ELECTROMECHANICAL ACTUATOR - ADJUSTMENT/TEST

EFFECTIVITY: AIRCRAFT WITH ELECTROMECHANICAL GUST LOCK

1. General

   A. This section gives the procedures to do the functional check of the Electromechanical Gust Lock Actuator.

   B. The procedures in this section are given in the sequence below. The tasks identified with (♦) are part of the Scheduled Maintenance Requirements Document (SMRD).

TASK NUMBER	*DESCRIPTION*	*EFFECTIVITY*
27-71-01-700-801-A	ELECTROMECHANICAL ACTUATOR - FUNCTIONAL CHECK	AIRCRAFT WITH ELECTROMECHANICAL GUST LOCK

TASK 27-71-01-700-801-A
EFFECTIVITY: AIRCRAFT WITH ELECTROMECHANICAL GUST LOCK

2. ELECTROMECHANICAL ACTUATOR - FUNCTIONAL CHECK

A. General

(1) This task gives the procedures to do a check of the load on the Electromechanical Gust Lock Actuator due to friction forces in the Gust Lock mechanism.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 20-13-02-000-801-A/400	RELAYS - REMOVAL (TYPICAL)
AMM TASK 20-13-02-400-801-A/400	RELAYS - INSTALLATION (TYPICAL)
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 55-36-00-000-801-A/400	TAIL BOOM - REMOVAL
AMM TASK 55-36-00-400-801-A/400	TAIL BOOM - INSTALLATION
FIM TASK 27-70-00-810-808-A	-
ITEM GSE 050	MULTIMETER - DIGITAL

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
321	321	Tail boom

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 419	Gust Lock Actuator Test Harness	To adapt the multimeter to the Gust Lock Connectors	
GSE 050	Multimeter - digital	To do the check	
GSE 044	Head Set	For communications	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Horizontal stabilizer
1	Helps the other technician	Cockpit

I. Preparation

SUBTASK 841-002-A

WARNING: MAKE SURE THAT THERE ARE NO PERSONS OR EQUIPMENT IN THE ELEVATOR TRAVEL AREA.

(1) Make sure that the aircraft is safe for maintenance.

(2) Do not do other tasks in the horizontal stabilizer, elevators and rudders at this time.

(3) Energize the aircraft with the External DC Power Supply (AMM TASK 20-40-01-860-801-A/200).

(4) (WITH GSE-419) Remove rear fairings 321 of the horizontal stabilizer. Refer to AMM TASK 55-36-00-000-801-A/400.

(5) Make sure that the electromechanical gust-lock system is in the locked position.

(6) On the Circuit Breaker Panel, open the GUST-LOCK circuit breaker and attach a DO-NOT-CLOSE tag to it.

(7) (WITHOUT GSE-419) Remove the relay K0848 (AMM TASK 20-13-02-000-801-A/400).

(8) (WITH GSE-419) Disconnect the electrical connector of the Electromechanical Actuator from the aircraft harness.

J. Electromechanical Actuator - Functional Check (Figure 501) (Figure 502)

SUBTASK 020-002-A

WARNING: MAKE SURE THAT THE RUDDER, THE HORIZONTAL STABILIZER AND THE ELEVATOR CANNOT BE OPERATED ACCIDENTALLY. AN ACCIDENTAL OPERATION MAY CAUSE INJURY TO PERSONS.

(1) (WITH GSE-419) Do the subsequent procedure to check the friction forces in the Electromechanical Gust-Lock Actuator (Figure 501).

(a) Connect J3014 connector of GSE-419 to the electrical connector of the Electromechanical Actuator and P3014 connector of GSE-419 to the aircraft harness.

(b) On the Circuit Breaker Panel, close the GUST-LOCK circuit breaker and remove the DO-NOT-CLOSE tag from it.

(c) Install GSE-050 to the bornes of GSE-419.

(d) Do these steps three times.

CAUTION: DO NOT APPLY TOO MUCH FORCE TO HOLD THE CONTROL COLUMN AGAINST THE BACKSTOPS, IN THE FULLY FORWARD POSITION, DURING THE UNLOCKING TRAVEL.

