Wire rope lubrication system
Models 802175 and 802180

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* Indicates change.
Safety

Read and observe operating instructions before installing and operating equipment. Equipment must only be installed, maintained, and repaired by persons familiar with instructions.

Do not attempt to install, use, or troubleshoot prior to fully understanding all safety and operational instructions.

Introduction

Wire rope lubrication system (WRL) is a versatile grease applicator that effectively applies grease lubricant to wire rope used in a variety of applications.

Groove cleaner and separating bushing are available to clean wire rope prior to applying new grease.*

This manual assists in installation and operation of WRL.

Do not modify any part of assembly or sub-assemblies.

Failure to read and follow instructions will void warranty.

Description

Grease pump supplies grease to lubricator that is fastened to wire rope. Wire rope receives uniform coating of grease as it moves through lubricator, eliminating need for manual lubrication.

NOTE

WRL is intended for use with grease only.

NOTE

Indicates useful hints and recommendations as well as information to prevent property damage and ensure efficient trouble-free operation.

CAUTION

Indicates a dangerous situation that can lead to light personal injury if precautionary measures are ignored.

WARNING

Indicates a dangerous situation that could lead to death or serious injury if precautionary measures are ignored.

DANGER

Indicates a dangerous situation that will lead to death or serious injury if precautionary measures are ignored.

* Indicates change.
WRL system layout

Fig. 1 represents general layout of typical WRL system. Pneumatic grease pump equipped with regulators for air flow and pressure, supplies grease to lubricator, that applies grease to moving wire rope. Lubricator is fitted with rollers and seals sized appropriately for wire rope, ensuring uniform application.

Optional groove cleaner and support bushings are available to remove old grease from system and improve grease penetration. *

NOTE
See Measuring wire rope size on page 5 for correct wire rope measurement and for body, seal, and roller selection.

Pre-installation

Prepare lubricator

There are two lubricator platforms, each designed with range of rollers and seals for handling different gauges of wire rope († Fig. 2).

- Lubricator model 802175: smaller platform for wire rope diameters ranging from 7/16 in to 1 in (11 to 26 mm).
- Lubricator model 802180: larger platform for wire rope diameters ranging from 19/32 in to 2 in (25.4 to 51 mm).

NOTE
Do not attempt to install equipment with wire rope in operation. Failure to comply will result in death or serious injury.

Select lubricator body, seals, and rollers

1 Measure diameter of wire rope († Fig. 3).
2 Select lubricator platform according to wire rope diameter († Fig. 2, page 4).
3 Select seals and rollers according to wire rope diameter († Table 1 and Table 2, page 6).

Measuring wire rope size

Diameter of wire rope is determined by imaginary circle that would enclose all wire rope strands († Fig. 3).

Tools required: caliper or micrometer

Using caliper, measure wire rope at top of one of its wire strands to top of strand directly opposite.

Table 1

Seal/roller kits–small lubricator (BO2175)

<table>
<thead>
<tr>
<th>Seal/roller kit</th>
<th>Wire rope dimension range (measured diameter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>Maximum</td>
</tr>
<tr>
<td>1/16 in (2.06 mm)</td>
<td>0.347 in (8.32 mm)</td>
</tr>
<tr>
<td>1/8 in (3.18 mm)</td>
<td>0.500 in (12.70 mm)</td>
</tr>
<tr>
<td>5/32 in (4.60 mm)</td>
<td>0.624 in (16.00 mm)</td>
</tr>
<tr>
<td>3/32 in (2.38 mm)</td>
<td>0.749 in (19.10 mm)</td>
</tr>
<tr>
<td>1/4 in (6.35 mm)</td>
<td>0.875 in (22.19 mm)</td>
</tr>
<tr>
<td>5/32 in (7.93 mm)</td>
<td>1.000 in (25.40 mm)</td>
</tr>
</tbody>
</table>

† Indicates change.

* Indicates change.

In cases where measured diameter of wire rope falls between two seal dimension ranges, select seal/roller kit corresponding to smaller size range.

Failure to comply will result in death or serious injury.
Air/grease supply

Four WRL pump and accessory packages are available for different grease container sizes (Table 3). Each package includes:

- Lincoln series 2D grease pump
- Air filter
- Regulator with gauge
- Flow control
- Lubricator slings/ratchets
- Grease quick disconnects
- Adapter fittings

Individual accessories are also available (Fig. IPB 2, page 13).

