

RAM AIR TURBINE CHECK

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CHECK BEING PERFORMED: Cust

W/C NUMBER: 515F2901 (continued)

MECH: INSP:

3 PERFORM RAM AIR TURBINE DEPLOYMENT TEST, SPIN-UP TEST, RESTOW,
AUTO-DEPLOY CIRCUIT TEST, AUTO RESET CIRCUIT TEST, AND SQUIB
ACTUATOR CIRCUIT TEST AS FOLLOWS:

A RAM AIR TURBINE DEPLOYMENT TEST (GROUND TEST PANEL)

NOTE: THE RAM AIR TURBINE MUST BE INITIALLY STOWED AND THE
UPLOCK INDICATOR INDICATE A FULLY LOCKED CONDITION.
IF THE AIRCRAFT IS ON JACKS, AN ON-GROUND CONDITION
MUST BE ESTABLISHED AT MLG AIR/GROUND PROXIMITY
SENSORS BY USING THE APPROPRIATE TARGET SET.

XXXXX 1 ON PILOT'S OVERHEAD CB PANEL CB1, ZONE 210, OPEN AND TAG
CB "RAT MAN DEPLOY" (B14) AND CB "THRUST REV ENG 2"
(H17). VERIFY THAT CB "RAT AUTO-DEPLOY" (L3) AND "IND
LT RAT" (H10) OR (G10) ON CB3 PANEL ARE CLOSED.

XXXXX 2 OPEN HYDRAULIC SERVICE CENTER ACCESS DOOR 147AB AND GAIN
ACCESS TO THE RAT UPLOCK ACTUATOR (FORWARD OF HYDRAULIC
SERVICE PANEL).

XXXXX 3 DISCONNECT SQUIB ACTUATOR ELECTRICAL CONNECTOR AND PLACE
PLASTIC CAP ON RECEPTACLE.

XXXXX 4 TURN ON ELECTRICAL POWER (REF 24-41-00).

XXXXX 5 REMOVE RAM AIR TURBINE GROUND SAFETY LOCK FROM RAT DOORS.

WARNING: RAT DEPLOYMENT OCCURS WITH EXPLOSIVE SPEED.
ENSURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF
RAT DOORS AND DEPLOYMENT PATH. DO NOT STAND
DIRECTLY AFT OF RAT DOOR AREA WHEN ACTUATING
DEPLOYMENT SWITCH.

XXXXX 6 ON THE RAM AIR TURBINE GROUND TEST PANEL BELOW HYDRAULIC
SERVICE PANEL, ZONE 147, PLACE SWITCH TO "DEPLOY"
AND VERIFY THE FOLLOWING:

A RAT DOORS OPEN SMOOTHLY WITH NO BINDING OR
INTERFERENCE AND RAT DEPLOYS FULLY TO THE
DOWN AND LOCKED POSITION.

B THE PILOT'S CAUTION AND WARNING ANNUNCIATOR LIGHT
"RAT DEPLOYED" COMES ON.

