

## **RAPTOR Wire Rope Lubricator**

### **Assembly and Operation Manual**



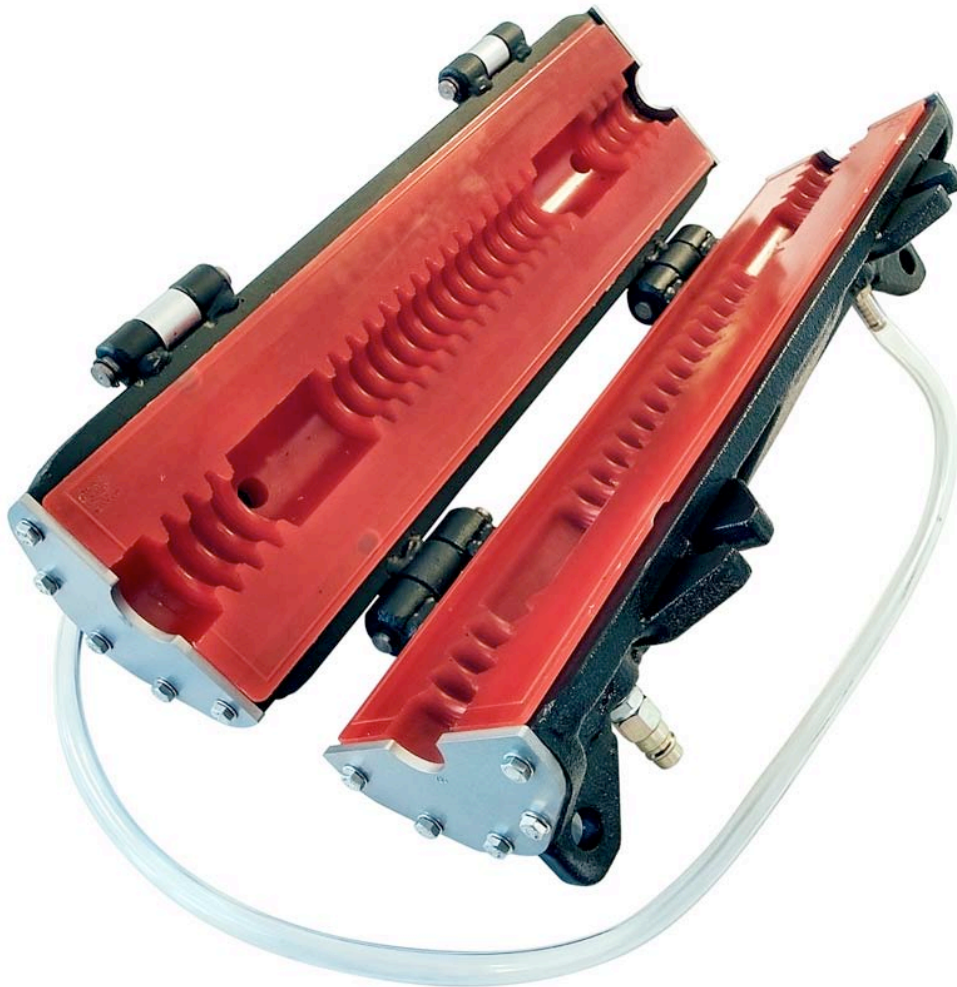
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## Introduction

The **RAPTOR** wire rope lubricator is a new Australian designed and built lubricator for rope sizes from 8mm to 62mm. It provides fast and effective lubrication of wire ropes, eliminating the slow and arduous task of manual lubrication. Lubrication of wire ropes with the Raptor provides superior protection by forcing lubricant into the core of the rope at pressures of up to 6,000 psi.

## Features of the RAPTOR include:

1. Robust, heavy duty steel collar with corrosion resistant coating.
2. 50 cm Polyurethane seals provide maximum rope contact area.
3. Polyurethane seals are extremely durable and wear resistant.
4. Seal and scraper size range to cater for rope sizes 8mm to 62mm.
5. High pressure 50:1 grease pump delivers up to 6,000 psi, to suit 20kg pail.
6. Global distribution network.

