPS RETRACTION FAILURE

Indications: The selected button does not pop out and the respective light does not come on, confirmed by the mechanical indicators.

Actions:

1. Airspeed - Below 160 KIAS
2. Flaps previous position - Select
3. Electrical and mechanical indicators - Check
4. Land as soon as practicable.

IN-FLIGHT EMERGENCIES

ENGINE FIRE

Indications: Fire warning light, outside report, smoke trail behind the aircraft, fumes or heat in the cockpit, engine RPM loss accompanied by high EGT, unusual engine noise or vibration.

Actions:

1. Throttle - To IDLE
2. Confirm the existence of fire (a near-by aircraft may be of assistance)

If fire warning light goes out:

3. Fire warning circuit test - Check both circuits switch

CAUTION

If test shows the circuit to be defective, the wiring could have been damaged by an existing fire.

If fire is not confirmed:

4. Precautionary landing - Perform

If fire is confirmed:

1. Cockpit pressure lever - Off
2. Oxygen - 100%
3. Air shower - Close

If forced landing conditions:

- | | | |
|--------------------------|---|---------|
| Throttle | - | To STOP |
| Fuel shut-off lever | - | Close |
| FIRE EXTINGUISHER button | - | Depress |

WARNING

Do not attempt to re-start the engine after the fire has been extinguished.

If fire indication goes out:

- | | | |
|----------------------|---|---------|
| Fire warning circuit | - | Check |
| Forced landing | - | Perform |

WARNING

◆ Do not use arresting barrier.

Do not land with fire aboard.

If fire persists or a safe forced landing cannot be accomplished:
BAIL OUT!

ENGINE FLAME-OUT

Indications: Loss of power, EGT drop, RPM drop.

HOT START

CAUTION

Perform the engine hot start only if crucial lack of time does not makes it impossible to perform any recommended engine start procedure. The hot start, if not successful, can damage the engine or aggravate the situation.

Recommended in-flight engine start procedure is APU assisted or wind-milling, refer to IN-FLIGHT START.

Actions:

- | | | |
|-------------------------|---|---------------------|
| Throttle | - | To STOP |
| If RPM<40%, TURBO START | - | Depress |
| ENGINE START | - | Depress |
| Throttle | - | To IDLE |
| Speed | - | 140 KIAS |
| Heading | - | To nearest airfield |
| Drag | - | Reduce |

WARNING

It takes up to 50 seconds to reach IDLE ($56 \pm 1\%$). It is prohibited to move the throttle before the RPM reaches IDLE.

If the loss of power was accompanied by abnormal indications such as explosions, severe RPM fluctuations, or RPM stuck at 0, consider carefully whether to attempt a restart as it might aggravate the situation and result in an engine fire.

If no mechanical failure is evident and the engine is wind-milling:

- | | | |
|-----------|---|---------|
| Air-start | - | Perform |
|-----------|---|---------|

If mechanical damage is suspected:

- | | | |
|----------------|---|---------|
| Throttle | - | To STOP |
| Forced landing | - | Perform |

IN-FLIGHT START

NOTE

Attempt a restart only if no damage is evident.

IN-FLIGHT START ENVELOPE:

Flight level Below FL195

AIRSPEED:

245 KIAS For wind-milling start (above 15% RPM)
140 – 190 KIAS For APU start (below 15% RPM)

APU START

1. Throttle - To STOP
2. TURBO button - Depress
3. TURBINE STARTER - Check on light
4. ENGINE button - Depress

After 5 seconds:

5. Throttle - To IDLE
6. Stop watch - Start
7. EGT and RPM - Check rising

When engine stabilized:

8. Throttle - Open, check engine response and thrust

WIND-MILLING START

NOTE

RPM is above 15%

1. Throttle - To STOP
2. ENGINE button - Depress

After 5 seconds:

3. Throttle - To IDLE
4. Stop watch - Start
5. EGT and RPM - Check rising

NOTE

The airspeed must be kept constant or slightly increasing in order to avoid excessive rise of EGT.

