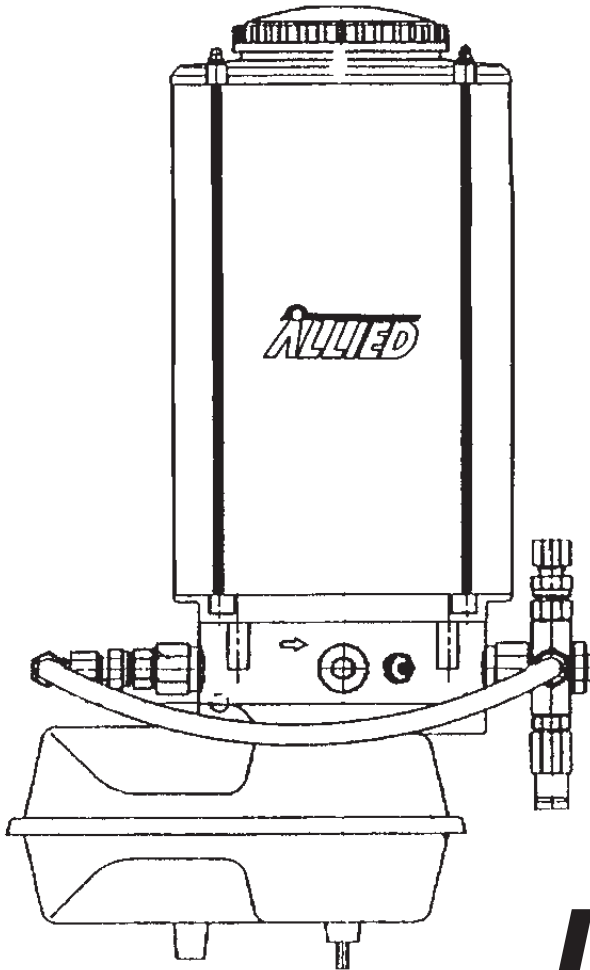

ALLIED[®]
Construction Products, Inc.

**TECHNICAL
MANUAL**

Manual Part No. 002039
December 2, 2002



***AutoLube
Carrier
Mounted
Lubrication
System***

Allied AutoLube CML Document Change Notice

<u>Date</u>	<u>Page</u>	<u>Change</u>
8-13-99	9	Art
8-13-99	11,13	Text and Art - Added Selector Switch
8-13-99	19	Added Hammer Model No's
8-13-99	22,23	Added Diagram and Parts List for Pump
3-15-00	3,13,14	Text
3-15-00	9,11,14,20	Art
3-15-00	19	Part No's.
10-24-01	Chapter 5	New schematics Added Options
10-24-01	Chapter 6	Added pump installation and removal info and warnings


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SECTION 1.0 INTRODUCTION

This manual contains important information for the safe use and maintenance of the Allied AutoLube Carrier Mounted Lubrication System (CML). Read this manual thoroughly before installing, operating or servicing the AutoLube CML. This manual must be easily accessible to operators and service personnel. Store this manual in a convenient location.

 Instructions identified with this symbol are important for personnel safety and full service life of the AutoLube CML. Follow them carefully.



WARNING

Instructions given inside a WARNING box emphasize a potentially dangerous procedure which may result in injury or death to the operator or any bystanders in the work area. Please read and follow these instructions carefully and heed all decals.



CAUTION

Instructions given inside a CAUTION box emphasize a procedure that may cause damage to the equipment if not performed properly. Read these instructions carefully before performing the procedure on the Allied AutoLube CML.

This owners manual describes in detail the procedures needed to operate the Allied AutoLube CML System on site. Pay careful attention to all instructions and follow all governing regulations. Operation or service other than in accordance with these instructions may subject the AutoLube CML to conditions beyond its design capability. Improper operation, service or the use of non-Allied parts may result in AutoLube CML failure or personnel injury.

Responsibility for operation and safety lies at all times with the operator of the carrier. Allied takes no responsibility for the following:

- Incorrect usage of the AutoLube CML.
- Improper handling of the AutoLube CML.
- Inadequate maintenance of the AutoLube CML.
- Use of non-Allied spare parts.

Allied provides no warranty for the following wear parts:

- All seals
- O-rings
- Seal collar
- Hoses

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SECTION 2.0 OVERVIEW

The Allied AutoLube CML System is a maintenance unit for the Allied hydraulic hammers and provides semi-continuous lubrication to the hammer demolition tool and bushings.

The Allied AutoLube CML System provides the following advantages:

- Convenient mounting near cab.
- Two sizes of large, refillable grease reservoirs.
- Self priming.
- Adjustable output.
- Can be used with Allied Chisel Paste.

- Lubricant level can be monitored from operator's cab.
- Electrically operated 12 - 24 Vdc pump unit.

The AutoLube CML is available with the following options; refer to Section 5.3.:

- Selector Switch
- Auto Shut-Off
- Selector Switch and Auto Shut-Off

Figure 2-1 illustrates the AutoLube CML main components.

