



## ***canadair challenger***

PASSENGER DOOR  
WARNING SYSTEM  
BREAKOUT TEST SET

OPERATING GUIDE

**CCSC5270-01-09E2**

03 APR 97

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### **CAUTION**

Before proceeding with testing, technicians *must* familiarize themselves with these procedures and the applicable Canadair Challenger maintenance manual. Damage to equipment or injury to personnel may result.

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Inflight testing with this test set is not authorized unless approved by Bomardier Aviation Canadair Challenger Technical Support

## TEST SET CALIBRATION/CERTIFICATION

Canadair Challenger Breakout Test Sets, part number prefix CCSC, are computer tested and certified for proper operation before return to service for new, modified, repaired or rental units.

CCSC Test Sets do not require annual or periodic calibration since there is no alteration to the aircraft system under test with a CCSC test set connected in the "NORMAL" mode of operation. Technicians should ensure only a calibrated/certified multimeter and test equipment is used to make measurements during functional testing. "TEST" and "SIMULATE" must not be used to certify an aircraft system in lieu of aircraft component signals as directed by the applicable CCMM procedures

The "TEST" or "SIMULATE" operations of each test set *do* alter the aircraft's system operation and are to be used for testing and fault isolation only.

It is recommended that periodic inspection and recertification of CCSC test sets be accomplished by Avionics Fabrication, Bombardier Aviation Services, Windsor Locks, CT, to ensure faults and/or malfunctions will not be induced into the aircraft systems by faulty test set components. This is essential if a test set has been loaned or used by another operator/facility before the test set is returned to the owner's tooling storage.

To arrange for for recertification, modification or repair, contact:

BOMBARDIER AVIATION SERVICES  
AVIONICS FABRICATION  
Hartford Service Center  
phone 888-BAS-1BDL  
(888-227-1235)

CANADAIR CHALLENGER BREAKOUT TEST SET OPERATING GUIDE

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The CANADAIR CHALLENGER PASSENGER DOOR BREAKOUT TEST SET, p/n CCSC5270-01, provides many features to assist you in fully testing, rigging or troubleshooting a Challenger's downward opening Passenger Door Warning system.

The main features this unit includes are:

- + Monitoring of the passenger door proximity and microswitches while in operation to isolate door warning indications to the misrigged or faulty switch.
- + Simulation of latched or unlatched door switches for rigging and fault isolation.

I. Additional Support Tooling Required:

The following additional support tooling ( or suitable substitutes ) may be required, depending on the particular maintenance you are performing. If in doubt, consult the Maintenance Manual.

- A. Proximity switch targets.
- D. Feeler gauges.
- C. Digital Multimeter, 3 1/2 digit minimum.
- D. 28vdc power supply

II. P R E C A U T I O N S:

- A. DO NOT connect/disconnect TEST SET to/from system with aircraft power applied.
- B. Check aircraft/TEST SET connections for pushed/bent pins before connections are made.
- C. BEFORE ATTEMPTING TO CLOSE THE PASSENGER DOOR WITH TEST SET CONNECTED assure door and TEST SET connectors are free and clear of door hinge and surrounding areas.
- D. DO NOT use TEST SET while inflight unless directed to do so by Canadair Challenger Technical Support. This unit is capable of bypassing door latch switches to the cockpit warning system lights.

III. REFERENCES:

Maint. Manual Chap. 6 location of Access Panels  
Maint. Manual Chap. 7 Jacking of A/C  
Maint. Manual Chap. 12 application of aircraft power  
Maint. Manual Chap. 52 passenger door operation.

IV. TEST SET TECHNICAL SUPPORT:

If you require assistance or experience difficulties while using the Passenger Door Breakout Test Set,

OR

You would like to arrange for Breakout Test Set Familiarization Training at your facility,

contact:

DOMDARDIER AVIATION SERVICES  
Hartford Service Center  
AVIONICS FABRICATION Department  
1 Bradley International Airport  
Hangar 85-207  
Windsor Locks, CT 06096

phone: 860-292-7292  
fax: 860-292-7380

or

your regional Canadair Field Service Representative

V. TEST SET LEGEND:

A. Test Jack Color Code Guide;

BLACK - grounds

RED - 28vdc power, steady state

GREEN - switch signal, HI or LO dependent on switch.

D. Lamps:

AMBER - Indicates switch open, unlatched or untargeted.

