MAIN BRAKE SYSTEM - ADJUSTMENT/TEST

EFFECTIVITY: ALL

1. General

   A. This section gives the procedures to do a functional check on the main brake system.

   B. The maintenance panel is on the LH aft console.

   C. 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*
32-41-00-700-801-A ♦	MAIN BRAKE SYSTEM - FUNCTIONAL CHECK	ALL

TASK 32-41-00-700-801-A
EFFECTIVITY: ALL

2. MAIN BRAKE SYSTEM - FUNCTIONAL CHECK

A. General

(1) This task gives the procedures to do a functional check of the main brake system using or not GSE.

(2) You can do the functional check of the main brake system using or not GSE 095 or GSE 433 and GSE130 loaded with GSE 432.

B. References

REFERENCE	*DESIGNATION*
AMM MPP 06-41-02/100	-
AMM MPP 06-41-03/100	- COMPONENT LOCATION
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
AMM TASK 28-41-00-200-801-A/600	-
AMM TASK 32-00-01-910-801-A/200	LG SAFETY PIN - INSTALLATION AND REMOVAL
AMM TASK 32-41-01-700-802-A/500	BRAKE PEDAL TRANSDUCER - FUNCTIONAL TEST

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
223		Cockpit - LH side
124	221GF	Floor in the cockpit

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
GSE 012	Wheel Chock	To chock the nose and main landing gear wheels	
GSE 095	Laptop Field Tester	To read status of all Brake System LRUs	
GSE 432	Field Analyzer Software	To read status of all BCUs on a notebook	
GSE 433	Field Analyzer Interface Cable	To make it possible to read status of all BCUs on a notebook	
GSE 130	Laptop Computer		
GSE 135	Interface Test Box		

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	Cockpit
1	Helps the other technician	At the main landing gear

I. Preparation

SUBTASK 841-002-A

(1) Energize the aircraft with the External DC-power supply (AMM TASK 20-40-01-860-801-A/200).

(2) Make sure that, on the circuit breaker panel, the ELEC PUMP 1 and/or ELEC PUMP 2 circuit breaker(s) is (are) closed.

(3) Make sure that the safety pins are installed on the landing gears (AMM TASK 32-00-01-910-801-A/200).

(4) Make sure that the wheel chocks (GSE 012) are in position.

(5) Make sure that the emergency/parking brake handle is released (down position) and the BRAKE ON light, on the instrument panel, is off.

NOTE: To prevent hydraulic fluid transference from system 1 to system 2 or vice versa, first apply brakes with the pedals and then pull or release the emergency/parking brake handle.

J. Functional Check of the Main Brake System (Figure 501)

SUBTASK 720-002-A

(1) To accomplish this test, you may execute step 2 only or steps 3 thru 11 of this subtask.

(a) For step 2 you do not need to use the GSE 095 or GSE 433 and GSE130 loaded with GSE 432.

(b) To accomplish the steps 3 thru 11, it is necessary to have GSE 095 or GSE 433 and GSE130 loaded with GSE 432. If you do, go to step 3 thru 11.

NOTE:
- GSE 095 comprises GSE 130, GSE 432 and GSE 433.
- GSE 432 (Field analyzer Software) needs to be loaded only one time in the GSE 130, after that, it is not necessary to have GSE 432 available.

(2) Do the functional test of the outboard shutoff valve, a check for degradation on the brake control valve 1/4 as shown in steps 2(a) thru 2(i), and a functional test of the inboard shutoff valve and a check for degradation in the brake control valve 2/3, as shown in steps 2(j) thru 2(s).

(a) On the hydraulic panel, on the overhead panel, set the switch of the ELEC PUMP of system 1 to ON.

(b) Fully press and release the brake pedals twice.

(c) On the hydraulic panel, on the overhead panel, set the switch of the ELEC PUMP of system 1 to OFF.

(d) On the circuit breaker panel, open the BRAKES OUTBD circuit breaker.