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- | C THE "UNLOCKED LEGEND ON FLIGHT ENGINEER'S RAM AIR
| TURBINE SWITCH-LIGHT, ZONE 215, COMES ON.
- | B RAM AIR TURBINE SPIN-UP TEST
- | _____ XXXXX 1 PRIOR TO ACCOMPLISHING THE SPIN-UP TEST, CHECK THE RAT
| HUB ASSEMBLY FOR EXCESSIVE END FLOAT, FORE AND AFT
| MOVEMENT. NORMAL FLOAT IS LESS THAN 0.010 INCHES.
| IF EXCESSIVE, REMOVE RAT FOR REPAIR.
- | _____ XXXXX 2 INSPECT RAT DOOR MECHANISMS (DEVICES, RODS, RETAINERS,
| PINS, TRUNNION, AND ATTACH FITTINGS) FOR SECURITY,
| CRACKS, DEFORMATION, AND GENERAL CONDITION. REPAIR
| FAULTS AS NECESSARY PRIOR TO THE SPIN-UP TEST.
- | _____ XXXXX 3 INSTALL THE RAT SAFETY CAGE AS FOLLOWS:
- | A INSTALL "DO NOT OPERATE" TAGS ON THE FLIGHT ENGINEERS
| HYDRAULIC PANEL
- | B REMOVE THE PUSHRODS CONNECTING THE RAT DOORS TO THE
| RAT STRUT
- | C REMOVE RAT DOOR CONNECT CLEVIS FROM RAT STRUT
- | D REMOVE MOUNTING HARDWARE FROM FORE AND AFT RAT SAFETY
| CAGE ATTACH POINTS
- | E MANUALLY LIFT RAT SAFETY CAGE INTO PLACE SO THAT IT
| PUSHES RAT DOOR OUTWARD AGAINST FUSELAGE
- | F INSTALL MOUNTING HARDWARE AT RAT SAFETY CAGE AFT
| ATTACH POINT (REF FIGURE 1)
- | G PLACE MOUNTING CHANNEL BRACKET FROM FWD RAT SAFETY
| CAGE ATTACH POINT OVER AIRCRAFT STRUCTURE AT FWD END
| OF RAT COMPARTMENT AND TIGHTEN WINGNUT.
- | _____ XXXXX 4 ON THE RAM AIR-TURBINE GROUND TEST PANEL, DISCONNECT THE
| AIRCRAFT ELECTRICAL CONNECTOR AND ATTACH GROUND CHECK-OUT
| ELECTRICAL UNIT EQ 1233 ELECTRICAL CABLE CONNECTOR TO THE
| PANEL RECEPTACLE.
- | _____ XXXXX 5 VERIFY THAT LEFT AND RIGHT MLG PROXIMITY SENSORS SIMULATE
| AN ON-GROUND CONDITION IF AIRCRAFT IS ON JACKS.

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- | _____ XXXXX 11 DISCONNECT EQ 1233 ELECTRICAL CONNECTOR FROM RAT GROUND
| TEST PANEL AND RECONNECT AIRCRAFT ELECTRICAL HARNESS
| CONNECTOR TO PANEL RECEPTACLE.
- | _____ XXXXX 12 TURN OFF HYDRAULIC POWER AND TAG "DO NOT OPERATE".
- | _____ XXXXX 13 REMOVE RAT SAFETY CAGE.
- | C RAM AIR TURBINE RESTOW
- | _____ XXXXX 1 PRIOR TO RESTOWING, THE RAT SYSTEM SHOULD BE CHECKED
| FOR SECURITY OF THE DOOR RODS, FREEDOM OF MOVEMENT AND
| ADEQUATE LUBRICATION OF ALL HINGES, CLEVIS AND SWIVELS.
| LUBRICATE WITH MIL-L-7870 OIL.
- | _____ XXXXX 2 IF THE AIRCRAFT IS ON JACKS, SIMULATE AN ON-GROUND
| CONDITION AT NLG AND LEFT MLG PROXIMITY SENSORS BY USING
| THE APPROPRIATE TARGETS.
- | _____ XXXXX 3 ON RAM AIR TURBINE GROUND TEST PANEL BELOW HYDRAULIC
| SERVICE PANEL, LIFT GUARD AND POSITION SWITCH TO RESET.
| VERIFY THAT THE ENGAGED LIGHT COMES ON.
- | _____ XXXXX 4 ON THE TURBINE SUPPORT LEG TRUNNION, RIGHT SIDE, PULL
| OUT ON TURBINE DOWNLOCK PLUNGER AND SWING TURBINE FORWARD
| APPROXIMATELY 15 DEGREES.
- | _____ XXXXX 5 POSITION BLADES IN VERTICAL POSITION AND VERIFY THAT
| BLADE LOCK PLUNGER ENTERS BLADE LOCKING TAB ON AFT SIDE
| OF BLADE AND HUB.
- | _____ XXXXX 6 RESTOW RAT USING A FISH POLE HOIST AND STOWING SLING
| PER MM 29-21-10.
- | NOTE: LOCKING IS AUTOMATIC AND IS INDICATED AS
| UPLOCK ROLLER ENGAGES UPPER PART OF HOOK CAUSING
| IT TO SNAP INTO LOCKED POSITION WITH AN AUDIBLE
| CLICK.
- | NOTE: RAT MAY BE STOWED BY TWO MECHANICS PUSHING THE RAT
| INTO THE FUSELAGE AND ONE MECHANIC PULLING THE RAT
| INTO THE LOCK FROM ABOVE WHEN A HOIST AND SLING
| IS NOT AVAILABLE.

