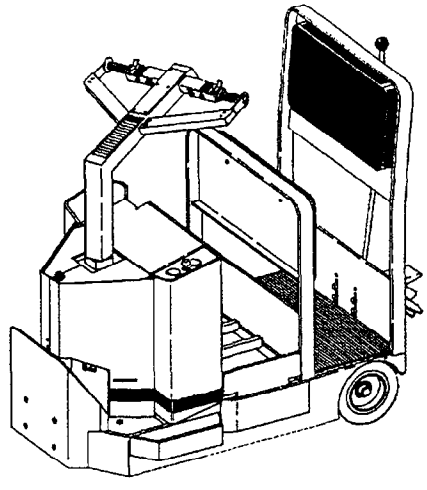
# Service Manual



**SM577**
**PT5, PT7,**
**PTT5, PTT7**

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# SPECIFICATIONS

## 1.0 Electrical

| | PT & PTT-5 | PT & PTT-7 |
|---|---|---|
| 1.1 Travel amp draw unloaded | 50 | 70 |
| 1.2 Travel amp draw loaded | 55 | 75 |

## 2.0 Speeds

| | PT & PTT-5 | PT & PTT-7 | PTT-7 w/4th Speed |
|---|---|---|---|
| 2.1 Travel unloaded | 5.0 mph | 7.0 mph | 8.0 mph |
| 2.2 Travel loaded | 3.0 mph | 5.0 mph | 6.0 mph |

## 4.0 Tire & wheel

4.11 Drive tire size — 10.5 x 5 x 6.5
4.12 Standard rubber — part number 20071-01
4.13 Optional urethane — part number 20262-01

4.2 Drive tire compound

4.21 Rubber Shore A, 60-70 durometer
4.22 Urethane Shore A, 80-90 durometer

4.3 Load wheel

4.31 Size — 8 x 4.5 x 4.5
4.32 Standard rubber — part number 24268-00
4.33 Optional urethane — part number 24269-00

4.4 Load wheel compound

4.41 Rubber Shore A 70 durometer
4.42 Urethane Shore A 90 durometer

## 5.0 Fluids and Lubricants

5.1 Transmission

| | PT & PTT-5 22:1 | PT & PTT-7 14:1 |
|---|---|---|
| 5.11 Type of fluid | Aft Dexron II | ATF Dexron II |
| 5.12 Capacity | 1 quart | 1 quart |

## 1.0 PRESTOLITE MOTOR SERVICE INSTRUCTIONS

(General Notes)

CLEANING

Prior to any testing or inspection, the motor components, except bearings and armature, should be thoroughly cleaned with a good grade petroleum base cleaning solvent and dried with compressed air.

⚠WARNING Be extremely careful when working with solvent. Even a small explosion or fire could cause injury or death.

⚠WARNING Wear eye protection and be sure to comply with OSHA or other maximum air pressure requirements.

The armature should be blown off with compressed air to remove brush dust and dirt from around the commutator and windings.

Bearings should be wiped clean with a cloth and never submerged in a solvent. Submerging bearings in a solvent will deteriorate internal lubrication which cannot be replaced.

VISUAL INSPECTION

After the motor components have been thoroughly cleaned and dried, they should be inspected for the following:

1. Drive end head
   Check bearings recess for any signs of wear. Check mounting holes for any stripped or crossed threads or broken studs.

2. Commutator end head
   Check bearing recess for any signs of wear. Check bearing holder insulation for cracks or any signs of burning. Check brush holders and springs for wear.

3. Oil seal
   Oil seal, if upon disassembly of the motor, the field coils or cummutator are oily. A faulty oil seal is indicated. A good service practice is to replace the oil seal whenever the motor is overhauled. The oil seal seat on the armature shaft should be checked for rough spots, grooves, or scars.

4. Bearings
   Check bearings by turning them with your fingers. Feel for binding or gritty effects and for excessive looseness or wobble. A good bearing should also have a small amount of drag or stiffness caused by the lubrication. If the bearing turns very freely, it should be replaced.

5. Frame and field assembly
   Check the condition of all insulation. If the insulation on the field coils appears blackened or charred, the serviceability of the coils is questionable. Burned or charred insulation is a result of coils over-heating due to overloading conditions, grounded or shorted coil windings. Check condition of all other insulation such as brush rigging, under coil connections, and around terminal studs.