Result:

1 The EICAS shows the BRK OUTBD INOP caution message.

2 On the main landing gear, no pistons of wheels 1 and 4 touch the brakes.

(e) On the hydraulic panel, on the overhead panel, set the switch of the ELEC PUMP of system 1 to ON and close the BRAKES OUTBD circuit breaker.

Result:

1 The BRK OUTBD INOP caution message goes out of view.

2 On the main landing gear, no pistons of wheels 1 and 4 touch the brakes.

NOTE: If you do not have all these results, it means that brake control valve 1/4 is defective.

(f) Fully press and release the brake pedals twice.

(g) Apply the brake pedals

Result:

1 All pistons of wheels 1 and 4 touch the brakes.

(h) Keep the brake pedals applied and, at the wing stub, disconnect connector P1045 of the outboard shutoff valve.

Result:

1 The pistons of the wheels 1 and 4 are retracted and do not touch the brakes.

2 The BRK OUTBD INOP message will come into view on the

EICAS.

NOTE: If you do not have all these results, it means that the outboard shutoff valve is defective.

(i) Connect connector P1045 of the outboard shutoff valve back.

(j) On the hydraulic panel, on the overhead panel, set the switch of the ELEC PUMP of system 2 to ON.

(k) Fully press and release the brake pedals twice.

(l) On the hydraulic panel, on the overhead panel, set the switch of the ELEC PUMP of system 2 to OFF.

(m) On the circuit breaker panel, open the BRAKES INBD circuit breaker.

Result:

1 The EICAS shows the BRK INBD INOP caution message.

2 On the main landing gear, no pistons of wheels 2 and 3 touch the brakes.

(n) On the hydraulic panel, on the overhead panel, set the switch of the ELEC PUMP of system 2 to ON and close the BRAKES INBD circuit breaker.

Result:

1 The BRK INBD INOP caution message goes out of view.

2 On the main landing gear, no pistons of wheels 2 and 3 touch the brakes.

NOTE: If you do not have all these results, it means that brake control valve 2/3 is defective.

(o) Fully press and release the brake pedals twice.

(p) Apply the brake pedals.

Result:

1 The pistons of wheels 2 and 3 touch the brakes.

(q) Keep the brake pedals applied and, at the wing stub, disconnect connector P1046 of the inboard shutoff valve.

Result:

1 The pistons of wheels 2 and 3 are retracted and do not touch the brakes.

2 The BRK INBD INOP message will come into view on the EICAS.

NOTE: If you do not have all these results, it means that the inboard shutoff valve is defective.

(r) Connect connector P1046 of the inboard shutoff valve back.

(s) After you finish the functional test, go to item "K" - Follow-on.

(3) Get access to the maintenance panel (AMM MPP 06-41-03/100) and connect the Field-Analyzer Interface Cable (GSE 433) or the cable of the Interface Test Box (GSE 135) to the CMC maintenance connector (Figure 501).

NOTE:
- The Laptop Field Tester (GSE 095) has a laptop (GSE 130) loaded with the Field Analyzer Software (GSE 432) and Field-Analyzer Interface Cable (GSE 433).
- If the Field Analyzer Cable (GSE 433) is not available, the Interface Test Box (GSE 135) is an alternative to the Field Analyzer Cable (GSE 433).

(4) If the Field Analyzer Version 2.05 or newer (Provided that it is part of the ITEM manual list) is available, go to step (7);

NOTE: Brake Control Unit version 'BCU-6' (P/N 42-951-6) can be used only with Field Analyzer Version 2.08 or newer (Provided that it is part of the ITEM manual list).

(5) If the Field Analyzer Version 2.00 thru 2.04 software is available, go to step (8);

(6) If the WINDOWS version of the FieldAnalyzer software P/N 199-09310 is available and the aircraft does not have Brake Control Unit version 'BCU-5' (P/N 42-951-5) or newer (Provided that it is part of the ITEM manual list), go to step (9);

(7) If the DOS version of the FieldAnalyzer software is available and the aircraft does not have Brake Control Unit version 'BCU-5' (P/N 42-951-5) or newer (Provided that it is part of the ITEM manual list), go to step (10).

