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PROCEDURE CHANGE: Thrust Reverser Breakout Test Sets
Models CCSC7830-01 and CCSC7830-02

The basic procedural change requires the installation of the Flexshaft Lock Manual Release block (referenced in Maint. Man.) B E F O R E the Test Set NORM-OFF-TEST/RIG switch is used in the OFF or TEST/RIG position.

The Test Set reconfigures the Thrust Reverser System when the NORM-OFF-TEST/RIG switch is positioned out of NORM. While this feature is a major time-saving aid for troubleshooting, this switch must never be selected out of NORM when air is supplied to the PDU, unless the Flexshaft Lock Manual Release block is installed.

FAILURE TO FOLLOW THESE REVISED PROCEDURES

MAY RESULT IN

REPLACEMENT OF THE POWER DRIVE UNIT.

This block is installed to prevent the Flexshaft Lock from returning to the LOCK position. This is crucial. In the following explanation referencing the attached Figure 3, the Thrust Reverser configuration is:

Test Set installed and selected to NORM mode
Aircraft electrical systems normal, ground or engine power
T/R armed
Engine air or shop air supplied
T/R is fully deployed, using aircraft deploy

The NORM-OFF-TEST/RIG mode on the Test Set, as well as any interruption of aircraft electrical power, causes a loss of power to the ARMING SOLENOID VALVE (1).

This allows the ARMING SOLENOID VALVE (1) to de-energize while supply air from the AIR INLET (2) is still being ported through the INLET VALVE POPPET (5) to the AIR MOTOR (6). The de-energized ARMING SOLENOID VALVE (1) removes the air supply from the FLEXSHAFT LOCK ACTUATOR (3), which re-engages the FLEXSHAFT LOCK - LOCK PIN (4).

Flexshaft Lock Control air (7) is shut off, immediately causing the DIRECTIONAL VALVE ACTUATOR (10) to return to the (default) STOW position.

A very brief period of time passes while the INLET VALVE POPPET (5) still open, porting the main air supply to the AIR MOTOR (6), which rotates towards the STOW direction (regardless of the electrical command present at the LATCHING/DEPLOY SOLENOID VALVE (12) to STOW or DEPLOY).

The SPUR GEARBOX (11) couples the AIR MOTOR (6) rotation to the FLEXSHAFT LOCK - LOCK CAM (8), causing the LOCK CAM (8) to be driven against the FLEXSHAFT LOCK - LOCK PIN (4).

At this point, the INLET VALVE POPPET (5) has fully closed, shutting off the air source to the AIR MOTOR (6).

This is how the PDU gets jammed. Once the AIR MOTOR (6) has driven the LOCK CAM (8) against the LOCK PIN (4), the LOCK PIN (4) cannot be moved (reference figure 4) by pulling on the MANUAL RELEASE knob (9) or by electrically operating the ARMING SOLENOID VALVE (1). If the FLEXSHAFT LOCK (3) cannot be manually or electrically operated, control air (7) cannot pass through to open the INLET VALVE POPPET (5), which prevents air from reaching the PDU's AIR MOTOR (6). Lack of control air (7) to the LATCHING/DEPLOY SOLENOID VALVE (12) also causes the DIRECTIONAL VALVE ACTUATOR (10) to remain in the STOW configuration. Once jammed, the PDU remains jammed.

Installation of the Flexshaft Lock release block under the MANUAL RELEASE knob (9) prevents the LOCK PIN (4) from engaging the LOCK CAM (4), and passes the supply air through the FLEXSHAFT LOCK whenever the ARMING SOLENOID VALVE (1) is energized.