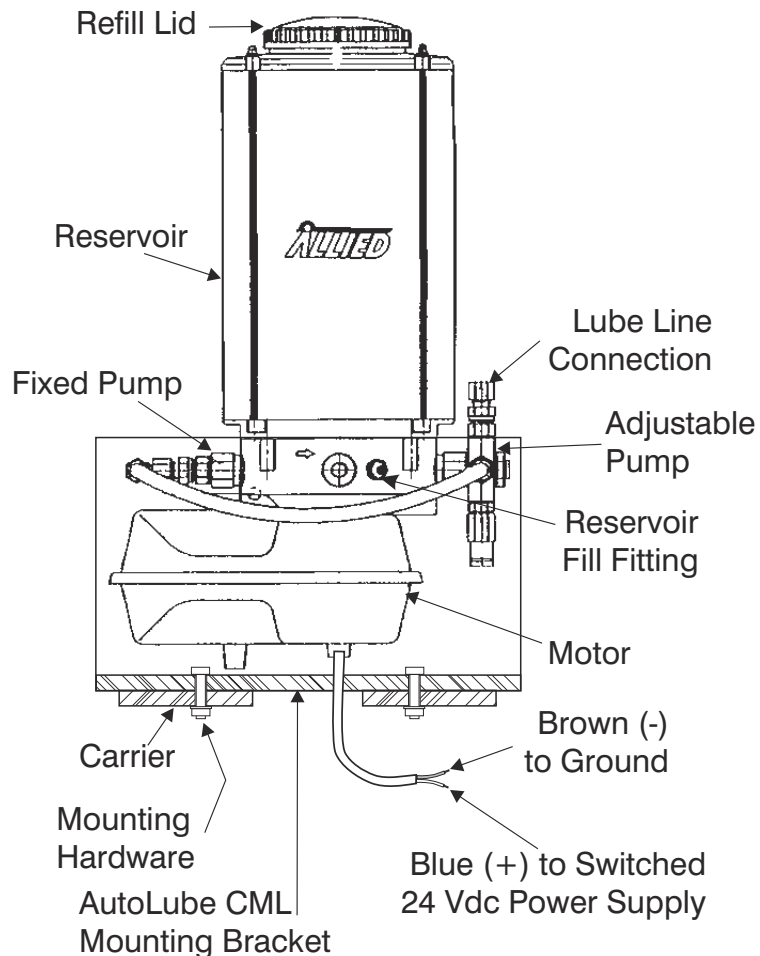
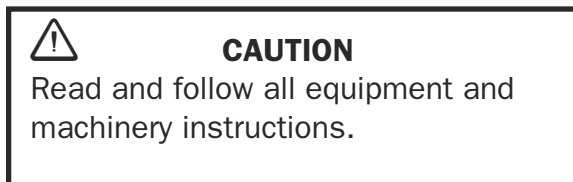


Figure 2-1. AutoLube CML Main Components

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SECTION 3.0 GENERAL CONSTRUCTION SAFETY

Always follow procedures that promote safe conditions for workers and bystanders. This includes, but is not limited to: locating existing underground utility services, establishing pedestrian barriers and wearing personal protective equipment.



Comply with all federal and local regulations regarding construction practices and public safety. Identification of and compliance to governing regulations are the responsibility of the owner and operator.

In the United States, comply with the recommendations of the Occupational Safety and Health Administration standards of the U.S. Department of Labor. For OSHA construction guidelines contact your local federal government office or write:

U.S. Government Printing Office
Superintendent of Documents
P.O. Box 371954
Pittsburgh, Pa. 15250

Ask for Construction Industry OSHA Standards Stock #869-034-00107-6.

3.1 OPERATOR SAFETY RECOMMENDATIONS

- Do not run any hydraulic hoses through the operator's cab; they may leak or even burst, injuring the operator.
- Relieve hydraulic oil pressure before disconnecting or removing existing hoses on the carrier.
- Collect any oil or lubricant which spills out and dispose of it properly.

When welding as needed to mount the AutoLube CML, the following instructions must be observed:

- Disconnect all battery cables from the carrier battery.
- Protect all hoses in the immediate vicinity of the point being welded to prevent danger of fire or damage to hoses from heat.

To avoid damage to the carrier and/or the AutoLube CML, perform the following daily inspections.

- Before starting, visually inspect all hoses, fittings and fasteners for wear and looseness.
- Check lubricant level in reservoir.

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SECTION 4.0 TECHNICAL SPECIFICATIONS

AutoLube CML

Weight (reservoir empty)	12 lbs. (27 kg)
Height (with 8.5 lb. reservoir)	16.46 in. (418 mm)
Height (with 17 lb. reservoir)	23.71 in. (mm)
Width	7.42 in. (189 mm)
Length	12.90 in. (328 mm)
Flow rate	Adjustable
Lubricant Hose Inside Diameter	.314 in. (8 mm)
Lubricant Hose Connecting Threads	M14 x 1.5
Reservoir Capacity	8.5 lbs. (3.9 kg) 17 lbs. (7.7 kg)

Allied Chisel Paste

The use of Allied Chisel Paste extends bushing and tool life of the hammers. It is specially formulated with copper/graphite ingredients that distinguish it from other lubricants on the market. Allied Chisel Paste provides superior and long lasting lubrication properties over a wide range of operating temperatures. Refer to Section 9.0 for ordering information.

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SECTION 5.0 AUTOLUBE CML INSTALLATION

WARNING
Disconnect the battery cables to prevent electric shock before performing any welding work.

CAUTION
Nominal inside diameter of the lubricant supply hose MUST be at least .31 in. (8 mm)

CAUTION
Shield all hydraulic hoses in the AutoLube CML mounting vicinity during welding to avoid the risk of fire or damage to the hoses from excessive heat.

