
Carousel INS

Delco Carousel IV-A Inertial Navigation System for *Microsoft Flight Simulator*

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ACTION and MALFUNCTION Codes

This is the complete list of all ACTION/MALFUNCTION codes supported by the INS gauges. Note that some of them are randomly generated by the gauges to simulate real INS hardware failures.

ACTION CODE 01

01-38 INS Overtemperature

Randomly generated failure.
Decouple the autopilot from the affected unit.
Shut down the specific INS unit.

ACTION CODE 02

02-13 Y accelerometer abnormal velocity change detected

Output from the specific accelerometer is no longer reliable and so is the affected INS unit. Decouple the autopilot from the specific unit.

02-14 X accelerometer abnormal velocity change detected

Output from the specific accelerometer is no longer reliable and so is the affected INS unit. Decouple the autopilot from the specific unit.

02-15 Abnormal gyro(s) torque required to keep inertial platform at local horizontal

Inertial platform outputs are no longer reliable.
Decouple the autopilot from the specific unit.

02-42 The INS unit has detected an abnormal drift angle (>45 degrees)

Decouple the autopilot from the affected unit.

02-63 The computer has failed its self check

Randomly generated failure.
Monitor outputs and select ATT (Mode Select Knob on the MSU) if accuracy degrades.

Decouple the autopilot from the affected unit.

ACTION CODE 03

Caution: ACTION CODE 03 is not associated with CDU WARN Light

The ACTION CODE 03 may due either to power loss (BAT mode in progress) or connection failure between INS and A/P & F/D.

03-22 The TK or TKE+DA output from the INS has failed a comparison check (output value and feedback value differ by more than 2°)

Decouple the autopilot from the affected unit.

03-23 The DA output from the INS has failed a comparison check (output value and feedback value differ by more than than 2°)

Decouple the autopilot from the affected unit.

03-25 The HDG or STEERING output from the INS has failed the comparison check (output value and feedback value differ by more than 2 degrees)

Randomly generated failure.
Decouple the autopilot from the affected unit.

ACTION CODE 04

04-45 Loaded Present Position Latitude is not correct or not within operating limits (80 00.0 N or S)

Downmode to STBY mode, re-enter Present Position and restart the alignment process.

04-57 Taxi during alignment

Stop the aircraft, downmode to STBY mode, re-enter Present Position and restart the alignment process.

ACTION CODE 06

06-41 Inserted ramp position differs from last computed inertial position by more than 3 NMs.

Codes are clearable if position is correct or downmode to STBY and reload the correct ramp position.

NOTE: This Action/Malfunction code sequence will be frequently generated within the Flight Simulator environment. Based on the data retrieved from the specified .ISD file, INS units would expect to find the aircraft parked where it was left last time it was used. As this assumption is normally not true, as a new flight does not normally start from where the last one finished, the INS issues this warning only to signal that inserted current Inertial Position and last memorized (at previous shutdown time) Inertial Position differ by more than $(3+(3*T))$ NMs, where 'T' is last flight NAV time

expressed in hours.

06-43 Loaded ramp position in any two INS units of a multiple INS installation differ by more than 0.84 NM.

Downmode to STBY and reload the correct ramp position.

06-56 Inertial and Displayed positions differ by more than $3+(3*T)$ NMs

(where T is NAV mode time, expressed in hours) as a result of one or more INS update:

- Manual update
- Triple mixing (Triple INS config only)
- Single or Dual DME update

Eradicate any update to "reset" the Displayed position.

Normally malfunction code clears after the eradication procedure has been performed.

Note: 06-56 cannot be cleared until the difference between inertial and displayed positions becomes smaller than $3+(3*T)$ NMs. However CDU WARN light, which lights at the first detection of this anomalous condition, can be extinguished by pushing the CDU TEST button.

ACTION CODE 08 - Gauge Specific

Action Code 08 has been introduced to signal gauge specific malfunctions. which, of course, are not affecting the real instrument.

08-10 Internal process execution error

All installed INS units are not operative, try restarting Flight Simulator. If the problem persists please report it using either forum or email.

08-20 Internal protection check failed

08-21 File location check failed

(will be displayed on all installed units)

The INS.GAU or CIVA_ID.DAT files are NOT in the "FS Root"/Civa folder or the binary file is corrupted. Try reinstalling the whole package.

08-69 .GAU file version expired

(will be displayed on all installed units)

This failure could appear only when using alpha/beta/rc releases of the .GAU file.

08-70 Temporary Math error in TripleMix position calculation algorithm

(will be displayed on all units being in triplemix mode)

A math error has been encountered, INS 1 Inertial Position will be temporarily used. This failure could appear only when using alpha/beta/rc releases of the .GAU file.

08-71 Temporary Math error in geographical distance calculation algorithm

(will be displayed only on the affected unit)

A math error has been encountered, resulting distance may be incorrect.
This failure could appear only when using alpha/beta/rc releases of the .GAU file.

08-72 Temporary Math error in geographical track calculation algorithm

(will be displayed only on the affected unit)
A math error has been encountered, resulting track may be incorrect.
This failure could appear only when using alpha/beta/rc releases of the .GAU file.

08-80 .ISD file create error

(will be displayed on all installed units)
There were errors creating a new .ISD file, File I/O of ISD file will be disabled and session data will be lost.
Check installation instructions (disk space?)

08-81 .ISD file open error

(will be displayed on all installed units)
There were errors opening specified .ISD file.
Check installation instructions

08-82 .ISD file read error

(will be displayed on all installed units)
There were errors loading selected .ISD file, saved parameters will not be restored.
Check installation instructions

08-83 .ISD file write error

(will be displayed on all installed units)
There were errors saving current .ISD file, session related data is lost.
Check installation instructions

08-90 Keyboard Manager Initialization Error

(will be displayed on all installed units)
CDU's "Keyboard Capture Mode" will NOT be available.
Restart Flight Simulator if "Keyboard Capture Mode" is absolutely required. If the problem persists please report it using either forum or email.

08-91 Keyboard Acquisition Error

CDU's "Keyboard Capture Mode" has been selected but there were errors causing it not to activate properly.
Try switching it off and on again. Also make sure the panel or "sub-panel" including the CDU is the active one (click anywhere on the CDU background bitmap first, to make sure it is)