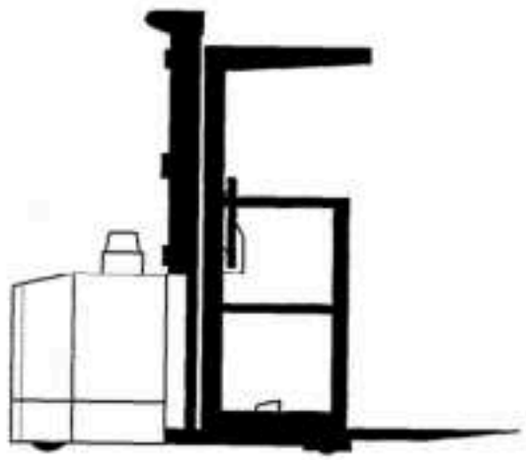
Service Manual



SM576
OP15B

CLARK
Technical
Publications
Lexington, KY
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7.0 Troubleshooting Chart - Electrical

Note: Troubleshooting chart is to be used in conjunction with wiring schematic for the truck.

7.1 Dead Truck

7.11 Emergency disconnect contactor will not close.

7.111 Conditions for test: Battery plugged, battery fully charged, key switch in start position.

Check for battery voltage at:

1. Negative side for fuse 3
   0 volts, repair open wiring from battery to fuse 3

2. Positive side of fuse 3
   0 volts, replace fuse 3

3. Positive side of key switch
   0 volts - repair open wiring from fuse 3 to key switch

4. Negative of key switch (start position)
   0 volts - replace key switch

5. Positive side of contactor coil
   0 volts - repair open wiring for key switch to contactor coil

6. Negative of contactor coil
   0 volts, replace contactor coil, check for mechanical binding of contactor
   Battery volts - repair open wiring from contactor coil to battery negative

7.12 Emergency disconnect contactor closes, but drops out when key switch is returned to run position.

7.121 Condition for test: Battery plugged in, key switch in run position.

Check for battery volts at:

1. Negative side of key switch
   0 volts, replace key switch

2. Positive of emergency disconnect push button
   0 volts, repair open wiring from key switch to disconnect push button

3. Negative side of emergency disconnect push button
   0 volts, replace push button

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Capacitor 1C

Disconnect the battery and discharge the capacitor. Measure ohms through the capacitor using the R x 10,000 scale. Meter should read zero and then swing slowly to above 100,000 ohms. Replace the capacitor if above reading is not obtained.

Contactors F, R, 1A,SP,FW,D,REGEN and P

150 ampere contactors instruction sheets.
300 ampere contactors instruction sheets.

NOTE:

Control is arranged so that the F and R contactors do not break current. Check to see that the 1A contactor drops out before the F or R contactor.

Most contactor coils are polarity sensitive. The left-hand terminal must be connected to positive.

Potentiometer in Accelerator

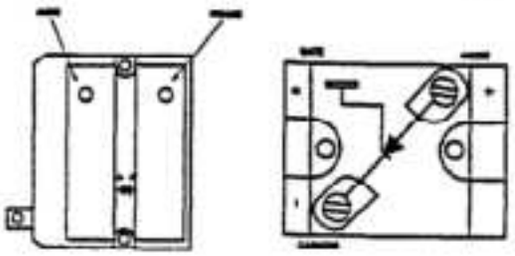
To check operation of the potentiometer, disconnect the battery and disconnect the wire at control card TB1. Connect a VOM to the wire that was removed from TB1 and to negative. Place the VOM on the R x 100 scale. With the accelerator in the creep speed position, the ohms reading should be 4800 to 6000 ohms. With the accelerator in the top speed position, the ohm reading should be 50 ohms or less. With the wire disconnected as above, check for resistance of 1 megohm or higher from pot wire to the truck frame.

SCR's (1REC, 2REC,5REC)

These are silicon controlled rectifiers. Before checking, disconnect the battery and discharge capacitor 1C. Disconnect gate leads of SCR's at the SCR terminal.

To check an SCR, it is necessary to have a 6 volt battery and 2 A-14 diodes.

Connect the positive lead to the anode, connect the negative lead to the cathode as shown below.



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6.0 Troubleshooting

Troubleshooting problems in the hydraulic system will require both electrical and hydraulic troubleshooting. For instance, solenoid valve coils should be determined to be operational before the solenoid valve is suspected. Therefore, this hydraulic troubleshooting section should not be used until it has been determined that the problem is not electrical.

An electrical troubleshooting guide is included in the Electrical Section of this manual.

The uses two separate hydraulic systems with a common reservoir and return line filter. One duplex pump and motor assembly supplies oil under pressure for the power steering and the brake release. Another duplex pump and motor assembly supplies oil under pressure to the lift/lower control valve for the lifting and lowering operations.

Theory of operation - Lift/lower

During lifting the duplex pump is turned by a single electric motor. Oil is drawn from the reservoir into the inlet ports of both pumps. If slow speed lifting is chosen a normally open solenoid valve allows the oil from the outlet of the lower pump to be bypassed directly back to the pump inlet thereby allowing no flow and no pressure from the lower pump. The upper pump will create oil flow under pressure at the pump outlet. A check valve in the pump body prevents this oil from returning to the pump inlet. When high speed lifting is chosen the solenoid valve in the lower pump is electrically operated. The valve closes and allows the oil pressure and flow from the lower pump to join the flow from the upper pump. The combined flow increases the volume of oil at the pump outlet and thus increases the lifting speed.

Oil flow from the pump outlets goes into the lift/lower control valve block. The oil entering the lift/lower control valve block passes through a one way check valve and is directed out of the valve block through hoses to the lift cylinders. Oil flowing into the lift cylinder acts upon all the internal surfaces of the cylinder. The pressure of the oil forces the cylinder rod to extend out the top of the cylinder. All lift cylinders are the positive-displacement type. The only seals are in the cylinder head (gland nut). There are no seals on the cylinder rod piston.

Equal oil pressure is applied to both the freelift and the staging cylinders. The freelift cylinder rises first because it has less weight to lift. The staging cylinder must raise the same thing as the freelift cylinder plus the weight of the freelift cylinder and the mast rails. The cylinders will continue to rise as long as the pump motor is turned on and the oil is flowing into the cylinders.

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