# ROUTINE

MWO effective date is 31 July 2004 and completion date is 31 July 2006.

MWO 10-4610-232-30-1

# **MODIFICATION WORK ORDER**

# ROWPU-1 PRESSURE SWITCH PANEL ASSEMBLY UPGRADE MODIFICATION

NSN 4610-01-371-1790

#### HEADQUARTERS, DEPARTMENT OF THE ARMY, WASHINGTON, DC

(31 July 2004)

#### REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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**DISTRIBUTION STATEMENT A.** Approved for public release; distribution is unlimited.

- 1. **PURPOSE.** The purpose of this modification work order (MWO) is to replace all pressure switches in the Reverse Osmosis Water Purification Unit (ROWPU), Model ROWPU-1, with new pressure switches and all applicable hardware, in order to eliminate premature failing of switches.
- **2. PRIORITY.** This modification is classified **ROUTINE**.
- 3. END ITEM(S) OR SYSTEM(S) TO BE MODIFIED.

#### **End Items to be Modified**

| Nomenclature               | NSN*             | P/N     | CAGECt | Model<br>Number | Serial<br>Number |
|----------------------------|------------------|---------|--------|-----------------|------------------|
| Water Purification Unit,   | 4610-01-371-1790 | ROWPU-1 | 94833  | ROWPU-1         | All              |
| Reverse Osmosis, 3,000 GPH |                  |         |        |                 | vehicles         |

<sup>\*</sup> national stock number

- 4. MODULE(S) (COMPONENTS, ASSEMBLIES, SUBASSEMBLIES, BOARDS, AND CARDS) TO BE MODIFIED. Not applicable.
- 5. PART(S) TO BE MODIFIED. Not applicable.
- 6. APPLICATION.
  - a. Time compliance schedule: MWO effective date is 31 July 2004, and completion date is 31 July 2006.
  - b. Lowest level maintenance authorized to apply MWO: 30 Direct Support.
  - c. Work force and man-hour requirements for application of the MWO to a single unit, end item, or system: Requirements are as follows:

#### Requirements

| Work Force/Skills                                      | Man-Hours |
|--|-----------|
| 1 – QM and Chem. Equip Repairer(MOS 63J or equivalent) | 5.0       |

- d. MWOs that must be applied prior to application of this MWO: Not applicable.
- e. Additional information: Not applicable.
- 7. **TECHNICAL PUBLICATIONS AFFECTED/CHANGED.** The following TMs are being affected/changed as a result of this MWO:

#### **Publications Affected**

| Publication        | Date             |
|--------------------|------------------|
| TM 10-4610-232-24P | 31 January 2000  |
| TM 10-4610-232-34  | 1 September 1999 |

- 8. MWO KIT(S)/PART(S) AND THEIR DISPOSITION.
  - a. Kit needed to apply this MWO:
    - (1) Kit required to accomplish MWO:

#### **Modification Kit**

|                                  |                  | -           |       |                            |
|----------------------------------|------------------|-------------|-------|----------------------------|
| Nomenclature                     | NSN              | Part Number | CAGEC | Security<br>Classification |
| Pressure switch modification kit | 4610-01-502-9781 | 156K0037    | 94833 | Unclassified               |

<sup>&</sup>lt;sup>t</sup> commercial and government entity code

## (2) Shipping data:

**Shipping Data** 

| Part Number (CAGEC) | Weight           | Dimensions                           | Cubic<br>Displacement |
|---------------------|------------------|--------------------------------------|-----------------------|
| 156K0037 (94833)    | 30 lbs (13.6 kg) | 13 x 13 x 13 in<br>(33 x 33 x 33 cm) | 1.27 cubic ft         |

#### b. Contents of MWO kits:

Contents of Kit(s)

| Part Number (CAGEC)  | NSN              | Nomenclature                 | Qty |
|----------------------|------------------|------------------------------|-----|
| 500K2358-1 (94833)   |                  | Differential pressure switch | 1   |
| 500K2358-2 (94833)   |                  | Differential pressure switch | 2   |
| 500K2357-1 (94833)   |                  | Pressure switch              | 1   |
| 500K2357-2 (94833)   |                  | Pressure switch              | 1   |
| 500K2357-3 (94833)   |                  | Pressure switch              | 1   |
| 500K2357-4 (94833)   |                  | Pressure switch              | 1   |
| 500K2357-5 (94833)   |                  | Pressure switch              | 1   |
| 156K0005 (94833)     |                  | Tube adapter                 | 9   |
| 13229E0704-2         |                  | Tube tee                     | 9   |
| 13229E0382           |                  | Tube plug                    | 6   |
| 156K0001K10          |                  | Tube                         | 1   |
| 13229E0706-1 (97403) | 4730-00-465-1235 | Tube elbow                   | 1   |
| 156K0001K13          |                  | Tube                         | 1   |
| 156K0001K16          |                  | Tube                         | 1   |
| 13229E1255-2 (97403) | 4730-01-348-6246 | Pipe nipple                  | 1   |
| ANSI-B16.11 (80204)  |                  | Hex bushing                  | 7   |
| 13229E0753-4 (97403) | 5975-01-353-3190 | Elbow cable adapter          | 6   |
| 13229E0738-6 (97403) | 5975-01-355-7891 | Straight cable adapter       | 4   |
| MS15795-808 (80205)  | 5310-00-619-1148 | Flatwasher                   | 43  |
| MS35338-138 (80205)  | 5310-00-933-8120 | Lockwasher                   | 43  |
| MS35649-204 (96906)  | 5310-00-934-9760 | Hex nut                      | 23  |
| 13229E0189 (97403)   | 4730-01-350-9033 | Pipe union                   | 1   |
| MS51959-65 (96906)   | 5305-00-701-5078 | Screw                        | 23  |
| MS51958-64 (80205)   | 5305-00-059-3660 | Screw                        | 20  |
| 156K0002             |                  | Adapter plate                | 2   |
| 156K0003             |                  | Adapter plate                | 2   |
| 156K0004             |                  | Adapter plate                | 2   |
| 156K0006             |                  | Adapter plate                | 1   |
| 156K0001K69          |                  | Tube                         | 1   |
| 156K0034             |                  | Adapter plate                | 1   |
| 156K0035             |                  | Pipe reducer                 | 1   |
| 156K0036             |                  | Wrench                       | 1   |

c. Bulk and Expendable Material: Not applicable.

