INSTRUCTIONS and PARTS LIST DATA

for

ROD STRAIGHTENING ATTACHMENT

PART NO. 38V46

I. PURPOSE

The Rod Straightening Attachment (Part No. 38V46) is for use with current models of the LINDE SWM-2 Portable Sigma Welder and the HELIARC Rod Feeder. By making simple provisions, the attachment can be used with FSM-2, early SWM-2 and HELIARC Rod Feeder machines.

The rod has a normal tendency to retain a certain amount of bow after being drawn from the coil and passing through the feed rolls. If the rod used is a hard-drawn steel or other hard or springy type of material, the bow in the rod will usually be sufficient to cause the rod emerging from the torch guide tube to bend toward one side of the gas cup. This brings the rod away from the center of the shielding gas stream so that optimum gas protection does not exist at the welding zone. This usually results in weld porosity, particularly in welding carbon steel. Another trouble sometimes resulting from excessive curvature of the rod is the tendency for the end of the rod, and consequently the arc, to snap from one side of the gas cup to the other. In the case of a springy type of rod, the bow is also likely to cause friction in the flexible conduit. In such cases, use of the attachment will result in better gas protection of the weld, reduce wear of the flexible cable, reduce the load on the motor, and improve welding conditions generally.

The attachment is not usually required for aluminum or other soft types of rod. To test whether or not the straightening attachment is required, remove the outlet rod guide and flexible conduit from the rod feed assembly, and feed several feet of rod through the unit. Cut off this section of rod and allow it to assume its natural curvature on the floor. If the rod, after passing through the feed roll assembly, is bent in an arc less than an 8-ft. diameter, use of the straightening attachment is recommended.

The attachment straightens rod in one plane only, and is not intended to remove sharp bends or kinks.

II. INSTALLATION

Installation of the attachment onto the feed roll assembly of either a SWM-2 or HELIARC Rod Feeder setup is quite simple. The rod guide insert holder (05N56), which is screwed into one end of the attachment, slips into the inlet rod guide opening of the feed roll assembly housing. An anchor pin (P-R-65) in the end of the attachment fits into a hole in the feed roll assembly housing to prevent the attachment from rotating around the rod guide insert holder.

A. INSTALLATION ON CURRENT MODEL SWM-2 OR "HELIARC" ROD FEEDER

1. Pull aside the flat spring (04N07) at the inlet end of the feed roll assembly and remove the inlet rod guide.

2. A rod guide insert (05N58) for 1/16-in. or 3/32-in. rod is installed in the insert holder (05N56) at the factory. If 1/32-in. or 3/64-in. rod is to be used, remove the insert holder from the attachment and replace the rod guide insert (05N58) with insert (05N57). The shoulder on the insert should butt against the threaded end of the insert holder.

3. If removal of the insert holder was required, reassemble it to the attachment.

4. The attachment should be installed so that the straightening rolls are in the same plane as the rod reel and the adjusting thumbscrew toward the rod reel side of the machine. To install the
attachment in this plane, it may be necessary to change the position of the anchor pin (P-R-65) to the alternate hole in the end of the attachment.

**Example (a):** If the feed roll is in the same plane as the rod reel, insert the anchor pin into the hole designated as "C" in Fig. 1.

**Example (b):** If the feed roll is in a plane at right angles to the rod reel, insert the anchor pin into the hole designated as "D."

5. Holding the attachment so that the straightening rolls are in the same plane as the rod reel, and with the adjusting thumbscrew toward the rod reel side of the machine, insert the insert holder (05N56) into the inlet rod guide opening in the feed roll housing. The anchor pin should enter one of the holes in the feed roll housing, and the flat spring (04N07) should engage the slot in the rod guide insert holder when the holder hub shoulders against the housing. In Example (a) of Item 4 above, the anchor pin will enter the hole designated as "A" in Fig. 1. In Example (b) of Item 4, the anchor pin will enter the hole designated as "B."

**NOTE:** The above is true for SWM-2 and for most HELIARC Rod Feeder setups. In non-standard setups, the anchor pin may be turned 180 degrees away from the holes in the feed roll assembly housing when the adjusting thumbscrew of the attachment is on the rod reel side of the rod guide insert holder. In such cases, it is necessary to provide some form of adaptor which will prevent the attachment from rotating.