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- | _____ XXXXX 7 VERIFY THAT ASSEMBLY IS IN FULL UPLOCK POSITION BY
| DEPRESSING UPLOCK INDICATOR BUTTON. ZERO CLEARANCE
| BETWEEN UNDERSIDE OF BUTTON HEAD AND HOUSING INDICATES
| FULL UPLOCK POSITION.

- | _____ XXXXX 8 LOWER SWITCH GUARD RAM AIR TURBINE GROUND TEST SWITCH
| AND SAFETY WITH BREAKAWAY WIRE.

- | _____ XXXXX 9 INSTALL RAM AIR TURBINE GROUND SAFETY LOCK OVER RAT
| DOORS (REF 29-21-00).

- | _____ XXXXX 10 ON PILOT'S OVERHEAD CB PANEL CB1, CLOSE CB "THRUST
| REV ENG 2", (H17).

- | D AUTO-DEPLOY CIRCUIT TEST

- | _____ XXXXX 1 VERIFY THAT THE RAT SAFETY LOCK ASSEMBLY IS INSTALLED
| ACROSS RAT DOORS (REF. 29-21-00).

- | _____ XXXXX 2 DISCONNECT THE RAT SQUIB ELECTRICAL CONNECTOR (2921-P26)
| AND LATCH ACTUATOR CONNECTOR (2921-P27).

- | _____ XXXXX 3 INSTALL TEST LEADS FROM RAT CIRCUIT TEST BOX (TIC #2204)
| IN SQUIB CONNECTOR PINS 2, 3, 6 & 7 AND LATCH ACTUATOR
| CONNECTOR PINS 1, 3, & 4.

- | _____ XXXXX 4 DISCONNECT THE CAPTAIN'S AND FIRST OFFICER'S MACH AIR
| SPEED INDICATOR ELECTRICAL CONNECTORS AT THE INSTRUMENTS
| (J-2 PLUG).

- | _____ XXXXX 5 INSTALL JUMPER WIRE BETWEEN PINS 15 & 16 ON CAPTAIN'S
| MACH AIRSPEED CONNECTOR.

- | NOTE: THIS ESTABLISHES A GREATER THAN 100 KNOTS
| AIRSPEED INDICATION SIGNAL FOR TEST PURPOSES.

- | _____ XXXXX 6 ON THE PILOT'S OVERHEAD CB PANEL CB1, OPEN CB "RAT MAN
| DEPLOY" (B14) AND "THRUST REV ENG 2 (H17). VERIFY THAT
| THE FOLLOWING CIRCUIT BREAKERS ARE CLOSED:

- | A "IND LT RAT" (H10) OR ON CB3 PANEL (G-10)

- | B "RAT AUTO DEPLOY" (L3)