d. *Parts Disposition*. Dispose of excess parts listed below in accordance with AR 710-2 (Inventory Management Supply Policy Below the Wholesale Level), AR 735-5 (Policies and Procedures for Property Accountability), and local policy. Removed parts shall be turned into property disposal office for proper disposal.

| Nomenclature          | NSN              | Part Number (CAGEC)     | Qty |
|-----------------------|------------------|-------------------------|-----|
| Pressure switch       | 5930-01-348-5049 | 13229E1115 (97403)      | 1   |
| Stuffing tube         | 5975-01-355-7891 | 13229E0738-6 (97403)    | 3   |
| Tubing                |                  | 120-02599-27 (09647)    | 1   |
| Male elbow            | 4730-01-076-8903 | 13229E0689-1 (97403)    | 1   |
| Marker                |                  | 120-02456-12 (09647)    | 1   |
| Screw                 |                  | 13229E40260-158 (97403) | 2   |
| Seal washer           | 5310-01-351-2613 | 13229E0557-1 (97403)    | 2   |
| Nut                   | 5310-01-211-9838 | H111P363-130M (29372)   | 2   |
| Pressure switch       |                  | 13229E0006-2 (97403)    | 2   |
| Pressure switch       |                  | 13229E0006-1 (97403)    | 1   |
| Pressure switch       |                  | 13229E0010-2 (97403)    | 1   |
| Pressure switch       |                  | 13229E0010-1 (97403)    | 1   |
| Pressure switch       |                  | 13229E0044 (97403)      | 1   |
| Pressure switch       |                  | 13229E0041 (97403)      | 1   |
| Tube plug             |                  | 13229E0382 (97403)      | 6   |
| Tube tee              | 4730-00-684-3796 | 4-4-4JBZSS (54938)      | 9   |
| Straight tube adapter | 4730-01-349-7767 | 13229E0148 (94703)      | 9   |
| Tube elbow            | 4730-00-965-1235 | MS51820-355 (96906)     | 1   |
| Tube, metallic        |                  | 13229E0145K10 (94833)   | 1   |
| Tube, metallic        |                  | 13229E0145K16 (94833)   | 1   |
| Tube, metallic        |                  | 13229E0145K13 (94833)   | 2   |
| Pipe union            | 4730-01-350-9033 | 13229E0189 (97403)      | 1   |
| Pipe nipple           | 4730-01-348-6246 | 13229E1255-2 (97403)    | 1   |
| Stuffing tube         | 5975-01-353-3190 | 13229E0753-4 (97403)    | 5   |
| Pipe bushing          | 4730-00-071-1671 | AN 912-7K (88044)       | 7   |
| Screw                 | 5305-01-351-0881 | 13229E0072-57 (97403)   | 19  |
| Lockwasher            | 5310-00-933-8120 | MS35338-138 (96906)     | 25  |
| Flat washer           | 5310-00-619-1148 | MS15795-808 (96906)     | 25  |
| Loop clamp            | 5340-00-878-5257 | MS21919WCF-24 (96906)   | 5   |
| Screw                 | 5305-00-724-7878 | MS24693-C94 (96906)     | 8   |
| Plate                 |                  | 13229E0052 (97403)      | 2   |
| Screw                 | 5305-00-054-6655 | MS51957-31 (96906)      | 8   |
| Nut                   |                  | 13229E0114-5 (97403)    | 23  |

e. Mandatory Replacement Parts. Not applicable.

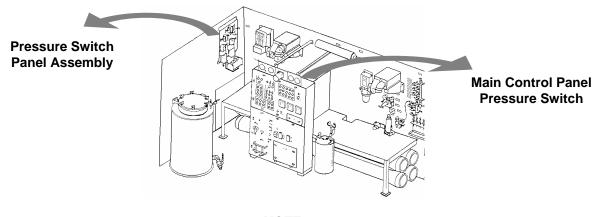
# 9. SPECIAL TOOLS; TOOL KITS; JIGS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND FIXTURES REQUIRED. Tool kits necessary to apply MWO are listed in the following table:

| Nomenclature                 | NSN              | CAGEC | Part Number       | Qty |
|------------------------------|------------------|-------|-------------------|-----|
| Tool Kit, General Mechanic's | 5180-00-177-7033 | 50980 | SC 5180-90-CL-N26 | 1   |

#### 10. MODIFICATION PROCEDURES.

#### WARNING

- Make sure electrical power is disconnected before working on unit. Failure to do so could result in electrical shock, causing serious injury or death to personnel.
- · Do not wear watches, rings, or dog tags when working on electrical components.
- a. Electrical components and wiring shutdown and inspection.



**NOTE** 

Tag all wires and hoses before disconnecting.

- 1) Make sure ROWPU is shut down and main circuit breaker (CB1) is turned off (TM 10-4610-232-12, para 2-22).
- At pressure switch panel assembly and behind control panel, remove retaining straps and wire tiedown straps as necessary, securing wire leads and cables. Make sure leads and harnesses do not rub against sharp edges or corners.
- 3) Inspect wires for bent, broken, or missing terminals. Clean or replace terminals as necessary.
- 4) Inspect wire leads and cables for overheating damage, frayed or cut insulation, and kinks that may indicate damage to wire strands inside cable. Replace as necessary.
- b. Plumbing and piping shutdown and inspection.

