



Operation and Maintenance Manual

Enerpac LGH3100B & LGH3100E **100 Ton 3 Jaw Hydraulic Grip Puller (Convertible to 2 Jaw Configuration)**

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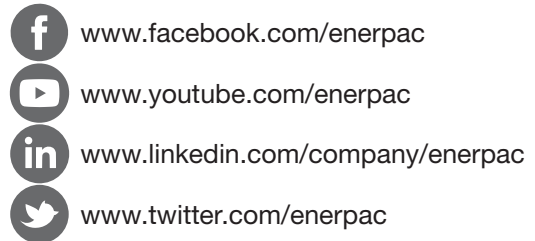
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To reduce the risk of injury, users must read and understand this document before use.

ABOUT US

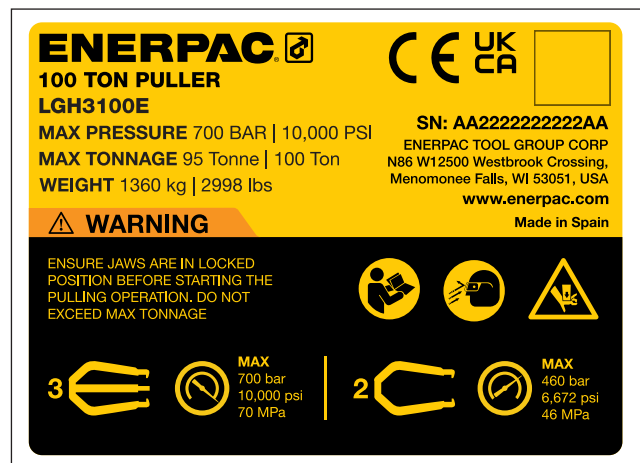
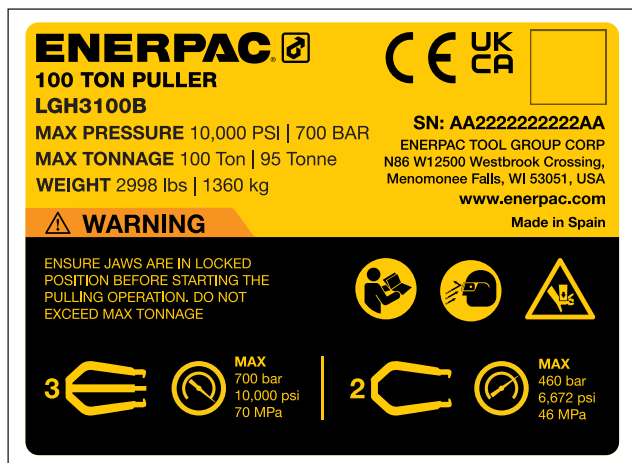
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WARRANTY

Refer to the Enerpac Global Warranty document for terms and conditions of the product warranty. Such warranty information can be found at www.enerpac.com.

NAMEPLATES



AVAILABLE LANGUAGES

An electronic copy of this document is available online in multiple languages:

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1. Safety

Read all instructions carefully. Follow all recommended safety precautions to avoid personal injury as well as damage to the product and / or damage to other property. Enerpac cannot be responsible for any damage or injury from unsafe use, lack of maintenance, or incorrect operation. Do not remove warning labels, tags, or decals. In the event that any questions or concerns arise, contact Enerpac or a local Enerpac distributor for clarification.

Save these instructions for future use.

If you have never been trained on high-pressure hydraulic safety, consult your distributor or service center for information about Enerpac Hydraulic Safety Courses.

This manual follows a system of safety alert symbols, signals, words, and safety messages to warn the user of specific hazards. Failure to comply with these warnings could result in death or serious personal injury, as well as damage to the equipment or other property.



The Safety Alert Symbol appears throughout this manual. It is used to alert you to potential physical injury hazards. Pay close attention to Safety Alert Symbols and obey all safety messages that follow this symbol to avoid the possibility of death or serious injury.

Safety Alert Symbols are used in conjunction with certain Signal Words that call attention to safety messages or property damage messages and designate a degree or level of hazard seriousness. The Signal Words used in this manual are DANGER, WARNING, CAUTION, and NOTICE.

⚠ DANGER Indicates a hazardous situation that, if not avoided, will result in death or serious personal injury.

⚠ WARNING Indicates a hazardous situation that, if not avoided, could result in death or serious personal injury.

⚠ CAUTION Indicates a hazardous situation that, if not avoided, could result in minor or moderate personal injury.

NOTICE Indicates information considered important, but not hazard related (e.g. messages related to property damage). Please note that the Safety Alert Symbol will not be used with the signal word.

1.1 Safety Precautions

⚠ WARNING

Failure to observe and comply with the following precautions could result in death or serious personal injury. Property damage could also occur.

- Read and completely understand the safety precautions and instructions in this manual before operating the cylinder or preparing it for use. Always follow all safety precautions and instructions, including those that are contained within the procedures of this manual.
- Operating procedures will vary, depending on the system arrangement and the specific components being used. Always read, follow and completely understand all manufacturer's instructions when operating pumps, valves and all other devices used with the cylinders. Follow all safety precautions contained in the manufacturer's manuals.
- Always wear appropriate personal protective equipment (P.P.E.) when operating hydraulic equipment. Be sure to wear eye protection, work gloves and protective clothing. Use of additional P.P.E. safety items such as dust mask, non-skid safety shoes, hard hat, and hearing protection (used as appropriate for the conditions) will reduce the chance of personal injuries. The use of these items may also be required by local regulations or laws.
- Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin. If oil is injected under the skin, see a doctor immediately.
- Do not pressurize disconnected couplers.
- Do not remove or disable the pump relief valve.
- The system operating pressure must not exceed the pressure rating of the lowest rated component in the system.
- Never set a relief valve to a higher pressure than the maximum rated pressure of the pump and puller. If ratings are different, relief valve setting should not exceed the setting of the lowest rated component (pump or puller).
- Overloading may cause equipment failure and possible personal injury.
- Be sure setup is stable before lifting load. The puller should be located on a firm and level surface capable of supporting the full load.
- The puller should be positioned in line with the shaft or the component to be disassembled.
- Do not use the puller if the surface which will be impacted by the cylinder is not sufficiently flat.
- Do not use the puller if the pressure required to disassemble the component is higher than the maximum energy absorption capacity of the shaft.
- Do not weld, drill or otherwise modify a cylinder to attach a base plate or other support unless approved in writing by Enerpac Engineering Department. Use only the provided bolt holes.
- Always perform a visual inspection of the puller before placing it into operation. If any problems are found, do not use the puller. Have the puller repaired and tested before it is returned to service.

- Never use the puller if it is leaking oil, damaged, altered or in need of repair.
- Always lift the puller using a hoist, crane or other suitable lifting device of sufficient rated capacity. Use only the supplied lifting eyes to attach the puller to the lifting device. Replace any missing or damaged lifting eyes.
- The puller can also be lifted and moved by a forklift using the forklift pockets.
- Allow only trained and experienced personnel to supervise and perform the puller operation.
- Be certain that no persons are working on or near the puller before the operation begins. Alert all personnel in advance that puller operation is about to occur.
- Keep all personnel clear of the work area while the puller is working. To avoid personal injury, keep hands and feet away from cylinder and load during operation.
- Maintain communication with the operator at all times during pulling operation to avoid accidents. Use hand signals, two-way radios or other appropriate forms of communication (as required by applicable laws and regulations) if the load is not visible to the operator.
- Operate pump and valve as required to ensure that the puller is working at a controlled rate.
- Closely watch the operation at all times. Stop the puller immediately if the setup becomes unstable.
- Always be certain that hydraulic pressure is fully relieved from the puller before disconnecting hydraulic hoses, loosening hydraulic fittings, or performing any cylinder disassembly or repair procedures.
- Expect system to be under high pressure when at rest despite gauge reading zero. Failure to follow procedure to dump pressure from the system could result in death or serious personal injury.