Table 3

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Manual number</th>
</tr>
</thead>
<tbody>
<tr>
<td>802330</td>
<td>55 lb</td>
<td>403404, 404226</td>
</tr>
<tr>
<td>802239</td>
<td>35 lb</td>
<td>404261, 403424</td>
</tr>
<tr>
<td>802240</td>
<td>120 lb</td>
<td>403440, 403520</td>
</tr>
<tr>
<td>802240</td>
<td>400 lb (180 kg)</td>
<td>404246, 403321</td>
</tr>
</tbody>
</table>

NOTE

Followers and covers are included with pump packages.

For complete pump instructions, refer to owner’s manual included with pump.

NOTE

In cases where measured diameter of wire rope falls between two seal dimension ranges, select seal/roller kit corresponding to smaller size range.

Roller/seal replacement

1. Loosen eye bolts (7) on lubricator (1) (Fig. 4).
2. Open lubricator (2).
3. Using hex key, loosen hex screws (4).
4. Tap out pin (5) using hammer and steel punch or similar tool.
5. Remove roller (3).
6. Remove seal (2) from seal cavity.

Fig. 4

Seal/roller kits—large lubricator (802180)

<table>
<thead>
<tr>
<th>Seal (nominal size)</th>
<th>Wire rope dimension range (measured diameter)</th>
<th>Seal</th>
<th>Seal/roller kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4 in (7.7 mm)</td>
<td>1.063 in (27.7 mm) - 1.122 in (28.5 mm)</td>
<td>802280</td>
<td>802255</td>
</tr>
<tr>
<td>3/16 in (6.4 mm)</td>
<td>1.124 in (28.6 mm) - 1.283 in (32.1 mm)</td>
<td>802282</td>
<td>802222</td>
</tr>
<tr>
<td>1/8 in (3.2 mm)</td>
<td>1.287 in (32.0 mm) - 1.246 in (31.7 mm)</td>
<td>802282</td>
<td>802253</td>
</tr>
<tr>
<td>3/32 in (0.8 mm)</td>
<td>1.249 in (31.8 mm) - 1.309 in (33.3 mm)</td>
<td>802283</td>
<td>802222</td>
</tr>
<tr>
<td>1/16 in (1.6 mm)</td>
<td>1.372 in (34.8 mm) - 1.435 in (36.4 mm)</td>
<td>802284</td>
<td>802256</td>
</tr>
<tr>
<td>1/32 in (0.4 mm)</td>
<td>1.451 in (37.0 mm) - 1.510 in (38.4 mm)</td>
<td>802284</td>
<td>802224</td>
</tr>
</tbody>
</table>

NOTE

In cases where measured diameter of wire rope falls between two seal dimension ranges, select seal/roller kit corresponding to smaller size range.

Roller/seal replacement

1. Loosen eye bolts (7) on lubricator (1) (Fig. 4).
2. Open lubricator (2).
3. Using hex key, loosen hex screws (4).
4. Tap out pin (5) using hammer and steel punch or similar tool.
5. Remove roller (3).
6. Remove seal (2) from seal cavity.

NOTE

Seals (2) (Fig. 4) are designed for contact with wire rope to ensure lubricant penetration.

Before lubrication, test seal contact by attaching lubricator (1) to wire rope. If lubricator does not firmly grip wire rope, replace seal (2).

NOTE

Before operating lubricator (1), verify seals (2) are positioned properly within seal cavity and not loose. If loose, apply small amount of grease to cavity to hold seals in correct position during installation.
Air/grease supply installation

1. Install grease pump (24) with cap and follower (25) over grease container (Fig. 5).
2. Assemble air coupler (19), air nipple (15), air flow regulator (13) and gauge (12), nipple (14) and air pressure regulator (26) as shown.
3. Attach nipple (16) and outlet adapter (18) to pump inlet.
4. Connect air flow/pressure regulator assembly to nipple (16) at pump inlet.
5. Attach outlet adapter (18) and nipple (17) to pump outlet.
6. Attach coupler (internal) (11) to nipple (17).
7. Assemble high pressure grease hose (9) with couplers (external) (10).
8. Connect grease hose assembly to coupler (internal) (11) at pump outlet.

NOTE
Remove any air between follower plate (25) and grease (Fig. 5).

Fig. 5

Install lubricator

DANGER
Do not use slings if carabiner does not close completely when attached to lubricator lifting point. Replace slings immediately if carabiner is damaged and/or does not close around lifting point of lubricator. Failure to comply will result in death or serious injury.