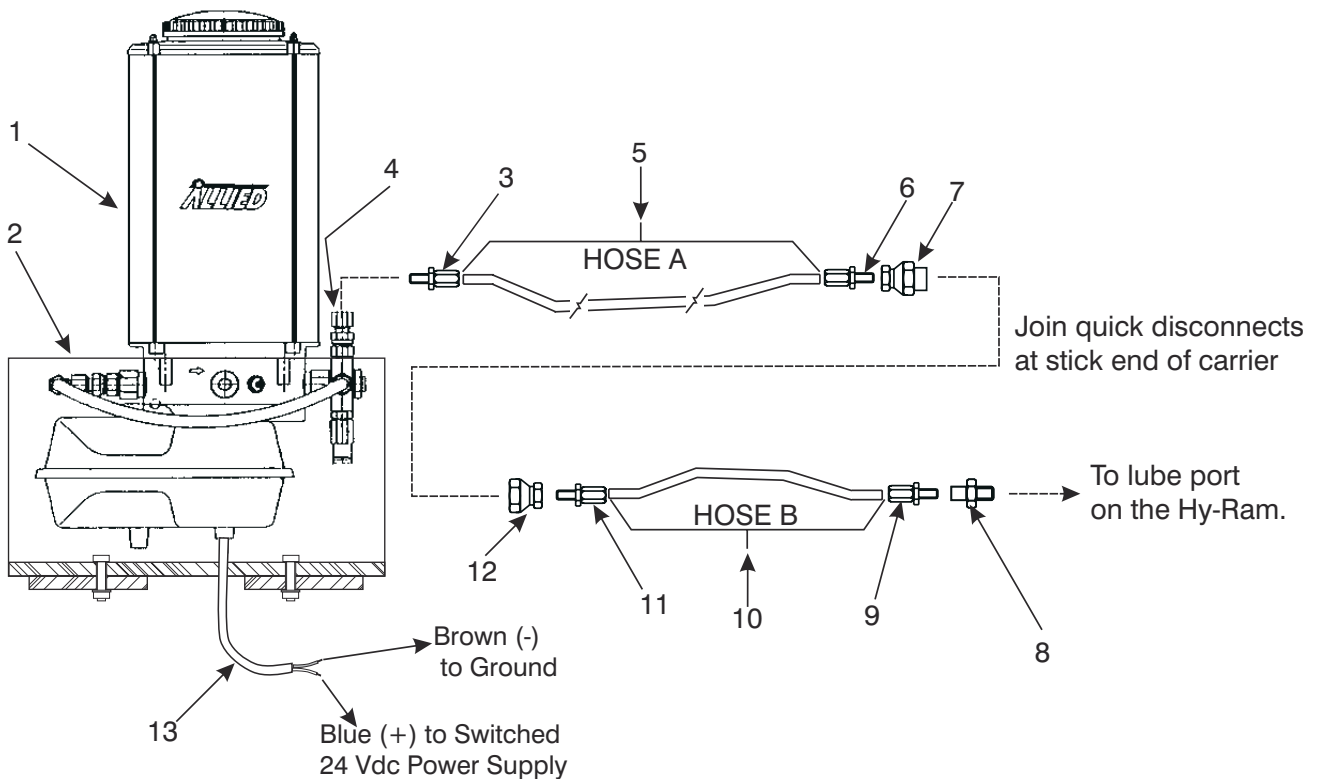


Figure 5-1. AutoLube CML

5.1 Installation

(Refer to Figure 5-1.)



CAUTION

Do NOT cut 60- foot length of hose supplied with AutoLube CML Kit until required lengths are determined during installation.

One 60-foot length of lubricant hose is supplied with the AutoLube CML Kit. This hose is cut into two lengths, Hose A (5) and Hose B (10). The cut lengths are determined by the carrier and hammer configuration as described below. Hose A and Hose B are connected by a quick disconnect at the stick end of the carrier where the hammer is attached to the stick. This allows for easy removal of the lubricant hose when the hammer is removed from the stick.

When installing lubricant hoses, allow for proper slack at all joints. The hoses should hang along the hammer hydraulic hoses.

There are two parts to each re-usable fitting supplied in the AutoLube CML Kit: a ferrule hex nut and a tube fitting stem. The ferrule hex nut screws over the cut end of the hose and the tube fitting stem screws inside the hose and ferrule hex nut. The ferrule hex nut is tightened on the hose and tube fitting stem.

Install the AutoLube CML as follows:

1. Determine the best mounting location for the AutoLube CML (1) near, but not in, the carrier cab.
2. Weld or bolt mounting bracket (2) to carrier.
3. Bolt AutoLube CML to bracket with 5/16-inch bolts, lockwashers and nuts.

5.1.1 Install and Cut Hose A



CAUTION

Do NOT cut 60- foot length of hose supplied with AutoLube CML Kit until required lengths are determined during installation.

1. Install re-usable fitting (3) on one end of 60-foot length of hose.
2. Connect fitting (3) and hose to tube fitting (4) on AutoLube CML.
3. Route and secure hose from AutoLube CML to the end of the stick close to where the hammer is attached. Allow for proper slack at joints.
4. Cut hose to length so that the cut end of the hose is close to the end of the hammer hydraulic hoses. This cut length of hose is Hose A (5).
5. Install re-usable fitting (6) then male end of quick disconnect (7) to cut end of Hose A (5).

5.1.2 Install and Cut Hose B


1. Remove lubricating nipple from hammer lubrication port and install adapter (8). Store lubricating nipple.
2. Install re-usable fitting (9) on one end of remaining length of hose, Hose B (10).
3. Connect fitting (9) and hose to adapter (8) on hammer.
4. Extend Hose B (10) to meet Hose A (5) at end of hammer hydraulic hoses.
5. Cut Hose B (10) to fit.


6. Install re-usable fitting (11), then female end of quick disconnect (12) to cut end of Hose B.
7. Connect quick disconnects for operation.
8. Secure all hoses.

5.2 ELECTRICAL INSTALLATION

(Refer to Figure 5-2.)

1. Route electrical cable (13, Figure 5-1) to hammer foot switch. A 5 amp in-line fuse must be installed between the AutoLube CML and the foot switch as shown in Figures 5-2 and 5-3.
2. Attach wires:
 - Brown wire (negative) from CML to ground.
 - Blue wire (+24Vdc) from CML to the foot switch.

 **CAUTION**
 When a different attachment is used instead of the Allied hammer, the CML must be disconnected electrically by removing the 5 amp fuse. If the CML is not disconnected, grease will continue to be pumped out of the unit.

 **CAUTION**
 When the hammer foot switch on the carrier is used for a cruncher or other application, a relay must be installed to disengage the AutoLube CML from operating while other devices are in use. Consult the Allied Technical Service Department.