Failure to observe and comply with the following precautions could result in minor or moderate personal injury. Property damage could also occur.

- Be careful to avoid damaging hydraulic hoses. Avoid sharp bends and kinks when routing hydraulic hoses. Do not exceed the minimum bend radius specified by the hose manufacturer. Using a bent or kinked hose will cause severe back-pressure. Sharp bends and kinks will internally damage the hose, leading to premature hose failure.
- Do not drop heavy objects on hoses. A sharp impact may cause internal damage to hose wire strands. Applying pressure to a damaged hose may cause it to rupture.
- Do not lift hydraulic equipment by the hoses or couplers. Use the cylinder lifting eyes and appropriately rated lifting equipment.
- Keep hydraulic equipment away from flames and heat. Excessive heat will soften packings and seals, resulting in fluid leaks. Heat also weakens hose materials and packings.

- For optimum performance, do not expose hydraulic equipment to temperatures of 150°F [65°C] or higher. Protect all hydraulic equipment from weld spatter.
- Immediately replace worn or damaged parts with genuine Enerpac parts. Enerpac parts are designed to fit properly and to withstand high loads. Non-Enerpac parts may break or cause the product to malfunction.

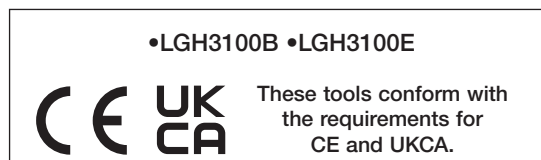
NOTICE

Failure to observe and comply with the following precautions could result in property damage and/or void the product warranty.

- Always use Enerpac pumps and hoses.
- Always use Enerpac replacement parts.
- Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the Enerpac authorized service center in your area.
- To help ensure proper operation and best performance, use of Enerpac oil is strongly recommended.

2. Compliance Statement(s)

2.1 Conformance to National and International Standards



Enerpac declares that the product has been tested and conforms to applicable standards and that the product is compatible with all EU and UK Requirements.

Copies of the EU Declaration as well as the UK Self-Declaration are enclosed with each shipment.

3. Features & Components

3.1 LGH3100 Puller

- | | |
|---------------------|---------------------------------------|
| 1. Pushing Cylinder | 6. Cart Cylinder (puller raise/lower) |
| 2. Puller Jaws | 7. Jaw Cylinders |
| 3. Electric Pump | 8. Control Panel |
| 4. Lifting Eye | 9. Stopper Blocks |
| 5. Puller Cart | 10. Puller Support |

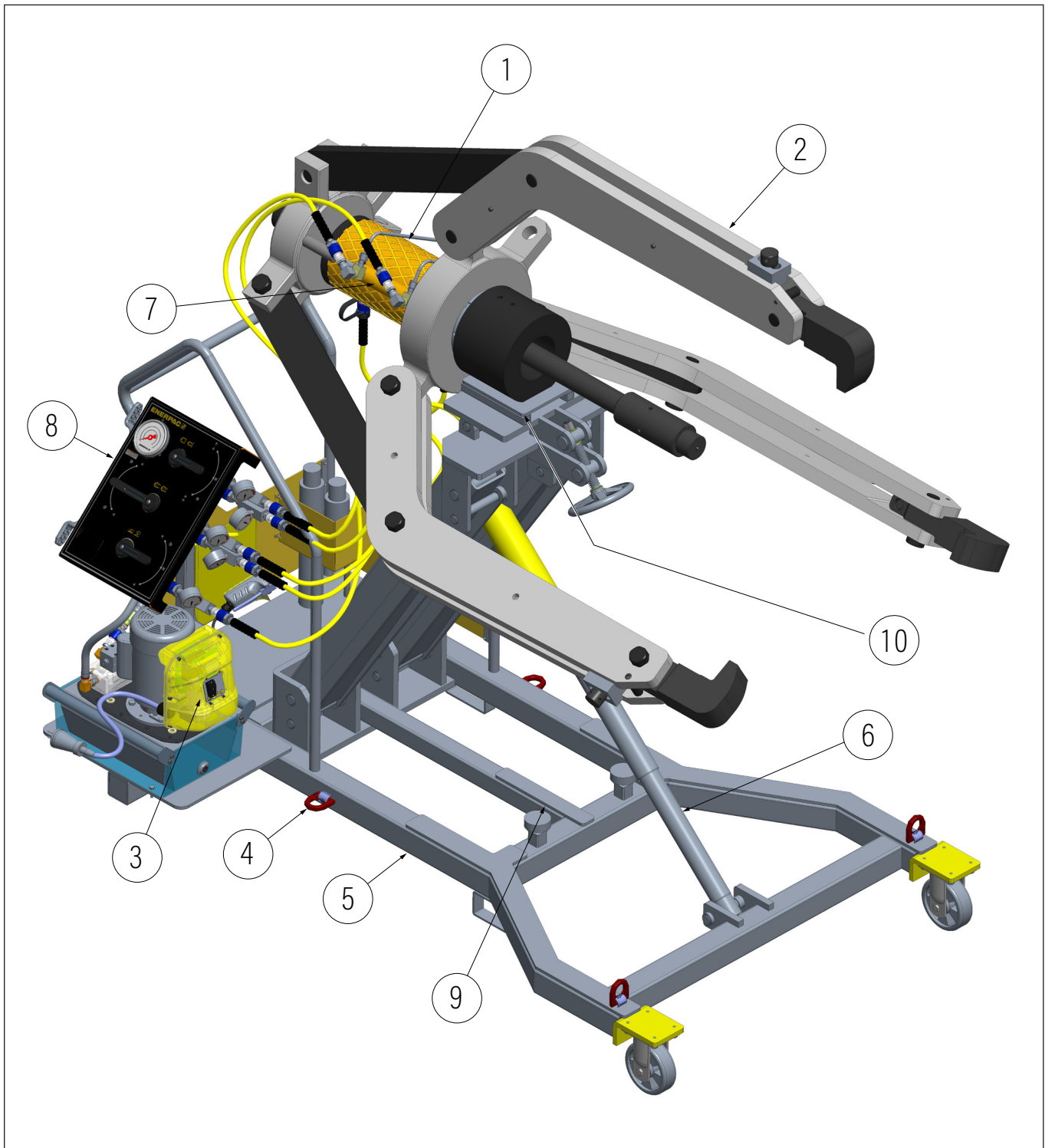


Figure 1: Features and Components of Models LGH3100B and LGH3100E

3.2 Control Panel

- | | | |
|---------------------------|---------------------------|-------------------------|
| 1. Open/Close Jaws Lever | 7. C Port | 13. Reservoir Output |
| 2. Pushing Cylinder Lever | 8. D Port | 14. Pressure Input |
| 3. Raise/Lower Lever | 9. Relief Valve | 15. Gauge Pressure Line |
| 4. Relief Valve | 10. Pendant Cable Support | |
| 5. A Port | 11. Gauge | |
| 6. B Port | 12. Port E | |