6. Armature
   Check the shaft bearing journals, splines or keyways for wear. Check windings, commutator connections and commutator bars for any signs of burning. If deep burned sections are evident, either in the brush track or on the rider end of the commutator bars, an open circuit in the armature winding is indicated.

TESTING

Frame and Field Assembly

After thorough inspection, the frame and field assembly should be checked for grounded, open, or shorted circuits. Grounded and open circuits can be checked using 110 volt A.C. test leads with a 50 watt bulb in series.

1. Grounded circuit
   Touch one test lead to a clean bare metal spot on the frame and check all terminals with the other lead. If a grounding condition exists, the test light lights.

## 2.0 Drive Motor ~ PT & PTT-5

| | | 12V | 24V |
|---|---|---|---|
| 2.2 | Minimum Brush Length | 9/16" | 9/16" |
| 2.3 | Minimum Commutator Diameter | 2.875 | 2.75" |
| 2.4 | Brush Spring Tension | 30-36 oz. | 30-36 oz. |
| 2.5 | Field Coil Resistance | .0062-.0070 ohms | .0076-.0086 ohms |
| 2.6 | Part number of: | | |

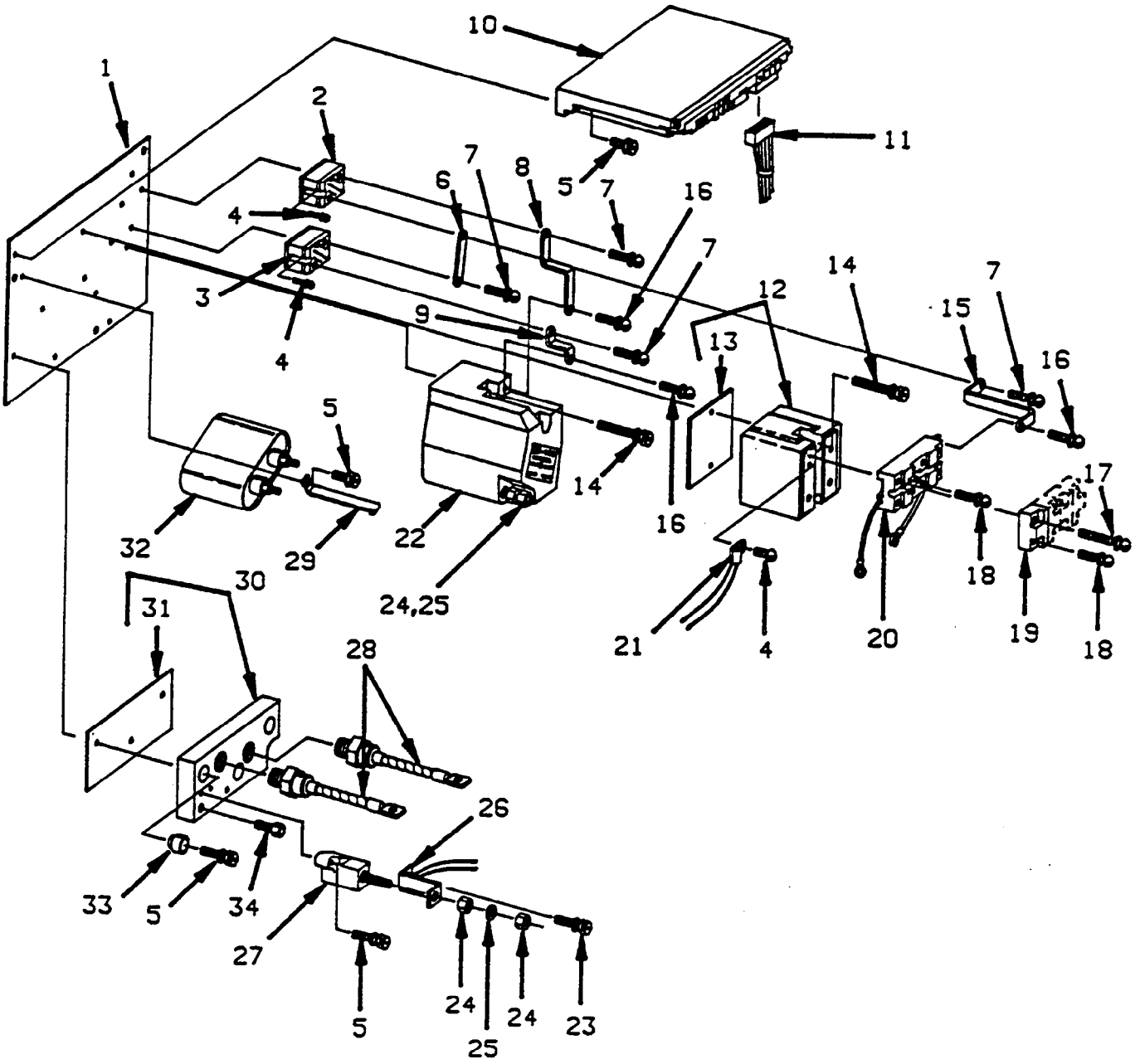
## 2.0 Drive Motor ~ PT & PTT-7

| | | |
|---|---|---|
| 2.2 | Minimum Brush Length | 9/16" |
| 2.3 | Minimum Commutator Diameter | 2.75" |
| 2.4 | Brush Spring Tension | 30-36 oz. |
| 2.5 | Field Coil Resistance | .0076-.0086 ohms |
| 2.6 | Part number of: | |

7. Positive side of fourth speed contactor coil.
   0 volts - repair open wire from third speed interlock switch to fourth speed contactor coil.

8. Negative side of fourth speed contactor coil.
   0 volts - repair mechanical binding of speed contactor or replace faulty fourth speed contactor coil.
   Battery volts - repair open wire from negative side of fourth speed contactor coil to battery negative.

## PTT-7 EV-100 SCR 2-SPEED CONTROL PANEL
## PTT-7 EV-100 SCR 3-SPEED CONTROL PANEL



| | SYMPTOM | PROBABLE CAUSE |
|---|---|---|
| 3H | FW contactor will not drop out with increasing load. | * Check drop out setting on control card.<br>* Check for shorted FWD driver.<br>* Replace control card.(4A) |