#### WARNING

Plastic and metallic tubes may contain pressure and cause injury to personnel. Be prepared to collect water and avoid water runoff into other components, or damage to equipment may occur.

#### **NOTE**

Tag all hoses before disconnecting.

- Remove tiedown straps as necessary, securing hoses. Make sure hoses do not rub against sharp edges or corners
- 2) Inspect hoses for damage. Clean or replace hoses as necessary.
- 3) Inspect hoses for brittleness, cracks, or kinks. Replace or repair as necessary.

c. Air system shutdown.

#### WARNING

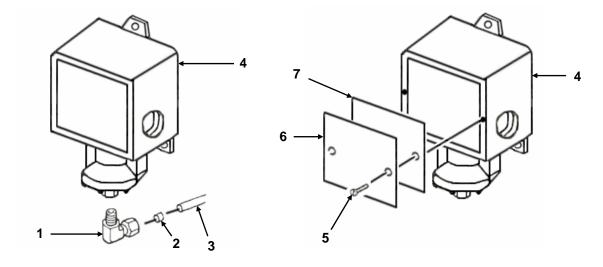
Make sure air pressure is vented from manifolds before working on switch panel assembly. Failure to do so could result in exposure to pressured air, causing serious injury to personnel.

Shut off air compressor and bleed air pressure from manifolds and air filter (TM 10-4610-232-12, para 4-68).

#### **NOTE**

Pressure switch PSL8 is located on the top right rear corner of the control panel.

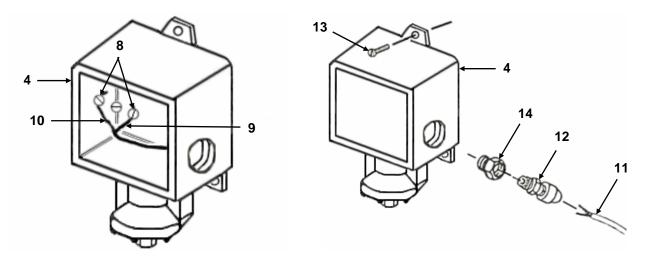
- d. Main control panel pressure switch replacement.
  - 1) Remove male elbow (1), marker (2), and metallic tube (3) from pressure switch (4). Set aside.
  - 2) Remove two screws (5), pressure switch cover plate (6), and gasket (7) from pressure switch (4) and discard.



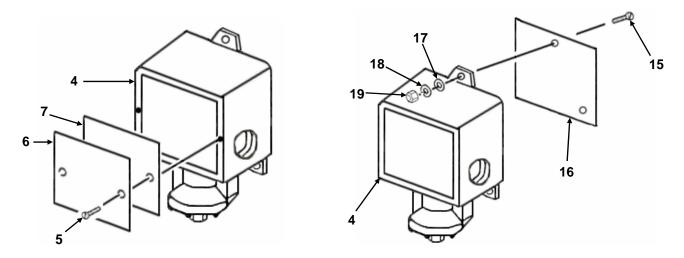
#### NOTE

Pressure switches have two wire terminals: white wire is located on common (C) terminal and black wire is located on normally closed (NC) terminal.

- 3) Loosen two terminal screws (8) and remove white wire (9) and black wire (10) from terminal screws (8). Pull cable (11) through pressure switch (4) and stuffing tube (12).
- 4) Remove two screws (13) and pressure switch (4) from control panel. Set aside screws for installation.
- 5) Remove pipe bushing (14) and stuffing tube (12) from pressure switch (4). Set aside pipe bushing for installation.



- e. Main control panel pressure switch assembly and installation.
  - 1) Remove two screws (5) and pressure switch cover plate (6) and gasket (7) from new pressure switch (500K2357-5) (4) and set aside.
  - 2) Install two countersink screws (MS51959-65) (15), adapter plate (156K0034) (16), two flat washers (MS15795-808) (17), lockwashers (MS35338-138) (18), and hex nuts (MS35649-204) (19) on pressure switch (4).



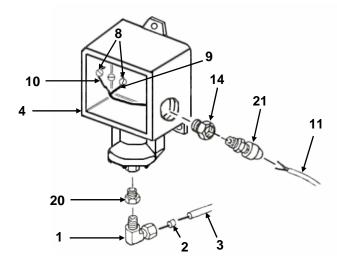
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3) Install pipe reducer (156K0035) (20), old male elbow (1), old pipe bushing (14), new straight cable adapter (13229E0738-6) (45) on new pressure switch (4).

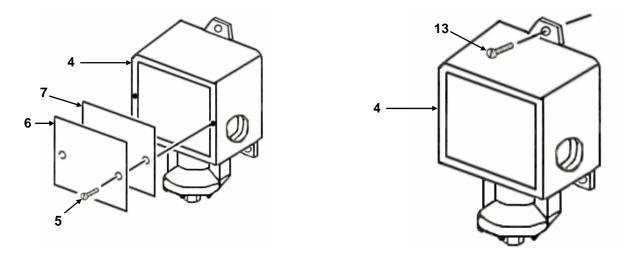
#### **NOTE**

Pressure switches have two wire terminals: white wire is located on common (C) terminal and black wire is located on normally closed (NC) terminal.

- 4) Install cable (11) through cable adapter (21); thread white (9) and black wire (10) into pressure switch (4), making sure wires are accessible to terminal screws (8).
- 5) Install white wire (9) and black wire (10) on terminal screws (8); tighten terminal screws (8).
- 6) Install marker (2) and metallic tube (3) on pressure switch (4).