1 Move the control column to the fully forward position (nose down) and keep it thus during the unlocking travel.

a Lift the handle and command the gust-lock lever from the locked position to the intermediate position and, with the aid of the digital

multimeter (GSE-050), measure the peak current in the actuator during the extension travel of the actuator.

NOTE: Do not use functions that record the maximum and minimum values of current.

1) The gust lock light comes on for approximately eight seconds after the gust lock lever is at the intermediate position.

2) The gust lock actuator extends and the spring cartridges are retracted.

2 Write down the current values, measured in each unlocking travel, in Table 501.

Table 501 - CURRENT LOADS ON ELECTROMECHANICAL ACTUATOR DURING THE UNLOCKING TRAVELS OF THE SPRING CARTRIDGES

Current (mA)	U1	U2	U3
Values measured with GSE 419			
Unlocking Average	Xu =		

3 Move the control column to the fully rearward position (nose up) and keep it thus during the locking travel.

a Lift the handle and command the gust lock lever to the locked position and, with the aid of the digital multimeter (GSE-050), measure the peak current in the actuator during the retraction travel of the actuator.

NOTE: Do not use functions that record the maximum and minimum values of current.

1) The gust lock actuator retracts and the spring cartridges are extended.

4 Write down the current values, measured in each locking travel, in Table 502.

Table 502 - CURRENT LOADS ON ELECTROMECHANICAL ACTUATOR DURING THE LOCKING TRAVELS OF THE SPRING CARTRIDGES

Current (mA)	L1	L2	L3
Values measured with GSE-419			
Locking Average	Xl =		

5 Move the control column back to the fully forward position (nose down) and make sure that it is locked.

(e) Find the average value Xu, between U1, U2 and U3, and write it down in Table 501.

1 Xu = (U1+U2+U3)/3

(f) Find the average value Xl, between L1, L2 and L3, and write it down in Table 502.

1 Xl = (L1+L2+L3)/3

(g) The best average value for the peak current in the gust lock actuator on the unlocking travel (Xu) is 130mA. A maximum of 180mA is acceptable.

NOTE: If the peak current of the actuator, on the unlocking travel (Xu), is more than 180mA, do the troubleshooting FIM TASK 27-70-00-810-808-A.

(h) The best average value for the peak current in the gust lock actuator on the locking travel (Xl) is 250mA. A maximum of 300mA is acceptable.

NOTE: If the peak current of the actuator, on the locking travel (Xl), is more than 300mA, do the troubleshooting FIM TASK 27-70-00-810-808-A.

(2) (WITHOUT GSE-419) Do the subsequent procedure to check the friction forces in the Electromechanical Gust-Lock Actuator (Figure 502).

(a) Connect a jumper between pins D1 and D2 of socket XK0848.

(b) Connect the digital multimeter (ITEM GSE 050) between pins B1 and B2 of socket XK0848 to measure the current.

(c) Do these step three times.

CAUTION: DO NOT APPLY TOO MUCH FORCE TO HOLD THE CONTROL COLUMN AGAINST THE BACKSTOPS, IN THE FULLY FORWARD POSITION, DURING THE UNLOCKING TRAVEL.

1 Move the control column to the fully forward position (nose down) and keep it thus during the unlocking travel.

a Lift the handle and command the gust-lock lever from the locked position to the intermediate position and, with the aid of the digital multimeter (GSE-050), measure the peak current in the actuator during the extension travel of the actuator.

1) The gust lock light light comes on for approximately eight seconds after the gust lock lever is at the intermediate position.

2) The gust lock actuator extends and the spring cartridges are retracted.

2 Write down the current values, measured in each unlocking travel, in Table 503.

Table 503 - CURRENT LOADS ON ELECTROMECHANICAL ACTUATOR DURING THE UNLOCKING TRAVELS OF THE SPRING CARTRIDGES

Current (mA)	U1	U2	U3
Values measured with GSE-050			
Unlocking Average	Xu =		

3 Move the control column to the fully rearward position (nose up) and keep it thus during the locking travel.

a Lift the handle and command the gust lock lever to the locked position and, with the aid of the digital multimeter (GSE-050), measure the peak current in the actuator during the retraction travel of the actuator.

