

C-101EB - Emergency Procedures:

Condensed by Eduardo "Rudel_Chw" Ahumada, from the Flight Manual O.T. 1E-25-1. C-101EB with English Cockpit Option. **Red items not working yet.**

Generator Failure:

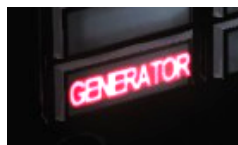
- Whenever the Generator protective circuits detect a failure, the Warning light "GENERATOR" illuminates.
- 1. Put the GENERATOR switch momentarily on the RESET position, and then put it to ON. If the Warning Light is still lit, proceed with the next steps.

The electrical system of the aircraft is now powered only by its Batteries, so the next steps are to reduce the electrical consumption to a minimum, to increase the endurance until we are able to land.

- 2. BATTERIES switch to ON, if it wasn't already.
- 3. GENERATOR switch to OFF (middle position)
- 4. BUS TRANSFER should be OFF (unlit)
- 5. BUS TIE switch to OFF. At this point the following equipment cease to function:
 - Reserve Inverter
 - Center Wing & Outer Wing Fuel Pumps
 - Fuel Quantity Meter
 - Instrument & Cockpit Lights
 - Anti-collision beacon.
 - UHF Radio & TACAN Receiver
 - Seat position motor.
- 6. Check frequently the Voltmeter.

If the electrical consumption has to be further reduced, turn the INVERTER switch OFF, this will un-power most of the equipment but give more battery endurance.

- 7. Land as soon as feasible.



Battery Failure:

There are three types of Battery failure:

Battery Overheating:

When one of the batteries reaches 57°, the lower half of its switch (TEM) illuminates red. If the temperature reaches 70° then the BATTERY Warning will also illuminate.



- Place the failed battery's Switch in OFF as soon as the TEM warning appears.

Single Battery Failure:

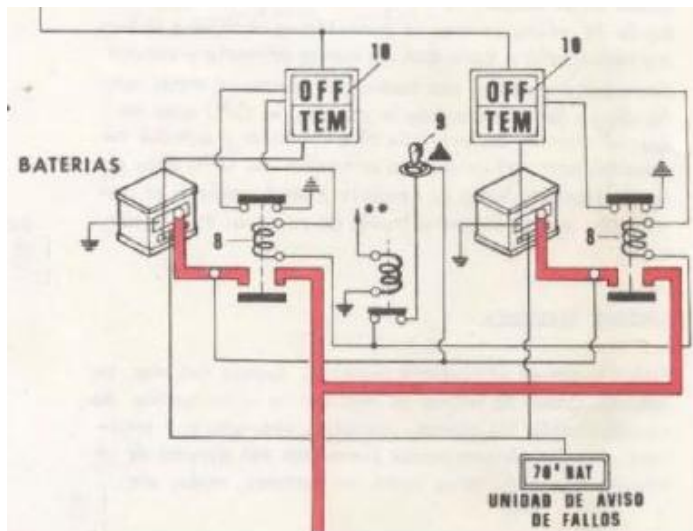
If a Battery has a failure, not related to temperature, that disconnects it from the Primary Bus, its switch will illuminate OFF. There is no corrective procedure, but the aircraft will continue to operate normally with the other battery.



Total battery Failure:

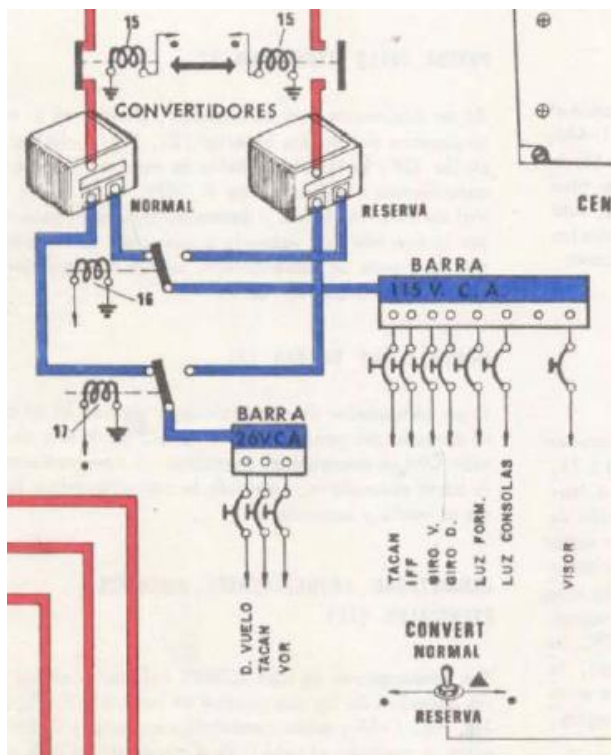
Tough very unlikely, if both Batteries disconnect from the Primary Bus, follow this Procedure:

- BATTERIES Switch - OFF
- BUS TRANSFER switch - ON. This connects the Essential Bus with the Secondary Bus.
- BUS TIE switch - OFF
- Land as soon as feasible.



Inverter Failure:

- The C-101 has two Inverters:
 - NORMAL : Is connected to the Primary Bus and it is the one normally operating.
 - STBY : Is connected to the Secondary Bus.
- The Stand-By Inverter is activated automatically if the Normal one fails, a small "blink" on the Instruments that are AC powered can be perceived when the Stand-By Inverter begins to function.
- The AC equipment is:
 - Flight Director
 - TACAN receiver
 - VOR receiver
 - IFF Equipment
 - Gyroscope Platform
 - Formation Lights
 - Console Lights
- If the Normal Inverter fails, but the AC instruments lose their readings, means that the automatic switchover of the Inverters has not functioned.
- Manually, place the INVERTER switch on STANDBY.



Hydraulic Failure:

- Any failure of the Hydraulic System, that produces a pressure drop under 2000 psi, will result on the HYD.PRESS warning illuminating.

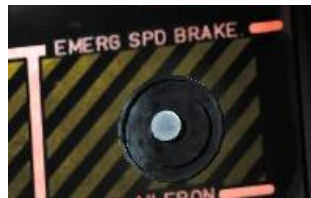


- The consequences of this Hydraulic failure are:

- Lack of the hydraulic boost for the Ailerons, making the plane harder to control in roll when at speeds over 250 KIAS.
- The Speedbrake can't operate.
- The landing gear can only be extended using Emergency pneumatic energy, and can't be subsequently retracted.
- Flaps can't operate.
- Loss of normal operation of wheelbrakes, though they can still be used for Emergency braking because of an emergency accumulator.
- The Anti-skid system ceases to operate.



- 1. Land as soon as feasible.
- If the Speedbrake was extended at the time of the Hydraulic failure, retract it by press and hold on the EMERG SPD BRAKE button until retracted.



- 2. Prepare to land without the use of Flaps.
- 3. Extend the Landing Gear by means of the following Emergency Procedure:

- Speed less than 150 KIAS
- Circuit Breaker GEAR - OUT
- EMERG GEAR Handle - Pull and hold until the Gear indicator shows three green lights.



- 4. Fly the approach with a speed not less than the indicated on the following Table for no-flaps approach:

| VELOCIDADES RECOMENDADAS PARA APROXIMACION FINAL SIN FLAPS | | |
|---|----------------------------------|----------------------------------|
| PESO TOTAL DE AVION *-Kg - | COMBUSTIBLE REMANENTE-Lb- | VELOCIDAD DE APROX.-KCAS- |
| 3750 | 465 | 122 |
| 4000 | 1015 | 125 |
| 4300 | 1565 | 129 |
| 4500 | 2115 | 132 |
| 4700 | 2670 | 135 |
| 5000 | 3220 | 140 |

***AVION CON DOS TRIPULANTES**

- Once on the runway and after touchdown, the normal pedal wheel brakes will not work, instead keep the nose up to air brake as long as possible.
- After the nose wheel makes contact with the ground, pull the Parking Brake handle, it will work as an Emergency Wheel brake. On this case, there is NO differential braking, both main wheels will brake equally.