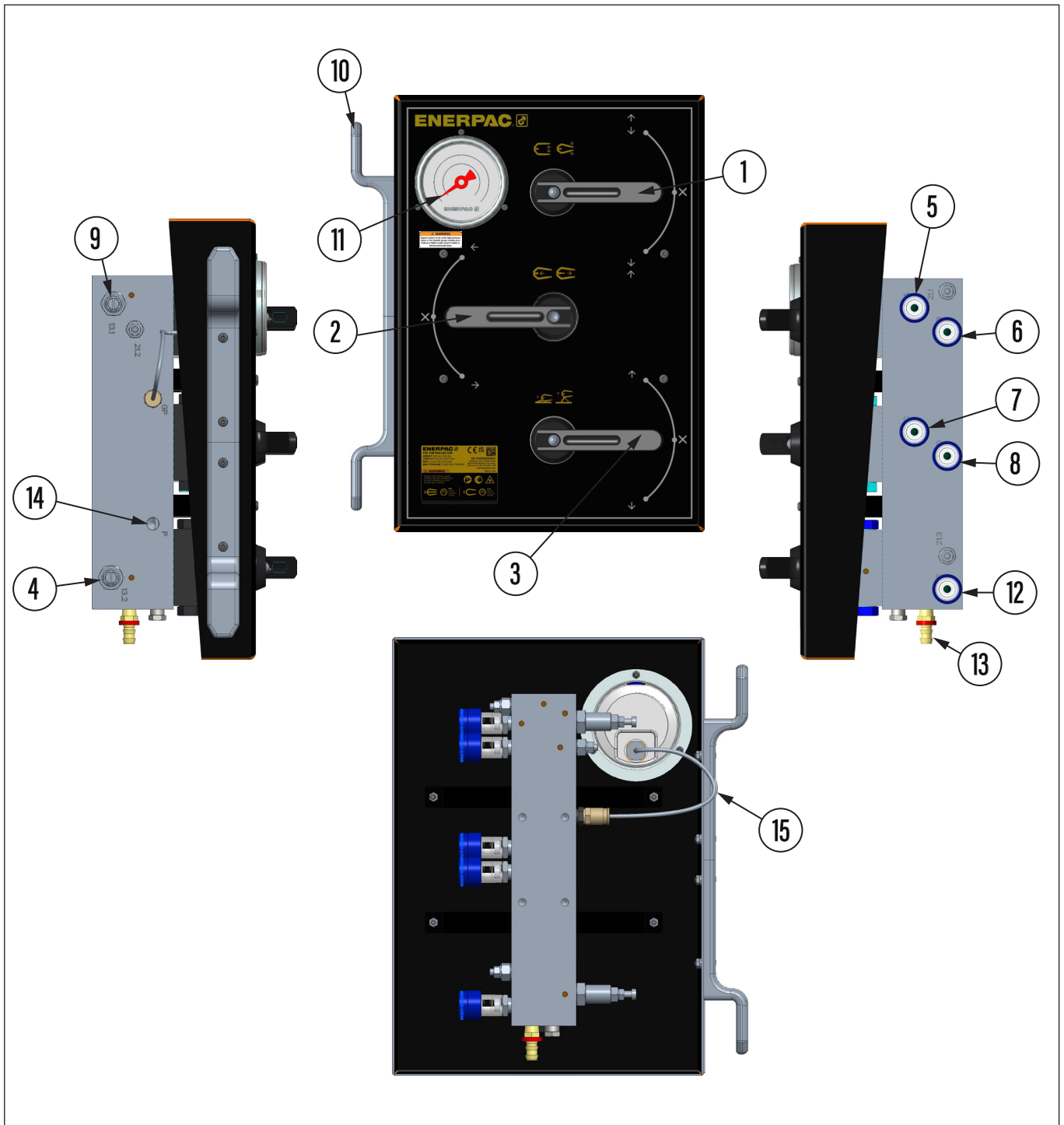


Figure 2: Features and Components of the Control Panel

4. Technical Product Data

4.1 Dimensions Diagram

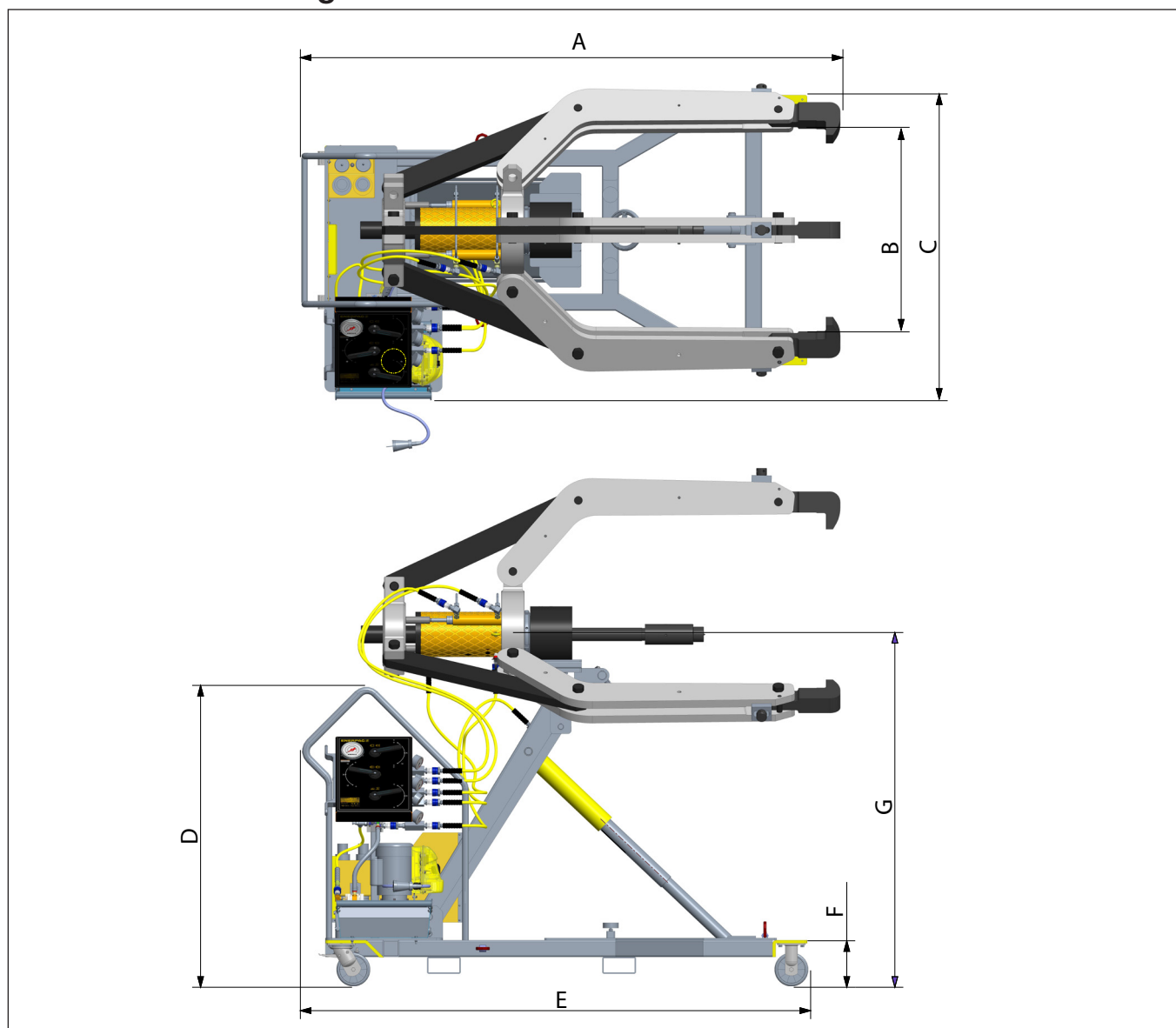


Figure 3: LGH3100B / LGH3100E Dimensions

4.2 Dimensions Table

(refer to Figure 3)

Measurement		mm	in
A	Raised	2,567	101.1
	Lowered	3,134	123.4
B	Min.	730	28.74
	Max.	1985	78.15
C		1,416	55.8
D		1,429	56.3
E		2,415	95.1
F		220	8.7
G	Max.	1,679	66.1
	Min.	699	27.5

NOTE: Dimensions shown for both 2 jaw and 3 jaw configuration

4.3 Product Description

Enerpac LGH3100B and LGH3100E Hydraulic Pullers are the ideal solution for assembling or disassembling pulleys, bearings, couplings, gears and other symmetric rotation objects installed on a shaft.

Each puller is mounted in a wheeled cart for easy transportation. This cart includes a telescopic cylinder so that the operator can lift or lower the puller to the desired height without needing a crane.