When engine stabilized:

6. Throttle - Open, check engine response and thrust

UNSUCCESSFUL RESTART

Stop the restart sequence if one of the following occurs:

- No ignition within 25 seconds
- EGT exceeds 685°C
- RPM stagnating or dropping

1. Throttle - To STOP
2. ENGINE STOP switch - OFF then ON

NOTE

WAIT AT LEAST 45 SECONDS from the time the throttle was placed to STOP before attempting another restart in order to assure no fuel is present in the tail pipe.

ALTERNATE AIR-START (secondary fuel circuit)

Flight conditions: - Confirm altitude below FL195, speed 140 – 190 KIAS, RPM below 15%

1. Throttle - To STOP
2. TURBO button - Depress
3. SEC REG switch - On
4. TURBINE STARTER - Check on light
5. ENGINE button - Depress
6. Stop watch - Start

In 10th second:

7. Throttle - Set at EFS triangle
8. EGT and RPM - Check rising
9. TURBO STOP button - Depress when RPM passes 42%

CAUTION

With secondary fuel circuit switched ON the automatic fuel control is deactivated. The throttle must be moved with care to avoid a flame-out, stall, or excessive EGT.

Accelerating the engine from idle to operating power should take a minimum of 15 seconds or 2% per second. RPM and EGT have to be kept within limits using the throttle manually.

RPM range 56 – 103% Below 6,500' MSL
RPM range 60 – 99% Above 6,500' MSL

NOTE

If RPM drops below 54.5%, shut down the engine and perform another air-start attempt after 45 seconds.

CAUTION

Secondary fuel circuit has to be maintained until landing. After clearing the runway, shut down the engine.

Unsuccessful restart:

Stop the restart sequence if one of the following occurs:

- No ignition within 25 seconds
- EGT exceeds 685°C
- RPM stagnating or dropping

10. Restart
- Establish wind-milling start flight conditions. Attempt a wind-milling start with the secondary fuel circuit ON.

PARTIAL POWER LOSS

Indications: Loss of power, change of engine RPM and EGT not corresponding to throttle movements. (The main fuel controller is probably at fault).

Actions:

1. Throttle - To IDLE
2. Altitude - Descend below FL240

CAUTION

With secondary fuel circuit switched ON the automatic fuel control is deactivated. The throttle must be moved with care to avoid a flame-out, stall, or excessive EGT.

Accelerating the engine from idle to operating power should take a minimum of 15 seconds or 2% per second. RPM and EGT have to be kept within limits using the throttle manually.

RPM range 56 – 103%	Below 6,500' MSL
RPM range 60 – 99%	Above 6,500' MSL

NOTE

Switching to secondary fuel circuit may be accompanied by an abnormal noise, which is caused by a change in fuel pressure and flow. The fuel filter light may flicker and the caution light FUEL EMERG. DELIVERY will illuminate.

3. SEC. REG. switch - On
4. Precautionary landing - Perform

If RPM drops below 54.5%:

5. Throttle - To STOP

WARNING

When an APU start is performed using the emergency fuel circuit, the auto disconnect function is deactivated. Therefore, the TURBO STOP button must be pressed when engine RPM reaches 42%.

WARNING

Emergency fuel circuit must be maintained until landing. After clearing the runway, shut down the engine.

6. Engine restart - Perform an "Alternate air-start"

COMPRESSOR STALL

Indications: Decrease or drop in RPM with an EGT higher than normal or rapidly rising.
Abnormal noises (bangs).

CAUTION

These abnormal noises may be erroneously interpreted as engine mechanical failure.

WARNING

If an immediate action is not taken, the RPM may drop quickly, the EGT will exceed limits, and turbine damage may result.

Actions:

- | | |
|--------------------|-----------|
| 1. Throttle | - To IDLE |
| 2. Angle of Attack | - Release |
| 3. EGT | - Monitor |

NOTE

Successful stall clearing is indicated by a decrease in EGT to normal values and an absence of abnormal noises.