- | C "ENGINE-HP3 BLEED AIR"- ENG. 1,2,& 3 (E16, E17, &

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- | E18) .
- | D "LANDING GEAR-PROX SW PWR" -NR. 1 (L10) AND NR. 4
- | (L11)
- | E ON FLIGHT ENGINEER/SECOND OFFICER'S OVERHEAD CB
- | PANEL CB2, VERIFY THAT CB "MLG GND SENSE" (L8) IS
- | CLOSED.
- | _____ XXXXX 7 ON THE FLIGHT ENGINEER/ SECOND OFFICER'S HYDRAULIC SYSTEM
- | PANEL, VERIFY THAT THE PUMP S/O SWITCH LIGHTS ARE IN
- | "OFF" POSITION.
- | _____ XXXXX 8 IF APPLICABLE, VERIFY SUCT S/O SWITCHLIGHTS ARE IN "OFF"
- | POSITION.
- | NOTE: AIRCRAFT 194, 196 AND 198 ONLY, HAVE SUCTION
- | SHUTOFF SWITCHES. IF THE FOLLOWING TEST IS BEING
- | PERFORMED ON AN AIRCRAFT OTHER THAN 194, 196 OR
- | 198, THE STEPS THAT REFERENCE SUCTION SHUTOFF
- | SWITCHES MAY BE OMITTED.
- | _____ XXXXX 9 VERIFY THAT THE "B" AND "C" ATM SWITCHES ARE IN "OFF"
- | POSITION.
- | _____ XXXXX 10 ON THE PILOT'S OVERHEAD CB PANEL CB1, ZONE 210, OPEN
- | "ENGINE-HP3 BLEED AIR"- ENG 1 (E16) CB.
- | _____ XXXXX 11 IF THE AIRCRAFT IS ON THE GROUND, SIMULATE AND "IN-AIR"
- | CONDITION BY PULLING "MLG GROUND SENSE" (L8) CB ON CB2.
- | _____ XXXXX 12 VERIFY 28 VDC BETWEEN PINS 1 & 4 OF UNLOCK ACTUATOR AND
- | 0 VDC BETWEEN PINS 2 & 3 AND 6 & 7 OF SQUIB CONNECTOR.
- | _____ XXXXX 13 TEST AUTO DEPLOY CIRCUIT THROUGH HYDRAULIC PUMP SWITCH
- | CIRCUITS AS FOLLOWS: (CHECK VOLTAGE AT PINS 1&4 OF UN-
- | LOCK ACTUATOR)
- | A PLACE PUMP SHUTOFF SWITCH LIGHTS "A", "B", "C", "D"
- | IN THE "ON" OR DETENTED POSITION.
- | B IF APPLICABLE, PLACE "A" SUCTION SHUTOFF SWITCH
- | LIGHT AND CHECK FOR 28 VOLTS AT UNLATCH ACTUATOR
- | VOLTMETER.
- | C IF APPLICABLE, RELEASE "A" SUCTION SHUTOFF SWITCH

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- | LIGHT AND CHECK FOR 28 VOLTS AT UNLATCH ACTUATOR
| VOLTMETER.
- | D IF APPLICABLE, REPEAT STEPS B. AND C. FOR EACH OF
| THE REMAINING HYDRAULIC SUCTION SHUTOFF SWITCH-
| LIGHTS "A", "B", "C", AND "D" TO "ON" POSITION.
- | E RELEASE ALL PUMP SHUTOFF LIGHTS ON THE "OFF"
| POSITION.
- | F IF APPLICABLE, PLACE ALL SUCTION SWITCHLIGHTS "A",
| "B", "C", AND "D" TO "ON" POSITION.
- | G PLACE "A" PUMP SHUTOFF SWITCH LIGHT IN THE "ON" OR
| DETENTED POSITION AND CHECK FOR 0 VOLTS AT UNLATCH
| ACTUATOR VOLTMETER.
- | H RELEASE THE "A" PUMP SHUTOFF SWITCH LIGHT IN THE
| "ON" OR DETENTED POSITION AND CHECK FOR 28 VDC AT
| UNLATCH ACTUATOR VOLTMETER.
- | I REPEAT STEPS G. AND H. FOR EACH OF THE REMAINING
| PUMP SHUTOFF SWITCH LIGHTS "B", "C", AND "D".
- | J IF APPLICABLE, RELEASE ALL SUCTION SHUTOFF SWITCH
| SWITCH LIGHTS "A", "B", "C", AND "D".
- | K WITH BOTH ATM SWITCHES IN THE OFF POSITION, CHECK
| FOR 28 VOLTS AT UNLATCH ACTUATOR VOLTMETER.
- | L PLACE "B" ATM SWITCH TO "ON" POSITION AND CHECK FOR
| 0 VOLTS AT UNLATCH ACTUATOR VOLTMETER.
- | M RETURN "B" ATM TO "OFF" POSITION AND REPEAT TEST J.
| FOR "C" ATM.
- | N IF APPLICABLE, PLACE PUMP AND SUCTION SHUTOFF
| SWITCH LIGHTS "A", "B", "C", AND "D" TO THE NORMAL
| "ON" POSITION FOR FOLLOWING TESTS:
- | _____ XXXXX 14 TEST THE AUTO DEPLOY CIRCUIT THROUGH THE ENGINE N3 51%
| TACH RELAYS WHICH ARE ENERGIZED BY THE HP 3 BLEED AIR
| CBS ON THE PILOT'S OVERHEAD CB PANEL CB1. CLOSE THE
| FOLLOWING CBS: (1E10, 1E11, 1E12, 1E16, 1E17, 1E18) ON
| CB1 AND CHECK FOR VOLTAGE ON THE UNLATCH ACTUATOR VOLT-
| METER (PINS 1 & 4).