Both puller models are designed to operate at 700 bar [10,150 psi] maximum working pressure when the 3 jaw configuration is used. If the 2 Jaw configuration is used, maximum working pressure must be set at 460 bar [6,672 psi].

4.4 Technical Specifications

Pushing Cylinder (3 jaw configuration)			
Max. Pressure		700 bar	10,000 psi
Max. Capacity		931 kN	104.6 Ton 94.9 Tonne
Stroke		257 mm	10.1 in
Pushing Cylinder (2 jaw configuration)			
Max. Pressure		460 bar	6,672 psi
Max. Capacity		612 kN	68.8 Ton 62.4 Tonne
Stroke		257 mm	10.1 in
Puller and Cart Assembly			
Weight (complete)		1360 kg	2998 lbs
ZE3110DB Electric Pump			
Flow	High Pressure	0.55 L/min	40 in³/min
	Low Pressure	6.15 L/min	450 in³/min
Motor Power		0.75 kW, 1hp	
Motor Speed		1750 rpm	
Frequency		50 - 60 Hz	
Power Supply		115 V - 1 ph	
Max. Pressure		700 bar	10,150 psi
Reservoir		10 L	2.6 gal
Oil Grade		Enerpac HF	
Weight		52 kg	114 lbs
ZE3110DE Electric Pump			
Flow	High Pressure	0.55 L/min	40 in³/min
	Low Pressure	6.15 L/min	450 in³/min
Motor Power		0.75 kW 1hp	
Motor Speed		1750 rpm	
Frequency		50 - 60 Hz	
Power Supply		230 V - 1 ph	
Max. Pressure		700 bar	10,150 psi
Reservoir		10 L	2.6 gal
Oil Grade		Enerpac HF	
Weight		52 kg	114 lbs
</			

5. Initial Setup

5.1 Hydraulic Oil Specifications

Use of Enerpac HF Series ISO 32 hydraulic oil is recommended. Enerpac HF oil is available at your local Enerpac distributor or authorized service center.

NOTICE

- Failure to use the correct oil type (high-quality ISO 32 hydraulic oil) may result in damage to cylinder hydraulic components and will void the product warranty.
- Be sure that the oil is clean. The oil cleanliness should be maintained to a maximum level of 18/16/13 per the ISO4406 standard. If the oil develops a milky, cloudy or dark appearance, it should be changed immediately.
- To avoid overfilling and possible equipment damage, add oil to the pump reservoir only after all cylinder plungers are completely retracted and system pressure is released.

5.2 Hydraulic Connections

If not already done prior to shipment, make hydraulic hose connections to the puller cylinders, control panel and electric pump as described in the following steps.

Refer to figures 4, 5, 6, 7 and 8 when making hydraulic connections. See Figure 2 for an additional view of control panel connections.

- Connect a pressure measurement assembly in-line (Refer to item 8, Figure 19) to ports A, B, C, D and E in the control panel. Each item includes a gauge and couplers to make the hydraulic connections.

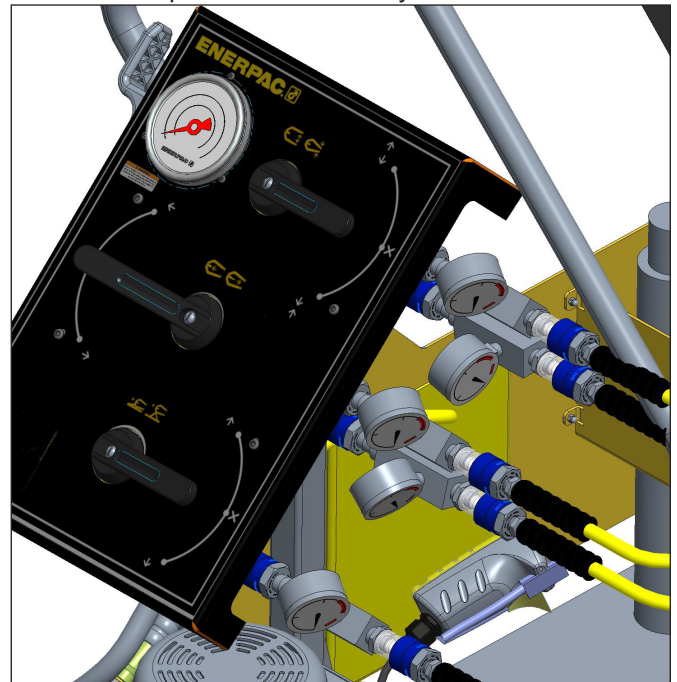


Figure 4: Connections - Pressure Measurement

- The advance coupler of the jaw cylinder located *closest* to the control panel must be connected to the “A” port and the retract coupler to the “B” port.

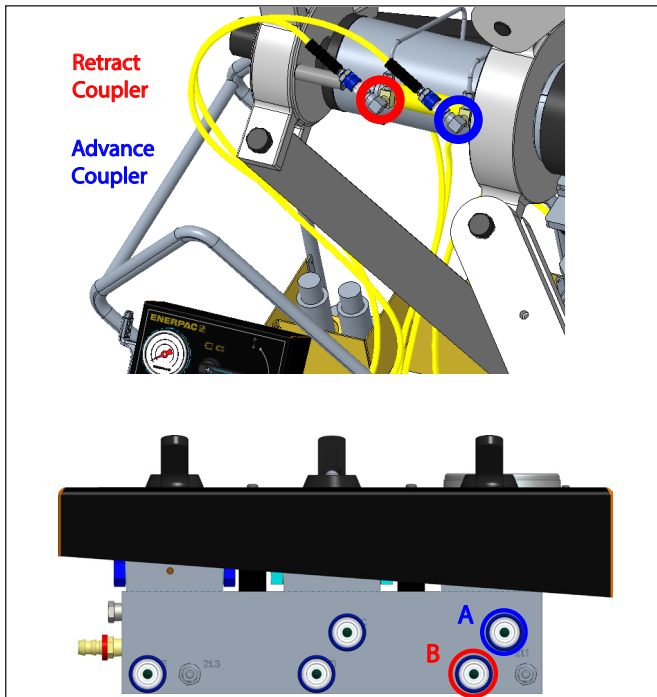


Figure 5: Connections - Jaw Cylinders

- For the pushing cylinder, connect the advance coupler to the “C” port and the retract coupler to the “D” port.

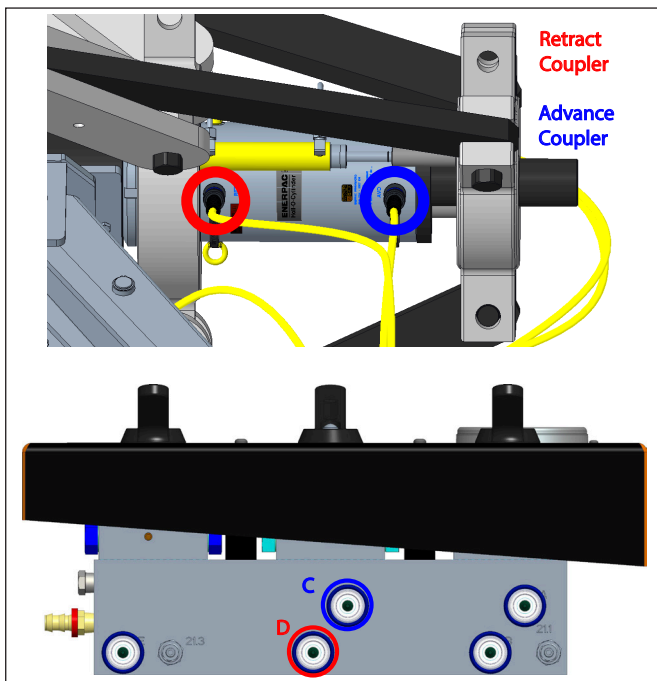


Figure 6: Connections - Pushing Cylinder

- The cart cylinder which raises and lowers the puller has only one coupler that is connected to the “E” port.