- 7) Install gasket (7), pressure switch cover plate (6), and two screws (5) on pressure switch (4).
- 8) Install two screws (13) from disassembly into pressure switch (4) and control panel.



f. Pressure switch panel assembly switch replacement.

#### WARNING

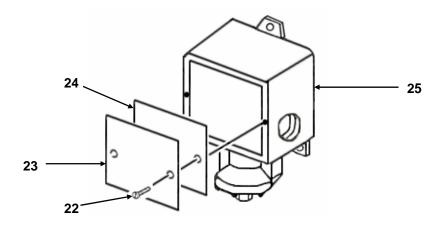
• Make sure electrical power is disconnected before working on unit. Failure to do so could result in electrical shock, causing serious injury or death to personnel.

#### NOTE

- Refer to the switch panel assembly locator view on page 20 of this MWO to identify the location of the pressure switches.
- Replace one pressure switch and associated tubing/hoses at a time for best results.
- Disassembly of all seven pressure switches are identical, except where indicated.

#### NOTE

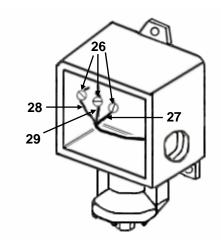
- Pressure switches PSH7 and PSH5 switch plates are located on top of switches.
- Pressure switches PSH6 and PSL4 switch plates are located on bottom of switches.
- Pressure switches PDSH1, PDSH2, and PDSH3 switch plates are located at right side of switches.
- 1) Remove two screws (22), pressure switch plate (23), and gasket (24) from pressure switch (25). Discard switch plates and gaskets.



#### NOTE

Pressure switches have two wire terminals: white wire is located on common (C) terminal and black wire is located on normally closed (NC) terminal. Pressure switch L4 (PSL4) cable includes a third green wire that is connected to normally open (NO) terminal.

2) Loosen two terminal screws (26) (three screws from pressure switch PSL4) and remove white wire (27), black wire (28), and green wire (29) (pressure switch PSL4), from terminal screws (26).



#### WARNING

- Make sure air pressure is vented from manifolds before working on switch panel assembly. Failure to do so could result in exposure to high air pressure, causing serious injury to personnel.
- Plastic and metallic tubes may contain pressure and cause injury to personnel. Be prepared to collect water and avoid water runoff into other components, or damage to equipment may occur.

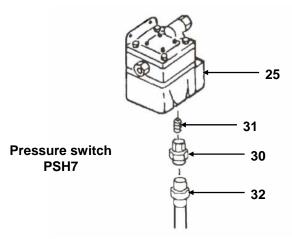
#### **NOTE**

Tag all hoses and cables before disconnecting.

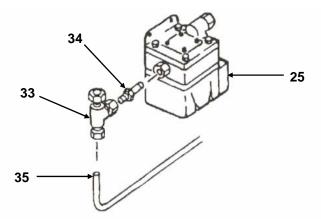
#### NOTE

Procedure 3 refers to disassembly of pressure switch PSH7 only.

3) Loosen pipe union (30) and nipple (31) and remove air line (32) from pressure switch PSH7 (25). Remove and discard pipe union and nipple from air line.

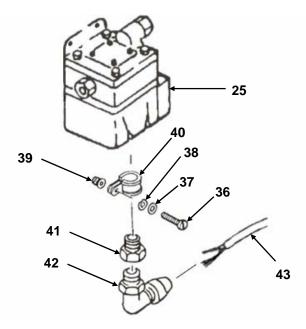


4) Remove tube tee (33), straight adapter (34), and metallic tube (35) from pressure switch (25). Discard tube tee, straight adapter, and metallic tube.

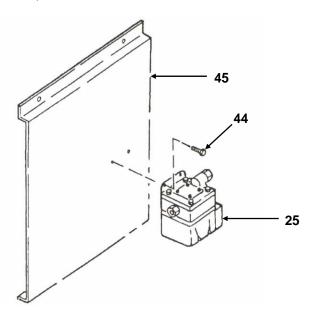


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- 5) Remove screw (36), washer (37), lockwasher (38), and nut (39) from loop clamp (40) and discard.
- 6) Remove loop clamp (40) from pipe bushing (41) and discard.
- 7) Loosen stuffing tube (42) from pipe bushing (41).
- 8) Carefully remove cable (43) from pressure switch (25), pulling cable (43) through stuffing tube (42).
- 9) Remove pipe bushing (44) and stuffing tube (42) from pressure switch (25) and discard.



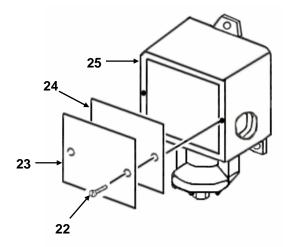
10) Remove two screws (44) and pressure switch (25) from pressure switch panel (45) and discard (TM 10-4610-232-34, para 2-27.1).



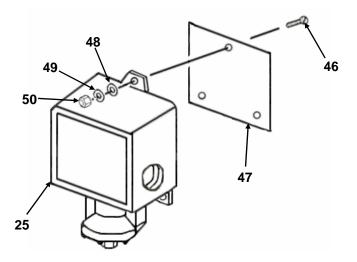
g. Pressure switch panel assembly switches installation.