| 3J | Stiff plug. (Severe reversal) | * Check plug adjustment setting on control card.<br>* Check yellow wire on current sensor for open.<br>* Check 4REC for open circuit.(4H)<br>* Replace control card. (4A) |
| 3K | Hourmeter feed faults: | |
| (1) | Pump contactor closes when direction is selected. | * Diode shorted HMD3 to HMD4. (4H) Replace hourmeter block. |
| (2) | One direction okay; opposite direction picks up both directional contactors. | * Diode shorted HMD1 to HMD4 or HMD2 to HMD4.(4H) Replace hourmeter block. |
| (3) | Either direction picks up both directional contactors. | * Diode shorted HMD1 to HMD4 of HMD2 to HMD4.(4H) Replace hourmeter block. |
| 3L | Very soft reversal | * Check plug adjustment setting on control card.<br>* Replace control card. (4A) |
| 3M | Blown power fuse.<br>Very hot power cables | * Check 3REC for short.(4H) (Possible damage also to 1REC.) |

6. Slide off of the shaft, the shaft bearings, spring drive, spring support, spring and lock nut.

7. Remove the mounting bracket from the spring return housing.

ASSEMBLY

1. Thoroughly clean all parts.

2. Install the shaft lock nut and shaft bearing on shaft.

3. Slide the return spring on the shaft so that both spring ends are above the spring return housing protrusions (taps). Using a screwdriver, load the spring below the spring return housing protrusions (taps).

4. Replace the spring support and the spring drive so its hub is adjacent to the spring housing protrusions (taps).

5. Install the shaft bearing.

6. Install the cover for the spring return housing.

7. Install the cam.

   NOTE: When looking at the open end of switch housing, install the cam so that the large slot in the cam is to the left.

8. Install the snap switches in the switch housing (and any switch spacers if used.)

   NOTE: All switches must have their common (com) terminals in the same directions.

   NOTE: All N.C., N.O. and com terminals on switch must be lined up with switch terminal designations on label.

9. Install the switch housing with the switches installed.

10. Install the potentiometer bracket.

11. Install the module retaining screws.

12. Connect wires and test operation of switch.