**B. INSTALLATION ON EARLIER MACHINES**

Holes for accepting the anchor pin of the attachment were not provided in the feed roll housings of FSM-2, and early SWM-2 and HELIARC Rod Feeder machines. These holes are indicated as "A" and "B" in Fig. 1.

1. Before installing the attachment on one of these machines it will be necessary to drill a hole for the anchor pin. Only one hole ("A" or "B" of Fig. 1) is needed for a given installation.

**Example (a):** If the feed roll is in the same plane as the rod reel, drill a 9/32-in. diameter hole, 9/32-in. deep which is designated as "A" in Fig. 1.

**Example (b):** If the feed roll is in a plane at right angles to the rod reel, drill a 9/32-in. diameter hole, 8/32-in. deep which is designated as "B" in Fig. 1.

In either case, lay out the position of the hole carefully and check the layout to avoid subsequent misalignment.

2. After the hole is drilled, install the attachment as described under Section A above.

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III. ADJUSTMENT FOR STRAIGHTENING ROD

The attachment has two straightening rolls — one having a stationary axis and the other a movable axis. The desired pressure for straightening rod is applied to the movable roll by the thumbscrew (S-T-103).

Before making any adjustment, remove the flexible conduit from the outlet rod guide of the feed roll assembly. Then loosen the locknut (N-H-48) and the thumbscrew (S-T-103) on the attachment. Loosen the socket-head cap screw (S-C-124) slightly so that the bar (05N36) can pivot about the screw. Feed the rod slowly through the rod straightener and the feed rolls. As the rod emerges at the outlet end of the feed roll assembly, check it for straightness. If the rod is curved in the same direction as on the rod reel, gradually tighten the thumbscrew.

If it curves in the opposite direction, loosen the thumbscrew gradually until the rod emerges reasonably straight. The minimum acceptable bow is an arc having an 8-ft. diameter. Although the rod can be straightened considerably better than this, it is desirable to leave a moderate amount of bend in the rod to assure positive electrical contact between the rod and the rod guide tube in the torch. Tighten the locknut (N-H-48) to retain the desired pressure on the rod. Tighten the socket-head cap screw (S-C-124), being careful to hold the bar against the thumbscrew (S-T-103) so that the adjustment will not be affected. Feed rod once more to be sure that the adjustment is satisfactory. Then re-attach the flexible conduit to the outlet rod guide.

REPLACEMENT PARTS

ROD STRAIGHTENING ATTACHMENT
PART NO. 38V46

RAI PART SUPPLIED

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>05N57</td>
<td>ROD GUIDE INSERT (3/64&quot; &amp; 1/32&quot; ROD)</td>
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</tbody>
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ROD STRAIGHTENING ROLL ASSEMBLY — PART NO. 38V46

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>92W19</td>
<td>New Departure Seal Bearing Roll, Type 8000, Cat. No. 88039, Double-Sealed (2 used)</td>
</tr>
<tr>
<td>05N56</td>
<td>Rod Guide Insert Holder</td>
</tr>
<tr>
<td>05N58</td>
<td>Rod Guide Insert (for 1/16-in. and 3/32-in. rod)</td>
</tr>
<tr>
<td>05N36</td>
<td>Adjusting Bar</td>
</tr>
<tr>
<td>05N39</td>
<td>Spacer</td>
</tr>
<tr>
<td>05N37</td>
<td>Screw Shaft</td>
</tr>
<tr>
<td>05N38</td>
<td>Screw Shaft</td>
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<tr>
<td>05N57</td>
<td>Rod Guide Insert (for 1/32-in. and 3/64-in. rod)</td>
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HARDWARE

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<th>Symbol</th>
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<tr>
<td>N-H-48</td>
<td>No. 10-32 Hex. Steel Nut</td>
</tr>
<tr>
<td>N-SE-E-56</td>
<td>E.S.N.A. 3/8-in.-16 Hex. Steel Elastic Stop Nut (2 used)</td>
</tr>
<tr>
<td>P-R-65</td>
<td>E.S.N.A. Roll Pin No. 250 x .875-in. Lg. Steel 52- .048- .250-.875</td>
</tr>
<tr>
<td>S-C-124</td>
<td>3/8-in.-16 x 5/8-in. Lg. Hex. Socket Head Cap Screw</td>
</tr>
<tr>
<td>S-T-103</td>
<td>Parker-Kalon No. 10-32 x 3/4 Type &quot;p&quot; Thumbscrew</td>
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