**ON A/C ALL

TASK 32−50−00−810−801
NOSE STEERING (Caution) − Fault Isolation

1. General

   A. This fault isolation procedure is for when the Caution and Warning Panel (CAWP) NOSE STEERING caution light is come.

   B. The NOSE STEERING caution light comes on when the Steering Control Unit (SCU) senses a discrepancy and the Nose Wheel Steering (NWS) system is set to operate in the castor mode.

   C. The NOSE STEERING caution light goes off when the STEERING toggle switch is set to the OFF position. If the Solenoid−Operated hydraulic sequence Valve (SOV) or Mode Selector Valve (MSV) stays open, the NOSE STEERING caution light will stay on.

   D. The SCU will make the NOSE STEERING caution light come on and a fault code will be registered in the SCU when it senses a condition that follows:

      – SCU Built−in Test (BIT) failure, Power−up Built−in Test (PBIT) or Continuous Built−in Test (CBIT)
      – Pilot Hand Control (PHC) input is more than ±64 degrees
      – Rudder pedal input is more than ±8 degrees
      – Electro−Hydraulic Servo Valve (EHVS) coil is open or short circuit
      – SCU servo amplifier failure
      – Difference between the commanded EHVS nose wheel angle and the Linear Difference Transducers (LVDTs) feedback sensor
      – SOV coil is open or short circuit
      – SOV stays open
      – SOV stays closed
      – MSV stays open
      – MSV stays closed.
      – Pressure switch stays open
      – One of the Rotary Variable Differential Transducer (RVDT) has failed or has a fault.

      NOTE: After take−off the Pressure Switch is checked by C−BIT (momentarily energizing the SOV) and if the response is no pressure (P−SW open circuit), the fault P−SW is written into NVM of the SCU.

      Pressure Switch P−BIT test is a test of the Monitor, so simulated WOW and Pressure Switch signals are used to check the response of the Monitor. So, during P−BIT the Pressure Switch response is not used.

      NOTE: Foreign material can restrict hydraulic fluid flow. This will cause the nose steering to be partially or completely inoperative.

E. The SCU will make the NOSE STEERING caution light come on and a PHC fault code will be registered on the SCU when it senses the conditions that follow:

– Aircraft is airborne

– Nose gear is down and locked

**ON A/C 4001 and ON A/C 4003, 4006, 4009−4022, 4024−4063, 4065−4069, 4071−4114, 4116−4118, 4120−4123, 4125−4128, 4130−4136, 4138−4140, 4142−4182, 4184−4199, 4201−4221 Pre SB84−32−59

– The PHC potentiometer is set more than ±8 degrees for longer than 100 milliseconds.

**ON A/C 4222−4999 and ON A/C 4003−4004, 4006, 4008−4140, 4142−4199, 4201−4221 Post SB84−32−59

– The PHC potentiometer is set more than ±8 degrees for longer than 5 seconds.

**ON A/C ALL

F. The SCU will also make the NOSE STEERING caution light come on and no fault code will be registered in the SCU when it senses the condition that follows:

– Difference between the two nose wheel RVDTs feedback sensors.

NOTE: The NWS system operates in the modes that follow:

– Ground mode (power steering available in response to pilot inputs)

– Lift−off mode (pilot inputs are ignored and a straight−ahead signal is supplied to the nose wheel. The SOV is de−energized five seconds later)

– Air mode (pilot inputs are ignored and a straight−ahead signal is supplied to the nose wheel. The SOV is de−energized).

NOTE: The ground mode is set when conditions are as follows:

– SCU is energized and no faults are sensed

– Nose gear is down and locked

– The aircraft is weight on wheels.

NOTE: The lift−off mode is set when the conditions are as follows:

– SCU is energized and no faults are sensed

– Nose gear is down and locked

– The aircraft is not weight on wheels.

NOTE: The air mode is set when the conditions are as follows:

– SCU is energized and no faults are sensed

– Nose gear is not down and locked

– The aircraft is not weight on wheels.