If stall clears:

- | | |
|--------------------------|------------------------------|
| 4. Power | - Set to practicable minimum |
| 5. Precautionary landing | - Perform |

If stall persists or reoccurs:

- | | |
|-------------|-----------|
| 6. Throttle | - To STOP |
| 7. Engine | - Restart |

EXCESSIVE EGT (ABOVE LIMITS)

Indications: EGT rising or already high.

NOTE

With the de-icing system in operation, maximum allowable EGT is 700°C.

Actions:

The moment the pilot notices a rapid EGT rise with steady RPM:

- | | |
|-----------------------|--------------------|
| 1. Throttle | - To IDLE |
| 2. OFF JPT REG switch | - Forward position |

If the J.P.T. 730°C warning light illuminates be aware of a possible fire hazard.

NOTE

A rapid increase in EGT indicates a malfunction in the engine operation. EGT limiter starts functioning when EGT reaches 700°C (CAUTION light comes on). If the temperature increases above 700°C, the EGT limiter is defective and must be switched OFF.

NOTE

Excessive EGT may indicate a compressor stall (rumbling) caused by entering another aircraft's slipstream (vortex) or induction of a foreign object such as a bird. In this case, shut down engine and restart if altitude permits.

If EGT can be maintained within limits with practicable power:

- | | |
|---------|-----------------------|
| 3. Land | - As soon as possible |
|---------|-----------------------|

If EGT continues to rise:

- | | |
|-------------------|-----------|
| 4. Throttle | - To STOP |
| 5. Forced landing | - Perform |

ENGINE VIBRATION

Indications: ENGINE VIBRATION warning light, unusual engine noise, throttle vibrations.

Actions:

- | | |
|----------|-----------------------|
| Throttle | - MAX POWER |
| Airspeed | - 175 KIAS - climb |
| Heading | - To nearest airfield |
| Drag | - Reduce |

(continued)

At forced landing conditions:

Throttle - To IDLE

If engine vibration light goes out:

Engine vibration circuit - Check

If test shows the circuit to be defective:

Engine vibration symptoms - Check frequently

If engine vibration light continues to illuminate:

Throttle - To STOP

Forced landing - Perform

OIL SYSTEM MALFUNCTION

Indication: Oil pressure on the triple engine indicator drops below 2 kp/cm^2 when below 95% RPM or below 3 kp/cm^2 when above 95% RPM.

Actions:

1. ENGINE switch and engine instrument circuit breakers - Check on
2. Power - Reduce to minimum practicable
3. Land - As soon as possible

The ENG. MIN. OIL PRESS warning light will start flashing when:

- The oil pressure drops below $1.4 \pm 0.3 \text{ kp/cm}^2$, or
- The oil temperature reaches 202°C , or
- The oil impurities have the mass of 0.25g.

NOTE

- ◆ Avoid zero or negative load factors and abrupt maneuvers. With oil pressure at 0, the engine will continue to operate for approximately 10 minutes.
- ◆ Be cautious of fire.

FUEL SYSTEM MALFUNCTION

FUEL PRESSURE DROP

Indication: DON'T START warning light is flashing.

The following precautions have to be observed:

- Normal engine operation is ensured only up to FL195.
- When applying power, throttle has to be moved slowly.
- Engine acceleration/deceleration is not limited by aircraft speed.
- If engine surge is experienced, reduce RPM.

CAUTION

Avoid zero or negative G conditions.

Actions:

1. PUMP circuit breaker and ENGINE switch - Check on

If conditions persist:

2. Altitude - Below FL195
3. Power - 103% RPM maximum
4. Land - As soon as possible

WARNING

Avoid "go-around" and make landing final. Failure to comply may result in engine cut.

FUEL FILTER FAILURE

Indication: Illumination of FUEL FILTER warning light.

Fuel filter is becoming clogged.

CAUTION

Avoid zero or negative G conditions.

NOTE

The FUEL FILTER warning light may flicker shortly when the emergency fuel circuit is switched on.