Inspect ratchet slings for:
- Good working condition.
- Overall condition before operating lubricator.
- Length that allows lubricator to move freely with the full range of wire rope movement.
- Correct orientation and do not interfere with the wire rope during lubrication.

NOTE
When adjusting ratchet slings (20), adjust length where they will move full extent of wire rope spooling range (Fig. 6).

DANGER
Stop, lock out and tag out wire rope spool before starting any installation or maintenance procedure. Failure to comply will result in death or serious injury.

Accomplish lubricator (1) on wire rope is important for effective operation.

Lubricator and ratchet sling installation

1. Attach ratchet slings (20) to fixed mounts (Fig. 6).
2. Check that ratchet sling length is long enough to fasten to lubricator (1).
3. Clasp lubricator (1) onto wire rope.
4. Position eyebolts (7) into slots on body (1).
5. Tighten nuts onto eyebolts (7) using wrench until secure.
6. Attach ratchet slings (20) to buckles (6) on lubricator (1).
7. Adjust ratchet sling length to remove slack.

NOTE
Positioning of lubricator (1) on wire rope is important for effective operation (Fig. 6). Position lubricator (1) at a location on wire rope having very little range of overall movement.

Fig. 6

NOTE
Positioning of lubricator (1) on wire rope is important for effective operation (Fig. 6).
Clean wire rope grooves*

Select lubricator groove cleaner and separating bushing size

1. Measure diameter of wire rope as shown in Fig. 8.
2. Determine right or left lay rope strands.
3. Refer to Tables 5, 6 and 7, pages 14 and 15, and locate code for groove cleaner and bushing according to wire rope specification.

* Indicates change.

Operation

1. Connect air coupler (19) to air nipple (15) (Fig. 7).
2. Connect grease hose (9) to lubricator (1).
3. Open air pressure regulator (13).
4. Gradually open air flow regulator (14) to begin operating pump (24).

7. Start wire rope movement while gradually opening air flow regulator (14), adjusting regulator to reduce or increase lubricant amount, until desired lubrication is achieved.
8. Shut off air flow regulator (14).
9. Shut off air pressure regulator (13).
10. Remove lubricator (1) from wire rope.

5. Keep air flow regulator open until lubricator grease chamber (1) is full.

NOTE

Lubricator grease chamber (1) is full when grease appears between lubricator (1) and wire rope (Fig. 7).

NOTE

Lubricator grease chamber (1) is full when grease appears between lubricator (1) and wire rope (Fig. 7).

NOTE

Close air flow regulator completely before connecting air supply.

NOTE

Lubricator grease chamber (1) is full when grease appears between lubricator (1) and wire rope (Fig. 7).

Lubricator parts

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part number</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lubricator (small)</td>
<td>802275</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Lubricator (large)</td>
<td>802180</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Seal (†)</td>
<td>802302</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Roller (†)</td>
<td>802303</td>
<td>4</td>
</tr>
<tr>
<td>5a</td>
<td>Pin 2.7 in (70 mm)</td>
<td>802297</td>
<td>4</td>
</tr>
<tr>
<td>5b</td>
<td>Pin 3.1 in (80 mm)</td>
<td>802301</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Buckle</td>
<td>802298</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Eyebolt</td>
<td>802299</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>O-Ring</td>
<td>802300</td>
<td>2</td>
</tr>
</tbody>
</table>

† Left
‡ Right
* Indicates change.

Fig. 7

Fig. 8

Fig. IPB 1

Table of contents:

- Operation
- Lubricator parts
- Clean wire rope grooves*
- Select lubricator groove cleaner and separating bushing size

Figures:

- Fig. 7: Operation diagram
- Fig. 8: Groove cleaner and bushing size diagram
- Fig. IPB 1: Lubricator parts diagram

Tables:

- Table 5, 6 and 7, pages 14 and 15, provide codes for size of cleaner and separating bushing.
NOTE
Separating bushing is made of two sub-assemblies. When installing separating bushing a thin film of grease will assist in holding bushing (22) in groove of bushing support (21).

Install groove cleaner*

1. Install wire rope lubricator (1) († Fig. IPB 1, page 10).
2. Place one half of bushing (22a) inside one half of support (21a) and set flush against wire († Fig. 9).
3. Move screw (26a) to open position.
4. Place remaining half of bushing (22b) inside remaining half of support (21b).
5. Press two halves together around wire so that screw (26a) is inserted into support (21b).
6. Move screw (26b) to closed position and tighten to lock support (21) onto wire.
7. Install groove cleaner (23) below support (21) by placing together two halves around wire († Fig. 10).
8. Wrap clamp (27) around groove cleaner (23) and insert end under screw (28) until tight.
9. Tighten screw (28) to hold in place.