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- | A OPEN CB HP2 ENG 1 (E16) AND VERIFY NO VOLTAGE AT UNLATCH ACTUATOR VOLTMETER.
- | B CLOSE CB HP3 ENG 1 (E16) AND VERIFY 28 VOLTS DC AT UNLATCH VOLTMETER.
- | C OPEN CB HP3 ENG2 (E17) AND VERIFY NO VOLTAGE AT UNLATCH ACTUATOR VOLTMETER.
- | D CLOSE CB HP3 ENG2 (E17) AND VERIFY 28 VOLTS DC AT UNLATCH ACTUATOR VOLTMETER.
- | E OPEN CB HP3 ENG 3 (E18) AND VERIFY NO VOLTAGE AT UNLATCH ACTUATOR VOLTMETER.
- | F CLOSE CB HP3 ENG 3 (E18) AND VERIFY 28 VOLTS DFC AT UNLATCH ACTUATOR VOLTMETER.
- | _____ XXXXX 15 REMOVE THE TEST JUMPER INSTALLED ON THE CAPTAIN'S DISCONNECTED MACH AIR SPEED INDICATOR HARNESS (REF. STEP D. 5) AND VERIFY NO VOLTAGE AT UNLATCH ACTUATOR VOLTMETER.
- | _____ XXXXX 16 INSTALL THE TEST JUMPER ON THE CO-PILOT'S DISCONNECTED MACH AIR SPEED INDICATOR HARNESS (P-23) AND VERIFY 28 VOLTS DC AT THE RAT UNLATCH ACTUATOR VOLTMETER.
- | _____ XXXXX 17 REMOVE TEST JUMPER FROM CO-PILOT'S MACH AIR-SPEED INDICATOR HARNESS CONNECTOR AND RECONNECT TO INDICATOR.
- | _____ XXXXX 18 RECONNECT PILOT AND CO-PILOT MACH AIRSPEED INDICATOR HARNESS CONNECTORS, AND REINSTALL INDICATORS.
- | E AUTO RESET CIRCUIT TEST
- | _____ XXXXX 1 VERIFY THAT THE RAT SAFETY BAR IS INSTALLED ACROSS THE RAT DOORS.
- | _____ XXXXX 2 ON THE PILOT'S OVERHEAD CB PANEL CB1, OPEN THE CIRCUIT BREAKER "RAT MAN DEPLOY" (B14). VERIFY THAT CB "RAT AUTO DEPLOY" (L3) IS CLOSED.
- | _____ XXXXX 3 RESET CB (L8) ON CB2 OR IF THE AIRCRAFT IS ON JACKS, SIMULATE AN ON-GROUND CONDITION USING APPROPRIATE MLG PROXIMITY SENSOR TARGET SET.