1) The gust lock actuator retracts and the spring cartridges are extended.

4 Write down the current values, measured in each locking travel, in Table 504.

Table 504 - CURRENT LOADS ON ELECTROMECHANICAL ACTUATOR DURING THE LOCKING TRAVELS OF THE SPRING CARTRIDGES

Current (mA)	L1	L2	L3
Values measured with GSE-050			
Locking Average	Xl =		

5 Move the control column back to the fully forward position (nose down) and make sure that it is locked.

(d) Find the average value Xu, between U1, U2 and U3, and write it down in Table 503.

1 Xu = (U1+U2+U3)/3

(e) Find the average value Xl, between L1, L2 and L3, and write it down in Table 504.

1 Xl = (L1+L2+L3)/3

(f) The best average values for the peak current in the gust lock actuator on the unlocking travel (Xu) is 130mA with the maximum of 180mA.

NOTE: If the peak current of the actuator, on the unlocking travel (Xu), is higher than 180mA, do the troubleshooting FIM TASK 27-70-00-810-808-A.

(g) The best average values for the peak current in the gust lock actuator on the locking travel (Xl) is 250mA with the maximum of 300mA.

NOTE: If the peak current of the actuator, on the locking travel (Xl), is higher than 300mA, do the troubleshooting FIM TASK 27-70-00-810-808-A.

K. Follow-on

SUBTASK 842-002-A

(1) On the Circuit Breaker Panel, open the GUST-LOCK circuit breaker and attach a DO-NOT-CLOSE tag to it.

(2) (WITH GSE-419) Disconnect J3014 connector of GSE-419 from the electrical connector of the Electromechanical Actuator and P3014 connector of GSE-419 from the aircraft harness.

(3) (WITH GSE-419) Connect the electrical connector of the Electromechanical Actuator to the aircraft harness.

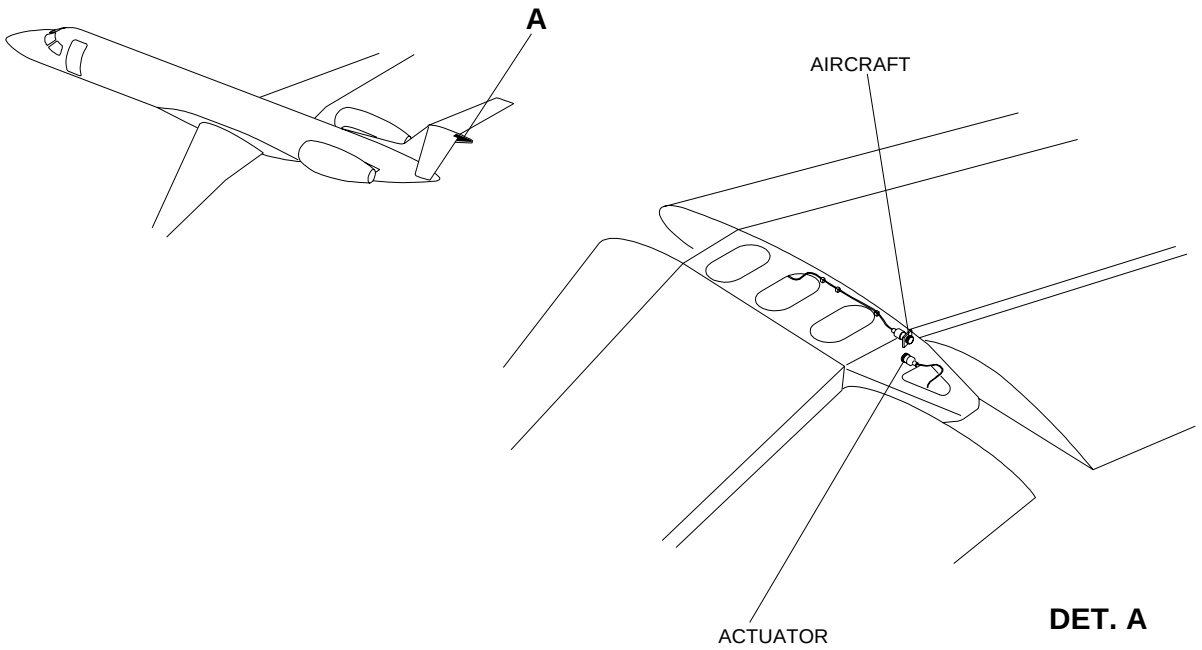
(4) (WITH GSE-419) Install rear fairings 321 to the horizontal stabilizer. Refer to AMM TASK 55-36-00-400-801-A/400.