Oil System Failure:

- Any failure of the engine's Oil System, that produces a pressure drop below 25 psi, will result on the OILPRESS warning illuminating.
- The Oil System has a metal particle detector, if it detects particles on the Oil circuits, it will light the CHIP DETECT warning, as the engine may be in risk of seizure.
- On jet engines, experience has shown that under abnormal oil pressure, varying the engine speed can exacerbate the lubrication conditions of the engine, so the recommended procedure is:

1. Don't touch the Throttle.
2. Land as soon as possible.
3. Prepare for a possible Engine-out landing or for an Ejection



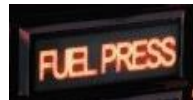
Engine Fire:

- If the FIRE warning lights illuminate, on either the Warnings Panel or on top of the Instruments Panel, it means that the sensor wire that circles the engine is detecting, on the engine compartment, high temperatures, with or without fire.
- If the FIRE lights illuminate and then quickly go out, it means that probably the Fire has been so violent that it has destroyed the sensor wire.
- 1. Immediately put the Throttle at IDLE. If the FIRE light turns off, test the Fire Detection system by pressing on the FIRE light, on the Instruments Panel. If both lights illuminate, then proceed with the flight on minimum thrust and land as soon as possible.



If the FIRE lights persist, perform the following steps:

- 2. Throttle to STOP, the FUEL PRESS. warning illuminates.
- 3. Fuel Switch to OFF, the FUEL VALVE warning illuminates.
- 4. Reduce speed.
- 5. Fuel Pump switches to OFF:



- 6. Put the aircraft on a turn, if you see a smoke trail, then EJECT

Ejection Procedure:

Before Ejection:

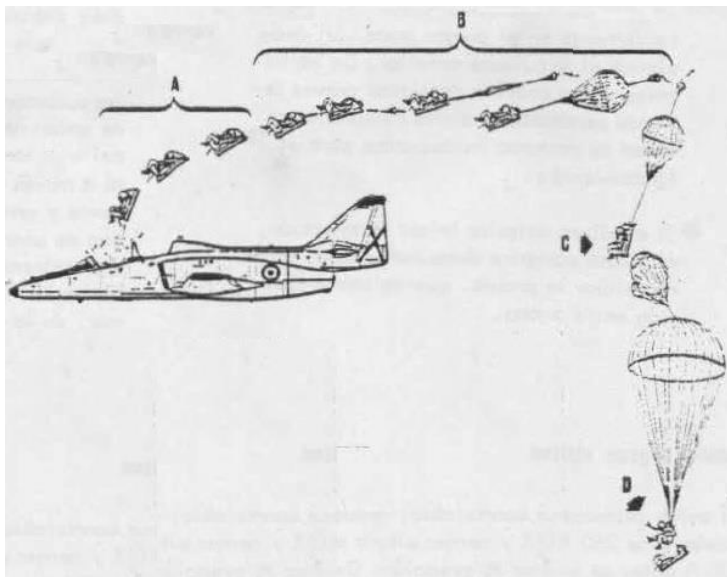
- Lower Helmet Glass
- Reduce Speed to less than 250 knots and level aircraft, if circumstances allow.

Normal Ejection:

- Right Click on the Ejection handle, at the base of the seat.



- The rear pilot, usually the instructor, is the first to exit, followed by the front pilot 0.3-0.4 seconds later.



Engine Flame Out During Flight:

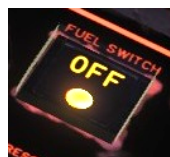
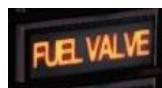
Damaged Engine?

The first action should be to determine if the engine has flamed out because of internal damage or not. If the N1 rpm has reading, you can discard a seizure.

If there is any abnormal noise, explosions or fire you should turn off the engine and not attempt a Relight, follow this

Procedure:

- 1. Throttle to STOP, the FUEL PRESS. warning illuminates.
- 2. Fuel Switch to OFF, the FUEL VALVE warning illuminates.
- 3. Fuel Pump switches to OFF.
- 4. If there is an airbase where an unpowered landing can be attempted, follow the procedure for it. Else, proceed to the Eject Procedure.