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| | _____ | XXXXX | 4 | GAIN ACCESS TO THE FESC. ON THE AFT RIGHT SIDE,
LOCATE THE ENGINE OUT LIGHT (ARMED RELAY 7714-K1). |
| | _____ | XXXXX | 5 | REMOVE THE ARMED RELAY AND INSTALL JUMPER WIRE BETWEEN
PINS D1 & D2. |
| | _____ | XXXXX | 6 | VERIFY 28 VOLTS DC BETWEEN PINS 1 & 3 OF UNLOCK
ACTUATOR. |
| | _____ | XXXXX | 7 | SIMULATE AN IN-AIR CONDITION BY PULLING GROUND SENSE
CB (L8) ON CB2. |
| | _____ | XXXXX | 8 | VERIFY 0 VDC BETWEEN ACT PINS 1 & 3 AND SQUIB PINS 2-3
AND 6-7. |
| | _____ | XXXXX | 9 | REMOVE JUMP WIRE FROM THE ARMED RELAY SOCKET AND REIN-
STALL THE RELAY. |
| | _____ | XXXXX | 10 | CLOSE FESC ACCESS DOOR. |
| | | | F | SQUIB ACTUATOR CIRCUIT TEST |
| | _____ | XXXXX | 1 | ON PILOT'S OVERHEAD CB PANEL CB1, VERIFY THAT THE
FOLLOWING CBS ARE CLOSED: |
| | | | A | "RAT MAN DEPLOY" (B14) |
| | | | B | "LANDING GEAR-PROX SW PWR" NR. 1 (L10) AND NR. 4
(L11). |
| | _____ | XXXXX | 2 | CHECK THAT CB (L8) ON CB2 IS PULLED TO SIMULATE "IN-
AIR" CONDITION. |
| | _____ | XXXXX | 3 | ON FLIGHT ENGINEER'S HYDRAULIC SYSTEM PANEL, LIFT
GUARD ON "RAM AIR TURBINE" MOMENTARY SWITCH ; DEPRESS
SWITCH. |
| | _____ | XXXXX | 4 | VERIFY 28 VDC BETWEEN PINS 2 & 3 AND 6 & 7. RELEASE
SWITCH. |
| | _____ | XXXXX | 5 | ESTABLISH AN ON-GROUND CONDITION BY RESETTING GROUND
SENSE CB (L8) ON CB2. |
| | _____ | XXXXX | 6 | DEPRESS "RAM AIR TURBINE" SWITCH AGAIN AND VERIFY 0
VDC BETWEEN PINS 2 & 3 AND BETWEEN 6 & 7. |