G. The SCU can show the related messages that follow:

– NVMF, Non−Volatile Memory (NVM) failure

– FAIL, fault sensed during BIT

– COLD, cold start circuit fault
– EHVS, EHV coil fault
– VDT1, RVDT1 fault
– VDT2, RVDT2 fault
– LVDT, LVDT fault
– RVTX, RVDT excitation fault
– SOVP, SOV power fault
– SCUA, analog (ANA) power fault
– SCU, internal fault
– PWR, power bus fault
– PSEU, proximity sensor electronics unit fault
– PHC, PHC fault
– PED, rudder pedal fault
– P−SW, pressure switch fault
– SOVC, SOV coil fault (SOV stuck open)
– POTX, potentiometer (POT) excitation fault
– SCUP, PHC monitor fault
– SCUR, rudder monitor fault
– SCUM, Major Summing Junction (MSJ) monitor fault
– SCUS, SVM monitor fault
– SCUT, pressure switch monitor fault
– SCUV, SOV coil monitor fault
– SCUE, dc excitation monitor fault
– SCUX, ac excitation monitor fault.

NOTE: When a WOW Caution light comes on with a NWS Caution light, it is recommended to interrogate the PSEU for NLG WOW faults and make sure that the sensor inductance and operation is correct.

2. Job Set−Up Information

Subtask 32−50−00−946−001

A. Reference Information

REFERENCE	DESIGNATION
AMM TASK 20−20−06−110−804	Cleaning of Fluid Lines and Components
AMM TASK 32−51−00−710−801	Operational Test of the Nose Wheel Steering System

REFERENCE	DESIGNATION
FIM TASK 32−51−00−810−802	PWR (Status) − Fault Isolation
FIM TASK 32−51−00−810−803	PSEU (Status) − Fault Isolation
FIM TASK 32−51−00−810−804	EHVS (Status) − Fault Isolation
AMM TASK 32−51−01−742−801	Retrieval of Data from the Steering Control Unit (SCU)
AMM TASK 32−51−01−743−801	Erase the Data from the Steering Control Unit (SCU)
FIM TASK 32−51−01−810−801	COLD (Status) − Fault Isolation
FIM TASK 32−51−01−810−802	POTX (Status) − Fault Isolation
FIM TASK 32−51−01−810−803	SCU (Status) − Fault Isolation
FIM TASK 32−51−01−810−804	SCUA (Status) − Fault Isolation
FIM TASK 32−51−01−810−805	SCUE (Status) − Fault Isolation
FIM TASK 32−51−01−810−806	SCUM (Status) − Fault Isolation
FIM TASK 32−51−01−810−807	SCUP (Status) − Fault Isolation
FIM TASK 32−51−01−810−808	SCUR (Status) − Fault Isolation
FIM TASK 32−51−01−810−809	SCUS (Status) − Fault Isolation
FIM TASK 32−51−01−810−810	SCUT (Status) − Fault Isolation
FIM TASK 32−51−01−810−811	SCUV (Status) − Fault Isolation
FIM TASK 32−51−01−810−812	SCUX (Status) − Fault Isolation
FIM TASK 32−51−01−810−813	SOVP (Status) − Fault Isolation
FIM TASK 32−51−01−810−814	NVMF (Status) − Fault Isolation
FIM TASK 32−51−01−810−815	FAIL (Status) − Fault Isolation
FIM TASK 32−51−06−810−801	PHC (Status) − Fault Isolation
FIM TASK 32−51−11−810−801	PED (Status) − Fault Isolation
FIM TASK 32−51−16−810−801	P−SW (Status) − Fault Isolation
FIM TASK 32−51−16−810−802	SOVC (Status) − Fault Isolation
FIM TASK 32−51−36−810−801	VDT1 (Status) − Fault Isolation
FIM TASK 32−51−36−810−802	VDT2 (Status) − Fault Isolation
FIM TASK 32−51−36−810−803	LVDT (Status) − Fault Isolation
FIM TASK 32−51−36−810−804	RVTX (Status) − Fault Isolation

3. Fault Confirmation

Subtask 32−50−00−700−001

A. Confirm the fault as follows:

(1) On the SCU, do the NWS BITE indication retrieval (Refer to AMM TASK 32−51−01−742−801).

(a) If there are no related status messages on the SCU, then no maintenance procedure is necessary. Do the Close Out.