#### NOTE

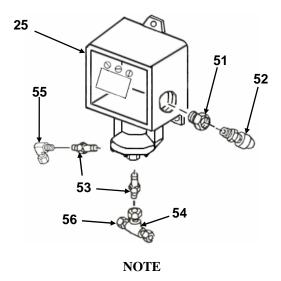
- · Assembly of all seven pressure switches are identical, except where indicated.
- Refer to the parts lists on pages 17-19 of this MWO to identify the kit parts needed to install any pressure switch.
- Refer to the switch panel assembly locator view on page 20 of this MWO to identify the location of the new pressure switches.
- 1) Remove two screws (22), pressure switch cover plate (23), and gasket (24) from new pressure switch (25) and set aside.



2) Install three countersink screws (MS51959-65) (46), adapter plate (47), three flat washers (MS15795-808) (48), lockwashers (MS35338-138) (49), and hex nuts (MS35649-204) (50) on pressure switch (25).

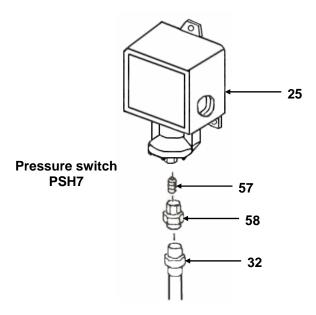


3) Install new hex bushing (ANS-B16.11) (51), cable adapter (52), tube adapter (156K0005) (53), tee (13229E0704-2) (54), elbow 13229E0706-1 (55) (pressure switch PDSH3 only) and plug (56), on pressure switch (25).



Step 4 refers to pressure switch PSH7 only.

4) Install new nipple (13229E1255-2) (57), new pipe union (13229E0189) (58), and air line (32) on pressure switch PSH7 (25).

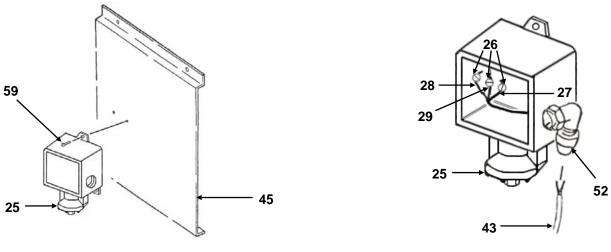


5) Install pressure switch (25) and three screws (MS51958-64) (59) on pressure switch panel assembly (45).

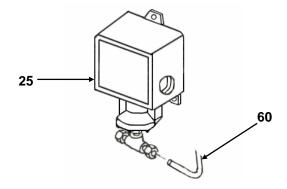
#### **NOTE**

Pressure switches have two wire terminals: white wire is located on common terminal and black wire is located on NC terminal. Pressure switch L4 (PSL4) cable includes a third green wire that is connected to normally open (NO) terminal.

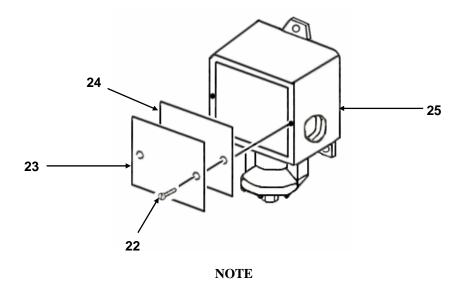
- 6) Install cable (43) through cable adapter (52) and pressure switch (25), making sure wires are accessible to terminal screws (26).
- 7) Install white wire (27), black wire (28), and green wire (29) (from pressure switch PSL4) on terminal screws (26); tighten terminal screws (26).



- NOTE
- Refer to the switch panel assembly locator view on page 20 of this MWO to identify the location of the new tubes.
- Tube 1560001K10 is installed between pressure switches PDSH1 and PDSH2.
- Tube 1560001K13 and 1560001K69 are installed between pressure switches PDSH2 and PDSH3.
- Tube 1560001K16 is installed between pressure switches PDSH3 and PSL4.
- 8) Install new metallic tube (60) on pressure switch (25).



9) Install gasket (24), pressure switch cover plate (23), and two screws (22) on pressure switch (25).



The pressure switches are preset from the manufacturer. Operate the equipment and only adjust the switches if required.

- h. Pressure switch adjustment.
  - 1) Adjust pressure switches (TM 10-4610-232-34, para 2-29).
- 11. CALIBRATION REQUIREMENTS. Not applicable.
- 12. WEIGHT AND BALANCE DATA. Weight and balance are not significantly affected.
- **13. QUALITY ASSURANCE REQUIREMENTS.** Upon receipt of the retrofit kit, the QM and Chem. Equip Repairer or supervisor shall accomplish the following:
  - a. Fully inspect kit for shipping damage, using parts list in 8b of this MWO.
  - b. If retrofit kit has shipping damage, report damage to supervisor, or contact MWO Coordinator/Depot.

#### 14. RECORDING AND REPORTING OF THE MODIFICATION.

- a. *Records and Reports*. The organization responsible for MWO application will report application information as follows:
  - Reporting will be accomplished by electronic means. MWO application information can be input directly into the Modification Management Information System (MMIS) over the Internet. If Internet is not available, recording will be on a 3.5-inch disk, which will be mailed to the MMIS administrator. Entry into the MMIS system is password protected. New users can register online at <a href="http://208.242.67.250/mwo">http://208.242.67.250/mwo</a>. Passwords are normally approved and issued within 48 hours.