Operation of the ARMING SOLENOID VALVE (1) now delivers Control air (7) to:

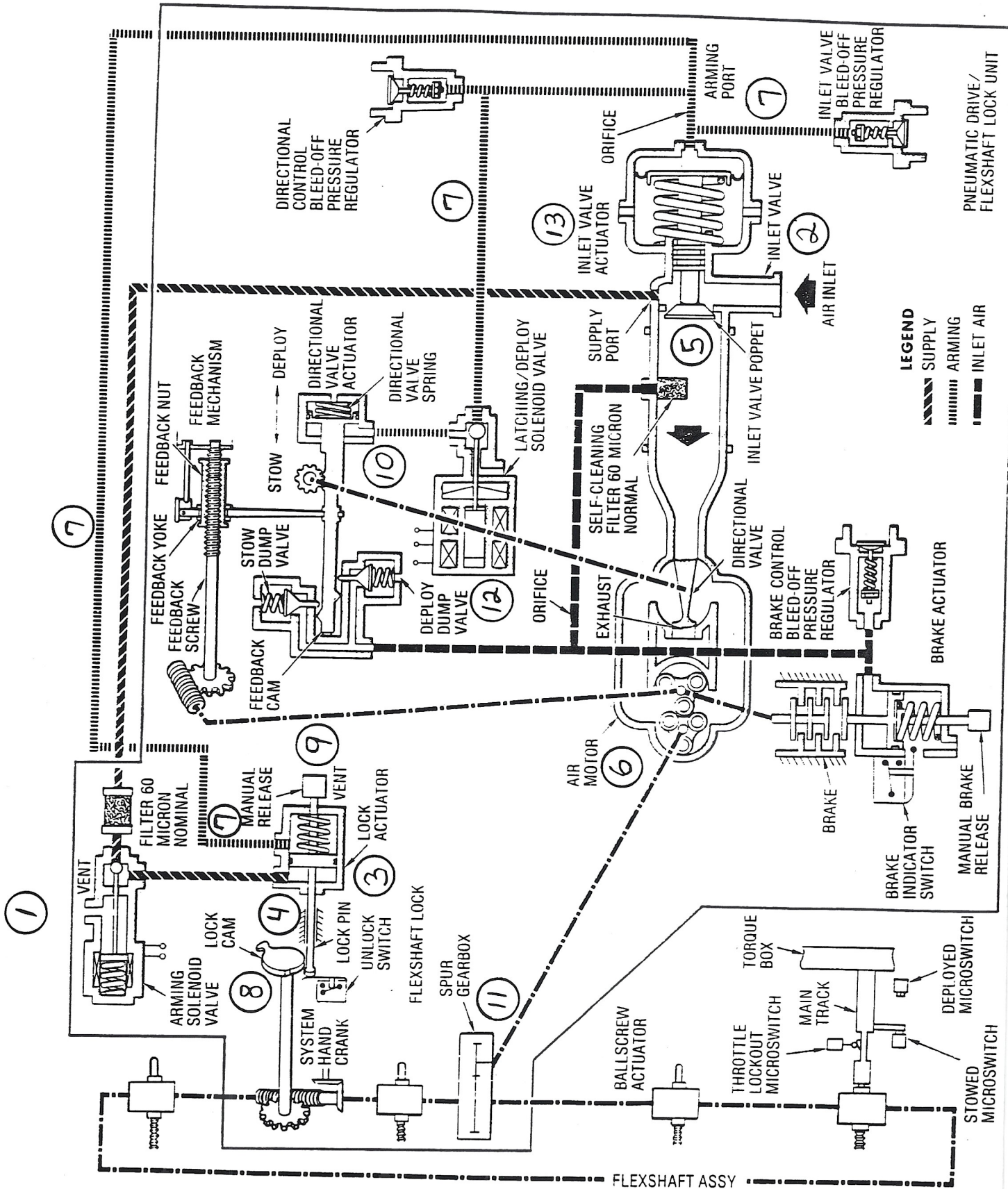
1. the LATCHING/DEPLOY SOLENOID VALVE (12) to allow response to the DEPLOY and STOW commands.
2. the INLET VALVE ACTUATOR (13) to operate the INLET VALVE POPPET (5), which ports air to the AIR MOTOR (6).

With the FLEXSHAFT LOCK - LOCK PIN (4) disengaged, the INLET VALVE POPPET (5) open, and the LATCHING/DEPLOY SOLENOID VALVE (12) operating, STOW and DEPLOY can be electrically commanded and stopped at any time, for rigging and operational checks.