GREEN - Indicates both microswitches are closed.

C. Switch Position Function;

NORMAL - Door to aircraft circuitry not interrupted.

LATCHED - Will simulate a closed, latched, targeted condition.

UNLATCHED- Will simulate an open, unlatched, untargeted condition.

VI. TEST SET/SYSTEM OPERATING PROCEDURES:

Except for INITIAL SETUP, the following numbered sections are designed as separate checkout modules which can be performed independently of each other.

A. INITIAL SETUP

The following setup produces normal system operation. With the TEST SET installed in line, monitoring of all available test points is obtained, with no alteration or interruption of system operation.

1. Remove power from aircraft.
2. Connect TEST SET between connectors J2MD and P2MD at the door hinge, located under top stair panel, refer fig 1.
3. Position all TEST SET switches to NORMAL.
4. Turn on aircraft power.
5. Switch cockpit Master Caution BRT/DIM switch, on 10 channel annunciator, to BRT.
6. Perform cockpit Master Caution lamp test for Passenger Door annunciator panel. "DOOR UNLOCKED", "DOOR NOT READY" and "DOOR READY" should light.
7. Depress TEST SET LAMP TEST, all TEST SET lamps should light.

The system may now be operated from the cockpit normally, and monitored on the TEST SET.

Note: Cockpit "DOOR READY" light may appear dim with Master Caution in BRT mode, and very dim with Master Caution in DIM mode. This is normal with Test Set connected in circuit.

VI. TEST SET/SYSTEM OPERATING PROCEDURES: cont.

D. SYSTEM TESTING

This procedure may be used to perform operational testing of the Passenger Door Latch switches in compliance with Canadair Challenger Maintenance Manual directives. This procedure will isolate each switch signal individually to assure the proper signals are given to the cockpit indicators.

1. Set TEST SET and aircraft system configuration as in Initial System Setup step VI.A..
2. Place metal prox switch targets on the door frame side/center forward and aft proximity switches, refer to fig 1.
3. Position the TEST SET switches as follows;  
  
S201MB to LATCHED  
  
S202MB to LATCHED  
  
S107MB to LATCHED
4. Check that TEST SET and cockpit Passenger Door "DOOR UNLOCKED" lights are off.
5. Remove metal target from the door frame side/center forward prox switch, check that cockpit Passenger Door "DOOR UNLOCKED" light is on. Replace target, light goes out.
6. Remove metal target from the door frame side/center aft prox switch, check that cockpit Passenger Door "DOOR UNLOCKED" light is on. Replace target, light goes out.
7. Position TEST SET S201MB switch to Normal. Check that cockpit "Door Unlocked" light is on. Position TEST SET S201MB switch to LATCHED, cockpit light goes off.
8. Repeat step 7 with TEST SET S202MB switch.
9. Repeat step 7 with TEST SET S107MB switch.
10. Remove metal targets from door frame side/center prox switches.
11. Position all TEST SET switches to NORMAL.
12. Check TEST SET and cockpit amber Passenger Door "DOOR UNLOCKED" and "DOOR NOT READY" lights are on, and the green "DOOR READY" lights are off.



VI. TEST SET/SYSTEM OPERATING PROCEDURES: cont.

D. SYSTEM TESTING cont.

13. From inside of aircraft, Ensure all connectors and harnesses near the door hinge are free and clear of all surfaces, carefully close and latch the door.
14. Close and latch external and internal handles. Check that TEST SET and cockpit green "PASS DOOR READY" is on and amber "DOOR NOT READY" is off.

Reminder: TEST SET. lamps will annunciate,

for latch switches,

AMBER - Unlatched, untargeted, open condition

OFF - Latched, targeted, closed condition

for handle microswitches,

GREEN - Handles closed and secure

OFF - Handles opened or not secure

15. Unlatch internal handle. Check that TEST SET and cockpit green "PASS DOOR READY" light goes out and amber "DOOR NOT READY" light comes on. Stow internal handle. "PASS DOOR READY" comes on and "DOOR NOT READY" goes off.
16. Pop out external handle. Check that TEST SET and cockpit "PASS DOOR READY" goes out and "DOOR UNLOCKED" comes on.
17. Open the passenger door, check that the TEST SET and cockpit amber Passenger Door "DOOR UNLOCKED" comes on, and the green "PASS DOOR READY" lights are off.
18. Turn aircraft power off.
19. Disconnect the TEST SET from the door and aircraft and reconnect door connector P2MB to airframe connector J2MB.
20. Turn aircraft power on.
21. Normally close, latch and secure the Passenger Door. Check that cockpit "PASS DOOR READY" light is on and that "DOOR NOT READY" and "DOOR UNLOCKED" lights are off.
22. Open passenger door.