2) Submission will be comprised of the nine data elements listed in the table, below. Elements 1, 2, 4, 8, and 9 are given for this MWO (as shown). The person reporting the MWO data will acquire the remaining elements (3, 5, 6, and 7), and input all nine into MMIS.

|   | Data Element                                      | Input Data       |
|---|---|------------------|
| 1 | Material change number (MCN)                      | 1-04-08-0001     |
| 2 | MWO number  | 10-4610-232-30-1 |
| 3 | Unit identification code (UIC) at battalion level |                  |
| 4 | NSNs of the End Item                              | 4610-01-371-1790 |
| 5 | Serial number                                     |                  |
| 6 | USA registration number                           |                  |
| 7 | Application date                                  |                  |
| 8 | Hours required for application                    | 5.0              |
| 9 | Software version                                  | n/a              |

3) For offline reporting, 3.5-inch disk should be mailed to the following address:

Commander TACOM-Warren

ATTN: AMSTA-LC-CIPWM Warren, MI 48397-5000

- b. Marking Equipment. Not applicable.
- c. Identification Data. Not applicable.
- **15. MATERIEL CHANGE (MC) NUMBER.** This MWO is authorized by MC number 1-04-08-0001.
- **16. MODIFICATION IDENTIFICATION.** A modified ROWPU-1 can be identified by the Ashcroft pressure switches.

## PRESSURE SWITCHES PARTS REFERENCE LISTS

| PRESSURE SWITCH (PSL8) ASSEMBLY |              |     |  |  |
|---------------------------------|--------------|-----|--|--|
| DESCRIPTION                     | PART NUMBER  | QTY |  |  |
| Switch, Pressure                | 500K2357-5   | 1   |  |  |
| Plate, Adapter                  | 156K0034     | 1   |  |  |
| Washer, Flat                    | MS15795-808  | 2   |  |  |
| Washer, Lock                    | MS35338-138  | 2   |  |  |
| Nut, Hex                        | MS35649-204  | 2   |  |  |
| Screw, Countersink              | MS51959-65   | 2   |  |  |
| Pipe Reducer                    | 156K0035     | 1   |  |  |
| Adapter, Cable Straight         | 13229E0738-6 | 1   |  |  |

| PRESSURE DIFFERENTIAL SWITCH (PDSH1) ASSEMBLY |              |     |  |  |
|---|--------------|-----|--|--|
| DESCRIPTION                                   | PART NUMBER  | QTY |  |  |
| Switch, Pressure Differential                 | 500K2358-2   | 1   |  |  |
| Adapter, Tube                                 | 156K0005     | 2   |  |  |
| Tee   | 13229E0704-2 | 2   |  |  |
| Plug  | 13229E0382   | 1   |  |  |
| Bushing, Hex                                  | ANSI-B16.11  | 1   |  |  |
| Adapter Cable, Straight                       | 13229E0738-6 | 1   |  |  |
| Washer, Flat                                  | MS15795-808  | 3   |  |  |
| Washer, Lock                                  | MS35338-138  | 3   |  |  |
| Nut, Hex                                      | MS35649-204  | 3   |  |  |
| Plate, Adapter                                | 156K0006     | 1   |  |  |
| Screw, Countersink                            | MS51959-65   | 3   |  |  |

| PRESSURE DIFFERENTIAL SWITCH (PDSH | PRESSURE DIFFERENTIAL SWITCH (PDSH2) ASSEMBLY |     |  |  |  |  |  |  |  |  |
|------------------------------------|---|-----|--|--|--|--|--|--|--|--|
| DESCRIPTION                        | PART NUMBER                                   | QTY |  |  |  |  |  |  |  |  |
| Switch, Pressure Differential      | 500K2358-1                                    | 1   |  |  |  |  |  |  |  |  |
| Adapter, Tube                      | 156K0005                                      | 2   |  |  |  |  |  |  |  |  |
| Tee                                | 13229E0704-2                                  | 2   |  |  |  |  |  |  |  |  |
| Plug                               | 13229E0382                                    | 1   |  |  |  |  |  |  |  |  |
| Bushing, Hex                       | ANSI-B16.11                                   | 1   |  |  |  |  |  |  |  |  |
| Adapter Cable, Elbow               | 13229E0753-4                                  | 1   |  |  |  |  |  |  |  |  |
| Washer, Flat                       | MS15795-808                                   | 3   |  |  |  |  |  |  |  |  |
| Washer, Lock                       | MS35338-138                                   | 3   |  |  |  |  |  |  |  |  |
| Nut, Hex                           | MS35649-204                                   | 3   |  |  |  |  |  |  |  |  |
| Plate, Adapter                     | 156K0004                                      | 1   |  |  |  |  |  |  |  |  |
| Screw, Countersink                 | MS51959-65                                    | 3   |  |  |  |  |  |  |  |  |

# PRESSURE SWITCHES PARTS REFERENCE LISTS (CONTINUED)

| PRESSURE DIFFERENTIAL SWITCH (PDS | SH3) ASSEMBLY |     |
|-----------------------------------|---------------|-----|
| DESCRIPTION                       | PART NUMBER   | QTY |
| Switch, Pressure Differential     | 500K2358-2    | 1   |
| Adapter, Tube                     | 156K0005      | 2   |
| Tee                               | 13229E0704-2  | 2   |
| Bushing, Hex                      | ANSI-B16.11   | 1   |
| Adapter Cable, Elbow              | 13229E0753-4  | 1   |
| Washer, Flat                      | MS15795-808   | 3   |
| Washer, Lock                      | MS35338-138   | 3   |
| Nut, Hex                          | MS35649-204   | 3   |
| Plate, Adapter                    | 156K0004      | 1   |
| Screw, Countersink                | MS51959-65    | 3   |
| Elbow                             | 13229E0706-1  | 1   |