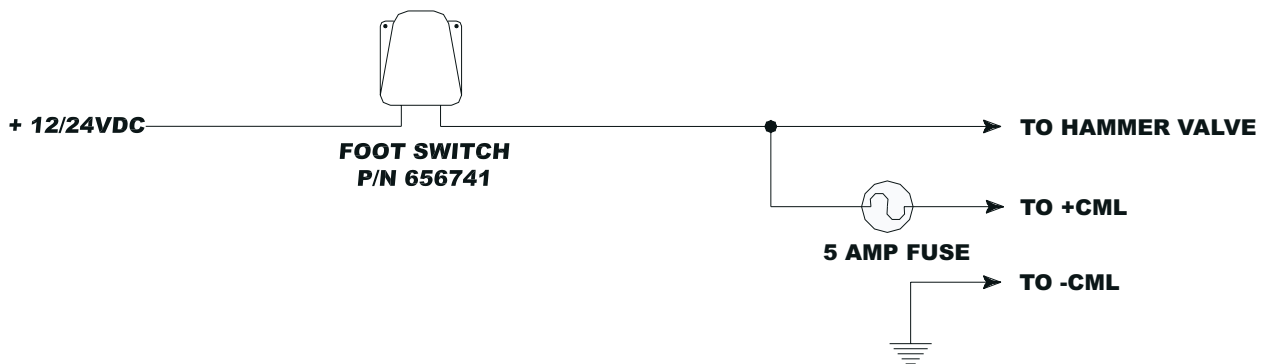



Figure 5-2. CML Schematic - Standard - No Optional Equipment

5.3 OPTIONAL EQUIPMENT

5.3.1 SELECTOR SWITCH

(Refer to Figure 5-3.)



CAUTION

Selector switch must be turned OFF when hammer is not in use.

The AutoLube CML is activated, providing lubrication, whenever the hammer is operated with the foot switch. The optional selector switch can be installed to provide continuous lubrication. When the switch is turned on, the AutoLube CML continues to operate even though the hammer is intermittently stopped during the work period. When the switch is turned off, the AutoLube CML operates normally with the foot switch. **The selector switch MUST be turned off when the hammer is shut down for more than 10 minutes.**

Install selector switch as shown in Figure 5-3.

5.3.2 AUTO SHUT-OFF

(Refer to Figure 5-4.)

The auto shut-off option prevents the AutoLube CML from running out of grease. When the grease level lowers to a point above the pump, the unit shuts down; the pump and the attachment will not operate until the reservoir is filled with grease.

Install selector switch as shown in Figure 5-5.

5.3.3 SELECTOR SWITCH AND AUTO SHUT-OFF

(Refer to Figure 5-5.)

The optional selector switch provides continuous lubrication as described in section 5.3.1. The optional auto shut-off shuts the CML and the hammer down when the reservoir needs to be filled with grease as described in section 5.3.2. Install selector switch and auto shut-off as shown in Figure 5-5.