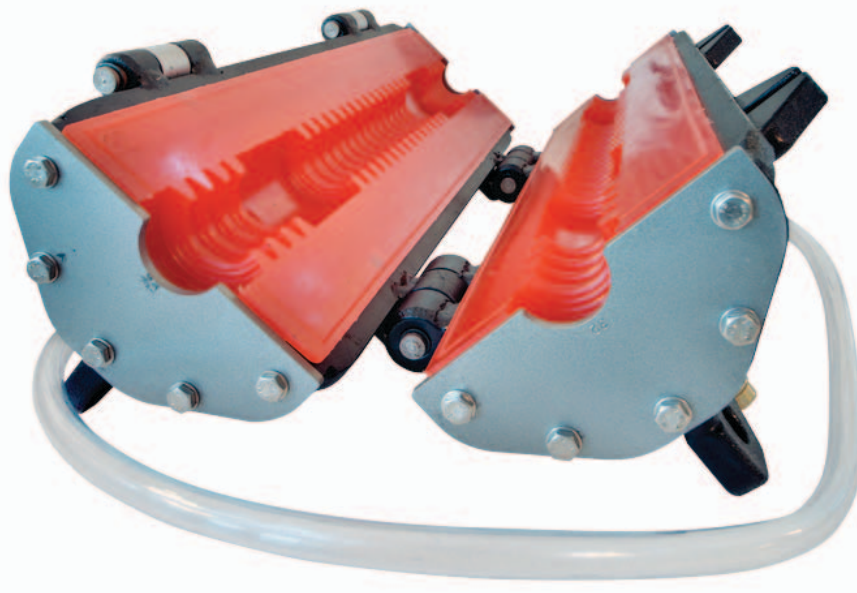
Providing safe and **effective** wire rope lubrication **at a realistic cost**.



## **The Raptor Kit includes the following components:**

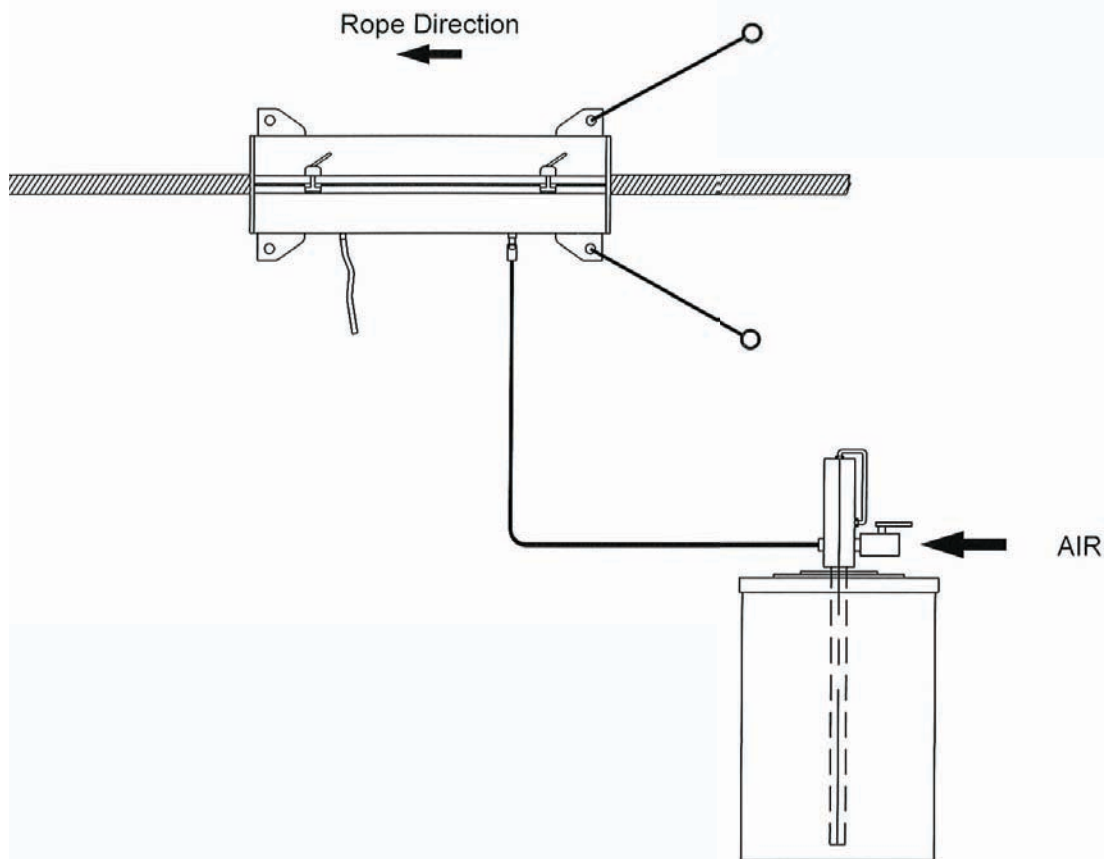
- 1. Heavy Duty Lubricator collar**
- 2. One pair Polyurethane seals (size as required – 8mm to 62mm)**
- 3. One set (4) scraper plates (size as required – 8mm to 62mm)**
- 4. High pressure 50:1 grease pump to suit 20kg drum (other sizes available)**
- 5. Dry break high pressure hydraulic coupler**
- 6. Air shut off ball valve**
- 7. One meter of clear hose for excess lubricant return to drum**
- 8. 4mt high pressure hydraulic hose**
- 9. Metal storage case**
- 10. LE452 Almasol Wire Rope Lubricant 15.9kg (Optional)**