VI. TEST SET/SYSTEM OPERATING PROCEDURES: cont.

C. TROUBLESHOOTING:

1. Before troubleshooting system to a faulty switch, verify presence of 28vdc (red test jack) and ground (black test jack) on test set for suspected areas. Absence of signal indicates wiring between airframe connector J2MB and TB101, sta 330L, in question.
2. If Test set lamp annunciates *without* bringing up cockpit panel annunciators, wiring integrity between airframe connector J2MB and cockpit panel in question.
3. Fault Isolation with Test Set in circuit:

All TEST SET switches in NORMAL position. Passenger door closed and locked

COCKPIT INDICATION

To Isolate Fault

"DOOR UNLOCKED" is on

Check system with TEST SET,

TEST SET lamp will indicate door switch/latch at fault or not targeted.

No TEST SET lamp on, use steps VI.D.1 through 6 to find faulty door frame switch/latch.

"DOOR NOT READY" is on

Check system with TEST SET, Confirm faulty door internal handle prox switch or target.

"PASS DOOR READY" not on

Check for presence of 0.00 vdc or LO at test jack A.

If present, check airframe wiring between airframe connector J2MB and cockpit panel.

If not present, jumper test jack A to D. If cockpit lamp lights, rerig/repair door handle microswitches IAW maintenance manual.

4. Powered Door Systems;

Test jack access is provided to measure motor and clutch signals for aircraft with such system as delivered by Canadair. Completion center schematics should be checked for system/test set interface compatibility.

END.