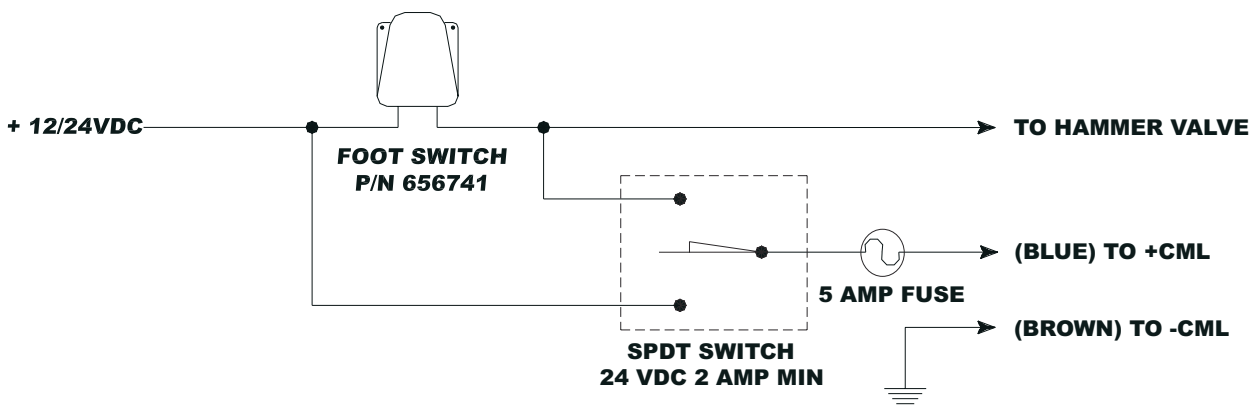


Figure 5-3. CML Schematic with Optional Selector Switch

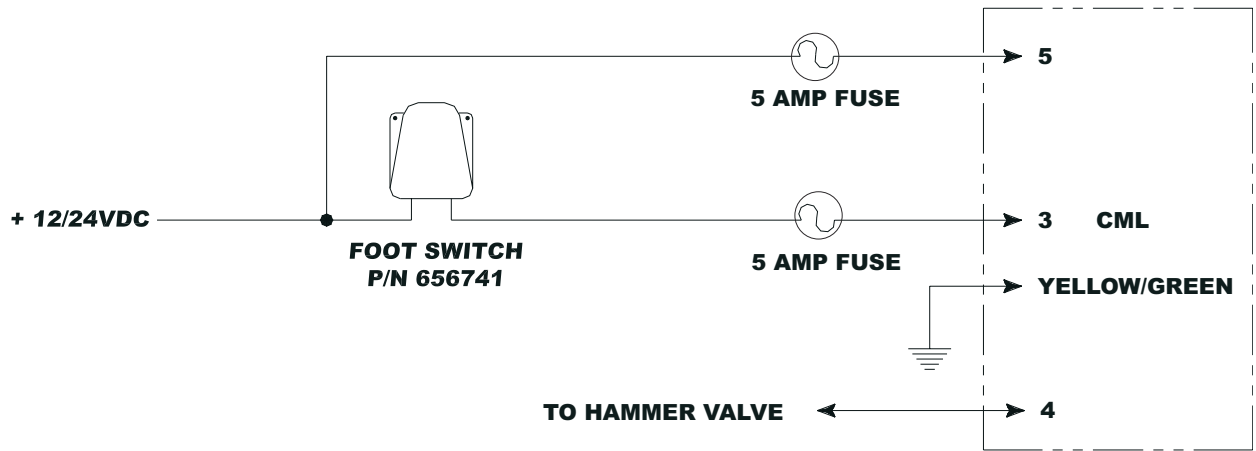


Figure 5-4. CML Schematic with Optional Auto Shut-Off

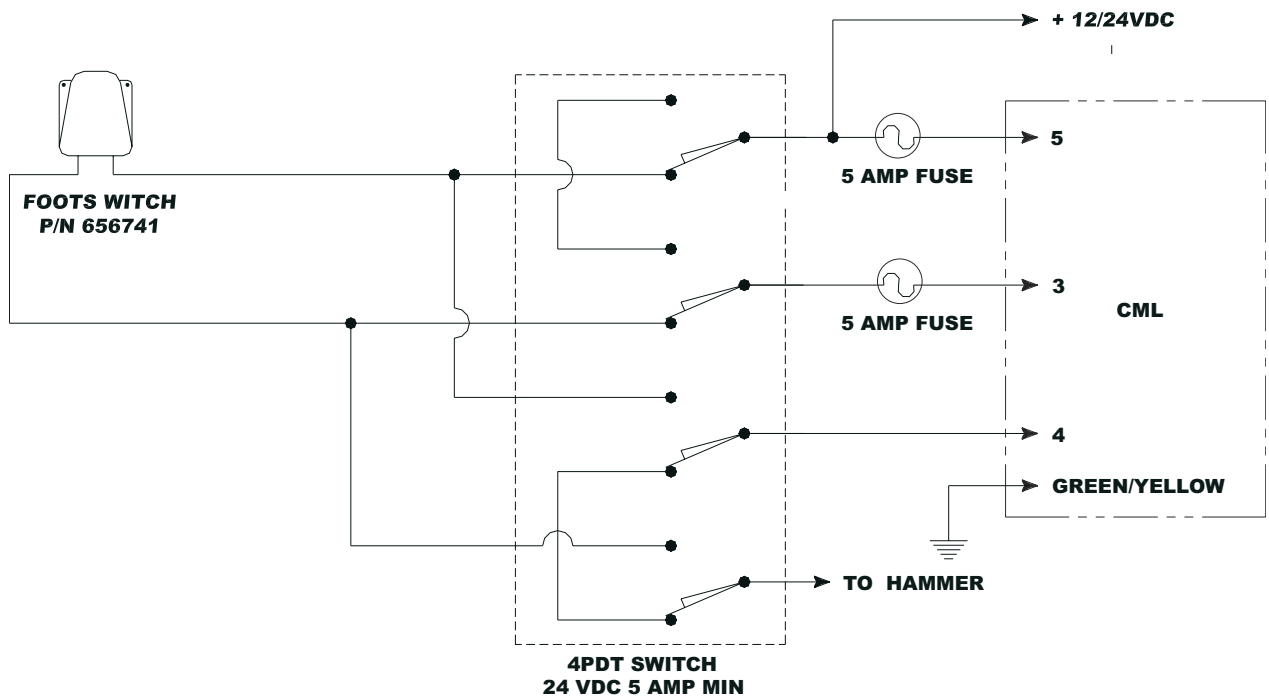


Figure 5-5. CML Schematic with Optional Selector Switch and Auto Shut-Off

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SECTION 6.0 AUTOLUBE CML OPERATION

6.1 THEORY OF OPERATION

The AutoLube CML is used on a hydraulic hammer to lubricate the wear bushings and demolition tool automatically every time the Hy-Ram is operated.

Each time the hammer is activated, electric power activates the pump which pumps chisel paste to the hammer tool holder. As the hammer operates, the AutoLube CML supplies continuous lubrication to the tool holder.

When the hammer is stopped, electric power to the pump is turned off and the AutoLube CML stops operating.

With the optional selector switch turned ON, the AutoLube CML operates continuously, even when the hammer is momentarily stopped.

6.2 FILLING AUTOLUBE CML RESERVOIR

1. Turn off hammer.
2. Remove lid from AutoLube CML reservoir.
3. Clean open edge of reservoir.



CAUTION

DO NOT allow contaminants in the reservoir when filling with Chisel Paste; use pure, clean Chisel Paste. Contaminates in the Chisel Paste will be forced through the CML resulting in damage and faulty operation.

DO NOT allow the grease level in the reservoir to fall below the pump. Air pockets will form, stopping grease flow to the hammer.

3. To avoid air pockets in the system, do not allow the reservoir to run dry of grease.
4. Add pure, clean Allied Chisel Paste, avoiding contamination.
5. Close lid on AutoLube CML reservoir.

NOTE

The AutoLube CML Lubrication hoses are filled with lubricant when shipped. It is not necessary to prefill hoses or bleed air from hoses. The AutoLube CML will pump any air from hoses during normal operation.

6.3 MAINTENANCE BEFORE OPERATION

1. Tighten all loose fittings.
2. Replace all damaged tubes or hoses.
3. Check the lubricant level in the AutoLube CML.



CAUTION

Do not use the AutoLube CML or Allied Chisel Paste to lubricate anything other than the hammer wear bushings and demolition tool. Chisel paste will damage bearings. Use only in accordance with Allied instructions.

**CAUTION**

Do not let reservoir run dry of grease. Maintain the grease level above the pump element to avoid air pockets in the system. Air pockets are time-consuming to purge.

6.4 OPERATION

(Refer to Figure 6-1.)