(8) For Field Analyzer Version 2.05 or newer (Provided that it is part of the ITEM manual list). The steps that follow can be done for the two channels (outboard and inboard) at the same time if the laptop has two serial port outlets and the Field-Analyzer Interface Cable (GSE 433) or the cables of the Interface Test Box (GSE 135) are connected to the two port outlets.

NOTE:
- Even if the laptop does not have two serial ports, the Field Analyzer software can be used.
- During single-channel operation, the outboard data can be displayed in the inboard data area of the screen (or vice versa). Energize one electric hydraulic pump at a time while you monitor the hydraulic switch status to know which brake channel is monitored. The hydraulic switch indicator will change from red to green when the related pump is energized.
- For the check of the two channels (Inboard and Outboard) at the same time, install an RS232 PCMCIA adapter Ruggedized Dual Serial I/O PC Card to the laptop.

(a) Run the Field Analyzer Software on the computer.

(b) Input the data in the SESSION SPECIFIC INFO fields when the Field Analyzer Software asks for them.

(c) Do the tests that follow for the outboard and/or inboard wheels:

NOTE: The procedure steps refer to the outboard wheels. The differences for the inboard wheels are given in notes as applicable.

(d) On the hydraulic panel, on the overhead panel, set the ELEC PUMP switch of system 1 to ON to do the tests of the outboard brakes.

NOTE: To do inboard tests, set the ELEC PUMP switch of system 2 to ON instead.

(e) Click on the status button (Ctrl+Sh+S) and look at the column Discrete I/O.

Result:

1 Gear Dn & Lock must be shown green.

2 Gear Hndl Dn must be shown green.

3 Dsp Tst Sw OFF must be shown green.

4 Antiskid Sw ON must be shown green.

5 L WOW On Gnd must be shown green.

6 R WOW On Gnd must be shown green.

7 Press Sw ON must be shown green.

NOTE: You must examine and correct possible differences in the inputs before you start the test.

(f) To refer to the Test Page, select the second button on the Field Analyzer toolbar or push the keys (Ctrl+Sh+I) on the Field-Analyzer computer keyboard and then choose the test to run and push the "Run Outboard test" button to run the outboard tests.

- Valve Resistance Test (Not applicable to BCU-6 (P/N 42-951-6)).

- Wheel Speed Transducer Resistance Test (Not applicable to BCU-6 (P/N 42-951-6)).
- LVDT Loopback Test, the Two Wheels.
- Pressure Pulse Test.
- EPROM Memory Test (All).
- Display Test (This test can only be made with the APU switch in the OFF position).

NOTE:
- When it is necessary to apply the brake pedals, push only the pilot's brake pedals (10% pushed minimum). Do not use the copilot's pedals. If you use them, the test will not be satisfactory.
- To do inboard tests, push the "Run Inboard test" button instead.
- During the display test, the EICAS will show the caution messages as follows:
  BRAKE DEGRADED, and
  BRK OUTBD INOP or BRK INBD INOP.
- If these messages do not come into view, this means that the BCU or the DAU/EICAS are defective.

(g) To refer to the Status Page, select the first button on the Field Analyzer toolbar or push the keys (Ctrl+Sh+S) on the Field Analyzer computer keyboard.

NOTE:
- The Status Page will show the results of the tests. If there is a failure, the failure and the related component will be isolated.
- The cells will be shown in three possible colors, as follows:
  RED cells: component is defective.
  GREEN cells: component is serviceable.
  BLUE cells: component is in STATUS condition.

(h) Select the fourth button on the Field Analyzer Toolbar or push the keys (Ctrl+Sh +D) on the Field Analyzer computer keyboard.

(i) Push the pilot's brake pedals and monitor the brake pressure sent to the brakes, as shown in the brake pressure field of the computer.