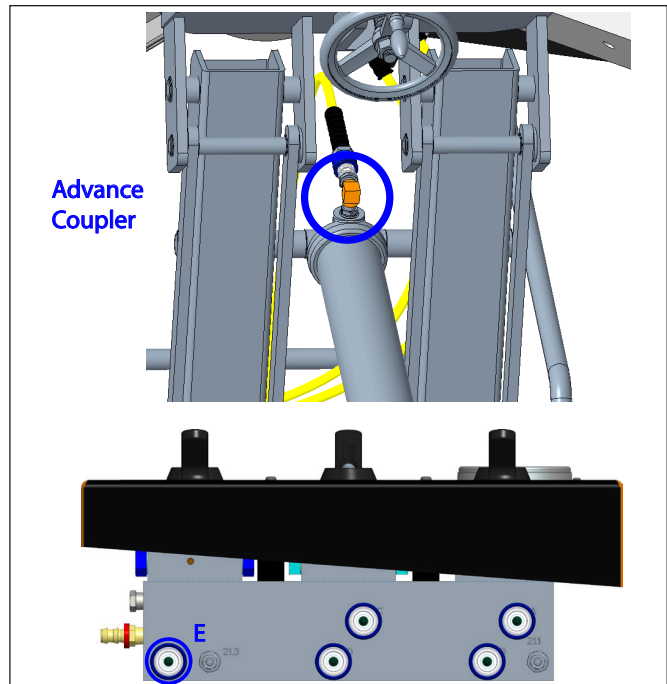


Figure 7: Connections - Puller Cart Cylinder

- To connect the electric pump to the puller control panel, connect the pump “A” port to the control panel “P” port. Then, connect the pump “T” port, located on the right side of the pump manifold, to the control panel “T” port.

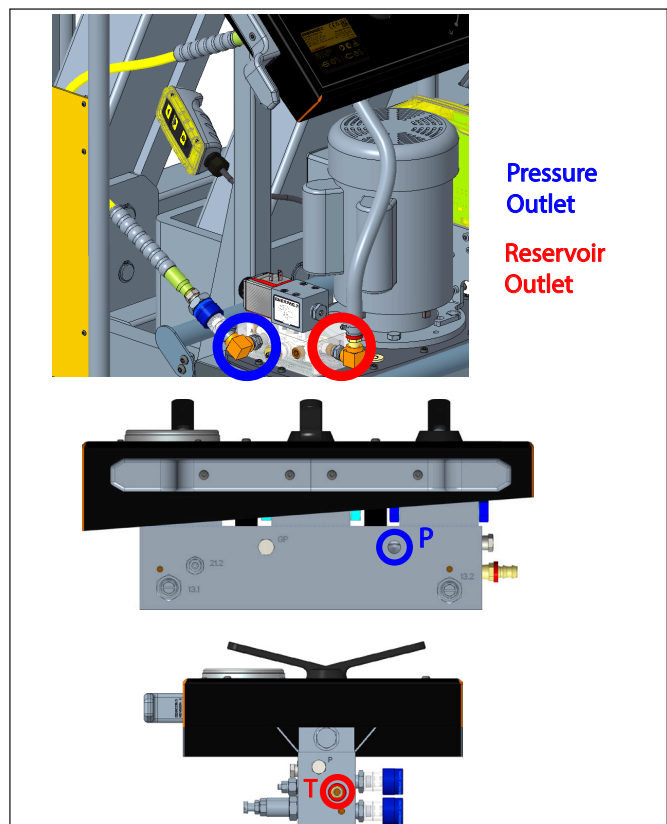


Figure 8: Pump Connections

5.3 Electrical Connections

For pump electrical specifications and power requirements, please refer to the Enerpac ZE Series Electric Pump operation manual “L2647”.

This manual can be downloaded online from the Enerpac website at: www.enerpac.com.

Also refer to the pump nameplate for additional information.

5.4 Puller Accessories

The puller includes 4 accessories which can be mounted on the cylinder rod adapter to increase its length as desired, depending on the application.

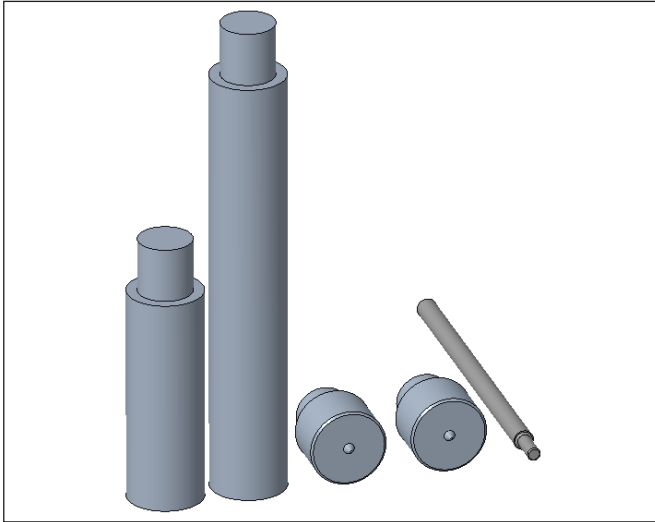


Figure 9: Pushing Cylinder Accessories

5.5 Preparation of the Puller Jaws

If applicable, remove the screws used for transport to secure the jaws and the support arms.

Both puller models can be configured to work with 2 or 3 jaws.

The electric pump is factory set to 700 bar [10,500 psi] maximum working pressure for use with the 3 Jaw configuration. The maximum working pressure for use with the 2 jaw configuration is 460 bar [6,672 psi]. Refer to the Enerpac ZE Series Electric Pump operation manual “L2647” to set the maximum working pressure before use.



Never exceed 460 bar [6,672 psi] maximum working pressure when the puller is configured for use in the 2 jaw configuration. If pressure is set higher, catastrophic failure of puller components could occur and high force projectiles could strike persons in the work area. Death or serious personal injury could result.



Two operators are required to disassemble and lift one jaw.

Only trained and experienced personnel should be allowed to manipulate and supervise the operation of the puller.

To change from 3 Jaw configuration to 2 Jaw configuration, disassemble jaws 1 and 2 and assemble one of them in position A, opposing to the assembled jaw.

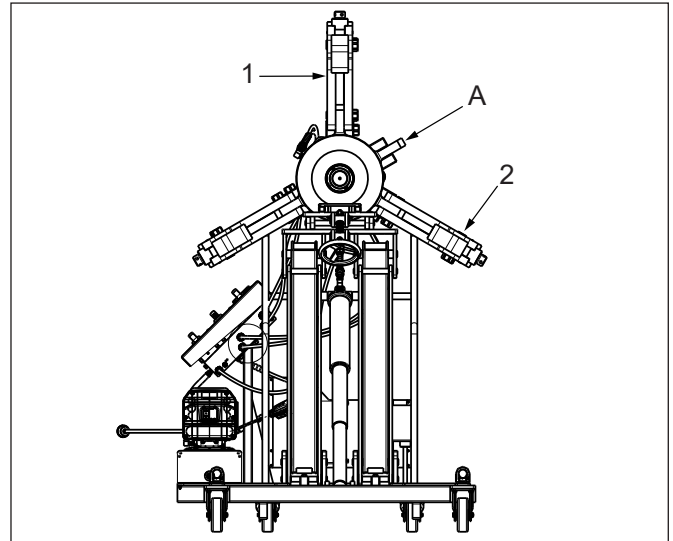


Figure 10: Change to 2 Jaw configuration

Disassemble jaw as follows (Refer to Figure 10):



Any part being disassembled must be externally held by a crane, hoist or other suitable lifting device. The part could drop on persons if it is not externally supported.

1. Make sure that the jaw is correctly supported.
2. Loosen and remove bolt 1.
3. Loosen and remove bolt 2.
4. Remove jaw and place in a safe location.
5. Loosen and remove bolt 3.
6. Remove support arm and place in a safe location.

