

ATA AIRLINES, INC.

YAW DAMPER SERVO SOLENOID VALVE

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CHECK BEING PERFORMED: Custom

ZONES: 119 120 211 212
A/C NUMBER:
REV. DATE: 04/05/04
FREQUENCY: 1C

W/C NUMBER: 221A2201
DATE:
W/O:
JAC CODE:

PANELS

119BL
324BL

MECH INSP

CHECK OPERATION OF YAW DAMPER SERVO (YDS) SOLENOID VALVE.

MPD ITEM: 22-21-03-2A

1. Yaw Damper Electrohydraulic Servo Valve and Solenoid Valve
Operational Check

A. References

- (1) AMM 6-43-00-2, Vertical Stabilizer and Rudder Access
Doors and Panels
- (2) AMM 24-22-00-2, Electrical Power - Control
- (3) AMM 27-21-00-5, Rudder and Rudder Trim Control System
- (4) AMM 27-61-00-2, Spoiler/Speedbrake Control System
- (4) AMM 29-11-00-2, Pressurize/Depressurize Main
Hydraulic System
- (5) AMM 31-41-00-5, Engine Indication and Crew Alerting
System
- (6) AMM 32-09-02-2, Air/Ground Relays
- (7) AMM 33-16-00-5, Master Dim and Test
- (8) AIRPLANES WITH AIR DATA COMPUTERS S242T210;

AMM 34-12-00-5, Air Data Computing System
- (9) AIRPLANES WITH INERTIAL REFERENCE UNITS S242T101;

AMM 34-21-00-5, Inertial Reference System
- (10) AIRPLANES WITH AIR DATA INERTIAL REFERENCE UNITS

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ATA AIRLINES, INC. B757 FLEET

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S242A101;

AMM 34-26-00-5, Air Data Inertial Reference System

B. Access

(1) Location Zones

119 Main Equipment Center
211/212 Flight Compartment
324 Vertical Stabilizer - rear spar to trailing
edge

C. Prepare for Test

WARNING: DO THE DEACTIVATION PROCEDURE FOR THE SPOILERS OR
MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE
SPOILER PANELS. THE SPOILERS CAN RETRACT QUICKLY
AND CAUSE INJURY TO PERSONS OR DAMAGE TO
EQUIPMENT.

- _____ XXXXX (1) Do the deactivation procedure for the spoilers
(AMM 27-61-00-2) or move all persons and equipment
away from the spoiler panels.
- _____ XXXXX (2) Open these circuit breakers on the overhead circuit
breaker panel, P11, and attach TAG-OUT forms (M-142).
- (a) 11A18, YAW DAMPER LEFT
 - (b) 11C6, FLT CONT ELEC 1L AC
 - (c) 11C7, FLT CONT ELEC 1L DC
 - (d) 11C8, FLT CONT ELEC 2L AC
 - (e) 11C9, FLT CONT ELEC 2L DC
 - (f) 11F34, YAW DAMPER RIGHT
 - (g) 11G17, FLT CONT ELEC 1R AC
 - (h) 11G18, FLT CONT ELEC 1R DC

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(i) 11G27, FLT CONT ELEC 2R AC

(j) 11G28, FLT CONT ELEC 2R DC

- _____ XXXXX (3) Supply electrical power (Ref 24-22-00-2).
- _____ XXXXX (4) For the left servo valves, remove pressure from the left hydraulic system.
- _____ XXXXX (5) For the right servo valves, remove pressure from the center hydraulic system (AMM 29-11-00-2).
- _____ XXXXX (6) Make sure the L, C, and R FLT CONTROL SHUTOFF switches on the panel P61 are in the OFF position.
- _____ XXXXX (7) Put the STAB TRIM switches on control stand panel, P10 in the CUT OUT position.
- _____ XXXXX (8) Open these circuit breakers on the overhead circuit breaker panel, P11, and attach TAG-OUT forms (M-142).
 - (a) 11C12, STAB TRIM SHUTOFF LEFT
 - (b) 11C13, STAB TRIM SHUTOFF RIGHT
 - (c) 11H17, FLT CONT SHUTOFF TAIL LEFT
 - (d) 11H18, FLT CONT SHUTOFF TAIL CENTER
 - (e) 11H28, FLT CONT SHUTOFF TAIL RIGHT

WARNING: MAKE SURE PERSONNEL STAY A MINIMUM OF 6 FEET AWAY FROM THE VERTICAL STABILIZER WHEN THE HF SYSTEM TRANSMITS. RF ENERGY FROM THE HF COMMUNICATION ANTENNA CAN CAUSE INJURIES TO PERSONNEL.