In Flight Relight soon after a Flame Out:

If it is determined that the Engine has not suffered damage, attempt a Relight with this Procedure (only if N1 shows that the Fan is still turning and N2 is over 15%):

- 1. Throttle to IDLE.
- 2. IGNITION Switch to CONT. IGN
- 3. Fuel Enrichment button (on Throttle handle) - Press until the ITT reaches 300-400° C.
- 4. Check ITT. Abort the Procedure, by placing the Throttle in STOP, if the engine does not start within 10 seconds of advancing the Throttle, or if ITT reaches the limit, or if there is no Oil Pressure indication after 10 seconds.
- 5. Once the engine has started, advance the Throttle as needed for the flight conditions.
- 6. IGNITION switch to OFF (middle position), after all engine indicators are stable.
- 7. Ignition Light - Check that it goes OFF after turning OFF the Ignition Switch.
- 8. Engine Instruments - Check that the readings are normal.



In Flight Relight using the Engine Starter:

If N2 is less than 15%, the Pilot can attempt an Engine Relight using the Engine Starter.

- 1. FUEL - Check the Fuel Pumps are ON
- 2. Throttle to STOP
- 3. FUEL SWITCH to ON, its light should not be lit.
- 4. FUSELAGE TANK PUMP switch to ON, its light should not be lit.
- 5. Fuel Pump switches to AUTO (forward):



- 6. AIR COND switch to OFF (if possible).
- 7. ENGINE ANTI-ICE switch to OFF
- 9. Starter Mode switch to NORMAL
- 10. IGNITION switch - Hold on START (forward) for two seconds, then place it on CONT IGN. Check that the ignition light is lit.



- 11. Throttle - Advance from STOP to IDLE when N2 is at least 10% and N1 is over 0%. Check that the warning light PRES.COMB turns off.
- 12. Fuel Enrichment button (on Throttle handle) - Press and hold until ITT reaches 300-400° C. Check that the Fuel Flow meter registers flow.



- 13. ITT - Check the increase of ITT as the engine accelerates. Deactivate the Fuel Enrichment at 300-400° C.

Abort the Procedure, by placing the Throttle in STOP, if the engine does not start within 10 seconds of advancing the Throttle, or if ITT reaches the limit, or if there is no Oil Pressure indication after 10 seconds.



- 14. IGNITION Switch to OFF, after having stable engine rpm and N2 is over 50%
- 15. Check that the Ignition light goes OFF.
- 16. Engine Instruments - Check that the readings are normal.



- 17. AIR COND switch to ON
- 18 ENGINE ANTI-ICE switch - As needed.

If the Relight attempt fails, wait at least 10 seconds before attempting again.

In Flight Relight by Windmilling:

N2 should be over 15% in order to attempt windmilling, you may dive the aircraft slightly in order to increase the windmilling rpm.

- 1. FUEL - Check the Fuel Pumps are ON
- 2. Throttle to STOP
- 3. Fuel Switch to ON, its light should not be lit.
- 4. FUSELAGE TANK PUMP switch to ON, its light should not be lit.
- 5. Fuel Pump switches to AUTO
- 6. AIR COND switch to OFF (if possible).
- 7. Engine ANTI ICE - OFF
- 9. Check that N2 is over 15%
- 10. IGNITION switch - place it on IGNIC.CONT. Check that the ignition light is lit.



- 11. Throttle - Advance from STOP to IDLE. Check that the warning PRES.COMB turns off.
- 12. Fuel Enrichment button (on Throttle handle) - Press and hold until ITT reaches 300-400° C. Check that the Fuel Flow meter registers flow.
- 13. ITT - Check the increase of ITT as the engine accelerates. Deactivate the Fuel Enrichment at 300-400° C. Abort the Procedure, by placing the Throttle in STOP, if the engine does not start within 10 seconds of advancing the Throttle, or if ITT reaches the limit, or if there is no Oil Pressure indication after 10 seconds.
- 14. IGNITION Switch to OFF, after having stable engine rpm and N2 is over 50%
- 15. Check that the Ignition light goes OFF.
- 16. Engine Instruments - Check that the readings are normal.
- 17. AIR COND switch to ON
- 18. Engine Anti ICE - As needed.