(b) If there is one or more related status messages on the SCU, do as follows:

1 On the SCU, erase the NWS BITE indications (Refer to AMM TASK 32−51−01−743−801).

2 Do an operational test of the nosewheel steering system (Refer to AMM TASK 32−51−00−710−801).

3 On the SCU, do the NWS BITE indication retrieval again (Refer to AMM TASK 32−51−01−742−801).

a If there are no related status messages on the SCU, then no maintenance procedure is necessary. Do the Close Out.

b If there is one or more related status messages on the SCU, do the Fault Isolation.

4. Fault Isolation

Subtask 32−50−00−810−001

A. Isolate the fault as follows:

(1) If the message is NVMF, do the fault isolation for NVMF (Refer to FIM TASK 32−51−01−810−814). Do the Close Out.

(2) If the message is FAIL, do the fault isolation for FAIL (Refer to FIM TASK 32−51−01−810−815). Do the Close Out.

(3) If the message is COLD, do the fault isolation for COLD (Refer to FIM TASK 32−51−01−810−801). Do the Close Out.

(4) If the message is EHVS, do the fault isolation for EHVS (Refer to FIM TASK 32−51−00−810−804). Do the Close Out.

(5) If the message is VDT1, do the fault isolation for VDT1 (Refer to FIM TASK 32−51−36−810−801). Do the Close Out.

(6) If the message is VDT2, do the fault isolation for VDT2 (Refer to FIM TASK 32−51−36−810−802). Do the Close Out.

(7) If the message is LVDT, do the fault isolation for LVDT (Refer to FIM TASK 32−51−36−810−803). Do the Close Out.

(8) If the message is RVTX, do the fault isolation for RVTX (Refer to FIM TASK 32−51−36−810−804). Do the Close Out.

(9) If the message is SOVP, do the fault isolation for SOVP (Refer to FIM TASK 32−51−01−810−813). Do the Close Out.

(10) If the message is SCUA, do the fault isolation for SCUA (Refer to FIM TASK 32−51−01−810−804). Do the Close Out.

(11) If the message is SCU, do the fault isolation for SCU (Refer to FIM TASK 32−51−01−810−803). Do the Close Out.

(12) If the message is PWR, do the fault isolation for PWR (Refer to FIM TASK 32−51−00−810−802). Do the Close Out.

(13) If the message is PSEU, do the fault isolation for PSEU (Refer to FIM TASK 32−51−00−810−803). Do the Close Out.

(14) If the message is PHC, do the fault isolation for PHC (Refer to FIM TASK 32−51−06−810−801). Do the Close Out.

(15) If the message is PED, do the fault isolation for PED (Refer to FIM TASK 32−51−11−810−801). Do the Close Out.

(16) If the message is P−SW, do the fault isolation for P−SW (Refer to FIM TASK 32−51−16−810−801). Do the Close Out.

(17) If the message is SOVC, do the fault isolation for SOVC (Refer to FIM TASK 32−51−16−810−802). Do the Close Out.

(18) If the message is POTX, do the fault isolation for POTX (Refer to FIM TASK 32−51−01−810−802). Do the Close Out.

(19) If the message is SCUP, do the fault isolation for SCUP (Refer to FIM TASK 32−51−01−810−807). Do the Close Out.

(20) If the message is SCUR, do the fault isolation for SCUR (Refer to FIM TASK 32−51−01−810−808). Do the Close Out.

(21) If the message is SCUM, do the fault isolation for SCUM (Refer to FIM TASK 32−51−01−810−806). Do the Close Out.

(22) If the message is SCUT, do the fault isolation for SCUT (Refer to FIM TASK 32−51−01−810−810). Do the Close Out.

(23) If the message is SCUV, do the fault isolation for SCUV (Refer to FIM TASK 32−51−01−810−811). Do the Close Out.

(24) If the message is SCUE, do the fault isolation for SCUE (Refer to FIM TASK 32−51−01−810−805). Do the Close Out.

(25) If the message is SCUX, do the fault isolation for SCUX (Refer to FIM TASK 32−51−01−810−812). Do the Close Out.

(26) If the message is SCUS, do the fault isolation for SCUS (Refer to FIM TASK 32−51−01−810−809). Do the Close Out.

(27) If the fault continues clean the fluid lines (Refer to AMM TASK 20−20−06−110−804).

5. Close Out

Subtask 32−50−00−941−001

A. Make sure that the CAWP NOSE STEERING light is not on.

B. Remove all tools, equipment, and unwanted materials from the work area.

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