Actions:

1. Power - Set to minimum practicable
2. Reduce speed
3. Land - As soon as possible

FUEL TRANSFER FAILURE

Wing tip tank fails to transfer fuel.

Indications: Heavy wing. Transfer lamp illuminates earlier than expected.

Action:

1. Land - As soon as possible

FUEL QUANTITY INDICATION FAILURE

1. Clock - Start stopwatch
2. Recall last fuel reading and calculate remaining flight time
3. Land - As soon as possible

WARNING

Low fuel light is unreliable.

ECS (AIR CONDITIONING) SYSTEM FAILURE

Indication: A sudden increase or decrease in cockpit air temperature.

Actions:

1. Temperature control switch - Manual cold / warm (1 to 2 seconds)
2. Temperature control switch - Neutral
3. Inverter, air-conditioning and de-icing circuit C/Bs - Verify on

If malfunction persists:

4. Air shower valve - Close

CAUTION

Before de-pressurizing the cockpit, preferably descend to below 10,000' MSL (terrain permitting).

NOTE

When the air-conditioning / pressurization lever is in OFF position (aft), the AIR CONDUIT OFF and CABIN PRESSURE warning lights will flash / illuminate.

5. Cockpit pressurization lever - Seal and/or depressurize as necessary to control temperature

SMOKE / FUMES IN THE COCKPIT OR ELECTRICAL FIRE

Indications: Unidentified odors, smoke, or fumes in the cockpit.

Actions:

1. Oxygen - EMERGENCY
2. Altitude - Descend to 10,000' MSL
3. Emergency - Declare

WARNING

De-pressurization may be followed by rapid canopy fogging.

4. Cockpit - De-pressurize

If electrical fire is suspected:

CAUTION

When shedding electrical consumers, consider whether to switch off the generator and battery as this will result in the automatic extension of the RAT.

5. Faulty equipment - Identify and switch off

If smoke persists or becomes severe:

6. Canopy - Jettison
7. Land - As soon as possible

CANOPY OPEN / LOST / BROKEN IN FLIGHT

1. Visor - Down
2. Airspeed - Reduce to 145 KIAS
3. Descent - To below 10,000' MSL (terrain permitting)
4. Land - As soon as possible

LOSS OF PRESSURIZATION

Indications: Illumination of the CABIN PRESSURE warning light. Physical sensations and increased noise in the cockpit. Both (aircraft and cabin) altimeters read the same altitude even when above 6,500'. Cabin pressure needle – in the red zone.

Actions:

CAUTION

Rapid pressure buildup may occur when actuating the cabin pressurization lever during flight.

1. COCKPIT PRESSURE - Check on (forward) lever
2. Air shower valve - Check open

Check the following:

- AIR COND. switch in the aft cockpit
- INVERTER switch
- AIR COND. circuit breaker

If failure persists:

3. Descent - To below 10,000' MSL (terrain permitting)
4. Cockpit - De-pressurize
5. Air shower valve - Close
6. Land - As soon as possible

OXYGEN SYSTEM FAILURE

If a sudden drop in oxygen pressure occurs, or difficulties in breathing are experienced, unusual odors are noticed in the inhaled mixture, or the blinker does not operate above 6,500' MSL, proceed as follows:

WARNING

Whenever hypoxia is suspected, immediately activate the parachute oxygen system, execute an emergency descent, declare emergency, select emergency code **7700** on transponder while checking the oxygen connections.

1. Oxygen shut-off valve - Check on
2. Diluter lever - 100%
3. Oxygen - EMERGENCY
4. Connections - Check security
5. Descent - To below 10,000' MSL (terrain permitting)

If oxygen pressure is below 32 kp/cm²:

6. Oxygen interconnect - Open (rear cockpit)

If not possible:

7. Seat oxygen - Active

NOTE

Emergency oxygen will last for approximately 10 minutes.

8. Land - As soon as possible

ELECTRICAL SYSTEM MALFUNCTIONS

MAIN GENERATOR FAILURE

Indication: GENERATOR warning light flashing.