Result:

1 Before you push the pedals, the brake pressure will show 0 to 120 psi in the left and right wheel positions.

2 At full stroke, the brake pressure will be 2700 to 3000 psi in the left and right wheel positions.

NOTE:
1. If the pressure of step 1 is more than 120 psi, replace the BCV.
2. If the pressure of step 2 is less than 2700 psi, do the brake-pedal transducer adjustment and test. Refer to AMM TASK 32-41-01-700-802-A/500.

3 For the tests of the outboard brakes, make sure that all pistons of wheels 1 and 4 touch the brakes. For the tests of the inboard brakes, make sure that all pistons of wheels 2 and 3 touch the brakes.

(j) Do items (h) and (i) for the copilot's brake pedals.

NOTE:
- The Field Analyzer Software shows a view of the Graphic Display of the System Data in schematic form. To get access to it, push the sixth button on the Field Analyzer Toolbar or push the keys (Ctrl+Sh +G) on the Field-Analyzer computer keyboard.
- The Field Analyzer has an Oscilloscope page. To get access to it, push the fifth button on the Field Analyzer Toolbar or push the keys (Ctrl+Sh+O) on the Field-Analyzer computer keyboard.
- The faults are stored by the Field Analyzer Software. To get access to it, push the third button on the Field Analyzer toolbar or push the keys (Ctrl+Sh+E) on the Field-Analyzer computer keyboard.

(k) Set the switch of the ELEC PUMP of system 1 to OFF.

NOTE: To do inboard tests, set the ELEC PUMP switch of system 2 to OFF instead.

(l) Do steps (d) thru (k) again for the inboard tests.

(m) Disconnect the Field-Analyzer Interface Cable (GSE 433) or the cables of the Interface Test Box (GSE 135) from the CMC maintenance connector and from the computer.

(n) On the circuit breaker panel, open the BRAKE OUTBOARD circuit breaker.

Result:

1 The EICAS display shows the BRK OUTBD INOP caution message.

(o) On the circuit breaker panel, close the BRAKE OUTBOARD circuit breaker.

Result:

1 The BRK OUTBD INOP caution message goes out of view.

(p) On the circuit breaker panel, open the BRAKE INBOARD circuit breaker.

Result:

1 The EICAS display shows the BRK INBD INOP caution message.

(q) On the circuit breaker panel, close the BRAKE INBOARD circuit breaker.

Result:

1 The BRK INBD INOP caution message goes out of view.

(9) (For Field Analyzer Version 2.00 thru 2.04 software) The steps that follow can be done for the two channels (outboard and inboard) at the same time if the laptop has two serial port outlets and the Field-Analyzer Interface Cable (GSE 433) or the cables of Interface Test Box (GSE 135) are connected to the two port outlets.

NOTE:
- Even if the laptop does not have two serial ports, the Field Analyzer software can be used.
  Configure the Inboard channel for the working serial port and configure the Outboard channel with a nonexistent serial port. When the Field

Analyzer application is started, the working serial port must be connected to an operational BCU.
The application will give a "Comm Thread or Port Error" message on startup. Ignore it (i.e. click OK). Two screens later, the "Session Info" screen will show a correct "Inboard System Configuration Code".
After that screen, when the Field Analyzer runs completely, the Inboard channel will show active data while the Outboard channel becomes gray (inactive).
For the check of the Outboard brake, do these steps. Use the Outboard channel configured for the working serial port.

- During single channel operation, the outboard data can be shown in the inboard data area of the screen (or vice versa). Energize one electric hydraulic pump at a time while you monitor the hydraulic switch status to know which brake channel is monitored. The hydraulic switch indicator will change from red to green when the related pump is energized.
- For the check of the two channels (Inboard and Outboard) at the same time, install an RS232 PCMCIA adapter Ruggedized Dual Serial I/O PC Card to the laptop.

(a) To know which version of the Brake Control Unit (BCU) is installed on the aircraft, open access panel 221GF (AMM MPP 06-41-02/100) and look at it.

NOTE:
- BCU-3 is identified with P/N 42-951-3
- BCU-FDR is identified with P/N 142-093
- BCU-5 is identified with P/N 42-951-5

(b) Run the Field Analyzer Software on the computer.

