I. PURPOSE

This conversion kit is for use on SWM-2 Series 1 machines prior to Serial No. 1D5300, for operation with 1/16-in. and 3/32-in. rod with reverse polarity. It increases the ratio of speed step-down between the motor and the feed roll, providing greater torque at the feed roll without excessive loading of the drive motor. Types of troubles that may be alleviated by this change are: drawing excessive armature current, thus blowing governor fuses; poor speed regulation; and burnback of rod to the torch guide tube. The increased gear ratio will not eliminate all possible causes of these conditions, but will make the operation less critical under moderate load variations which tend to cause this class of trouble.

II. DESCRIPTION

As shipped, the SWM-2 machine prior to Serial No. 1D5300 was equipped with a 14-tooth steel gear on the motor output shaft and an 18-tooth insulating gear on the feed roll shaft. This provides a step-down ratio of 1.29 to 1, and gives a speed range of 30 to 330 inches of rod feed per minute. This gearing arrangement was recommended for 1/16-in. and 3/32-in. rod. For smaller rod, where higher speed is required, gears on the gear head and feed roll shafts were interchanged. This provided a speed step-up of 1.29 to 1 and a speed range of 50 to 550 ipm.

The conversion replaces the 18-tooth insulating gear with a 30-tooth insulating gear. The original 14-tooth steel pinion is used on the motor gear-head shaft. This combination provides a step-down of 2.14 to 1 and a speed range of 20 to 200 ipm. The 18-tooth gear is to be retained for use in setting up the machine for the 1.29 to 1 speed step-up ratio (50 to 550 ipm speed range), when the machine is used with smaller rod sizes.
To make the 30-tooth gear fit into the assembly, it is necessary to put a 1-1/4-in. thick spacer under the feed roll housing.

III. PARTS

Conversion kit 38V43 consists of the following parts:

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>05N21</td>
<td>gear guard</td>
<td>1</td>
</tr>
<tr>
<td>05N22</td>
<td>spacer</td>
<td>1</td>
</tr>
<tr>
<td>05N23</td>
<td>30-tooth insulating gear</td>
<td>1</td>
</tr>
<tr>
<td>S-FL-C-132</td>
<td>3/8-in.-16 by 2-1/4-in. long flat head steel machine screw</td>
<td>2</td>
</tr>
</tbody>
</table>

IV. CONVERSION PROCEDURE

1. Remove from the under side of the SWM-2 frame (base plate) the two nuts and two screws which attach the insulating base plate of the Rod Drive Assembly to the machine frame. Lift off the insulating plate with the motor and feed roll assembly. It will not be necessary to detach the motor wires.

2. From the under side of the insulating plate, remove the two flat-head socket-type screws which hold the feed roll housing to the plate.

3. Remove the gear guard from the plate. Install the new gear guard, using the original hardware.

4. Remove the snap ring that holds the 18-tooth insulating gear on the feed roll shaft. Install the new 30-tooth gear in place of the 18-tooth gear. See that the spacer washer is in place in back of the gear and that the key is properly in place. Replace the snap ring.

5. Check to see that the gear on the motor gear-head output shaft is a 14-tooth steel pinion, and that it is properly assembled and keyed to the shaft.

6. Place the 1-1/4-in. thick spacer between the insulating plate and the feed roll housing. Attach the housing to the insulating plate with the 2-1/4-in. long flat-head screws. Use the lock washers that were beneath
the heads of the flat-head screws previously used.

7. Inspect the assembly to see that the gears mesh properly and without binding. There should be a few thousandths of an inch backlash between the gear teeth.

8. Reassemble the drive assembly to the SWM-2 plate.

9. Retain the 18-tooth insulating gear, the original gear guard, and the short flat-head screws for future use. You may need to reconvert the gearing to the higher speed range that is required when smaller rod sizes are used.

NOTE: When installing these parts for use with 1/32-in. and 3/64-in. rod, install the 18-tooth gear on the motor gear-head output shaft, and the 14-tooth pinion on the feed roll shaft. This provides the 50 to 550 ipm speed range.