NOTE

The RAT will extend automatically. EMERGENCY GENERATOR light will flash momentarily and then go out. A proper operation of the RAT is further indicated by a voltage output of 27 - 29 Volts and an ammeter reading of +5 Amps.

Actions:

1. GERATOR MAIN and GENERATOR EMERGENCY switches - Check on
2. EMERGENCY GENERATOR light out - Confirm

CAUTION

Extension of the speed brakes will disturb the proper airflow to the RAT.

3. Speed brakes - Do not use

NOTE

RAT will retract automatically, provided the RAT emergency lever is in the retracted position, in the following cases:

Main generator power has been restored.

- During landing, when the nose wheel touches the ground.

If EMERGENCY GENERATOR light remains on:

4. GENERATOR EMERG. Switch - Reset
5. RAT emergency lever - Move aft

Check RAT light – if illuminated, only battery supplies the DC power.

Actions:

6. Non-essential systems - Disconnect
7. Tower - Advise of possibility to land without communication

TOTAL ELECTRICAL FAILURE

Indications:

Voltmeter and ammeter indicate 0
No radio or intercom
No lights or electrical driven indication

The following are inoperative:

- Engine ignition system
- Warning and caution lights
- Low pressure fuel pump
- Normal gear and flaps extension
- Speed brakes
- Anti-skid
- Electrical indicators of gear and flaps
- Trim
- Electrical instruments
- Communication and navigation equipment
- External stores release

The following instruments are available:

- RPM
- EGT
- Airspeed
- Altimeter
- VSI
- Cabin altimeter
- Accelerometer (G meter)
- Clock
- Standby compass

Actions:

Since there is no way of restoring power, the pilot should take time and assess the situation regarding distance to field, flight conditions, and last known indications (e.g. fuel quantity). Plan your actions and be aware that other aircraft and/or ATC may not know of your problem.

1. Throttle - Move with care, low pressure fuel pump is inoperative
2. Recall the last fuel quantity and calculate the remaining flight time
3. Descend to nearest VFR airfield
4. Traffic pattern - Join, watch other aircraft in the pattern
5. Landing gear and flaps - Emergency extend
6. Land - Seeking light signals
7. Brake - Apply gradually

INVERTER I OR II FAILURE

Indications: INV. 115 V FAIL light illuminates

NOTE

All consumers will automatically connect to that inverter which is working without failure.

Actions:

1. Electrical system - Check with higher frequency

INVERTER I AND INVERTER II FAILURE

Indications: INV. 115 V FAIL light illuminates. Warning flags on height indicator and VOR, temperature changes in the cabin not corresponding selected value, loss of all consumers supplied by inverter I and inverter II.

Actions:

2. Abort mission - Fly smoothly
3. Land - As soon as possible

INVERTER III FAILURE

Indications: INV. 3x36 V FAIL light illuminates. Loss of triple engine indicator and elevator trim indicator.

Actions:

1. ENGINE INDICAT. EMERG. switch - On
2. Electrical system - Check with higher frequency

INVERTER IV FAILURE

Indication: Loss of directional gyro.

Actions:

Since there is no way of restoring power, the pilot should take time and assess the situation regarding distance to field, flight conditions, and last known indications (e.g. fuel quantity). Plan your actions and be aware that other aircraft and/or ATC may not know of your problem.

1. Abort mission - Fly smoothly
2. Land - As soon as possible

HYDRAULIC SYSTEM PRESSURE LOW

Indications: HYD. SYST. FAIL warning light illuminates. Main hydraulic pressure is below 55 kp/cm².

WARNING

Do not attempt to recharge the main hydraulic system from the emergency system by operating the accumulator interconnect lever. This will only result in depleting the emergency system pressure, which will disable emergency gear and flap extension.

The following systems are inoperative:

- Speed brakes
- Normal gear lowering
- Normal flap extending
- Normal brakes
- Anti-skid

Refer to emergency gear and flap extension procedure.

Actions:

Do not activate speed brakes (even if extended). Keep the remaining pressure for normal differential braking (ground steering).