| PRESSURE SWITCH (PSL4) ASSET | PRESSURE SWITCH (PSL4) ASSEMBLY |     |  |  |  |  |  |  |  |
|------------------------------|---------------------------------|-----|--|--|--|--|--|--|--|
| DESCRIPTION                  | PART NUMBER                     | QTY |  |  |  |  |  |  |  |
| Switch, Pressure             | 500K2357-1                      | 1   |  |  |  |  |  |  |  |
| Adapter, Tube                | 156K0005                        | 2   |  |  |  |  |  |  |  |
| Tee                          | 13229E0704-2                    | 2   |  |  |  |  |  |  |  |
| Plug                         | 13229E0382                      | 1   |  |  |  |  |  |  |  |
| Bushing, Hex                 | ANSI-B16.11                     | 1   |  |  |  |  |  |  |  |
| Adapter Cable, Elbow         | 13229E0753-4                    | 1   |  |  |  |  |  |  |  |
| Washer, Flat                 | MS15795-808                     | 3   |  |  |  |  |  |  |  |
| Washer, Lock                 | MS35338-138                     | 3   |  |  |  |  |  |  |  |
| Nut, Hex                     | MS35649-204                     | 3   |  |  |  |  |  |  |  |
| Plate, Adapter               | 156K0003                        | 1   |  |  |  |  |  |  |  |
| Screw, Countersink           | MS51959-65                      | 3   |  |  |  |  |  |  |  |

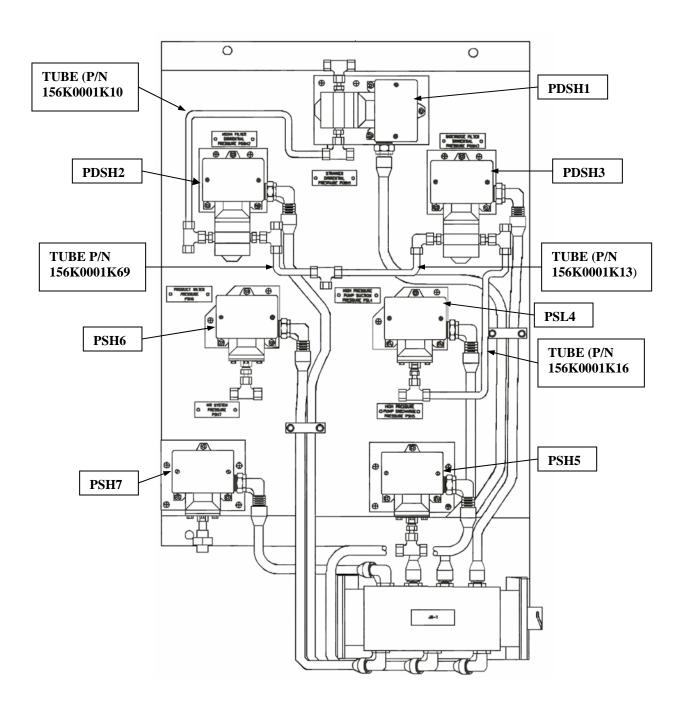
| PRESSURE SWITCH (PSH5) ASSEMBLY |              |     |  |  |  |  |  |  |
|---------------------------------|--------------|-----|--|--|--|--|--|--|
| DESCRIPTION                     | PART NUMBER  | QTY |  |  |  |  |  |  |
| Switch, Pressure                | 500K2357-3   | 1   |  |  |  |  |  |  |
| Bushing, Hex                    | ANSI-B16.11  | 1   |  |  |  |  |  |  |
| Adapter Cable, Elbow            | 13229E0753-4 | 1   |  |  |  |  |  |  |
| Washer, Flat                    | MS15795-808  | 3   |  |  |  |  |  |  |
| Washer, Lock                    | MS35338-138  | 3   |  |  |  |  |  |  |
| Nut, Hex                        | MS35649-204  | 3   |  |  |  |  |  |  |
| Plate, Adapter                  | 156K0002     | 1   |  |  |  |  |  |  |
| Screw, Countersink              | MS51959-65   | 3   |  |  |  |  |  |  |

# PRESSURE SWITCHES PARTS REFERENCE LISTS (CONTINUED)

| PRESSURE SWITCH (PSH6) | PRESSURE SWITCH (PSH6) ASSEMBLY |     |  |  |  |  |  |  |  |
|------------------------|---------------------------------|-----|--|--|--|--|--|--|--|
| DESCRIPTION            | PART NUMBER                     | QTY |  |  |  |  |  |  |  |
| Switch, Pressure       | 500K2357-2                      | 1   |  |  |  |  |  |  |  |
| Adapter, Tube          | 156K0005                        | 2   |  |  |  |  |  |  |  |
| Tee                    | 13229E0704-2                    | 2   |  |  |  |  |  |  |  |
| Plug                   | 13229E0382                      | 1   |  |  |  |  |  |  |  |
| Bushing, Hex           | ANSI-B16.11                     | 1   |  |  |  |  |  |  |  |
| Adapter Cable, Elbow   | 13229E0753-4                    | 1   |  |  |  |  |  |  |  |
| Washer, Flat           | MS15795-808                     | 3   |  |  |  |  |  |  |  |
| Washer, Lock           | MS35338-138                     | 3   |  |  |  |  |  |  |  |
| Nut, Hex               | MS35649-204                     | 3   |  |  |  |  |  |  |  |
| Plate, Adapter         | 156K0003                        | 1   |  |  |  |  |  |  |  |
| Screw, Countersink     | MS51959-65                      | 3   |  |  |  |  |  |  |  |

| PRESSURE SWITCH (PSH7) ASSEMBLY |              |     |  |  |  |  |  |  |
|---------------------------------|--------------|-----|--|--|--|--|--|--|
| DESCRIPTION                     | PART NUMBER  | QTY |  |  |  |  |  |  |
| Switch, Pressure                | 500K2357-4   | 1   |  |  |  |  |  |  |
| Bushing, Hex                    | ANSI-B16.11  | 1   |  |  |  |  |  |  |
| Adapter Cable, Elbow            | 13229E0753-4 | 1   |  |  |  |  |  |  |
| Washer, Flat                    | MS15795-808  | 3   |  |  |  |  |  |  |
| Washer, Lock                    | MS35338-138  | 3   |  |  |  |  |  |  |
| Nut, Hex                        | MS35649-204  | 3   |  |  |  |  |  |  |
| Plate, Adapter                  | 156K0002     | 1   |  |  |  |  |  |  |
| Screw, Countersink              | MS51959-65   | 3   |  |  |  |  |  |  |
| Nipple                          | 13229E1255-2 | 1   |  |  |  |  |  |  |
| Union                           | 13229E0189   | 1   |  |  |  |  |  |  |