Refer to Figure 1 on page five for an illustration of the lubricator components and relationship to each other, and Figure 2 on page six for an illustration of the lubricator collar.



**Figure 1 - Lubricator Components & Setup**

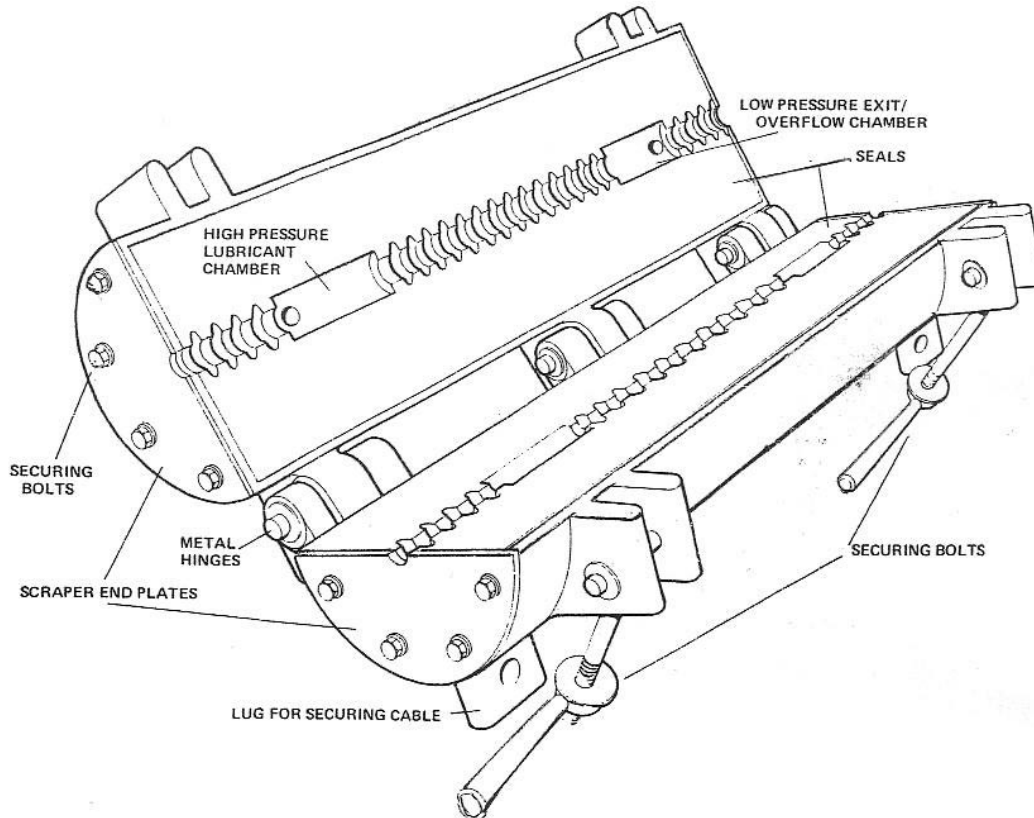
**FIGURE 1 - Lubricator Components**



The Raptor Kit Includes the following components :