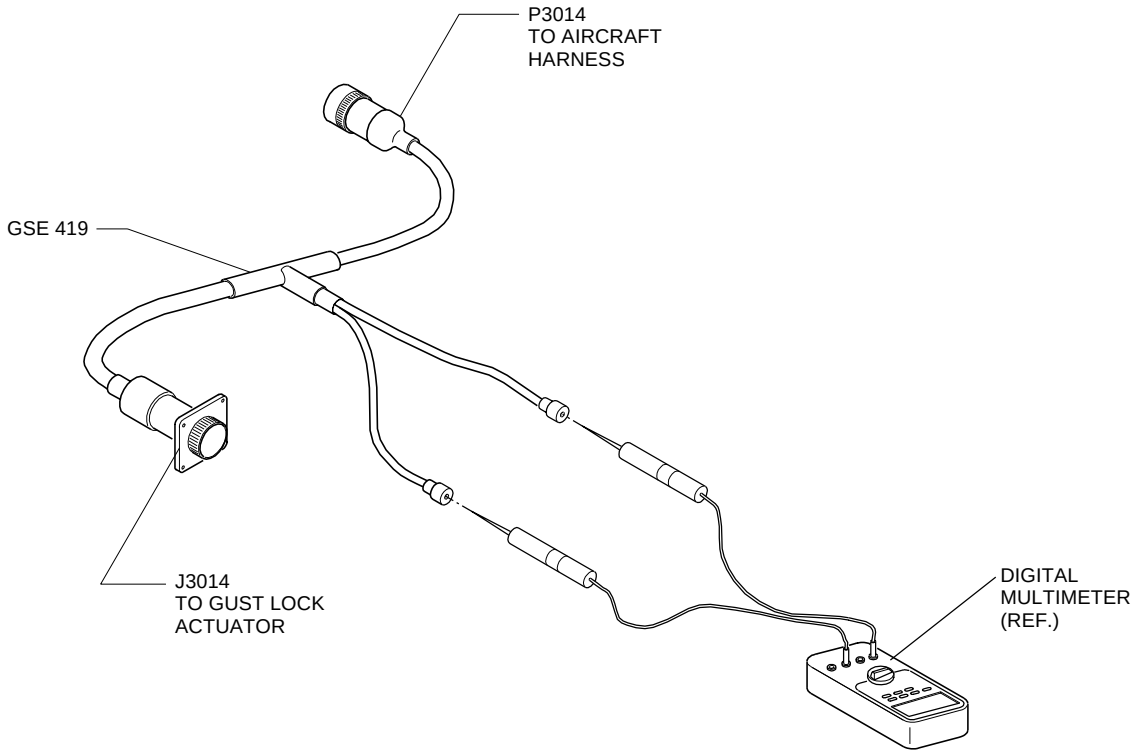
(5) (WITHOUT GSE-419) Reinstall the relay K0848 (AMM TASK 20-13-02-400-801-A/400).

(6) On the Circuit Breaker Panel, close the GUST-LOCK circuit breaker and remove the DO-NOT-CLOSE tag from it.

(7) De-energize the aircraft AMM TASK 20-40-01-860-801-A/200.

EFFECTIVITY: WITH GSE-419
Electromechanical Actuator - Measure of Load
Figure 501





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EFFECTIVITY: WITHOUT GSE-419
Electromechanical Actuator - Measure of Load
Figure 502