(c) Input the BCU P/N when the Field Analyzer Software asks for it.

(d) On the hydraulic panel, on the overhead panel, set the ELEC PUMP switch of system 1 to ON to do the tests of the outboard brakes and/or set the ELEC PUMP switch of system 2 to ON to do the tests of the inboard brakes.

(e) Click on the status button (Ctrl+Sh+S) and look at the column Discrete I/O.
Result:

1 Gear Dn & Lock must be shown green.

2 Gear Hndl Dn must be shown green.

3 Dsp Tst Sw OFF must be shown green.

4 Antiskid Sw ON must be shown green.

5 L WOW On Gnd must be shown green.

6 R WOW On Gnd must be shown green.

7 Press Sw ON must be shown green.

NOTE: You must examine and correct possible differences in the inputs before you start the test.

(f) To refer to the Test Page, select the second button on the Field Analyzer toolbar or push the keys (Ctrl+Sh+I) on the Field-Analyzer computer keyboard and then choose the test to run and push the "Run Both Tests" button to run the inboard and outboard tests. If the test done is only for the inboard or outboard brakes, select the related button.

- Valve Resistance Test.
- Wheel Speed Transducer Resistance Test.
- LVDT Loopback Test, the Two Wheels.
- Pressure Pulse Test.
- EPROM Memory Test (All).
- Display Test (This test can only be made with the APU switch in the OFF position).

NOTE:
- When it is necessary to apply the brake pedals, push only the pilot's brake pedals (10% pushed minimum). Do not use the copilot's pedals. If you use them, the test will not be satisfactory.
- During the display test, the EICAS will show the caution messages as follows:
  BRAKE DEGRADED, and
  BRK OUTBD INOP or BRK INBD INOP.
- If these messages do not come into view, this means that the BCU or the DAU/EICAS are defective.
- The tests that follow must not be done when you use the Field Analyzer Software, although they are on the software test page. These tests are done only on the production line of the vendor:
- CPU Reset Test (Internal Watchdog Reset Test).
- SOV and CPU EXT Watchdog Reset Test.
- Hardware Monitor Test.
- Selector Valve Test (For BCU-3 or BCU-FDR) or BCV Operation Test (For BCU-5).

(g) To refer to the Status Page, select the first button on the Field Analyzer toolbar or push the keys (Ctrl+Sh+S) on the Field-Analyzer computer keyboard.

NOTE:
- The Status Page will show the results of the tests. If there is a failure, the failure and the related component will be isolated.
- The cells will be shown in three possible colors, as follows:
  RED cells: component is defective.
  GREEN cells: component is serviceable.
  BLUE cells: component is in STATUS condition.

(h) Select the fourth button on the Field Analyzer Toolbar or push the keys (Ctrl+Sh +D) on the Field-Analyzer computer keyboard.

(i) Push the pilot's brake pedals and monitor the brake pressure sent to the brakes, as shown in the brake pressure field of the computer.

Result:

1 Before you push the pedals, the brake pressure will show 0 to 120 psi in the left and right wheel positions.

2 At full stroke, the brake pressure will be 2700 to 3000 psi in the left and right wheel positions.

NOTE: 1. If the pressure of step 1 is more than 120 psi, replace the BCV.

2. If the pressure of step 2 is less than 2700 psi, do the brake pedal transducer adjustment and test. Refer to AMM TASK 32-41-01-700-802-A/500.

3 For the tests of the outboard brakes, make sure that all pistons of wheels 1 and 4 touch the brakes. For the tests of the inboard brakes, make sure that all pistons of wheels 2 and 3 touch the brakes.

(j) Do item (i) for the copilot's brake pedals.