If the Relight attempt fails, wait at least 10 seconds before attempting again, to give the fuel on the engine time to drain.

Landing with Gear Lock Failures:

These are the possible situations that may present:

**One Main Gear, no
Nose Gear**



**Only Nose Gear
down**



All Gears Up



**Two Main, no Nose
gear**



**One Main Gear,
Nose Gear down**



One Main Gear - No Nose Gear:

DO NOT attempt to land on this configuration.

- 1. Retract the Gear and proceed like on "ALL GEARS UP".
- 2. If it isn't possible to retract, then EJECT.

Only Nose Gear Down:

DO NOT attempt to land on this configuration.

- 1. Retract the Gear and proceed like on "ALL GEARS UP".
- 2. If it isn't possible to retract, then EJECT.

All Gears Up:

- 1. Use up the Fuel of the Wing Center Tank.
- 3. Speed brake - CLOSED.
- 4. Flaps - DOWN
- 5. Perform a straight-in approach at 110 KIAS
- 6. Throttle to STOP once you've touched down.
- 7. Fuel Switch to OFF
- 8. Oxygen lever on right wall - CLOSED
- 9. GENERATOR switch - OFF
- 10. BATTERIES switch - OFF
- 11. If, when abandoning the airplane, the Canopy won't open, break it using the Canopy Fracture Tool.

Two Main, no Nose Gear:

- 3. Speed brake - OPEN.
- 4. Flaps - DOWN
- 5. Perform a straight-in approach at 110 KIAS
- 6. Throttle to STOP once you've touched down.
- 7. Fuel Switch to OFF
- 8. Oxygen lever on right wall - CLOSED
- 9. GENERATOR switch - OFF
- 10. BATTERIES switch - OFF
- 11. If, when abandoning the airplane, the Canopy won't open, break it using the Canopy Fracture Tool.

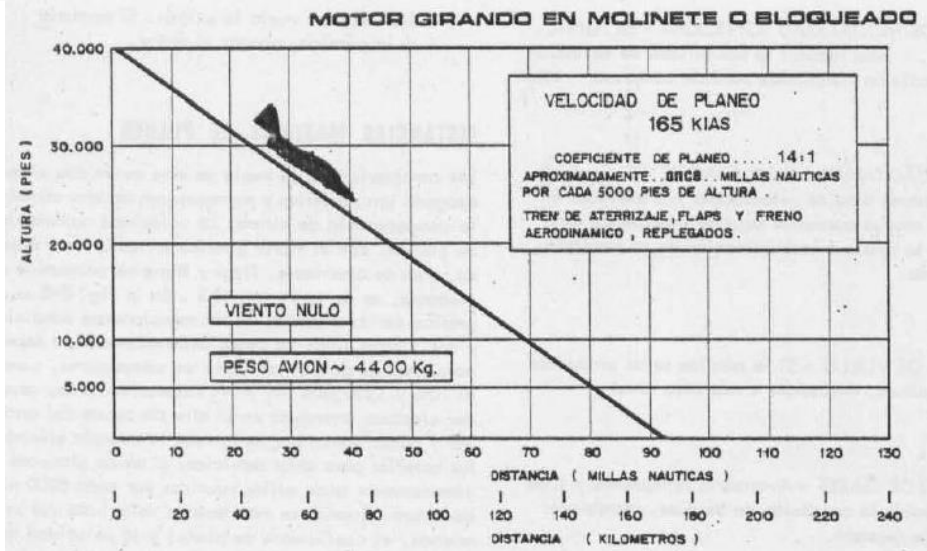
One Main Gear, Nose Gear Down:

- 2. Speed brake - CLOSED.
- 3. Flaps - DOWN
- 4. Perform a straight-in approach at 120 KIAS, aiming to contact the runway at the very beginning and on the side opposite to the missing Gear.
- 5. Throttle to IDLE once you've touched down.
- 6. Lower the nose and keep directional control by slightly raising the wing of the missing Gear.
- 7. Use only the wheel brake of the Main Gear that is down.
- 8. Once it is no longer possible to keep the wing up:
 - Throttle to STOP
 - Fuel Switch to OFF
 - Oxygen lever on right wall - CLOSED
 - GENERATOR switch - OFF
 - BATTERIES switch - OFF
- 9. Use the Emergency Brake (the Parking Brake handle) to the maximum possible effect.
- 10. If the aircraft will abandon the runway, depending on the terrain, the pilot may press the CRASH button and Raise the Gear.
- 11. If, when abandoning the airplane, the Canopy won't open, break it using the Canopy Fracture Tool.