The amount of lubricant supplied to the lubricating point in the tool holder is controlled by the stroke setting on the slide piston in the pump. This amount of lubricant is forced through the lubrication hose into the tool holder when the hammer is started. The length of the slide piston stroke and the amount of lubricant delivered per stroke can be adjusted with the adjusting screw as follows:

- If excessive lubricant emerges from the lower wear bushing during operation, the AutoLube CML piston stroke is too

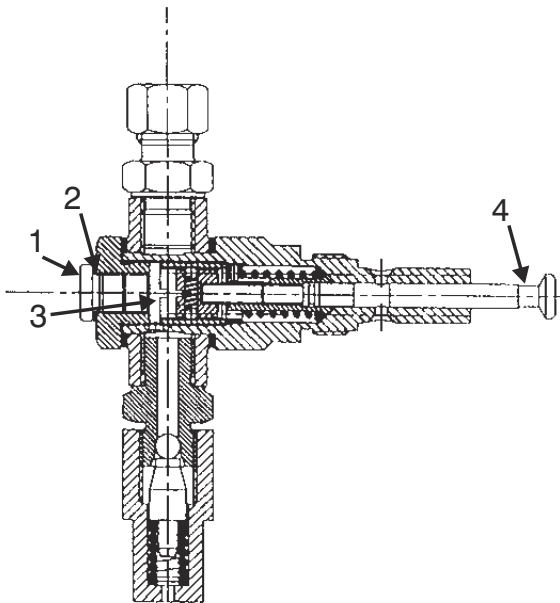


Figure 6-1. AutoLube CML Adjustment

long and forces too much lubricant into the tool holder.

1. Remove lock nut (1) and washer (2) with 5mm socket head.
 2. Turn internal adjusting screw (3) IN (clockwise) one click at a time to reduce output.
 3. Replace washer and lock nut.
 4. Re-check lube flow before operation.
- If dry areas are observed on the demolition tool during operation, the AutoLube CML piston stroke is too short, delivering too low an amount of lubricant.
 1. Remove lock nut (1) and washer (2).
 2. Turn internal adjusting screw (3) OUT (counter-clockwise) one click at a time to increase output.
 3. Replace washer and lock nut.
 4. Re-check lube flow before operation.

6.5 PUMP ELEMENT**6.5.1 PUMP ELEMENT INSTALLATION****CAUTION**

The pump element **MUST** be tilted upward when installing as described in the following procedure and illustrated in Figure 6-2. If the pump element is not tilted as described, the cam and pump may jam which will stall and burn out the motor. Improper installation will void the AutoLube CML Warranty.

1. Pull primary grease piston (4, Figure 6-1) out about 1 inch.

2.

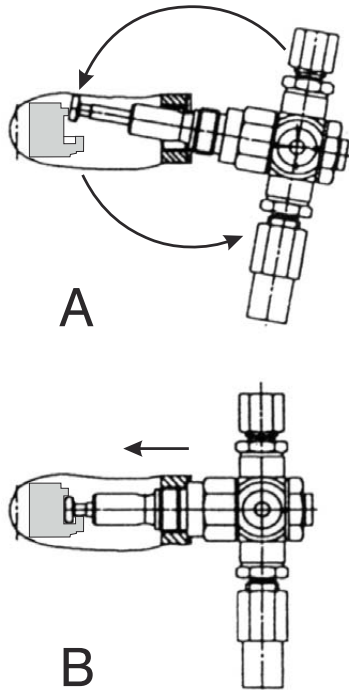


Figure 6-2 Installation & Removal of Pump Element

Tilt the pump element upward and insert the pump element into the pump housing orifice (Refer to view A in Figure 6-2).

3. When the piston touches the thrust ring, straighten the pump element to the horizontal plane. (B in Figure 6-2.) The piston should rest in the guide ring groove.
4. Tighten pump element lock nut (1, Figure 6-1).



CAUTION

When removing pump, DO NOT leave piston (Item 4, Figure 6-1) in cam. The piston must be removed with the pump element. Severe equipment damage will result if piston is not removed.

1. Reverse the steps above to remove the pump element. Ensure that piston (4, Figure 6-1.) is removed with pump element.

6.6 WORKING IN HIGH/LOW TEMPERATURES

The AutoLube CML is powered by 24 Vdc and pressurizes the lubricant hose with chisel paste.

The use of Allied Chisel Paste is recommended. This paste can be used in an operating temperature range of -20°F to +425°F (-29°C to +218°C).

6.7 WORKING UNDERWATER

The entire AutoLube CML and its holder must remain above the surface of the water.


The fittings on the lubricant hoses must be tightened with particular care to avoid leaks.

For further details on underwater operation, contact your Allied Technical Service Department.

6.5.2 PUMP ELEMENT REMOVAL

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**SECTION 7.0
TROUBLESHOOTING**

	<p>WARNING</p> <p>When correcting faults, follow referenced procedures; pay particular attention to all CAUTIONS and WARNINGS.</p>
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Problem	Cause	Remedy
No Lubrication at Lubrication Point.	Lubricant reservoir empty.	Fill reservoir with chisel paste.
	Lubricant hose blocked.	Check hose, replace if necessary. Perform functional test with hose uncoupled. (Refer to Section 5.1)
	Lube system draws in air.	Check hose. Tighten fittings. (Refer to Section 5.1)
Lubricant Supply too Low.	Piston stroke set too short.	Adjust piston stroke (refer to Section 6.4).
Lubricant Supply too High.	Piston stroke set too long.	Adjust piston stroke (refer to Section 6.4).
Lubricant Supply Incorrect.	Wrong type of lubricant.	Use Allied Chisel Paste. (Refer to Sections 4.0 and 9.0.).
Pump Not Operating.	In-line 5 amp fuse blown.	Replace 5 amp fuse. (Refer to Section 5-3 illustrations.).

7.1 AUTOLUBE CML INOPERABLE

If the AutoLube CML fails to work properly and the cause cannot be determined, contact your Allied Technical Service Department for further assistance.

7.2 MANUAL LUBRICATION

If the AutoLube CML is out of service, the hammer can be manually lubricated as follows:

1. Unscrew Hose B (10, Figure 5-1) from the hammer connection.
2. Remove adapter (8) from hammer.
3. Screw hammer lubricating nipple into hammer lube connection.
4. Lubricate using a hand-held grease gun.

SECTION 8.0 REMOVAL AND STORAGE OF AUTOLUBE CML

8.1 MECHANICAL REMOVAL OF AUTOLUBE CML

1. Unscrew lubricant hose from the AutoLube CML.
2. Unscrew lubricant hose from the lubrication port on the hammer.
3. Plug the fittings with tapered plugs to provide protection from dirt and debris.
4. Disconnect electrical connections.
5. Unscrew the two attachment bolts from AutoLube CML mounting plate.
6. Remove the complete AutoLube CML and store in a secure place.