1. Heavy Duty Lubricator Collar
2. One pair Polyurethane seals (size as required - 8mm to 62mm)
3. One set (4) scraper plates (size as required - 8mm to 62mm)
4. High pressure 50:1 grease pump to suit 20kg (other sizes available)
5. Dry break high pressure hydraulic coupler
6. On / Off air supply ball valve
7. One metre of clear hose for excess lubricant return to drum
8. Four metres of high pressure hydraulic hose
9. Aluminium metal storage case
10. LE452 Almasol Wire Rope Lubricant 15.9kg (optional)

**Figure 2 - Lubrication Collar, Seals & Scraper Plates.**



## Assembly instructions

Refer to Figure 1 on page 5.

1. Remove grease pump components and assemble as per instructions provided, attach the on / off ball valve to the pump inlet.
2. Connect the 4mt high-pressure hose with the dry-break hydraulic coupler to the lubricator pump.
3. Attach the clear plastic drain hose to the Raptor collar. This hose is to feed excess lubricant back to the drum or other retaining vessel.
4. Insert the grease pump and follower plate into a drum of high quality wire rope lubricant of NLGI 000 to NLGI 2 consistency. Note the lighter the consistency the more penetration will occur with the Raptor lubricator. (Lubrication Engineers strongly recommend the use of **LE452 Almasol Cable Lubricant NLGI 00**)
5. Connect the air supply to the air shut off valve on the grease pump. Ensure that your air shut-off valve is off, preventing the air from reaching the pump motor. Set the air pressure regulator (not supplied) to the required reading. (80 - 120psi)
6. Clamp the lubricator collar around the wire rope to be lubricated, tightening the two toggles. Always try to position the lubricator as near as possible to the winch. Face the collar so that the hydraulic coupling is at the rope inlet end when the rope is being moved through the collar.
7. To secure the lubricator collar you can use steel securing cable, chain or heavy duty slings with two 'D' shackles. (not supplied) Secure one end of the cable / chain to one of the lugs on the wire entry end of the lubricator collar. The other end should be fixed to a suitable fixing position to prevent the lubricator collar from travelling with the wire rope. Replicate this for the second lug on the lubricator collar.
8. Note the steel securing cable / chain is in high tension and strain during operation. Please ensure that all fittings and cables are tightly secured prior to operation.
9. The lubricator collar must be able to freely swing laterally during the operation to ensure even wire rope rewind onto the drum.
10. Connect the high-pressure hose using the dry-break hydraulic coupler to the Raptor Collar.

## Operating Instructions

### 1. Wire rope lubricant

- a) Ensure that you have sufficient quantities of high quality, tacky, waterproof lubricant to complete the job. As a general guideline, lubricant consumption will vary from 0.2 to 1 kilogram per 10 metres of wire rope lubricated. This is dependent upon rope diameter, speed of application, rope design, lubricant used and condition of the wire rope.
- b) For best results, the recommended wire rope lubricant is **LE452 Almasol Cable Lubricant NLGI 00**, manufactured by Lubrication Engineers Inc. Fort Worth, Texas USA 76111. For details of your local LE distributor please contact: [sales@lubeng.com.au](mailto:sales@lubeng.com.au)
- c) If an NLGI 2 grade grease is used it may be necessary to pre-heat the lubricant at ambient temperatures below 0 degrees C (32 F) due to different viscosity and properties of that lubricant. Check with lubricant suppliers for method of pre-heating and individual lubricant specifications. Be sure that the lubricant used will adequately protect your wire rope.

### 2. Operating Pressures

Maximum operating air pressure	120 psi
Pump ratio	50:1
Flow rate approximately	1,500 grams per minute (Self levelling grease @ 20°C)

Guideline pressures are as follows:

<b><i>Air Pressure</i></b>	<b><i>Wire Rope Diameter</i></b>
6 Bar (80 psi)	up to 20mm
7 Bar (100 psi)	22mm – 50mm
8 Bar (120 psi)	52mm – 64mm

Set required air pressure on gauge with shut-off valve closed to prevent lubricator pump from operating until the correct air pressure is set.

