BOMBARDIER
AEROSPACE

canadair challenger

MULTI-SYSTEM BREAKOUT TEST SET

OPERATING GUIDE

CCSC3900-01-09NC

03-Jun-96

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C A U T I O N

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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This test set and operating guide is for GROUND MAINTENANCE USE.

DO NOT USE INFLIGHT.

Bombardier Aviation Services . 1 Bradley International Airport . Windsor Locks, CT 06096 . (860) 627-9491 . FAX (860)292-7350

BOMBARDIER AVIATION SERVICES BREAKOUT TEST SET OPERATING GUIDE

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

- This test set interfaces with its designated aircraft system for data monitoring and acquisition during ground maintenance.
- Connection of this test set to the aircraft system under test during ground maintenance is considered a minor alteration. Test set use, in accordance with its operating guide and the applicable CMM does not alter or modify the aircraft system configuration.
- Technicians should ensure ***only*** a calibrated/certified multimeter and test equipment is used to make measurements during CC Maintenance Manual directed Functional Tests.
- "TEST" and "SIMULATE" test set functions must not be used to certify an aircraft system in lieu of aircraft component signals as directed by the applicable CCMM procedures
- This test set interfaces with its designated aircraft system for data monitoring and acquisition during GROUND MAINTENANCE and is NOT FOR INFLIGHT USE.
- It is the responsibility of the aircraft's owner/operator designated Director/Chief of Maintenance to ensure in-flight use of this test set is in accordance with all applicable regulatory authority rules under which the aircraft is registered and operated
- The aircraft system ***must*** be operationally tested IAW applicable maintenance manual directives after the test set is removed and the system is returned to the normal electrical configuration.
- This test set does not require annual or periodic inspection. It is recommended by Bombardier Business Aviation Services, Avionics Fabrication, that a periodic inspection and recertification, on a periodic cycle established by the owner/user of the test set. This is 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.

- Periodic inspection, computerized circuitry testing and repair is available from;

BOMBARDIER BUSINESS AVIATION SERVICES
Hartford Service Center
Avionics Fabrication
1 Bradley International Airport
Windsor Locks, CT 06096
phone: 860-627-9491, ext 7292
fax: 860-292-7380
email: bill.bowen@learjet.com

C O N T E N T S:

I. TEST SET FEATURES:

The Canadair Multi System Breakout Test Set is capable of system interfacing, for measurements and/or fault isolation, between units and any aircraft circuitry using dual 106 pin or dual 67 pin connectors, such as;

a. CL600 & CL601 Auto Pilot computer.

b. CL600 & CL601 Stabilty Augmentation computer.

c. CL600 & CL601 Flight Director computer.

d. CL600, CL601 & CL601-3A Air Data computer.

e. CL60X, a/c 1035 & subs Master Caution

II. 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. Digital multimeter - Capable of measuring: voltage, 0-300 vdc & vac; resistance; current, AC & DC, 0-10 amps.

b. Analog (meter type) multimeter, example Simpson 260.

III. BREAKOUT TEST SET TECHNICAL SUPPORT

If you should have questions regarding this or any other CCSC Breakout test set,

OR

If you would like to arrange for OJT Training in the use of CCSC Breakout Test Sets at your facility,contact:

BOMBARDIER AVIATION SERVICES, HARTFORD
AVIONICS FABRICATION
Bradley International Airport
Windsor Locks, CT 06096

phone (860)627-9491, fax (860)292-7350

IV. PRECAUTIONS:

When using this or any multi-system breakout test set, knowledge of electrical/electronic systems is required. Failure to follow proper testing and troubleshooting procedures may result in injury to personnel and/or damage to equipment.

a. DO NOT USE TEST SET IN FLIGHT.

b. DO NOT connect or disconnect BOB to/from system with power applied.

c. Check aircraft and BOB connectors for pushed and/or bent pins before connections are attempted.

d. Ensure equipment and personnel are clear of all aircraft moving surfaces prior to application of aircraft power and hydraulic systems.

e. Caution must be used when making electrical measurements. Hazardous voltages and currents may exist.

f. Care must be taken when any BOB jumper is removed or installed with aircraft systems on. Inadverdent or uncommanded movement may result.

g. DO NOT bypass "MURPHY PROOF" BOB connector keys.

Procedures for specific system testing capabilities of this unit is too detailed and expansive to provide. Canadair maintenance manual procedures MUST be used for testing and operation of desired system.

V. TECHNICAL REFERENCES:

a. Maint. Manual Chap. 6 for location of Access Panels

b. Maint. Manual Chap. 7 for Jacking of A/C

c. Maint. Manual Chap. 12 for application of aircraft power

d. Maint. Manual Chap. 22 for Auto Pilot system,
Stability Augmentation system,
Flight Director system.

e. Maint. Manual Chap. 31 for Master Caution System

VI. Notes:

a. Connector Polarity.

Each BOB connector and adapter has a "Murphy Proof" key plate attached. This is done to ensure test set labeling and wire routing is correct. Proper connection may be accomplished only one way. Do not remove these plates or force connections bypassing these precautions.

VII. NORMAL PROCEDURES:

1. INITIAL SYSTEM 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 of system operation.

a. Remove power from aircraft.

b. Remove unit under test from mount.

c. Configure test set connectors for proper size. Use supplied adapters to configure for dual 67 pin configuration.

d. Connect long test set cable to mount connector with "MURPHY KEY" UP.

e. Connect unit under test to short test set cable with " MURPHY KEY" DOWN.

f. Ensure all test set panel jumpers are securely in place.

g. The aircraft and system under test may now be operated normally and monitored on the test set.

The mini pomona plugs installed on the board of the Multi System Breakout Test Set are "shorting" type which provide signal continuation without system interruption. Use caution not to remove any link unless directed by Maint. Manual procedure, Avionics or Technical Support.

2. TESTING PROCEDURES

Configure test set jumpers and system cross wiring PRIOR to applying power to the system under test. It is recommended that ALL Links should neither be installed or removed from the test set *with power applied* to the system under test to monitor or limit current of a signal. Electronic alteration of the system under test will result from removing, installing or cross wiring the test set test points.

A thorough electronic working knowledge of the system under test and aircraft operation is highly recommended for use of this test set.

Provided in the Multi System Breakout Test Set's Accessory Kit are adapters to assist in testing and/or troubleshooting a system.

a. Meter Leads: These leads may me used with a digital or analog multimeter in the measurement of voltage (AC or DC), current or resistance.

b. Patch Cords: These may be used to cross wire between test points after shorting jumper plugs are removed.

c. L.E.D. Lamps with leads: These may be used to monitor a DC signal at a test point without removing connection shorting jumper plug. BLK lead to a system ground test point, RED to the test point under test.

d. Fuse Holders with leads: 3AG fuse cartridges required. These may be used instead of connection shorting jumper plug across test points to limit the current through that specific connection.

e. Diode Links: These may be used instead of connection shorting jumper plugs to isolate a signal's polarity. Observe correct bias of diode, Anode to Positive, Cathode to Negative.

f. "Open" Links, RED: These may be used instead of connection shorting jumper plugs to reconfigure a test set connection with a resistor, capacitor or other electronic device as selected by the Avionics/Technical Support direction.

g. Spare "Shorting" links, BLK