8.2 REATTACHING AUTOLUBE CML AFTER IDLE PERIODS

1. Clean the lubricant hose and remove any blockages formed by residual lubricant.
2. Clean all fittings before connecting.
3. Refer to SECTION 5.0 AUTOLUBE CML INSTALLATION.

NOTE

It is not necessary to prefill hoses or bleed air from hoses. The AutoLube CML will pump any air from hoses during normal operation.

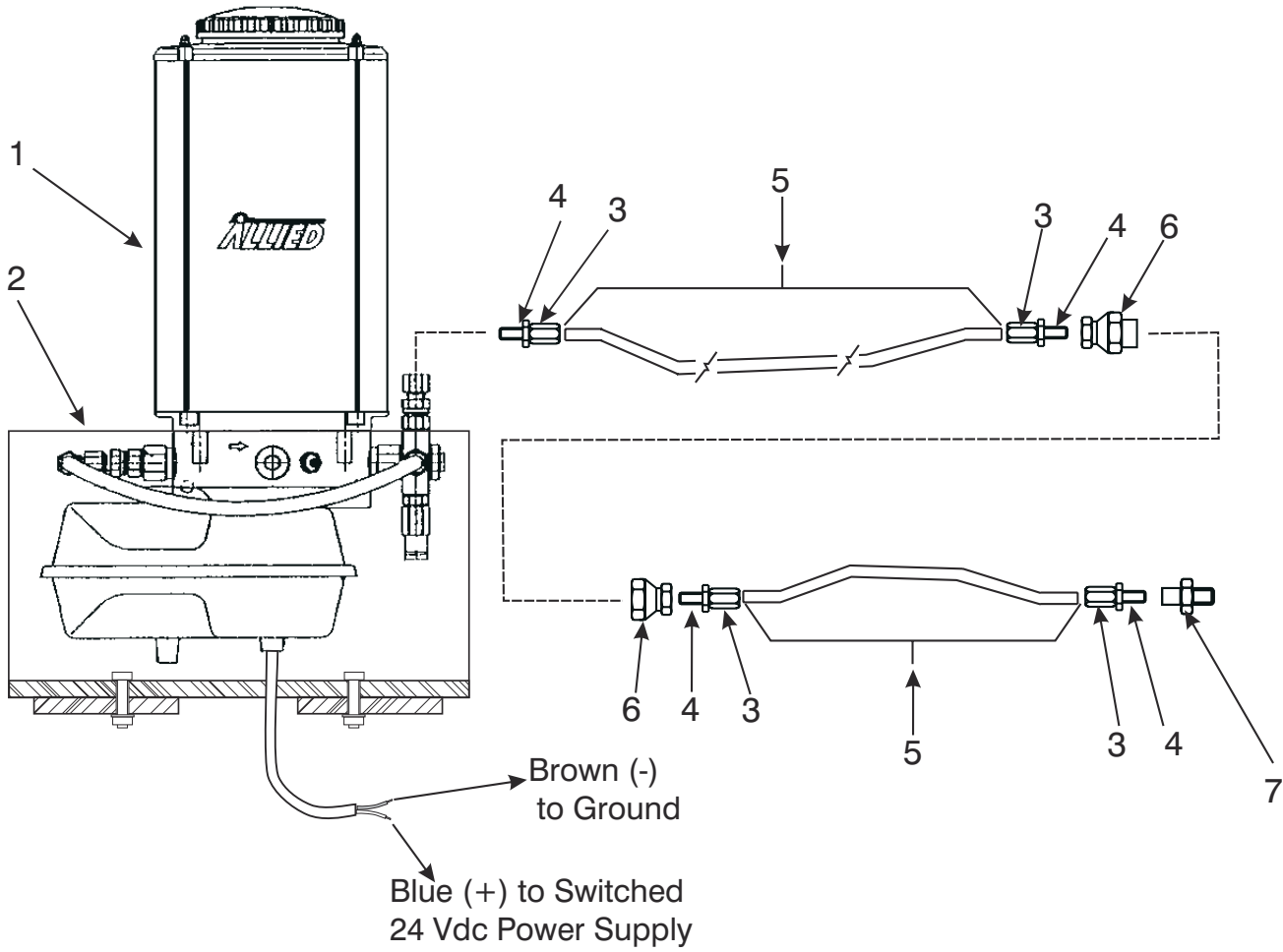
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**SECTION 9.0
PARTS INFORMATION**

AutoLube CML Kit Part Number				
AutoLube CML Part No.	Reservoir Capacity	Voltage	Auto Shut Off	Recommended for Hammer Model
101762	8.5 lbs..	12	No	Allied Hy-Ram Hammers 735, 745, 755, 775
660264	8.5 lbs.	24	No	
101603	8.5 lbs .	24	Yes	
101760	17 lbs.	12	No	Allied Hy-Ram Hammers 785, 797,805, 905
660265	17 lbs.	24	No	
101651	17 lbs.	24	Yes	
101762	8.5 lbs..	12	No	Allied Street Hammer AS380
660264	8.5 lbs.	24	No	
101603	8.5 lbs .	24	Yes	
101762	8.5 lbs..	12	No	Allied AR Hammers AR 70 AR75 AR95
660264	8.5 lbs.	24	No	
101603	8.5 lbs .	24	Yes	