- _____ XXXXX (9) Make sure the HF system does not transmit.
 - (a) Open these circuit breakers (if installed) on the overhead circuit breaker panel, P11, and install TAG-OUT forms (M-142).

1) 11G8, HF COMM LEFT

2) 11G34, HF COMM RIGHT

(10) Inspection of Yaw Damper Servos.

_____ XXXXX

(a) Disconnect both Yaw Damper Servo electrical connectors.

NOTE: Yaw Damper electrical connectors are on the rear spar of the vertical stabilizer. Access is provided through trailing edge service panel 324BL.

XXXXX _____

(b) Perform General Visual Inspection of removed electrical connectors for evidence of:

(1) Blackening of contact insulator material

(2) Skydrol or moisture intrusion

(3) Damage to pins, connector or associated wiring

XXXXX _____

(c) Perform Detailed Inspection of Yaw Damper Servo's for excessive leakage. Limit is 8 drops per minute whether stopped or in operation

_____ XXXXX

(d) Clean electrical connectors using Electro-Contact cleaner and acid brush.

_____ XXXXX

(e) Reconnect both Yaw Damper Servo electrical connectors.

(11) Remove the TAG-OUT forms (M-142) and close these circuit breakers on the P11 panel:

(a) 11A18, YAW DAMPER LEFT

(b) 11C6, FLT CONT ELEC 1L AC

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- (c) 11C7, FLT CONT ELEC 1L DC
- (d) 11C8, FLT CONT ELEC 2L AC
- (e) 11C9, FLT CONT ELEC 2L DC
- (f) 11F34, YAW DAMPER RIGHT
- (g) 11G17, FLT CONT ELEC 1R AC
- (h) 11G18, FLT CONT ELEC 1R DC
- (i) 11G27, FLT CONT ELEC 2R AC
- (j) 11G28, FLT CONT ELEC 2R DC
- (k) 11C12, STAB TRIM SHUTOFF LEFT
- (l) 11C13, STAB TRIM SHUTOFF RIGHT
- (m) 11H17, FLT CONT SHUTOFF TAIL LEFT
- (n) 11H18, FLT CONT SHUTOFF TAIL CENTER
- (o) 11H28, FLT CONT SHUTOFF TAIL RIGHT
- (p) 11G8, HF COMM LEFT
- (q) 11G34, HF COMM RIGHT

_____ XXXXX (12) Put the L, C, and R FLT CONTROL SHUTOFF switches on the panel P61 in the ON position.

_____ XXXXX (13) Put the STAB TRIM switches on control stand panel, P10 in the NORM position.

_____ XXXXX (14) Make sure these systems operate:

- (a) Rudder and Rudder Trim Control System, (AMM 27-21-00-5)
- (b) AIRPLANES WITH AIR DATA COMPUTERS S242T210;

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Air Data Computing System, (AMM 34-12-00-5)

(c) AIRPLANES WITH INERTIAL REFERENCE UNITS
S242T101;

Inertial Reference System, (AMM 34-21-00-5)

(d) AIRPLANES WITH AIR DATA INERTIAL REFERENCE
UNITS S242A101;

Air Data Inertial Reference System,
(AMM 34-26-00-5)

(e) Air/Ground Relays (AMM 32-09-02-5)

(f) Master Dim and Test System (AMM 33-16-00-5)

(g) Engine Indication and Crew Alerting System.
(AMM 31-41-00-5)

_____ XXXXX (15) Push the STATUS switch on the EICAS display select
panel, on panel P9, to the flight control positions.

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL
SURFACES WHEN HYDRAULIC POWER IS SUPPLIED.
AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS,
SPOILERS, AND STABILIZER ARE FULLY POWERED
SURFACES. INJURY TO A PERSON OR DAMAGE TO
EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS
SUPPLIED.

_____ XXXXX (16) For the left yaw damper system, pressurize the left
hydraulic system (AMM 29-11-00-2).

_____ XXXXX (17) For the right yaw damper system, pressurize the
center hydraulic system (AMM 29-11-00-2).

D. Accomplish a Test of Each Valve Using the Procedures
Below:

_____ XXXXX LEFT YAW DAMPER VALVE

_____ XXXXX RIGHT YAW DAMPER VALVE

- (1) Push the YAW DAMPER L or R switch/light on the P5 panel make sure that ON light comes on.
- (2) Make sure that the applicable YAW DAMPER L or R INOP light is off.