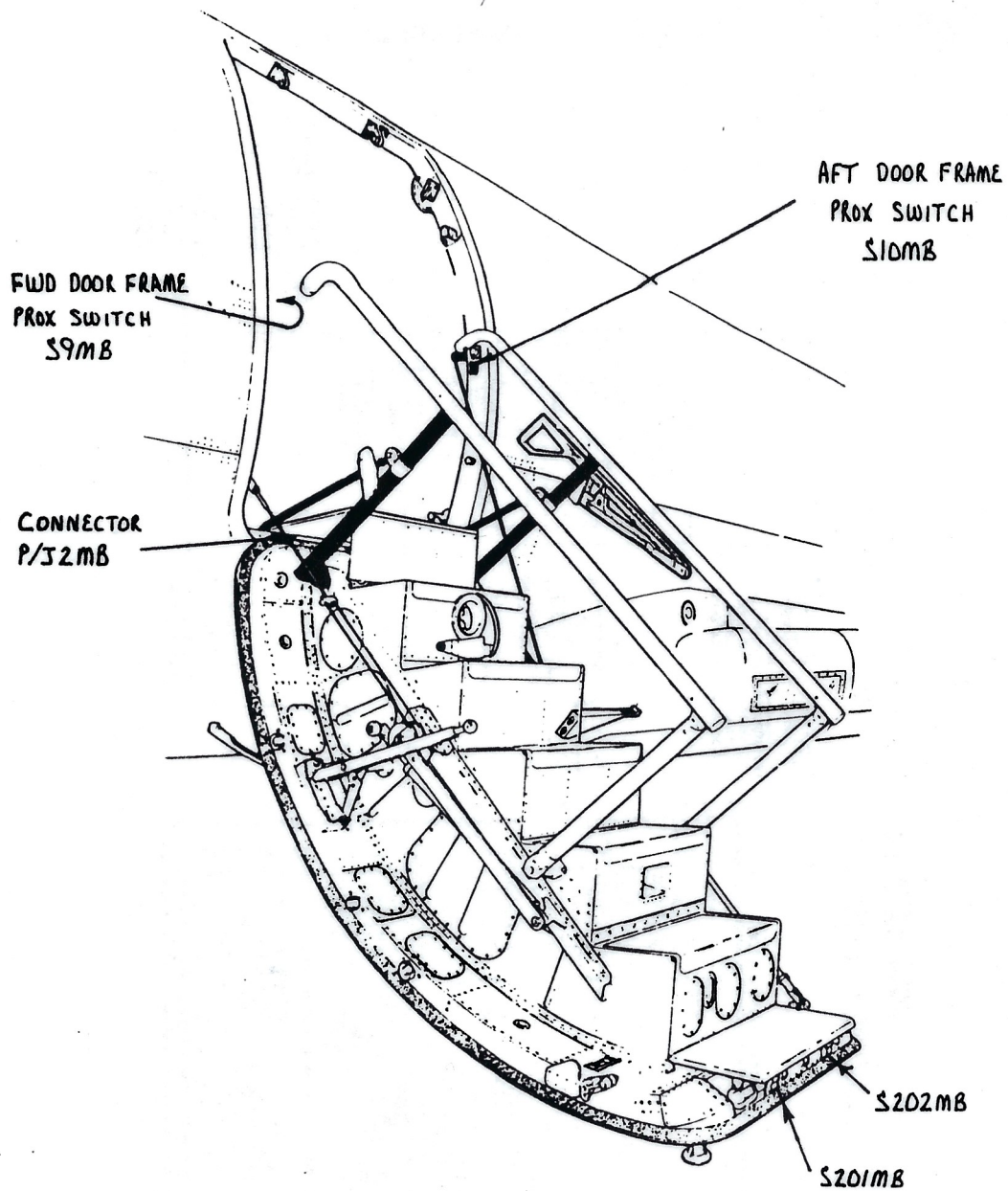
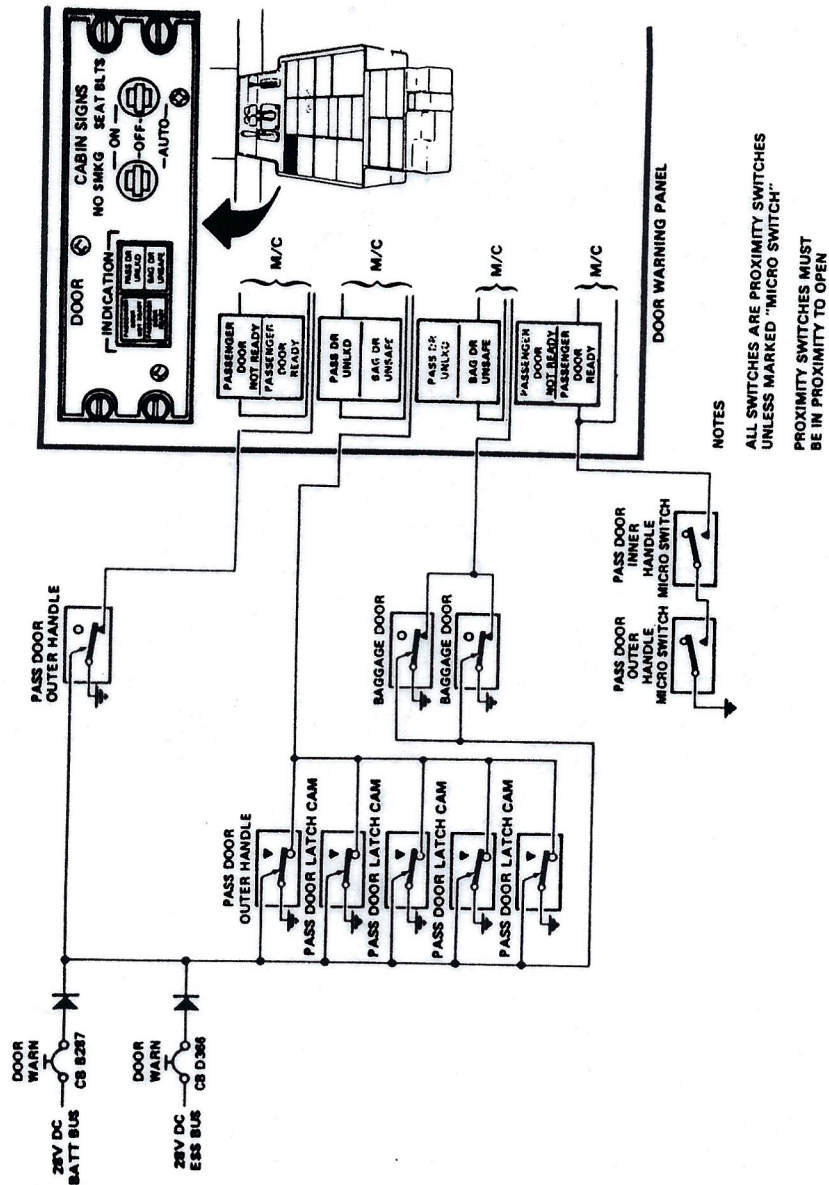


FIGURE 1.