NOTE:
- The Field Analyzer Software shows a view of the Graphic Display of the System Data in schematic form. To get access to it, push the sixth button on the Field Analyzer Toolbar or push the keys (Ctrl+Sh +G) on the Field-Analyzer computer keyboard.
- The Field Analyzer has an Oscilloscope page. To get access to it, push the fifth button on the Field Analyzer Toolbar or push the keys (Ctrl+Sh+O) on the Field-Analyzer computer keyboard.
- The faults are stored by the Field Analyzer Software. To get access to it, push the third button on the Field Analyzer toolbar or push the keys (Ctrl+Sh+E) on the Field-Analyzer computer keyboard.

(k) Set the switch of the ELEC PUMP of system 1 to OFF and set the ELEC PUMP switch of system 2 to OFF if applicable.

(l) Disconnect the Field-Analyzer Interface Cable (GSE 433) or the cables of the Interface Test Box (GSE 135) from the CMC maintenance connector and from the computer.

(m) On the circuit breaker panel, open the BRAKE OUTBOARD circuit breaker.

Result:

1 The EICAS display shows the BRK OUTBD INOP caution message.

(n) On the circuit breaker panel, close the BRAKE OUTBOARD circuit breaker.

Result:

1 The BRK OUTBD INOP caution message goes out of view.

(o) On the circuit breaker panel, open the BRAKE INBOARD circuit breaker.

Result:

1 The EICAS display shows the BRK INBD INOP caution message.

(p) On the circuit breaker panel, close the BRAKE INBOARD circuit breaker.

Result:

1 The BRK INBD INOP caution message goes out of view.

(10) For WINDOWS version of the FieldAnalyzer software P/N 199-09310 and aircraft that does not have Brake Control Unit version 'BCU-5' (P/N 42-951-5) or newer (Provided that it is part of the ITEM manual list). Do the test of the outboard and inboard brakes as follows:

(a) To know which version of Brake Control Unit (BCU) is installed on the aircraft, open access panel 221GF (AMM MPP 06-41-02/100) and look at it.

NOTE:
- BCU-3 is identified with P/N 42-951-3
- BCU-FDR is identified with P/N 142-093
- BCU-5 is identified with P/N 42-951-5

(b) Connect the laptop (GSE 130) to the BRAKES OUTBOARD connector of the Interface Test Box (GSE 135); use the computer RS-232 port (mouse port).

(c) Run the Field Analyzer.exe program on the computer.

(d) On the hydraulic panel, on the overhead panel, set the ELEC PUMP switch of system 1 to ON.

(e) Click on the SWITCH STATES button.

Result:

1 GEAR UP - will show down.

2 GEAR HANDLE - will show down.

3 DISPLAY TEST - will show off.

4 ANTISKID - will show on.

5 LEFT SQUAT - will show gnd.

6 RIGHT SQUAT - will show gnd.

7 HYDRAULIC STATUS- will show on.

NOTE: You must examine and correct possible differences in the inputs before you start the test.

(f) Click on the INIT TEST button to have the INITIATED TEST MENU and run these tests :

Refer to the instructions shown on the screen.

- VALVE RESISTANCE TEST
- WHEEL SPEED XDCR RESISTANCE TEST
- TIMER/COUNTER TEST
- EPROM MEMORY TEST
- LVDT LOOP BACK TEST
- PRESSURE PULSE TEST
- CLEAR ALL - FAULT STORAGE MEMORY

- DISPLAY TEST (This TEST can only be made with the APU switch in the OFF position).

NOTE:
- When it is necessary to apply the brake pedals, push only the pilot's brake pedals (10% pushed minimum). Do not use the copilot's pedals. If you use them, the test will not be satisfactory.
- During the display test, the EICAS will show the caution messages as follows:
  BRAKE DEGRADED (1), and
  BRK OUTBD INOP or BRK INBD INOP.
- (1) - This message is only applicable to aircraft equipped with:
  -82402 Integrated Computer #1, -83402 Integrated Computer #2, -916 Data Acquisition Unit, or
  -82406 Integrated Computer #1, -83406 Integrated Computer #2, -932 Data Acquisition Unit, or
  -82426 Integrated Computer #1, -83426 Integrated Computer #2, -935 Data Acquisition Unit, or
  -82407 Integrated Computer #1, -83407 Integrated Computer #2, -940 Data Acquisition Unit.
- If these messages do not come into view, this means that the BCU or the DAU/EICAS are defective.