### 3. Operating Conditions

The air pressure setting should be adjusted accordingly to provide the correct lubricant flow rate into the lubricator collar and thereby onto and into the wire rope. If the lubricant flow rate is too high, reduce the air pressure setting and /or increase the wire rope speed through the lubricator collar until the correct amount of lubricant appears on the wire rope.

High air pressure settings will provide more effective lubricant penetration into the wire rope, but could also cause lubricant leakage at the collar ends. If leakage occurs, check the collar is tightened and increase wire rope winch speed or decrease air pressure to pump accordingly.

An even balance between air pressure setting, wire rope winch speed and lubricant consumption is required.

### Raptor Lubrication of Wire Ropes

- a) Open the air pressure line and set the correct air pressure on the air pressure gauge by adjusting the air pressure-regulating valve. (guideline pressures for various wire rope diameters are indicated previously)
- b) Open the air shut-off valve to allow air to feed the air motor pump.
- c) Allow sufficient time for the wire rope lubricant to completely fill the high-pressure hose and high-pressure chamber in the seal. Wait until excess lubricant begins to appear in the low-pressure exit hose from the lubricator collar. This may take 20 to 30 seconds.
- d) Engage the wire rope winch and commence lubrication at speeds of up to 1,000 metres per hour depending on the rope size and lubricant in use.
- e) Visually inspect the wire rope during and after lubrication to ensure adequate lubricant penetration and external coverage is occurring. **DO NOT OVER LUBRICATE.**
- f) To inspect internal lubricant penetration a sharp spike or heavy-duty screwdriver may be used to prise open standard wire rope strands, however heavy gauge wire rope may require mechanical methods. For example: two pipe wrenches secured one metre apart, and rotated in opposite directions will allow visual inspection. Complete lubricant penetration is difficult with certain design ropes, particularly anti-spin and locked core wire ropes. Partial lubricant penetration is however, sufficient in these instances as the wire rope movement will itself increase lubricant penetration during operation.

- g) When the lubrication of the wire rope has been completed clean the collar, hoses and other accessories before storage. The lubricator seals may be washed with a mild petroleum substance such as kerosene. Do not leave the seals to soak in cleaning fluid which may be detrimental to their composition.
- h) It is important to store the seals away from UV light. Extended periods of exposure to sunlight will damage the seals.

### Wire Rope Lubricant Usage Guidelines

Rope Size mm	Coating Volume kg/m, LE2002/ LE452
10	0.004
15	0.006
20	0.009
25	0.011
30	0.013
35	0.015
40	0.017
45	0.019
50	0.021
55	0.024
60	0.026
65	0.028
70	0.031

Note: Actual usage will vary according to rope size, speed of travel, ambient temperature, rope design and lubricant used.

## **Trouble Shooting**

### **1. NO LUBRICANT ON WIRE ROPE AFTER START UP**

- a) Check lubricant container content.
- b) Check lubricator pump air shut-off valve is open.
- c) Check air pressure on gauge.
- d) Check lubricant flow.

### **2. LUBRICANT WILL NOT FLOW**

- a) Switch on lubricant heater, if ambient temperature is 0°C or below (local supply)
- b) Change to lighter viscosity lubricant below 0°C ambient temperature.
- c) Pre-heat lubricant in lubricant drum.
- d) Increase air pressure and hence lubricant flow, until correct quantity of lubrication is on wire rope.
- e) Reduce wire rope speed to ensure complete coverage.

### **3. TOO MUCH LUBRICANT ON WIRE ROPE**

- a) Reduce air pressure slowly until correct amount of lubricant is on wire rope (this will reduce air motor speed).
- b) Increase wire rope speed through the lubricator collar.
- c) Use a combination of both.
- d) Confirm the wire rope lubricant meets recommended specifications.

## **Guarantee**

The **RAPTOR** Wire Rope Lubricator Kit and all the components are guaranteed for a period of 12 months from date of purchase against any manufacturers fault or material failure.

Fair wear and tear is expected of the unit and is not covered by warranty, tearing of the seals due to broken wires etc. is also not included in the warranty.

It is a condition of warranty that any parts to be claimed upon must first be returned to Lubrication Engineers for inspection prior to warranty being granted.

NOTE: Use of LE452 Almasol Chain and Cable lubricant with the Raptor will enable the user to "DOUBLE" their Raptor warranty period to Two years.

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