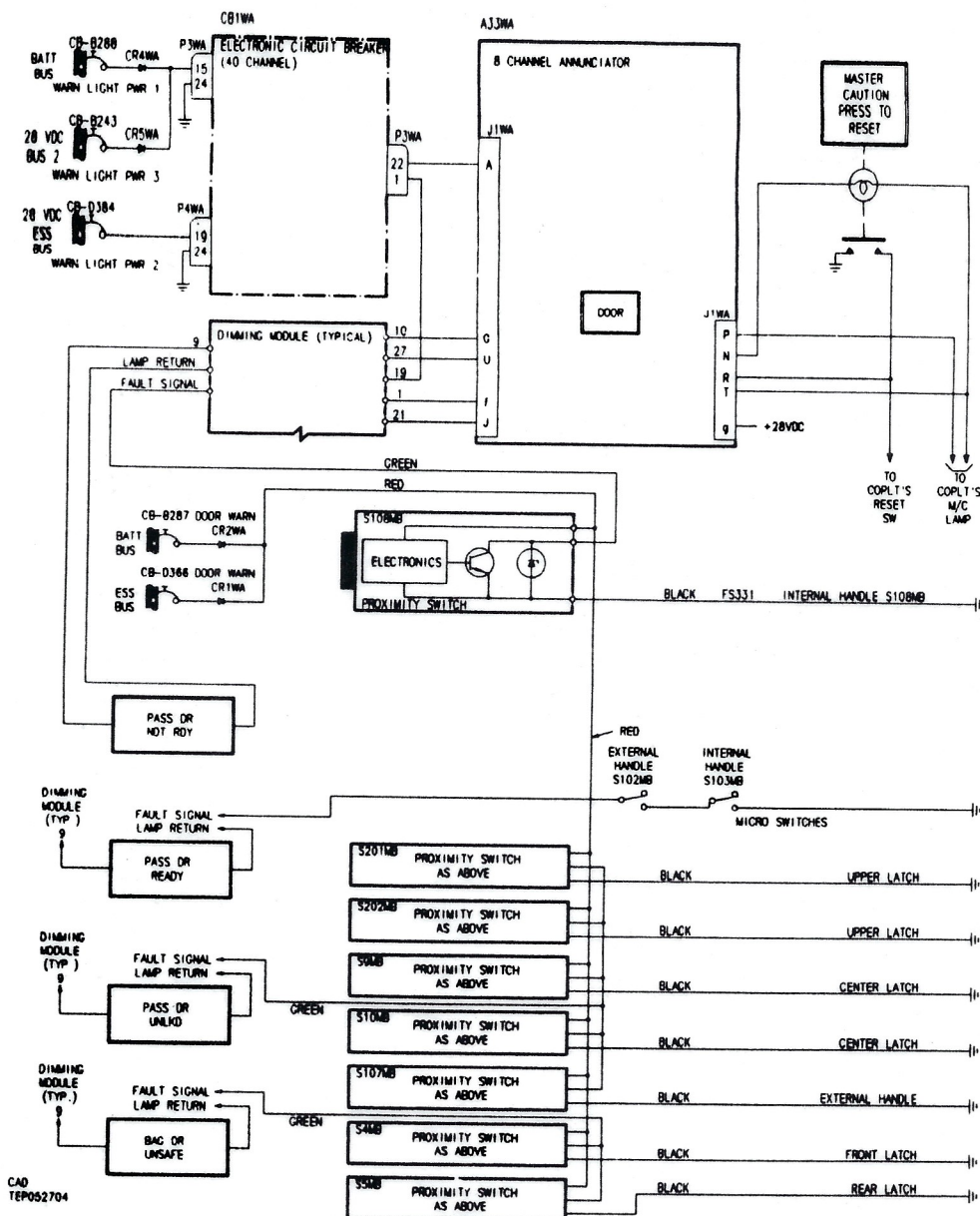
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DOOR WARNING - SCHEMATIC

FIG. 10

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Door Warning - Electrical Schematic  
Figure 2

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REFERENCE ONLY