NOTE: Two persons are necessary for the steps below. One is necessary in the flight compartment and one in the main electrical/electronic equipment center.

- (3) Open this circuit breaker on the P11 panel to stop the operation of the left (right) servo.
 - (a) 11A18, YAW DAMPER LEFT (11F34, YAW DAMPER RIGHT)
- (4) Make sure that the YAW DAMPER L (R) INOP light is on.
- (5) Put the YAW DMPR test switch on P61 in the L (R) position, then put the switch back to the center position.
- (6) Make sure that the rudder position indicator on the EICAS display unit shows no rudder movement.

NOTE: AIRPLANES WITH YDM; During this test a YD ACT fault may be shown and a YDM fault will be shown by the left yaw damper module. Faults set during this test should be clear after you push the YDM RESET button in the step that follows.

NOTE: AIRPLANES WITH YSM; During this test a YD ACT fault may be shown and a YSM fault will be shown by the left (right) yaw damper / stabilizer trim module (YSM). Faults set during this test should be clear after you do the YSM reset procedure in the step that follows.

- (7) AIRPLANES WITH YDM; Close these circuit breakers on the P11 panel and push the RESET button on the front

of left (right) yaw damper module:

- (a) 11A18, YAW DAMPER LEFT
 - (b) 11F34, YAW DAMPER RIGHT
- (8) AIRPLANES WITH YDM -101 THRU -121; Any fault balls that do not reset show that there is a fault.
- (9) AIRPLANES WITH YDM -122 AND ON; Push the DISPLAY button on the left yaw damper module. If the message NO FAULTS is not displayed on the module, there is a fault.
- (10) AIRPLANES WITH YSM; Close these circuit breakers on the P11 panel and push the YES and NO buttons on the left (right) YSM BITE module:
- (a) 11A18, YAW DAMPER LEFT
 - (b) 11F34, YAW DAMPER RIGHT
- (11) AIRPLANES WITH YSM; Do the steps that follow to make sure there are no fault messages on the left (right) YSM BITE module:
- (a) Push the ON/OFF button on the left (right) YSM BITE module.
 - (b) Make sure that the left (right) BITE display shows the message EXISTING FAULTS?
 - (c) Push the YES button on the left (right) BITE module.
 - (d) The NO FAULTS message is shown on the left (right) YSM BITE display if there are no faults.
- (12) Put the YAW DMPR test switch on the P61 panel in the L (R) position, then put it back to the center. Make sure that the YAW DAMPER L (R) INOP light comes on in less than 15 seconds.

- (13) Make sure that the rudder position indicator on the lower EICAS display shows this sequence of rudder movement in less than 10 seconds.
 - (a) The rudder moves approximately 3 degrees trailing edge right.
 - (b) The rudder moves approximately 3 degrees trailing edge left.
 - (c) The rudder goes back to the center.
- (14) Make sure that the YAW DAMPER L (R) INOP light goes off in less than 15 seconds after the switch is put back to center.
- (15) AIRPLANES WITH YDM -101 THRU -121; No faultballs should be set during the test.
- (16) AIRPLANES WITH YDM -122 THRU -999; The NO FAULTS message should be the only message shown on the yaw damper modules after completion of this test if there are no faults.
- (17) AIRPLANES WITH YSM; Do the steps that follow to make sure there are no fault messages on the left (right) YSM BITE module:
 - (a) Push the ON/OFF button on the left (right) YSM BITE module.
 - (b) Make sure that the left (right) BITE display shows the message EXISTING FAULTS?
 - (c) Push the YES button on the left (right) BITE module.
 - (d) The NO FAULTS message is shown on the left (right) YSM BITE display if there are no faults.

E. Put the Airplane Back to It's Usual Condition

- _____ XXXXX (1) Put the L, C, and R FLT CONTROL SHUTOFF switches on

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the P61 panel to the OFF position.

_____ XXXXX (2) Remove the power from the left and center hydraulic systems (AMM 29-11-00-2).

_____ XXXXX (3) Remove electrical power if it is not necessary. (AMM 24-22-00-2).

*****END OF WORKCARD*****

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