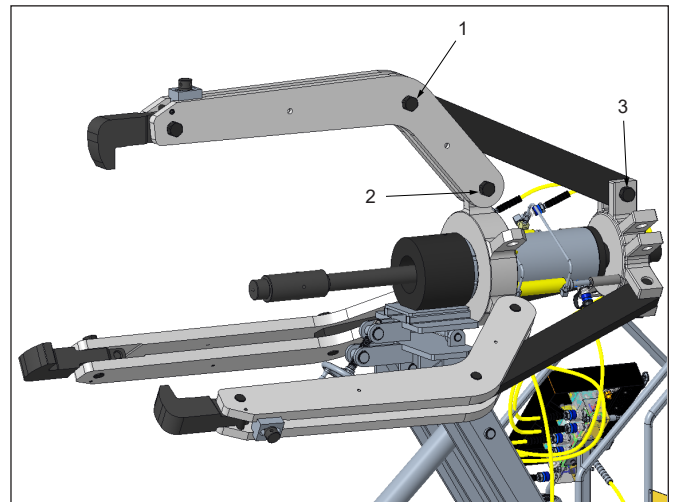


Figure 11: Jaw Disassembly

Assemble jaw as follows (Refer to Figure 10):



Any part being assembled must be externally held by a crane, hoist or other suitable lifting device. The part could drop on persons if it is not externally supported.

1. Lift the support arm to its mounting position.
2. Mount and tighten bolt 3 metal to metal.
3. Lift the jaw to its mounting position.
4. Mount and tighten bolt 2 metal to metal.
5. Mount and tighten bolt 1 metal to metal.

6. Adjust the final position as required.
7. Set the maximum working pressure to 460 bar [6,672 psi]. Refer to the Enerpac ZE Series Electric Pump operation manual “L2647” to set the maximum working pressure before use.

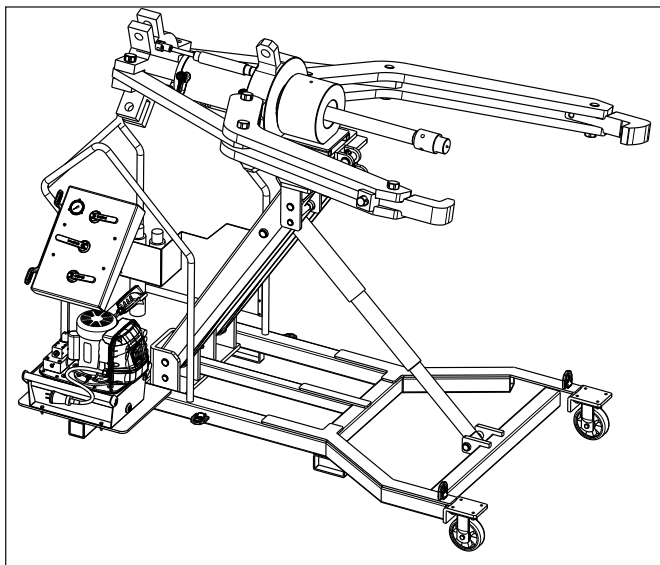


Figure 12: 2 Jaw Configuration

The jaws can be rotated to provide the correct grip for each application. To rotate the jaws, the locking nut located after the front jaws support must be loosened with the unlocking bar included with the puller.



When turning the jaws, be careful not to hit the puller support.

Push the jaws to rotate the required angle. After reaching the final position, tighten the locking nut with the unlocking bar.

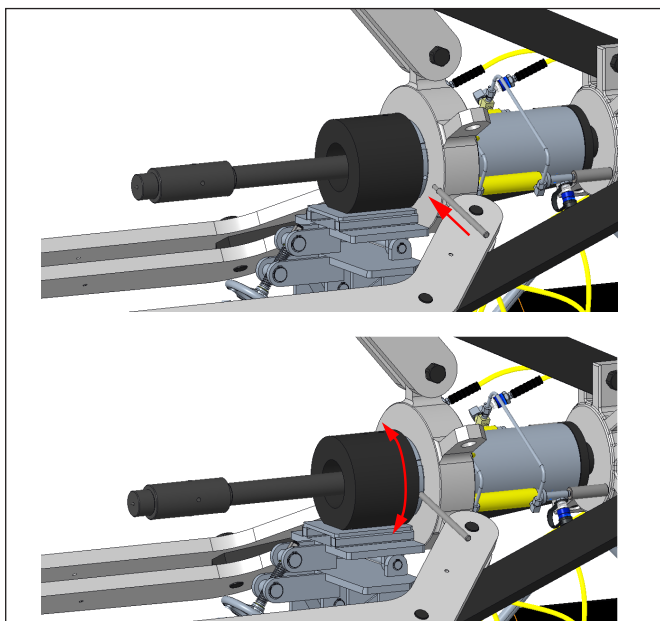


Figure 13: Lock Nut Location

The jaw hooks can also be adjusted to provide a better grip. Turning the cranks on top of the jaws will make the hooks open or close. These cranks can be hand turned or turned with the unlocking bar.



Keep hands free from all moving parts of the puller. Failure to follow these instructions and precautions could result in serious personal injury.

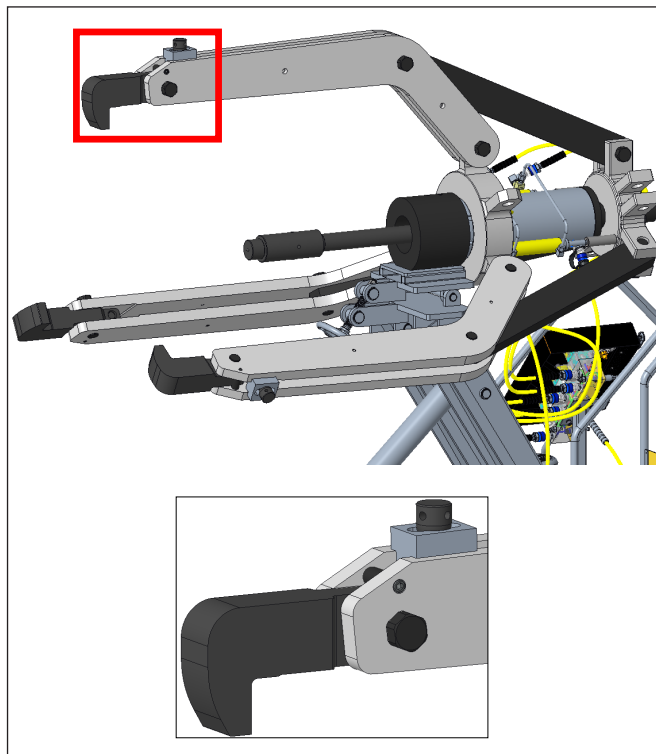


Figure 14: Hook Crank Location

5.6 Spindle Adjustment

The spindle can be adjusted to provide the correct pulling support for each application. Tighten or loosen the spindle to adjust the distance from the cart support.



The spindle can come out a maximum length (A) of 22.72 in [577 mm] from the cart support.

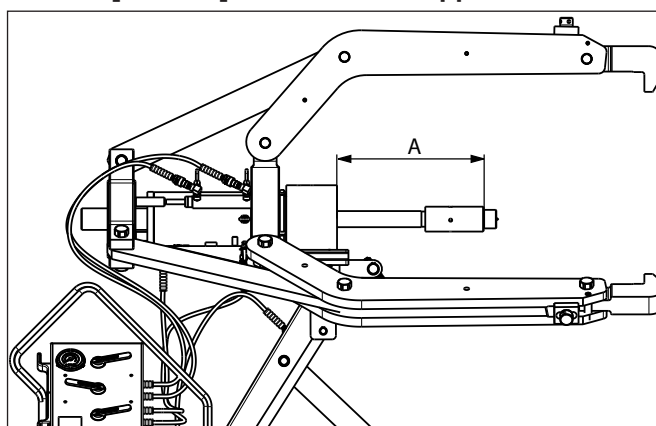


Figure 15: Maximum Spindle Extension

5.7 Puller Tilting Wheel

If the puller needs to be tilted up or down vertically in specific applications, the operator can turn the tilting wheel located in the front side of the puller, below the cylinder rod.

