(4) Pull pneumatic drive unit (PDU) brake actuator manual release (5) and install PDU brake actuator manual release fixture (4)(refer to paragraph 1.A.). Check that REVERSER UNLOCKED legend comes on.

(5) Without pulling flexshaft lock manual release, use a speed handle in flexshaft lock drive spigot (3)(refer to paragraph 1.A.) and crank thrust reverser in deploy direction until arming and stow solenoids are simultaneously heard to operate.

(6) Attempt to release flexshaft lock manual release (2). Flexshaft lock must not unlock.

(7) Manually crank thrust reverser to stowed position and remove release fixture (4) installed in step (4). Check that REVERSER UNLOCKED legend goes out.

(8) Pull PDU brake actuator manual release (5) and install PDU brake actuator manual release fixture (4). Check that REVERSER UNLOCKED legend comes one.

NOTE: REVERSER UNLOCKED legend remains on for steps (8) to (14).

(9) Pull flexshaft lock manual release (2) and install flexshaft lock manual release fixture (1).

CAUTION: MANUAL RELEASE BLOCKS COULD CREATE F.O.D. TO THE ENGINE IF LOWER COWL DOOR IS NOT CLOSED DURING RUN-UP.

(10) Close and secure power plant lower access cowl door (refer to Chapter 71).

(11) Start left (right) engine (refer to Chapter 71).

NOTE: As throttle lever is advanced, thrust reverser starts to deploy until stow switch closes. Auto stow function takes place. Cycling movement of thrust reverser between deploying and stowed (approximately 0.250 inch travel at a frequency of 1 to 2 cycles per second) will be noticeable as aircraft starts to buffet.

WARNING: IF THRUST REVERSER WERE TO DEPLOY MORE THAN 0.250 INCH, FEEDBACK MECHANISM WILL OPERATE. THROTTLE LEVER IS DRIVEN RAPIDLY REARWARD AND COULD CAUSE INJURY OR DAMAGE. ENSURE THAT AREA TO REAR OF THROTTLE LEVER IS CLEAR OF ALL OBJECTS, PARTICULARLY PARTS OF THE BODY.

(12) Slowly advance left (right) throttle lever until maximum power of the day is achieved (refer to Chapter 71). Ensure that thrust reverser does not deploy. Hold throttle lever in maximum power position of the day for maximum of 10 seconds and then set throttle lever to LOW IDLE.

NOTE: Thrust reverser cycling may stop when approaching maximum power. This condition is normal.

(13) Shutdown engine (refer to Chapter 71).

(14) Open and secure power plant lower access cowl door (refer to Chapter 71).

(15) Remove fixtures installed in steps (8) and (9) then check that REVERSER UNLOCKED legend goes out.

(16) Close and secure power plant lower access cowl door (refer to Chapter 71).

(17) Carry out thrust reverser normal cycle (refer to Chapter 71).

C. Thrust Reverser/Wheel Spin-Up Test (Aircraft post SB 600-0334)

Equipment and Material

Wheel spin up simulator, GSE Ref. No. 32-10-20 (refer to ILLUSTRATED TOOL AND EQUIPMENT MANUAL)

CAUTION: ENSURE THAT THRUST REVERSER LEVERS ARE FULLY LATCHED DOWN BEFORE MOVING THROTTLE LEVERS AWAY FROM LOW IDLE EITHER FORWARD OR INTO SHUT OFF. FAILURE TO DO SO COULD DAMAGE THE LOCKING MECHANISM.

ENSURE THAT WHEEL SPEED SENSOR IS NOT BINDING.

MOTOR SPEED MUST NOT EXCEED 3000 RPM.

(1) Observe thrust reverser safety precautions (refer to THRUST REVERSER - MAINTENANCE PRACTICES).

(2) Remove wheel discs and speed sensor drive cap from inboard and outboard wheels of left and right main landing gear (refer to Chapter 32, MAIN WHEEL - MAINTENANCE PRACTICES). Line up wheel spin-up simulator drive pin with drive shaft of left inboard wheel speed sensor. Secure motor flange to wheel with three screws.

(3) Set power switch on simulator to OFF and connect simulator to 115 volts, 60 Hz power source.