Extend landing gear and flaps by means of emergency system.

After landing, use emergency braking to reduce speed and differential braking for steering.

EMERGENCY HYDRAULIC SYSTEM PRESSURE LOW

Indication: Emergency hydraulic pressure indicator indicates below 140 kp/cm².

Actions:

1. Accumulator interconnect lever - Consider use (lever aft)
2. When pressure in the emergency system equals normal system's pressure - Lever forward

LANDING EMERGENCIES

MAXIMUM GLIDE

The flight characteristics of the aircraft, with an engine out, are normal. Rapid trim changes are neither recommended nor necessary. The recommended glide speed is 140 KIAS.

For maximum glide distance with engine out refer to Appendix A of the POH.

FORCED LANDING

ENROUTE TO HIGH KEY

1. External stores - Jettison, if necessary
2. Speed brakes, gear and flaps - Retracted
3. Airspeed - 140 KIAS
4. Throttle - To STOP
5. Fuel shut-off lever - Closed

NOTE

- ◆ Leave the ENGINE switch in the ON position in order to have the VSI and turn and bank indicator available.
- ◆ The RAT will provide electrical power throughout the whole glide speed range.

NOTE

The hydraulic pump will still produce pressure, albeit at a reduced rate, for the main hydraulic system, provided that the engine has not seized due to a mechanical failure.

- ◆ For every 1,000 feet of altitude lost, the ground distance gained is approximately 1.5 NM (9:1 glide ratio).
- ◆ Below 10,000' MSL the sink rate is approximately 1,800 fpm.

HIGH KEY

1. Altitude - 3,250' AGL minimum
2. Landing gear - DOWN
3. Landing gear indicators - Check
4. Airspeed - 135 KIAS

NOTE

If the main hydraulic system does not show enough pressure, or the RAT has failed and the battery voltage is less than 20V, the landing gear and flaps have to be extended utilizing the emergency hydraulic system.

LOW KEY

1. Altitude - 2,000' AGL minimum
2. Airspeed - 135 KIAS
3. Flaps - As required

NOTE

If the flaps have to be lowered via the emergency hydraulic system, the TAKE-OFF position (25°) is not available. The flaps, once selected down, will go down all the way to the LAND position (44°). It is therefore recommended that flaps should be lowered only when a safe landing is assured.

Final approach (safe landing assured):

1. Aim at the first third of the runway
2. Airspeed - 135 KIAS (120 KIAS minimum)
3. Flaps - As required
4. Speed brakes - If overshoot -- extend

NOTE

Speed brakes may not be available due to insufficient electrical or hydraulic power.

TOUCH-DOWN

- Airspeed - 100 – 110 KIAS
- Braking - Gradually pull emergency lever and use normal braking for ground steering

NOTE

Normal brakes may not be available due to insufficient hydraulic pressure.

After the aircraft has come to a stop:

- Aircraft - Abandon

PRECAUTIONARY PATTERN

The precautionary pattern is flown similar to the forced landing pattern with the following exceptions:

1. Power - 70% RPM
2. Speed brakes - Out, until normal glide path on final approach has been attained
3. Land - Normally

If the engine fails during the precautionary pattern, retract the speed brakes immediately and continue with the forced landing pattern.

LANDING GEAR MALFUNCTIONS

LANDING GEAR EXTENSION FAILURE

Indication: Gear fails to extend or lock in the down position when using the main hydraulic system.

Actions:

1. U/C, BALANC. circuit - Check on breakers
2. Rear cockpit handle - Check for neutral position
3. Airspeed - Below 180 KIAS
4. Emergency gear - Move aft extension lever

CAUTION

Leave the emergency gear extension handle at the extended position until landing.

