C A N A D A I R C H A L L E N G E R S E R V I C E C E N T E R

Procedure No. CCSC-7610-01-09

Rev. NC

O P E R A T I N G G U I D E

For Throttle Quadrant Breakout Box

P/N CCSC 7610-01 Mod Status NC

W A R N I N G ! .

To prevent possible damage to equipment

or injury to personnel,

familiarize yourself with these procedures

and the operation of the Throttle Quadrant.

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The CANADAIR Throttle Quadrant BREAKOUT BOX (or B.O.B.) p/n CCSC7610-01 provides many features to assist you in fully checking or troubleshooting a Throttle Quadrant System of CL600 and CL601 aircraft.

The main enhancements that this unit includes are as follows:

1. Ability to access various points in the throttle quadrant for both left and right throttle.

2. Provisions for:
   a. testing throttle takeoff configuration warning system switches
   b. testing throttle go-around switches
   c. testing throttle cabin pressurization switches
   d. testing throttle landing configuration warning system switches
   e. testing throttle engine overspeed protection override switches for CL600 A/C
   f. testing throttle thrust reverser idle deploy inhibit system
   g. testing throttle T/R lockout solenoid

Additional Support Tooling Required:

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

a. CL 600 Power Plant Rigging Kit
   Protractors, thrust reverser and throttle quadrant
   GSE-71-00-07

b. CL 601 Throttle Quadrant Protractor Kit
   GSE-71-00-20

c. Digital Multimeter

Precautions:

a. Do not connect/disconnect B.O.B. to/from system with power applied.

b. Check aircraft/B.O.B. connections for pushed/bent pins before connecting.

c. Consult applicable section of Maintenance Manual before attempting to simulate switch operations by jumpering contacts.

d. Use caution with partially connected jumpers. The case of the BOB is isolated, however, contact with a grounded BOB Frame may cause damage to sensitive aircraft instruments.

e. Ensure that thrust reverser levers are fully latched down before moving throttle levers away from idle either forward or into shutoff.

f. Do not force throttle against encountered resistance. Damage could result to friction mechanism.

g. Do not slam throttles to stops. Damage will result in stop pins.

References:

a. Maint. Manual Chap. 78-30 for Throttle Lock Solenoid.

b. Maint. Manual Chap. 27-60 for Flaps/Spoilers

c. Maint. Manual Chap. 76-20 for Engine Overspeed

d. Maint. Manual Chap. 21-30 for Cabin Pressurization

e. Maint. Manual Chap. 78-30 for Thrust Reverser

f. Maint. Manual Chap. 6 for Panels

Normal Procedures:

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

1. INITIAL SYSTEM SETUP

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

a. Connection of B.O.B.

1. Ensure all power is removed from A/C.

2. Ensure that all B.O.B. jumpers are removed.

3. Connect B.O.B. between connectors P18 and J18 of right throttle and P19 and J19 of left throttle. (Reference Panels on Center Pedestal.

b. Initial setup of B.O.B.:

1. With all jumpers removed, breakout box is in normal setup.

2. NORMAL OPERATION SEQUENCE

a. Set B.O.B. and aircraft system configuration as in Initial System Setup.

b. Consult switch function chart for switch position activation.

c. The system may now be operated from the cockpit normally, and monitored on the B.O.B.

THROTTLE QUADRANT
BASIC CHECKOUT SHEET

PIN	FUNCTION	TOLERANCE
V	Thrust Reverser PWR-28VDC Solenoid	W J18/J19 Disconnected, Solenoid approximately
U	Thrust Reverser ground Solenoid	45 OHMS
K (Switch Comm) - L (Switch N.O.)	Take-off Configuration	Shut Off - Opened Low Idle - Opened High Idle - Open-Closes Between High Idle & Max Power
M (Switch Comm) - N (Switch N.O.)	Flaps	Shut Off - Opened Low Idle - Opened High Idle - Opened Max Power - Closed
P (Switch N.O.) - R	Go around	Closed when Button pushed
S (Switch Comm) T (Switch N.O.)	Landing Gear Configuration (and Ground Spoilers)	Shut Off - Closed Low Idle - Closed High Idle - Closed Max Power - Opened
X (Switch Comm) Y (Switch N.O.) W (Switch N.C.)	Thrust Reverser	Set at Low Idle (N.O.) Deployed - Closed Stowed - Opened (N.C.) Deployed - Opened Stowed - Closed
a (Switch Comm) b (Switch N.O.) Z (Switch N.C.)	Thrust Reverser	Set at Low Idle (N.O.) Deployed - Closed Stowed - Opened (N.C.) Deployed - Opened Stowed - Closed

PIN	FUNCTION	TOLERANCE	
		N.O.	N.C.
c (Switch N.O.)	Engine Overspeed	Shut off-Opened	Closed
d (Switch Comm.)	CL600 Only	Low Idle-Closed	Opened
e (Switch N.C.)		High Idle-Closed	Opened
		Max Power-Closed	Opened
f (Switch Comm)	Cabin Pressurization	Shut Off-Opened	
g (Switch N.O.)		Low Idle-Opened	
		High Idle-Opened	
		Max Power-Closed	
h (Switch Comm)	Landing Gear Configuration	N.O.	N.C.
		Shut Off-Closed	Opened
j (Switch N.O.)		Low Idle-Closed	Opened
		High Idle-Closed	Opened
J (Switch N.C.)		Max Power-Opened	Closed

*Note - START EVERY CHECK AT SHUT-OFF POSITION AND ADVANCE FORWARD

3. TEST/RIG PROCEDURES - ON AIRCRAFT - AIRCRAFT POWER:

a. PERFORM INITIAL SYSTEM SETUP

NOTE: The following setup produces an ALTERED SYSTEM mode of operation.

b. Using jumpers, any switch of the throttle(s) may be simulated.

c. B.O.B. may be used in lieu of throttle quadrant, should quadrant be removed from aircraft, to activate aircraft circuits. Use Caution. Consult Maintenance Manual prior to activating circuits.

4. TEST/RIG PROCEDURES - OFF AIRCRAFT:

The B.O.B. may be used to check throttle switch continuity without the throttle installed on the aircraft.

a. Connect J18 and J19 of B.O.B. to P18 and P19 of throttle quadrant.

b. Check throttle circuits per basic check out sheet.