(4) Set controls on simulator motor controller as follows:

TORQUE	- maximum of 2 IN-OZ
SPEED	- MIN
DIRECTION	- FWD
METER	- RPM
POWER	- OFF

(5) Apply external ground air supply (refer to Chapter 12).

(6) Ensure the L and R ENGINE START and IGNITION A and B switch/lights are pressed out.

(7) Open and tag engine ignition control and engine start control system circuit breakers (refer to Chapter 24).

(8) Ensure that all FUEL CONTROL switch/lights are pressed out.

(9) Press in L ENG bleed air switch/light on BLEED AIR control panel and check that BLEED CLOSED legend goes out.

(10) On RESERVE THRUST Panel, press in LEFT PUSH TO ARM switch/light and check that ARMED legend comes on.

(11) Open and tag WOW CH 1, WOW CH 2, WOW CHAN 1 and WOW CHAN 2 circuit breakers (refer to Chapter 24).

(12) Set both throttle levers to LO IDLE.

(13) Set left thrust reverser lever to deploy position and ensure that left thrust reverser does not deploy.

CAUTION: THRUST REVERSER WILL DEPLOY DURING STEP (14) WHILE INCREASING SPEED.

(14) Set POWER control on simulator motor controller to ON and increase SPEED control to 2000 rpm. Check that left thrust reverser deploys.

(15) On circuit breaker panel A, open and tag ANTI-SKID INBD circuit breaker and check that thrust reverser remains deployed. Close circuit breaker.

(16) On circuit breaker panel B, open and tag ANTI-SKID INBD circuit breaker and check that thrust reverser remains deployed. Close circuit breaker.

CAUTION: THRUST REVERSER STOWS AT 1057 RPM.

(17) Decrease simulator speed to 0 rpm and check that left thrust reverser stows.

(18) Press in and hold ANTI-SKID TEST button (refer to Chapter 32, ANTI-SKID SYSTEM - SELF TEST), check that it has no effect on thrust reversers and then release test button.

(19) Set left thrust reverse lever to stow position.

(20) Press out L ENG bleed air switch/light on BLEED AIR control panel and check that BLEED CLOSED legend comes on.

(21) Press out POWER switch on simulator motor controller, remove three screws securing motor flange to wheel and disengage simulator drive pin from drive shaft of wheel speed sensor.

(22) Install wheel speed sensor on right inboard wheel (refer to steps (2) and (3).

(23) Repeat steps (9) to (21) on right inboard wheel and use RV on simulator direction.

(24) On REVERSE THRUST panel, press out LEFT PUSH TO ARM switch/light and check that ARMED legend goes out.

(25) Install wheel speed sensor on left outboard wheel (refer to steps (21) and (3).

(26) Set controls on simulator motor controller as follows:

TORQUE	- maximum of 2 IN-OZ
SPEED	- MIN
DIRECTION	- RV
METER	- RPM
POWER	- OFF

(27) On REVERSE THRUST panel, press in RIGHT PUSH TO ARM switch/light and check that ARMED legend comes on.

(28) Press in R ENG bleed air and ISOL OPEN valve switch/lights on BLEED AIR control panel. Check that BLEED CLOSED legend goes out and ISOL OPEN legend comes on.

(29) Ensure that right throttle lever is at LO IDLE and right thrust reverse lever is at deploy position. Check that right thrust reverser does not deploy.

CAUTION: THRUST REVERSER DEPLOYS AT 1074 RPM.

(30) Set POWER control on simulator motor controller to On and increase SPEED control to 2000 rpm. Check that thrust reverser deploys.

(31) On circuit breaker panel A, open and tag ANTI-SKID OUTBD circuit breaker (refer to Chapter 24) and check that thrust reverser remains deployed. Close circuit breaker.

(32) On circuit breaker panel B, open and tag ANTI-SKID OUTBD circuit breaker (refer to Chapter 24) and check that thrust reverser remains deployed. Close circuit breaker.

CAUTION: THRUST REVERSER STOWS AT 1057 RPM.

(33) Decrease simulator speed to 0 rpm and check that right thrust reverser stows.

(34) Press in ANTI-SKID TEST button (refer to Chapter 32) and check that it has no effect on thrust reversers.

(35) Set right thrust reverser lever to stow position.

(36) Press out R ENG bleed air and ISOL OPEN valve switch/lights on BLEED AIR control panel; check that BLEED CLOSED legend comes on and ISOL OPEN legend goes out.