If the wheel is turned to the right, the puller will tilt upwards. If the wheel is turned to the left, the puller will tilt downwards.

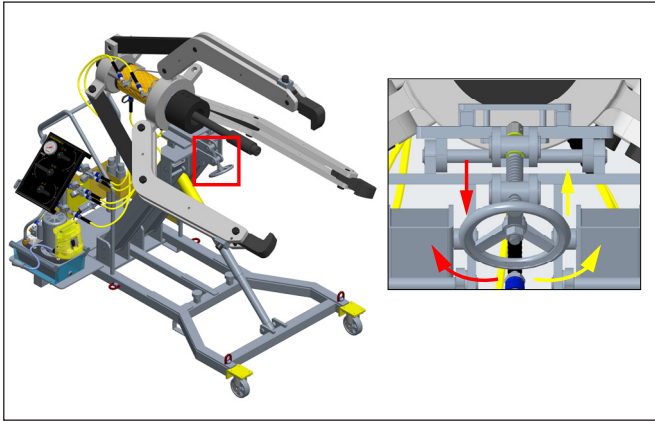


Figure 16: Tilting Wheel

⚠ CAUTION

If the puller is fully tilted, before lowering the puller:

- Be sure that hoses are correctly positioned and not located in between any moving parts.
- Be sure that when lowered the puller jaws will not touch any portion of the puller cart.

Failure to follow these instructions could result in damaged hoses and possible damage to other puller components.

6. Operation

6.1 Operating Instructions

⚠ WARNING

Any part being extracted by the puller must be externally supported by a crane, hoist or other suitable lifting device. The puller may not be able to hold the part on its own after it has been loosened or removed. The part could drop on persons if it is not externally supported.

⚠ CAUTION

Check all hydraulic hoses to be sure the fittings and couplers are tight and leak free. Check hose positions to be sure the hoses are located to avoid damage during puller operation.

⚠ CAUTION

Make sure that all hydraulic puller screws (Refer to Figure 19, Item 4) are correctly tightened metal to metal before every operation.

⚠ CAUTION

Make sure that all pivoting points of the cart and puller pins are correctly greased.

To operate the puller correctly, follow these instructions:

1. Before connecting the electric pump to AC power:
 - Check the oil level in the pump hydraulic reservoir.
 - Make sure that all cylinders are fully retracted.
 - On new pumps, remove shipping plug and install the reservoir air breather (included with pump).

NOTICE

For additional information regarding electric pump setup and operation, please refer to the Enerpac ZE Series Electric Pump operation manual “L2647” and the LCD Control Panel operation manual “L2940”.

2. Connect the electric pump to an AC power supply of the correct voltage and Hz (see pump nameplate). The pump micro controller will boot-up after a few seconds and the pump will then be ready to operate.
3. Turn and position the jaws as desired. Refer to Section 5.5 for further information.
4. Adjust the spindle as required. Refer to Section 5.6 for further information.
5. Be sure the wheel brake is disengaged on both rear wheels of the puller cart. This will allow the puller to move freely during pulling procedures.
6. Before operation, ensure that there are no persons (operators or other personnel) surrounding the work area. **Be sure to read and understand the precautions contained in Section 6.2 of this manual before operating any puller functions.**
7. Select the type of movement by turning the control panel levers as required. When a lever is turned, push and hold the pendant button to start the movement, and release the button to stop it. There are 3 different movements:
 - **Open / Close Puller Jaws:** This movement is controlled using *Lever 1*. If the lever is turned up and the pendant button is pressed, the puller jaws will open, while if the lever is turned down the jaws will close.
 - **Pushing Cylinder Advance / Retract:** This movement is controlled using *Lever 2*. If the lever is turned up and the pendant button is pressed, the pushing cylinder will retract, while if the lever is turned down the cylinder will extend.
 - **Cart Cylinder Lift / Lower:** This movement is controlled using *Lever 3*. If the lever is turned up and the pendant button is pressed, the cart cylinder will extend, lifting the puller, while if the lever is turned down the cylinder will retract, lowering the puller.
8. With the pump on, move lever 1 down and press the pendant button. This will move the jaws to the closed position. Then, without pressing the pendant button, rotate lever 1 up and down to relieve pressure on both ports and then turn it to the neutral position to finish.
9. With the pump on, move lever 2 up and press the pendant button. This will retract the spindle. Then, move the lever down and press the pendant button, so the spindle extends 1 to 5 mm (0.04 to 0.20 in). Release the pendant button and move the lever back to the neutral position.

10. With the pump on, move lever 3 down and press the pendant button. This will lower the cart to its lowest position. Then, without pressing the pendant button, rotate lever 3 up and down to relieve pressure on both ports and then turn it to the neutral position to finish.
11. Pump can now be switched off and disconnected from the power supply.
12. When the pulling operation has been completed, position the puller in transport position (Fully lowered with closed jaws) and disconnected from the power supply.



Figure 17: Control Manifold

6.2 Important Precautions

⚠ WARNING

After closing the jaws on an item to be pulled, always turn **Lever 1** back to the neutral / hold (center) position. This will lock the jaws in place and must be done before **Lever 2** is turned to the advance position.

If jaws are not locked before pulling begins, parts being extracted could loosen and drop on persons in the work area. Serious personal injury could result.

⚠ CAUTION

After raising or lowering the cart cylinder, and before starting any pulling procedure, always turn **Lever 3** back to the neutral / hold (center) position.

Failure to turn **Lever 3** to the neutral / hold (center) position will allow cart cylinder movement to occur during pulling. Damage to puller components and/or electric pump may result.

As a general rule, it is recommended that all levers be turned to the neutral / hold (center) position when any movement is completed.

⚠ CAUTION

Be careful when lowering the puller if the jaws are fully open, as the jaws may hit the floor.

7. Transport

Lifting and hoisting work must be performed by trained operators with certified lifting and hoisting equipment. Before use, check the validity of these certificates and qualifications.

For loading and unloading, only use lifting and hoisting equipment capable of holding the loads in question. The lifting and hoisting equipment must be stable enough and have suitable lifting and hoisting capacity.

Loading and offloading should always be performed by properly trained personnel.

Lift loads as described in the user manual and always observe professional standards.

Use only suitable containers with adequate load bearing capacity for transport purposes. Secure the load properly using suitable connection points and twist locks (for the containers). When using twist locks, secure them properly and check that the locking mechanism is working correctly.

Check that the pressure is 0 in all the gauges.

Disconnect any power connections in advance, even if the puller only needs to be moved a short distance.

The puller must be placed in the wooden box fully lowered and with the wheel brakes engaged.

To lift the puller, use the lifting eyes located in the cart. Also the unit is equipped with forklift pockets to easily move the unit longer distances within a facility.