#### PRESSURE SWITCH PANEL ASSEMBLY SWITCHES AND TUBES LOCATOR VIEW



#### BY ORDER OF THE SECRETARY OF THE ARMY:

PETER J. SCHOOMAKER General, United States Army Chief of Staff

Official: Joel B. Huln

> Administrative Assistant to the Secretary of the Army 0413403

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From: "Whomever" < whomever@avma27.army.mil>

To: TACOM-TECH-PUBS@ria.army.mil

Subject: DA Form 2028

- 1. From: Joe Smith
- 2. Unit: home
- 3. Address:4300 Park
- 4. City: Hometown
- 5. St: MO
- 6. Zip: 77777
- 7. Date Sent: 19-OCT-93
- 8. Pub no: 55-2840-249-23
- 9. Pub Title: TM
- 10. Publication Date: 04-JUL-85
- 11. Change Number: 7
- 12. Submitter Rank: MSG
- 13. Submitter FName: Joe
- 14. Submitter MName: T
- 15. Submitter LName: Smith
- 16. Submitter Phone: 123-123-1234
- 17. Problem: 1
- 18. Page: 1
- 19. Paragraph: 3
- 20. Line: 4
- 21. NSN: 5
- 22. Reference: 6
- 23. Figure: 7
- 24. Table: 8
- 25. Item: 9
- 26. Total: 123
- 27. Text:

This is the text for the problem below line 27.

| REC   | For use of the  | DED CHAN BLAN ais form, see AR 2 | MS     |         | AND                      |                   | Lists (RPS'                   | Repair Parts and<br>TL) and Supply<br>ls (SC/SM). | DATE                        |                  |
|---|-----------------|----------------------------------|--------|---------|--------------------------|-------------------|-------------------------------|---|-----------------------------|------------------|
| TO: (Forwa                                  | rd to proponent | of publication                   |        |         |                          |                   |                               |   | cation) (Include ZIP Code)  |                  |
| PART I - ALL PUI<br>PUBLICATION/FORM NUMBER |                 |                                  |        |         | SLICATION                | NS (EXCEPT ) DATE | RPSTL AND S                   | TITLE   | ND BLANK FORMS              |                  |
| MWO 10-4610-232-30-1                        |                 |                                  |        |         |                          | 30 June 200       | 3                             | ROWPI   | U-1 Pressure Switch Panel A | Assembly Ungrade |
| ITEM PAGE PARA- LINE FIGUR                  |                 |                                  | FIGURE | TABLE   | 200                      |                   |                               | MENDED CHANGES AND R                              |                             |                  |
|   |                 | GRAPH                            |        | NO.     |                          |                   |                               |   |                             |                  |
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| PUBLICA'  | TION NU     | PAR'        | T II - REPAIR PARTS ANI  | D SPECI         | DATE               | L LISTS AN                    | ND SUPF     | PLY CA<br>TITLE | TALOGS                          | S/SUPPLY MA        | NUALS            |  |
| PAGE<br>NO.   | COLM<br>NO. | LINE<br>NO. | NATIONAL STOCK<br>NUMBER |                 | RENCE<br>IO.       | FIGURE<br>NO.                 | ITEM<br>NO. | OF M            | AL NO.<br>IAJOR<br>EMS<br>ORTED | REC                | COMMENDED ACTION |  |
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| TYPED NA  | AME, GR     | ADE OR T    | ITLE                     | TELEP<br>PLUS F | HONE EX<br>EXTENSI | CHANGE/<br>ON                 | AUTOVO      | ON,             | SIGNAT                          | URE                |                  |  |

| RECOMMENDED CHANGES TO PUBLIC<br>BLANK FORMS  For use of this form, see AR 25-30; the proponent agency |                 |         |      |              |               | AND            |  | Lists (RPS'                  | Repair Parts and<br>TL) and Supply<br>Is (SC/SM). | DATE |  |
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| TO: (Forwar  | rd to proponent |         |      |              |               |                | FROM: (Activity and location) (Include ZIP Code) |                              |   |      |  |
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| MWO 10-4610-232-30-1   |                 |         |      |              | 30 June 200   | 3              | ROWPI  | J-1 Pressure Switch Panel As | sembly Ungrade                                    |      |  |
| ITEM   | PAGE            | PARA-   | LINE | FIGURE       | TABLE         | 30 June 200    |  |                              | MENDED CHANGES AND REA                            |      |  |
|  |                 | GRAPH   |      | NO.          |               |                |  |                              |   |      |  |
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| PAGE<br>NO.   | COLM<br>NO. | LINE<br>NO. | NATIONAL STOCK<br>NUMBER |                 | RENCE<br>IO.       | FIGURE<br>NO.                 | ITEM<br>NO. | OF M            | AL NO.<br>IAJOR<br>EMS<br>ORTED | REC                | COMMENDED ACTION |  |
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|  |             |         |        |              |   | 30 June 200    | 3  | ROWPI                  | J-1 Pressure Switch Panel As | sembly Ungrade |  |
| MWO 10-4610-232-30-1  ITEM   |             |         | FIGURE | TABLE        | 30 June 200   |                |  | MENDED CHANGES AND REA |                              |                |  |
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