(37) Repeat step (21).

(38) Install wheel speed sensor on right outboard wheel (refer to steps (2) and (3).

(39) Repeat steps (26) to (37) on right outboard wheel and use FWD on simulator direction.

(40) Set left and right throttle lever to SHUT OFF.

(41) On RESERVE THRUST panel press out RIGHT PUSH TO ARM switch/light and check that ARM legend goes out.

(42) Close engine ignition control and engine start control system circuit breakers (refer to Chapter 24).

(43) Close WOW CH 1, WOW CH2, WOW CHAN 1 and WOW CHAN 2 circuit breakers (refer to Chapter 24).

(44) Remove external ground air supply (refer to Chapter 12).

(45) Install drive cap and disc on inboard and outboard wheels (refer to Chapter 32).

D. Thrust Reverser Operational Check

(1) Perform a thrust reverser operational check (refer to Chapter 71).

(8) Disconnect pneumatic lines (17), (18) and (24). Install protective covers.

(9) Remove bolts (19), washers (20) and release flexshafts (7) from PDU (11). Install protective covers.

(10) Remove screws (8) and washers (7) to free flexshaft lock from thrust reverser bulkhead or flexshaft (3) will be kinked during removal.

(11) Remove nut, washer, screw and clamp to release flexshaft (3) from thrust reverser bulkhead.

(12) Remove bolts (19) and washers (20) and release flexshafts (3) from left side of PDU (21) and from left side of flexshaft lock.

(13) Remove nuts (13), washers (14) and bolts (16) and remove PDU (21) and attached flexshaft from fixed support assembly (15).

B. Transfer Parts

Equipment and Material

Lubricant, MIL-G-4343

(1) Remove fitting (25) and preformed packing (26) from PDU (21). Discard preformed packing.

(2) Lubricate new preformed packing (26) and install on fitting (25). Install fitting (25).

(3) Remove bolts (19) and washers (20) and remove flexshaft (3) from right drive socket of PDU (21).

(4) Install flexshaft (3) on right drive socket of new PDU (21) and secure with bolts (19) and washers (20) (refer to FLEXSHAFTS - MAINTENANCE PRACTICES).

C. Install PDU in the Fully Deployed Position (Figure 201)

CAUTION: NEVER OPERATE THE THRUST REVERSER WHEN THE PDU IS OUT-OF RIG, AS DAMAGE OR MALFUNCTION CAN OCCUR.

NOTE: Refer to paragraph 1., GENERAL, before proceeding to following steps.

(1) Install flexshaft lock release block (10).

(2) Using flexshaft lock drive spigot (2), crank thrust reverser to fully deployed position until it bottoms on mechanical stop, then back 2-1/2 to 2-3/4 turns toward stow position.

(3) Remove bolts (8) and washers (7) securing flexshaft lock assembly (9).

(4) Install pneumatic drive unit (PDU) (21) to fixed support assembly (15) with bolts (16), washers (14) and nuts (13). Torque nuts to 50 to 70 pound-inches.

(5) Remove deployed tag and brake tag wire.

(6) Remove protective covers from all open ports.

(7) Connect flexshafts (3) to right drive socket of PDU (21) and to left drive socket of flexshaft lock. Secure with bolts (19) and washers (20) (refer to FLEXSHAFTS - MAINTENANCE PRACTICES).

(8) Connect flexshaft (4) to left drive socket of PDU (21). Secure with bolts (19) and washers (20) (refer to FLEXSHAFTS - MAINTENANCE PRACTICES).

(9) Connect and torque pneumatic lines (17), (18) and (24) (refer to Chapter 20).

(10) Remove protective covers, connect and lockwire electrical connectors (22) and (23).

(11) Install the PDU brake manual release block (5).

CAUTION: STOP CRANKING WHEN DCV WINDOW GAP IS ABOUT TO CLOSE AS THIS INDICATES THAT THE PDU IS ABOUT TO BOTTOM INTERNALLY AT MAXIMUM TRAVEL. CRANKING AFTER INTERNAL STOP IS FELT WILL CAUSE INTERNAL DAMAGE TO PDU.

NOTE: IF PDU STARTS TO BOTTOM BEFORE THRUST REVERSER DOES, PERFORM PDU RESETTING TO FULLY DEPLOYED POSITION AND REPEAT INSTALLATION PROCEDURES (REFER TO PARAGRAPH D.).