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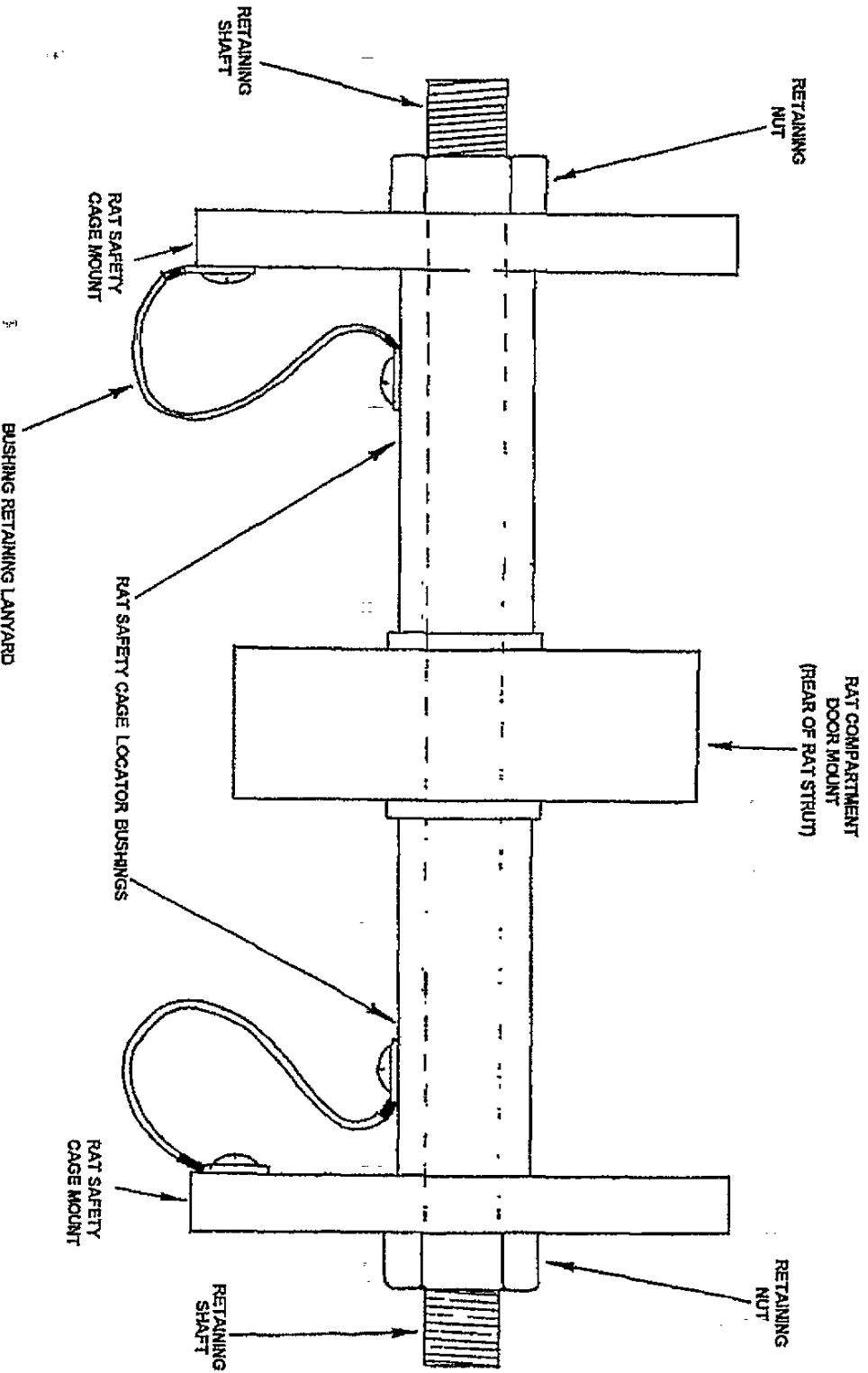
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- | ____ XXXXX 7 RELEASE SWITCH.
 - | ____ XXXXX 8 REMOVE TEST BOX.
 - | ____ XXXXX 9 RECONNECT RAT UPLOCK ACTUATOR AND SQUIB ACTUATOR
| HARNESS CONNECTOR SAFETY CONNECTORS.
 - | ____ XXXXX 10 CLOSE AND LOCK HYDRAULIC SERVICE CENTER DOOR.
 - | ____ XXXXX 11 REMOVE ELECTRICAL POWER IF NOT NEEDED.
 - | ____ XXXXX 12 ON PILOT'S OVERHEAD CB PANEL CB1, OPEN THE CB "RAT MAN\
| DEPLOY" (B14) AND CLOSE CB "THRUST REV ENG 2" (H17).
 - | ____ XXXXX 13 CHECK HYDRAULIC PUMP S/O VALVE SWITCHES FOR "ON"
| POSITION.
 - | ____ XXXXX 14 CHECK HYDRAULIC SUPPLY S/O VALVES FOR "OPEN".
 - | ____ XXXXX 15 CHECK ATM SWITCHES "OFF".

*****END OF WORKCARD*****



RAT SAFETY CAGE INSTALLATION
FIGURE 1