(g) Click on the Status 1&2, Status 3&4, LRU Status and Misc Status buttons to find possible failures.

NOTE: The screens for each button (Status 1&2, Status 3&4, LRU Status and Misc Status) will show the test results and, if there is a failure, the failure and the related component will be isolated.

(h) Click on the SYSTEM DATA button.

(i) Push the pilot's brake pedals and monitor the actual brake pressure sent to the brakes, as shown in the brake pressure field of the computer.

Result:

1 Before you push the pedals, the brake pressure will show 0 to 120 psi in the left and right wheel positions.

2 At full stroke, the brake pressure will be 2700 to 3000 psi in the left and right wheel positions.

NOTE:
1. If the pressure of step 1 is more than 120 psi, replace the BCV.
2. If the pressure of step 2 is less than 2700 psi, do the brake-pedal transducer adjustment and test. Refer to AMM TASK 32-41-01-700-802-A/500.

3 For the tests of the outboard brakes, make sure that all pistons of wheels 1 and 4 touch the brakes. For the tests of the inboard brakes, make sure that all pistons of wheels 2 and 3 touch the brakes.

(j) Do items (h) and (i) for the copilot's brake pedals.

(k) Set the switch of the ELEC PUMP of system 1 to OFF.

(l) Connect the laptop (GSE 130) to the BRAKES INBOARD connector of the Interface Test Box (GSE 135); use the computer RS-232 port (mouse port).

(m) Run the Field Analyzer.exe program on the computer.

(n) Set the ELEC PUMP switch of system 2 to ON.

(o) Do items (e) thru (j) for the inboard brakes.

(p) Set the ELEC PUMP switch of system 2 to OFF.

(q) Disconnect the Interface Test Box (GSE 135) from the laptop (GSE 130) and from the CMC maintenance connector.

(r) On the circuit breaker panel, open the BRAKE OUTBOARD circuit breaker.

Result:

1 The EICAS display shows the BRK OUTBD INOP caution message.

(s) On the circuit breaker panel, close the BRAKE OUTBOARD circuit breaker.

Result:

1 The BRK OUTBD INOP caution message goes out of view.

(t) On the circuit breaker panel, open the BRAKE INBOARD circuit breaker.

Result:

1 The EICAS display shows the BRK INBD INOP caution message.

(u) On the circuit breaker panel, close the BRAKE INBOARD circuit breaker.

Result:

1 The BRK INBD INOP caution message goes out of view.

(11) For DOS version of the FieldAnalyzer software and aircraft that does not have Brake Control Unit version 'BCU-5' (P/N 42-951-5) or newer (Provided that it is part of the ITEM manual list). Do the test of the outboard and inboard brakes as follows:

(a) Connect the laptop (GSE 130) to the BRAKES OUTBOARD connector of the Interface Test Box (GSE 135); use the computer RS-232 port (mouse port).

(b) Run the Fldtestr.exe program on the computer.

(c) Push F1 to have the main menu.

(d) On the hydraulic panel, on the overhead panel, set the ELEC PUMP switch of system 1 to ON.

(e) Set the computer to F8 - SWITCH POSITIONS.

Result:

1 GEAR UP - will show down.

2 GEAR HANDLE - will show down.

3 DISPLAY TEST - will show off.

4 ANTISKID - will show on.

5 LEFT SQUAT - will show gnd.

6 RIGHT SQUAT - will show gnd.

7 HYDRAULIC STATUS - will show on.

NOTE: You must examine and correct possible differences in the inputs before you start the test.

(f) Push F2 to have the INITIATED TEST MENU and run these tests :

Refer to the instructions shown on the screen.

- VALVE RESISTANCE TEST.
- WHEEL SPEED XDCR RESISTANCE TEST.
- TIMER/COUNTER TEST.
- EPROM MEMORY TEST.
- LVDT LOOP BACK TEST.
- PRESSURE PULSE TEST.
- CLEAR ALL - FAULT STORAGE MEMORY.
- DISPLAY TEST (This TEST can only be made with the APU switch in the OFF position).

