Instructions for Installing

RHEOSTAT 38N41

in

CM-12, CM-37 AND CM-41 CUTTING MACHINES

These Instructions Are for Use in Making an Installation on Machines Not Previously Equipped With a Rheostat in Series With the Drive Motor.

I. CM-37 Machine Carriages

Location

The suggested location for mounting the rheostat is on the sloped section of the cover, on the right-hand side of the carriage, as shown in Figure 1.

Installation

Tools and parts required:

<table>
<thead>
<tr>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rheostat</td>
<td>38N41</td>
</tr>
<tr>
<td>Knob</td>
<td>92W02</td>
</tr>
<tr>
<td>2-Conductor Cable, Type S, 16-gauge, about 2-ft.</td>
<td>---</td>
</tr>
<tr>
<td>Rubber Tape</td>
<td>---</td>
</tr>
<tr>
<td>Friction Tape</td>
<td>---</td>
</tr>
<tr>
<td>13/32-in. Drill</td>
<td>---</td>
</tr>
<tr>
<td>7/8-in. dia. Counterbore</td>
<td>---</td>
</tr>
<tr>
<td>Hacksaw</td>
<td>---</td>
</tr>
<tr>
<td>File</td>
<td>---</td>
</tr>
<tr>
<td>Medium-size Screwdriver</td>
<td>---</td>
</tr>
<tr>
<td>Small Fine Screwdriver</td>
<td>---</td>
</tr>
<tr>
<td>3/8-in. Hex Key</td>
<td>---</td>
</tr>
</tbody>
</table>

PROCEDURE:

1. Disconnect the power supply cord and remove the carriage cover.

2. Drill and counterbore the mounting hole, as indicated in Figure 1 at "A."

3. Cut away a section of the chassis wall, as shown in Figure 1 at "B," to provide clearance for the rheostat.

4. Connect a short wire from the center terminal of the rheostat to one of its side terminals.

5. Connect the two leads of a two-conductor cable (Type S, 16-gauge, about 2 feet long) to the two side terminals of the rheostat.

6. Install the rheostat in the cover, as shown in Figure 1.

7. Remove the terminal strip cover plate from the bottom of the carriage chassis.

8. Replace the cover on the carriage. Route the cable from the rheostat so that it comes out at the terminal strip under the chassis. The cable should not touch the resistors in the chassis. It should be long enough to permit removal of the carriage cover without having to disconnect the leads from the terminal strip.

9. On carriages equipped with the electrical reversing switch, make the following changes in the wiring at the terminal strip. Refer to Figure 2 for circuit diagram. (For earlier carriages (those not equipped with the electrical reversing...)

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Be sure this information reaches the operator. You can get extra copies through any Linde office.
carriage cover without having to disconnect the leads from the terminal strip.

d. Connect the two cable leads to terminals L11 and 1 on the terminal strip (either lead to either terminal).

e. Replace the terminal strip cover plate.

f. Refer to Section III for operating instructions.

10. When installation is made as described above, the 75-ohm resistors and (unless a new contact unit assembly is installed) the auxiliary contact switch remain in the carriage, but are not used. If desired, these parts can be removed, but there is no advantage in doing so. If the auxiliary contact switch is removed, dummy screws should be inserted in its mounting holes. This will prevent dirt from entering the governor.

II. CM-12 and CM-41 Cutting Machines

Location

The suggested location for mounting the rheostat is on the drive head side of the upper carriage, as shown in Figure 4.

Installation

Tools and parts required:

<table>
<thead>
<tr>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rheostat</td>
<td>38N41</td>
</tr>
<tr>
<td>Knob</td>
<td>92W02</td>
</tr>
<tr>
<td>2-Conductor Cable, Type S, 16-gauge, (see Text)</td>
<td>---</td>
</tr>
<tr>
<td>Rubber Grommet (CM-12 only)</td>
<td>---</td>
</tr>
<tr>
<td>Medium-size Screwdriver</td>
<td>---</td>
</tr>
<tr>
<td>Small Fine Screwdriver</td>
<td>---</td>
</tr>
<tr>
<td>13/32-in. Drill</td>
<td>---</td>
</tr>
<tr>
<td>7/8-in. Counterbore</td>
<td>---</td>
</tr>
</tbody>
</table>

The term LINDE is a registered trade mark of Union Carbide Corporation.
PROCEDURE:

1. Disconnect the power cable from the machine.

2. Drill and counterbore the mounting hole, as indicated in Figure 4 at "A."

3. Connect a short wire from the center terminal of the rheostat to one of its side terminals.

4. Connect the two leads of a two-conductor cable (Type S, 16-gauge) to the two side terminals of the rheostat. For the CM-12 machine, this cable should be long enough to reach from the rheostat mounting hole, through the interior of the upper carriage, to the terminal strip in the rear electrical control box. There must be sufficient slack to allow the control box to be lifted out of the carriage without disconnecting the cable.

   For the CM-41 machine, this cable must be long enough to reach from the rheostat mounting hole to the motor cable socket in the side of the upper carriage.

5. Remove the cover of the rear electrical control box.

6. Lift out the control box assembly and place it on the top of the carriage.

7. Remove and discard the white wire indicated in Figure 5.

8. Mount the rheostat in the side of the carriage, as shown in Figure 4.

9. (CM-12 Machines only) In the bottom of the control box, directly beneath the terminal strip, drill a hole of sufficient size to accommodate the rheostat cable and a rubber grommet. Install the grommet, and thread the rheostat cable through it into the control box. Then connect the two cable leads to terminals 4 and 5 on the terminal strip (either lead to either terminal). Refer to Figure 5 for terminal numbers. Replace the control box in the carriage then replace its cover. Refer to Section III for operating instructions.

10. (CM-41 Machines only) Remove the two screws which hold the Motor Socket Assembly in the side of the upper carriage. Pull the socket outward, then bring the rheostat cable out through the socket mounting hole. Cut off the excess length of the rheostat cable. Then solder the two cable leads to terminals 10 and 11 on the back of the socket assembly (either lead to either terminal). These are the terminals to which a blue wire and a white wire, respectively, are fastened.

    Then, replace the socket assembly in its mounting hole and secure it with its two mounting screws.

11. When installation is made as described above, the auxiliary contact switch remains in the governor, but is not used. If desired, this switch can be removed, but there is no advantage in doing so. If the switch is removed, dummy screws should be inserted in its mounting holes. This will prevent dirt from entering the governor.

III. Operating Instructions

1. Connect the machine power cable, then turn on the drive motor. Set the governor control dial for maximum speed.

2. Rotate the rheostat control knob. Observe which direction of rotation causes a decrease in motor speed. A decrease in motor speed indicates an increase in rheostat resistance.

3. For operation at predominantly low speeds, set the rheostat for maximum or near maximum resistance.

4. For operation at predominantly high speeds, set the rheostat for minimum resistance.

5. If operation will be at intermediate speeds generally, set the rheostat at about half the maximum resistance.

When once set to suit the general speed range requirements of the machine, the rheostat should need readjustment only if a change-over is made from extreme low speeds to extreme high speeds, or vice versa.
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