Service parts

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part number</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>High pressure hose-10 ft (3/8 in ID)</td>
<td>802241</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Coupler</td>
<td>802269</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Coupler</td>
<td>802268</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>Gauge</td>
<td>247843</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>Air pressure regulator</td>
<td>660203</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Air flow regulator</td>
<td>802243</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>Air nipple</td>
<td>238394</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Nipple (1/4 x 1/4 NPTF)</td>
<td>10462</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>Nipple (1/4 x 3/8 NPTF)</td>
<td>10773</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>Outlet adapter</td>
<td>11346</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>Air coupler</td>
<td>238208</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>Ratchet sling</td>
<td>802267</td>
<td>1 *</td>
</tr>
<tr>
<td>21*</td>
<td>Separating bushings support</td>
<td>See Table 4, page 14</td>
<td>1</td>
</tr>
<tr>
<td>22*</td>
<td>Separating bushings</td>
<td>See Table 5, page 14</td>
<td>1</td>
</tr>
<tr>
<td>23*</td>
<td>Groove cleaner</td>
<td>See Table 6, page 15</td>
<td>1</td>
</tr>
</tbody>
</table>

* For seal/roller kit sizes and part numbers, refer to Tables 1 and 2, pages 5 and 6.
* Indicates change.
Table 6*  
Separating bushing support  
<table>
<thead>
<tr>
<th>Part number</th>
<th>Code</th>
<th>Nominal wire rope diameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>802341</td>
<td>F - P/2a - 2 in</td>
<td>9/16, 2 in 30,8</td>
<td>For wire rope diameters 9/16 - 2 in without 13 ft (4 m) ratchet sling</td>
</tr>
<tr>
<td>802342</td>
<td>F - P/2a - 2 in</td>
<td>9/16, 2 in 30,8</td>
<td>For wire rope diameters 9/16 - 2 in with 13 ft (4 m) ratchet sling</td>
</tr>
</tbody>
</table>

* Indicates change.

Table 7*  
Separating bushing  
<table>
<thead>
<tr>
<th>Part number</th>
<th>Code</th>
<th>Nominal wire rope diameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>802332</td>
<td>S - P/2a - 1 3/16 in</td>
<td>15/32, 1/16 29</td>
<td>For wire rope diameters 15/32 - 1 3/16 in</td>
</tr>
<tr>
<td>802333</td>
<td>S - 1/4 - P/2a in</td>
<td>3/8, 3/8 23</td>
<td>For wire rope diameters 3/8 - 3/8 in</td>
</tr>
<tr>
<td>802334</td>
<td>S - P/2a - 1 1/16 in</td>
<td>15/32, 1/16 27</td>
<td>For wire rope diameters 15/32 - 1 1/16 in</td>
</tr>
<tr>
<td>802335</td>
<td>S - 1 1/2 - P/2a in</td>
<td>1 1/8, 1 1/8 32</td>
<td>For wire rope diameters 1 1/8 - 1 1/8 in</td>
</tr>
<tr>
<td>802336</td>
<td>S - 1 1/2 - 1 3/16 in</td>
<td>1 1/8, 1 1/8 32</td>
<td>For wire rope diameters 1 1/8 - 1 3/16 in</td>
</tr>
<tr>
<td>802337</td>
<td>S - 1 1/4 - P/2a in</td>
<td>3/8, 3/8 39</td>
<td>For wire rope diameters 3/8 - 3/8 in</td>
</tr>
<tr>
<td>802338</td>
<td>S - 1 1/4 - 1 1/16 in</td>
<td>1 1/8, 1 1/8 43</td>
<td>For wire rope diameters 1 1/8 - 1 1/16 in</td>
</tr>
<tr>
<td>802339</td>
<td>S - 1 1/8 - 1 1/16 in</td>
<td>3/8, 3/8 47</td>
<td>For wire rope diameters 3/8 - 3/8 in</td>
</tr>
<tr>
<td>802340</td>
<td>S - 1 1/8 - 2 in</td>
<td>1 1/8, 1 1/8 52</td>
<td>For wire rope diameters 1 1/8 - 2 in</td>
</tr>
</tbody>
</table>

* Indicates change.
Warranty

The instructions do not contain any information on the warranty. This can be found in the General Conditions of Sales, which are available at: www.lincolnindustrial.com/technicalservice or www.skf.com/lubrication.