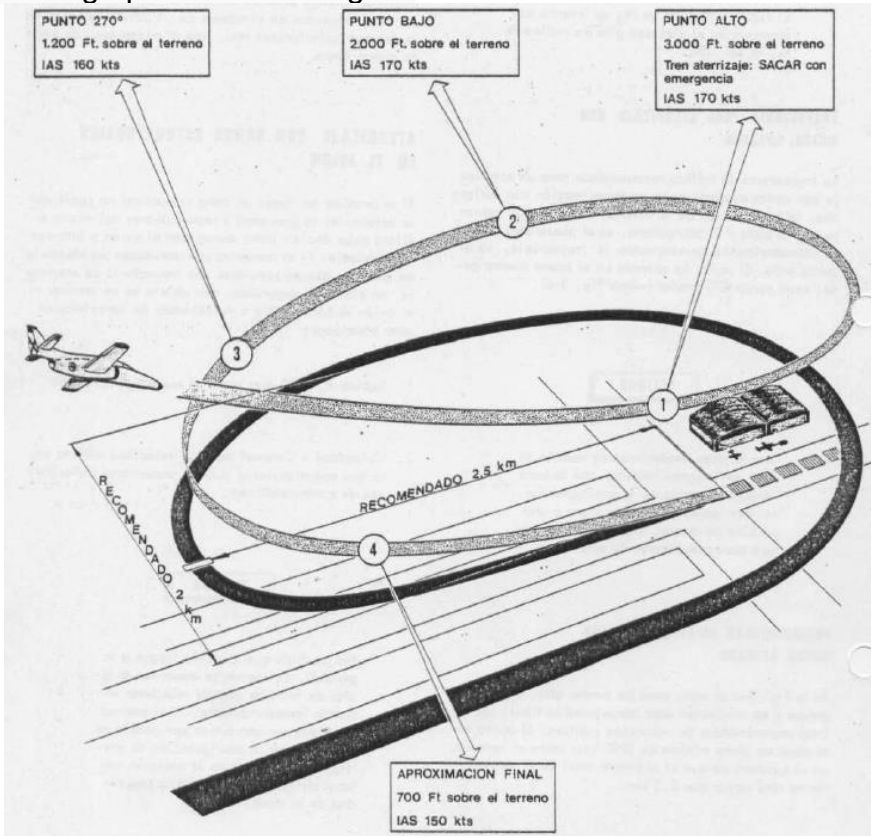


Landing with no Engine:

This Chart show the maximum gliding distances that the plane can achieve when maintaining 165 KIAS:



Typical flightpath with no Engine:



Pitch Trim Runaway:

If the Trim malfunctions and runaway in either Up or Down direction, proceed as follows (keep in mind that the runaway may not show up on the Trim Indicator):



- 1. Use the Emergency Trim Control to restore a neutral flight attitude, clicking on Up or Down as needed:



- 2. Land as soon as possible.

Engine Computer Failure:

If the COMPUTER warning illuminates, it means that the Engine Control Computer has gone off-line and now the Engine is operating on Manual Mode.



- 1. Cycle the COMPUTER switch, to try to clear the failure. If the warning is still lit, then leave the Switch in MANual mode.



- 2. DO NOT MOVE the Throttle lever, keep flying with the current power level as long as possible.
- 3. Land at the nearest Airbase.
- 4. If you need to reduce power to land, move the Throttle lever extremely slowly, as there is a very real risk of the Engine catching Fire.
- 5. If the Engine does catch Fire, proceed with the corresponding Emergency Procedure.