5. Electrical and mechanical indicators - Check

If gear does not extend:

6. Perform 5 – 6 G maneuver

If gear does not extend:

7. Emergency gear extension lever - Forward
8. Normal gear handle - UP
9. Belly landing - Perform

ASYMMETRIC GEAR CONDITION

1. Electrical gear position indicators - Test
2. Mechanical position indicators - Check
3. U/C, BALANC. circuit breakers - Check on
4. Main hydraulic system pressure - Check (135 kp/cm² minimum)
5. Normal gear lever - UP
6. Normal gear extension - Repeat

If unsuccessful:

7. Emergency system pressure - Ensure minimum 135 kp/cm²
8. Emergency gear extension - Perform

(continued)

If asymmetric gear condition persists:

9. Gear - Retract

WARNING

The aircraft must not be landed in asymmetric gear condition.

10. Belly landing - Attempt

NOSE GEAR EXTENSION FAILURE

Indications: Nose gear fails to extend or to lock in the down position when using the main hydraulic system.

Actions:

- | | | |
|--------------------------------------|---|---------|
| Emergency gear extension | - | Perform |
| Electrical and mechanical indicators | - | Check |

If mechanical indicators indicate gear extended:

Land

If mechanical indicator shows unsafe condition:

Perform normal landing, holding the nose high for aerodynamic braking.

BELLY LANDING

NOTE

If a paved runway is unavailable eject rather than attempt a belly landing on an unpaved surface. If a gear-up landing is unavoidable, burn excess fuel and release all external stores except for empty external drop tanks. Use normal approach procedures, avoid a nose-high touchdown attitude.

1. Runway - Request foaming
2. Fuel - Burn down to minimum required
3. Shoulder harness - Locked
4. Final approach - Straight in, with full flaps

Prior to touchdown:

- | | | |
|---|---|---------|
| 5. GENERATOR EMERG. switch | - | Off |
| 6. Throttle | - | To STOP |
| 7. Fuel shut-off lever | - | Close |
| 8. ENGINE, BATTERY, and GENERATOR MAIN switches | - | Off |

(continued)

CAUTION

Do not use speed brakes, if extended it is not possible to retract them in an emergency.

9. Touchdown speed 98 KIAS

When the aircraft has come to a stop:

10. Aircraft - Abandon

LANDING WITH A BLOWN MAIN TIRE

If possible, have the damaged tire inspected by another aircraft or the control tower.

1. Fuel - Burn excess fuel
2. Approach - Normal pattern
3. Land - On the runway side opposite the blown tire
4. Control stick - Deflected towards good tire
5. Directional control - Maintain with rudder and brakes for as long as possible

NOTE

Do not retract the flaps as they may have sustained damage by pieces of the blown tire.

FLAP EXTENSION FAILURE

FLAP EMERGENCY EXTENSION

1. Airspeed - Below 160 KIAS
2. Emergency flap extension lever - Move aft
3. Electrical and mechanical indicators - Check
4. Normal flap button - LAND position

WARNING

For landing with flaps up, increase approach and landing speed by 16 KIAS.

ASYMMETRIC FLAPS

Whenever an asymmetry is experienced:

1. Aircraft - Control. Compensate with aileron and rudder. If necessary, increase speed.
2. Flaps - To previous position

CAUTION

After regaining control, do not attempt to reselect the flaps.

If by selecting the previous position control is regained:

3. Land with the flap setting. Add 16 KIAS for flaps-up landing.

SPIN RECOVERY

1. Controls - Positive neutral (stick center and forward)
2. Throttle - To IDLE

If in erect spin:

3. Rudder - Full opposite to turn needle

If in inverted spin:

4. Stick - Full aft

If spin continues below 6,000' AGL:

5. BAIL OUT!

MANUAL BAIL OUT

- Pilot / seat separation lever - Forward
 - Trim - Nose down
 - Canopy - Unlock manually and push away
- Roll the aircraft inverted and push the control stick forward
- Aircraft - Abandon

NOTE

Parachute opening is accomplished by means of the NO-DELAY lanyard (13' length), which is attached to the seat.

WARNING

In case of a malfunction of the NO-DELAY lanyard system or disconnection, the parachute must be opened by use of the parachute D-ring (left side). Minimum height for manual bail out is 800' AGL.