(12) Crank thrust reverser towards stow until it reaches fully stowed position, while paying close attention to Directional Control Valve window.

(13) Perform PDU and flexshaft lock rigging check (refer to paragraph 4.A.).

(14) Perform ballscrew actuator pre-loading (refer to paragraph 4.C.).

(15) Remove tags and close THRUST REV 1 and THRUST REV AUTO STOW 1 and 2 circuit breakers. Apply external electrical power (refer to Chapter 12).

(16) Remove flexshaft lock release block (10) and PDU manual brake release block (5).

(17) On glareshield, verify REVERSER UNLOCKED light is extinguished.

(18) Pull manual brake release knob and verify REVERSER UNLOCKED light illuminates. Release manual brake release knob and verify REVERSER UNLOCKED light is extinguished.

(19) Pull flexshaft lock release knob and verify REVERSER UNLOCKED light illuminates. Release flexshaft lock release knob and verify REVERSER UNLOCKED light is extinguished.

(20) Install bolts (8) and washers (7) securing flexshaft lock assembly (9).

(21) Carry out thrust reverser manual cranking load and pre-load check (refer to paragraph 4.D.).

(22) Carry out thrust reverser auto stow functional test (refer to THRUST REVERSER - ADJUSTMENT/TEST).

D. Reset PDU to the Fully Deployed Position

CAUTION: DO NOT CONNECT FLEX DRIVE SHAFTS (4) AND (3) ON PDU OTHERWISE DAMAGE, BINDING OR MALFUNCTION CAN OCCUR.

NOTE: This procedure should be complied with only if PDU Directional Control Valve window is not known and that PDU is intended to be installed at fully deployed thrust reverser position.

(1) Install pneumatic drive unit (PDU) (21) to fixed support assembly (15) with bolts (16), washers (14) and nuts (13). Torque nuts to 50 to 70 pound-inches.

(2) Connect and torque pneumatic lines (17), (18) and (24) (refer to Chapter 20).

NOTE: Do not install line (17) if direct air supply to PDU is going to be connected.

(3) Remove protective covers, connect and lockwire electrical connectors (22) and (23) (refer to Chapter 20).

(4) Ensure that flexshaft lock release knob (1) is free to extend and retract and then install flexshaft lock release block (10).

(5) If shop air is available, connect shop air adapter to either PDU or ground air supply. Otherwise, use APU or engine bleed air.

(6) Apply external electrical power (refer to Chapter 12).

(7) Slowly bring shop air up to 45 psi. If you are using ground air supply or APU or engine bleed, open engine bleed air in cockpit.

NOTE: PDU will automatically actuate to maximum stow if stow switch is not at the fully stowed position. PDU maximum stow position is indicated by a fully closed directional control valve window.

(8) Check that PDU operates and Directional Control Valve window is fully closed. If not, press emergency stow switch to actuate PDU to maximum stow and reset.

(9) Arm thrust reverser.

(10) Pull thrust reverser lever to deploy and check that PDU operates and Directional Control Valve gap is fully open.

CAUTION: ENSURE THAT AIR SUPPLY IS CLOSED BEFORE REMOVING EXTERNAL ELECTRICAL POWER. OTHERWISE, PDU WILL MOMENTARILY ACTUATE TOWARDS STOW.

(11) Close air supply.

(12) Remove external electrical power (refer to Chapter 12).

E. Install PDU at Fully Stowed Position

CAUTION: NEVER OPERATE THRUST REVERSER WHEN PDU IS OUT-OF RIG, AS DAMAGE OR MALFUNCTION CAN OCCUR.

NOTE: Refer to paragraph 1., GENERAL, before proceeding to following steps.

(1) Install flexshaft lock release block (10) and crank thrust reverser towards deploy to gain access to flexshaft lock assembly mounting bolts.

(2) Remove bolts (8) and washers (7) securing flexshaft lock assembly (9).

(3) Remove flexshaft (3) from flexshaft lock assembly (9).

(4) Verify that PDU Directional Control Valve window gap is approximately .090 (refer to detail B).

NOTE: This measurement is going to be altered in later steps, therefore, out-of-limit measurement is not critical provided the reference measurement point is established.

(5) Install flexshaft (3) to the PDU.