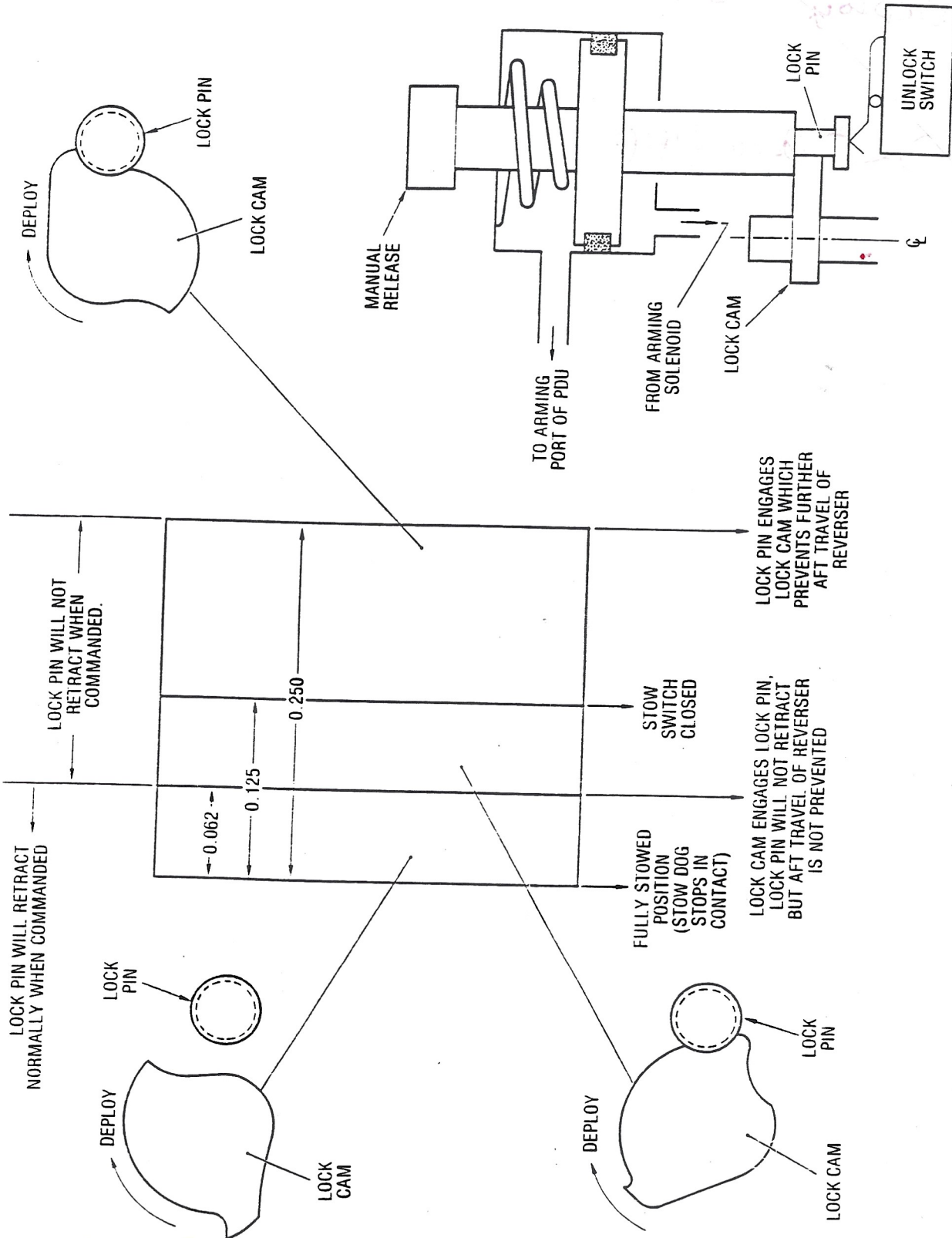
Whenever the Flexshaft Lock Manual release block is installed, the Flexshaft Lock Amber Light on the Test Set will be illuminated.

For manual operation, the PDU Brake release block must still be used.

When returning to the NORM operating mode of the Test Set, the Thrust Reverser must first be positioned to the FULLY STOWED position while the Test Set is still in the TEST/RIG mode. The Test Set must then be placed in the NORM position. The Flexshaft Lock release block can then be removed.



Thrust Reverser Operation - Schematic
Figure 3



Thrust Reverser Operation - Flexshaft
Lock Schematic
Figure 4