Allied Chisel Paste

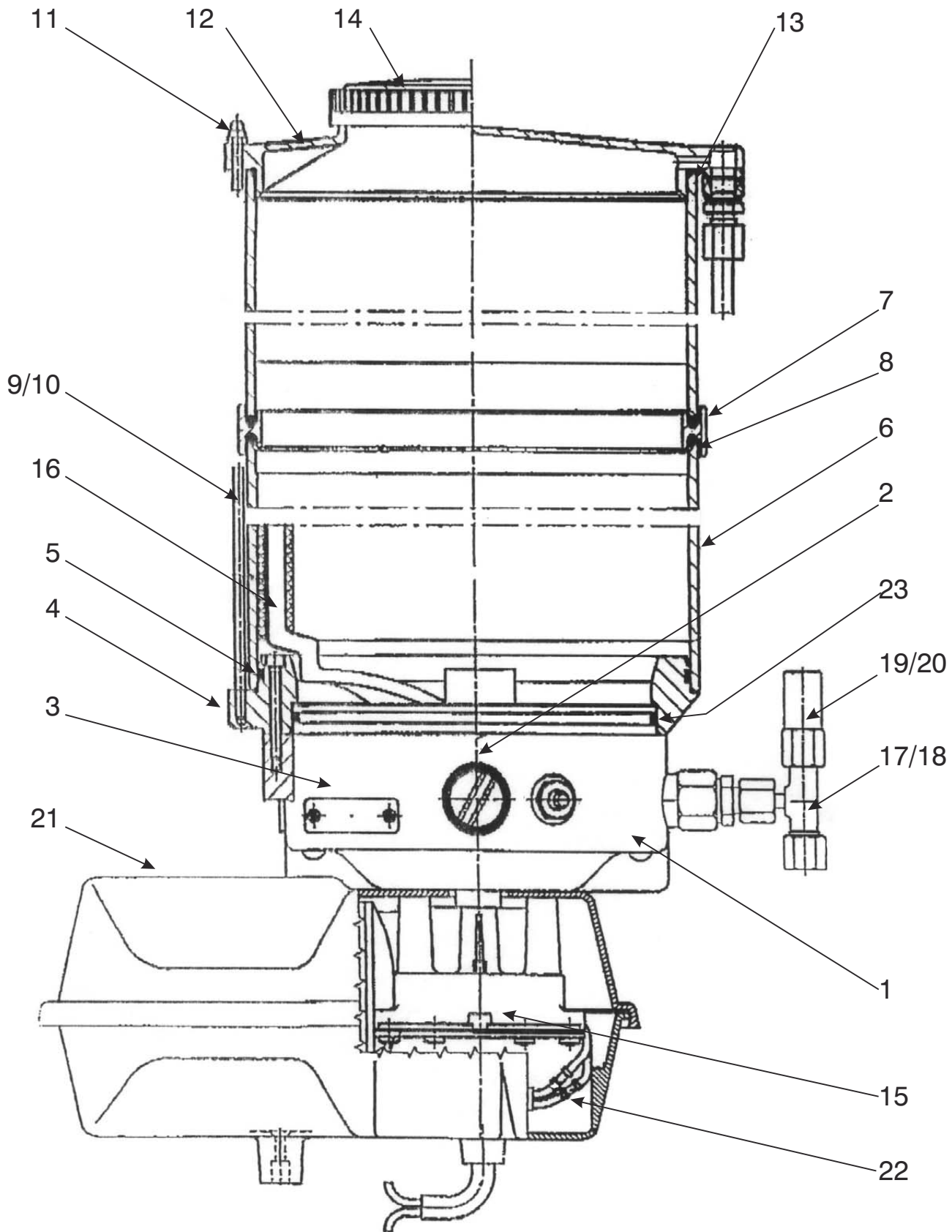
<u>Allied Part No.</u>	<u>Description</u>
679968	Keg (120 lbs.)
679960	Tube (16 oz.)
100057	Case (12 Tubes)
100058	Case (36 tubes)



AutoLube CML Kit

AutoLube CML Kit
Large CML Kit 660265, Medium CML Kit 660264,
Kit Parts List

ITEM ONLY	QTY.	PART NO.	DESCRIPTION
1	1	660257	Double Pump, 17 lb. reservoir (shown)
	1	660256	Single Pump, 8.5 lb. reservoir (not shown)
2	1	660266	Mounting Bracket
3	4	660260	Threaded Sleeve, Ferrule Hex Nut
4	4	660261	Tubular Socket, Tube Fitting Stem
5	1	660259	Prefilled Hose, 60 ft. (Cut into two pieces during installation)
6	1	660263	Quick Disconnect Set
7	1	660262	Adapter
8	1	679967	AutoLube Decal



AutoLube CML Pump

AutoLube CML Pump
Parts List
Single Pump, 8.5 lb. (4kg) Reservoir, Part No. 660256
Double Pump, 17 lb. (8kg) Reservoir, Part No. 660257

ITEM ONLY	QTY.	PART NO.	DESCRIPTION
1	1	818738	Pump Case CML
2	1	818739	Cam Pump CML
3	1	818740	Base Plate CML
4	1	818742	Flange CML
5	1	818743	O-Ring CML
6	2	818744	Transparent Reservoir, 4kg CML
7	1	818745	Flange CML (DOUBLE PUMP 660257 ONLY)
8	2	818746	O-Ring CML (DOUBLE PUMP 660257 ONLY)
9	4	818748	Screw for 4kg Container CML
10	4	818749	Screw for 8kg Container CML (DOUBLE PUMP 660257 ONLY)
11	4	818750	Nut CML
12	1	818755	Pump Cover 4kg/8kg CML (with filling cover)
13	1	818756	O-Ring CML
14	1	818757	Filling Cover CML
15	1	818759	DC Gear - Motor, 24V CML
16	1	818762	Rotating Charging Arm CML
17	1	818763	Pump Element PE-120 without Pressure Relief Valve (DOUBLE PUMP 660257 ONLY)
18	1	818764	Pump Element PE-120 Variable without Pressure Relief Valve
19	1	818765	Pressure Relief Valve for PE-120 CML (DOUBLE PUMP 660257 ONLY)
20	1	818766	Pressure Relief Valve for PE-120 Variable CML
21	1	818768	Motor Case, Top CML
22	1	818769	Motor Case, Bottom CML
23	1	818774	O-Ring CML
24	1	102166	Fitting Tee Assembly
25	1	102250	Tube Assembly (Double Pump Only - Not Shown)