NOTE:
- When it is necessary to apply the brake pedals, push only the pilot's brake pedals (10% pushed minimum). Do not use the copilot's pedals. If you use them, the test will not be satisfactory.
- During the display test, the EICAS will show the caution messages as follows:
  BRAKE DEGRADED (1), and
  BRK OUTBD INOP or BRK INBD INOP.
- (1) - This message is only applicable to aircraft equipped with:
  -82402 Integrated Computer #1, -83402 Integrated Computer #2, -916 Data Acquisition Unit, or
  -82406 Integrated Computer #1, -83406 Integrated Computer #2, -932 Data Acquisition Unit, or
  -82426 Integrated Computer #1, -83426 Integrated Computer #2, -935 Data Acquisition Unit, or
  -82407 Integrated Computer #1, -83407 Integrated Computer #2, -940 Data Acquisition Unit.
- If these messages do not come into view, this means that the BCU or the DAU/EICAS are defective.

(g) Look at screens F4 through F7 to find possible failures.

NOTE: Screens F4 through F7 will show the test results and, if there is a failure, the failure and the related component will be isolated.

(h) Set the computer to F9.

(i) Push the pilot's brake pedals and monitor the actual brake pressure sent to the brakes, as shown in the brake pressure field of the computer.

Result:

1 Before you push the pedals, the brake pressure will show 0 to 120 psi in the left and right wheel positions.

2 At full stroke, the brake pressure will be 2700 to 3000 psi in the left and right wheel positions.

NOTE: 1. If the pressure of step 1 is more than 120 psi, replace the BCV.

2. If the pressure of step 2 is less than 2700 psi, do the brake pedal transducer adjustment and test. Refer to AMM TASK 32-41-01-700-802-A/500.

3 For the tests of the outboard brakes, make sure that all pistons of wheels 1 and 4 touch the brakes. For the tests of the inboard brakes, make sure that all pistons of wheels 2 and 3 touch the brakes.

(j) Do items (h) and (i) for the copilot's brake pedals.

(k) Set the switch of the ELEC PUMP of system 1 to OFF.

(l) Connect the laptop (GSE 130) to the BRAKES INBOARD connector of the Interface Test Box (GSE 135); use the computer RS-232 port (mouse port).

(m) Run the Fldtestr.exe program on the computer.

(n) Push F1 to have the main menu.

(o) Set the ELEC PUMP switch of system 2 to ON.

(p) Do items (e) thru (j) for the inboard brakes.

(q) Set the ELEC PUMP switch of system 2 to OFF.

(r) Disconnect the Interface Test Box (GSE 135) from the laptop (GSE 130) and from the CMC maintenance connector.

(s) On the circuit breaker panel, open the BRAKE OUTBOARD circuit breaker.
Result:
1 The EICAS display shows the BRK OUTBD INOP caution message.

(t) On the circuit breaker panel, close the BRAKE OUTBOARD circuit breaker.
Result:
1 The BRK OUTBD INOP caution message goes out of view.

(u) On the circuit breaker panel, open the BRAKE INBOARD circuit breaker.
Result:
1 The EICAS display shows the BRK INBD INOP caution message.

(v) On the circuit breaker panel, close the BRAKE INBOARD circuit breaker.
Result:
1 The BRK INBD INOP caution message goes out of view.

K. Follow-on

SUBTASK 842-002-A

(1) Deenergize the aircraft (AMM TASK 20-40-01-860-801-A/200).

(2) Do an inspection on the fuel-quantity indication harness (AMM TASK 28-41-00-200-801-A/600).

NOTE: The inspection of fuel quantity indication harness is part of Critical Design Configuration Control Limitations (CDCCL) in the Airworthiness Limitations of the Aircraft Maintenance Program.

EFFECTIVITY: ALL

Functional Check of the Main Brake System
Figure 501