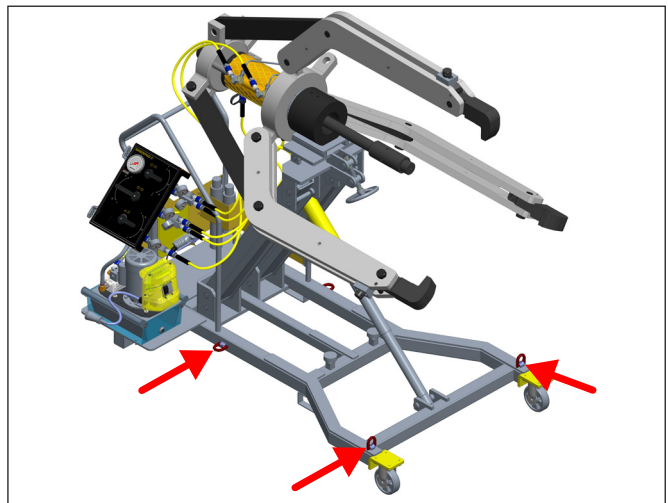


Figure 18: Lifting Eyes

8. Maintenance & Storage

- Before doing any maintenance or storing process to the unit, the following procedures must be followed:
 1. With the pump on, move lever 1 down and press the pendant button. This will move the jaws to the closed position. Then, without pressing the pendant button, rotate lever 1 up and down to relieve pressure on both ports and then turn it to the neutral position to finish.
 2. With the pump on, move lever 2 up and press the pendant button. This will retract the spindle. Then, move the lever down and press the pendant button, so the spindle extends 1 to 5 mm (0.04 to 0.20 in). Release the pendant button and move the lever back to the neutral position.
 3. With the pump on, move lever 3 down and press the pendant button. This will lower the cart to its lowest position. Then, without pressing the pendant button, rotate lever 3 up and down to relieve pressure on both ports and then turn it to the neutral position to finish.
 4. Check that the pressure is 0 in all the gauges.
 5. Pump can now be switched off, disconnected from the power supply and maintenance or storage can be done.

Periodically check the hydraulic system for loose connections, leaks and obvious problems. Replace any damaged components immediately.

- Monitor the hydraulic oil temperature during operation. Do not exceed oil temperatures above 150°F [65°C].
- Install dust caps and plugs on all hydraulic couplers after disconnecting a hydraulic hose from a cylinder or other hydraulic component.
- Keep all hydraulic components clean.
- Change the hydraulic oil at the recommended interval shown in the pump's instruction manual. Change oil immediately if contamination is suspected.
- Store puller fully lowered and with the wheel brakes engaged, in a clean, dry and secure location. Keep stored puller and hoses away from heat and direct sunlight.
- If electric pump repairs are required, refer to the Enerpac website for the repair parts sheet for your electric pump model. For other repair parts, refer to Section 9 of this document.
- Make sure that the equipment is stored in a temperature / humidity-controlled environment. It is very important to avoid having the equipment become exposed to condensation during its storage period. Condensation could degrade hydraulic fluids and damage electrical / electronic components. In addition, condensation could create additional problems and may result in failures encountered when the equipment is placed into service.

- Keep moving part couplings well lubricated and free of dirt or debris which could damage these parts.

NOTICE

Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the Enerpac authorized service center in your area.

9. Parts List

9.1 Puller Assembly Parts View

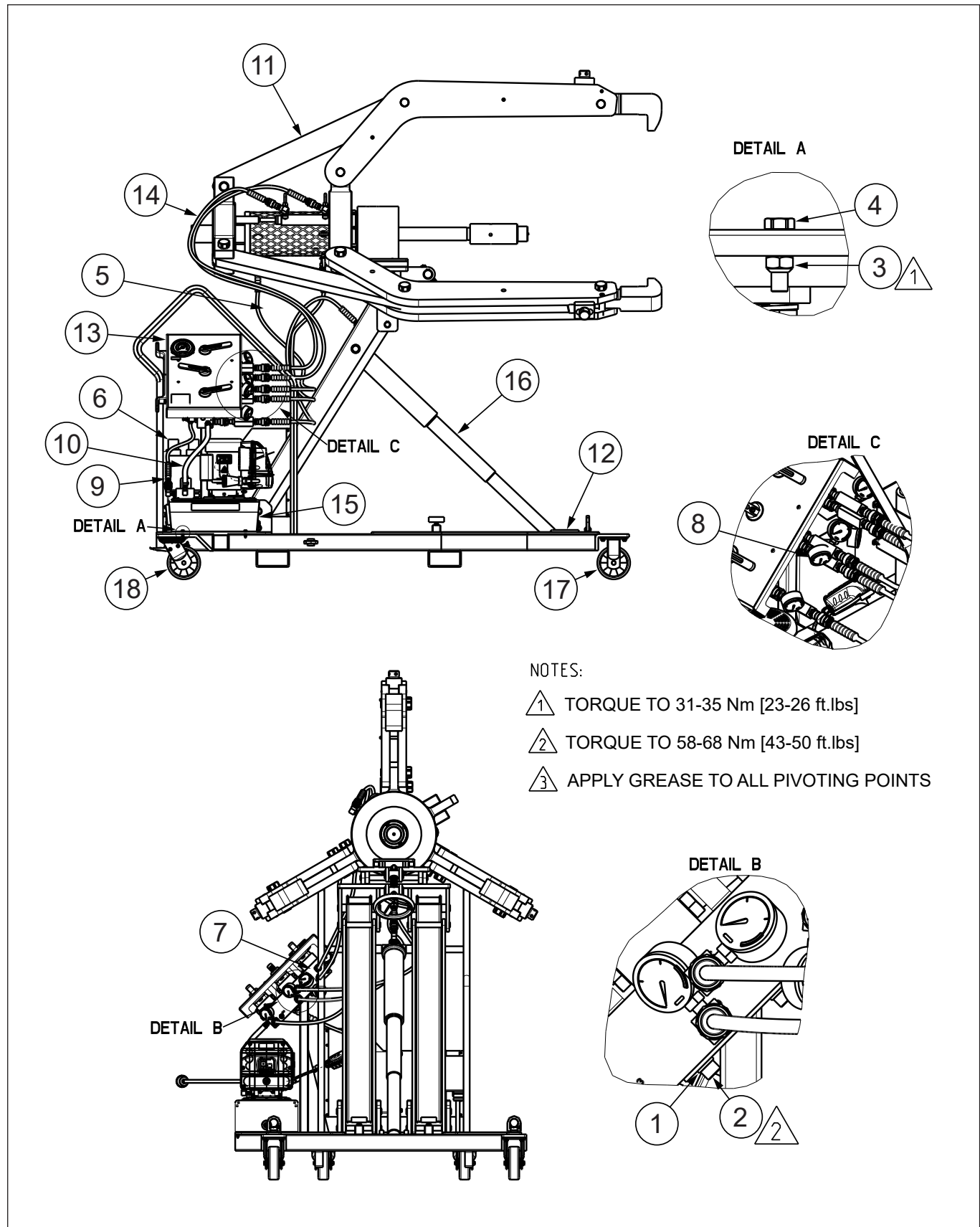


Figure 19: Puller Assembly

9.1.1 Table of Parts (Figure 19)

Item	Description	Qty.	Part Number
1	Flat Washer	4	B1018066
2	SHCS Screw	4	B1381028
3	Lock Nut M8	4	CBE1080120-2A
4	HHCS Screw M8	4	CBE826046-1A
5	Hose Bundling	3	DB4733646SR
6	Spindle Extensions	1	LGH100-K1
7	Manifold Block Assembly	1	LGH100900 - Refer to Section 9.3
8	Pressure Measurement Assembly	5	LGH100900-5 - Refer to Section 9.4
9	Assembly Hose with Fitting	1	LGH100HPSR
10	Assembly Hose	1	LGH100LPSR
11	Hydraulic Puller	1	LGH3100 - Refer to Section 9.2
12	Cart	1	LGHC100
13	Control Panel Cart	1	LGHC100900
14	Hydraulic Hoses Assembly	5	HC7206C
15	Pump ZE3 VE32D 10L ▲	1	ZE3110DB
	Pump ZE3 VE32D 1LCD230CE 10L ◆	1	ZE3110DE
16	Telescopic Cylinder ▼	1	RT531C100
17	Front Cart Wheel, Fixed ●	2	LGHC106
18	Back Cart Wheel w/ Brakes ●	2	LGHC106-1

▲ Marked items only included in LGH3100B Hydraulic Puller.

◆ Marked items only included in LGH3100E Hydraulic Puller.

● Marked items only included in LGH100K9 Kit.

▼ Seals for RT531C100 included in RT531C100K Kit.

9.2 Hydraulic Puller LGH3100 Exploded View

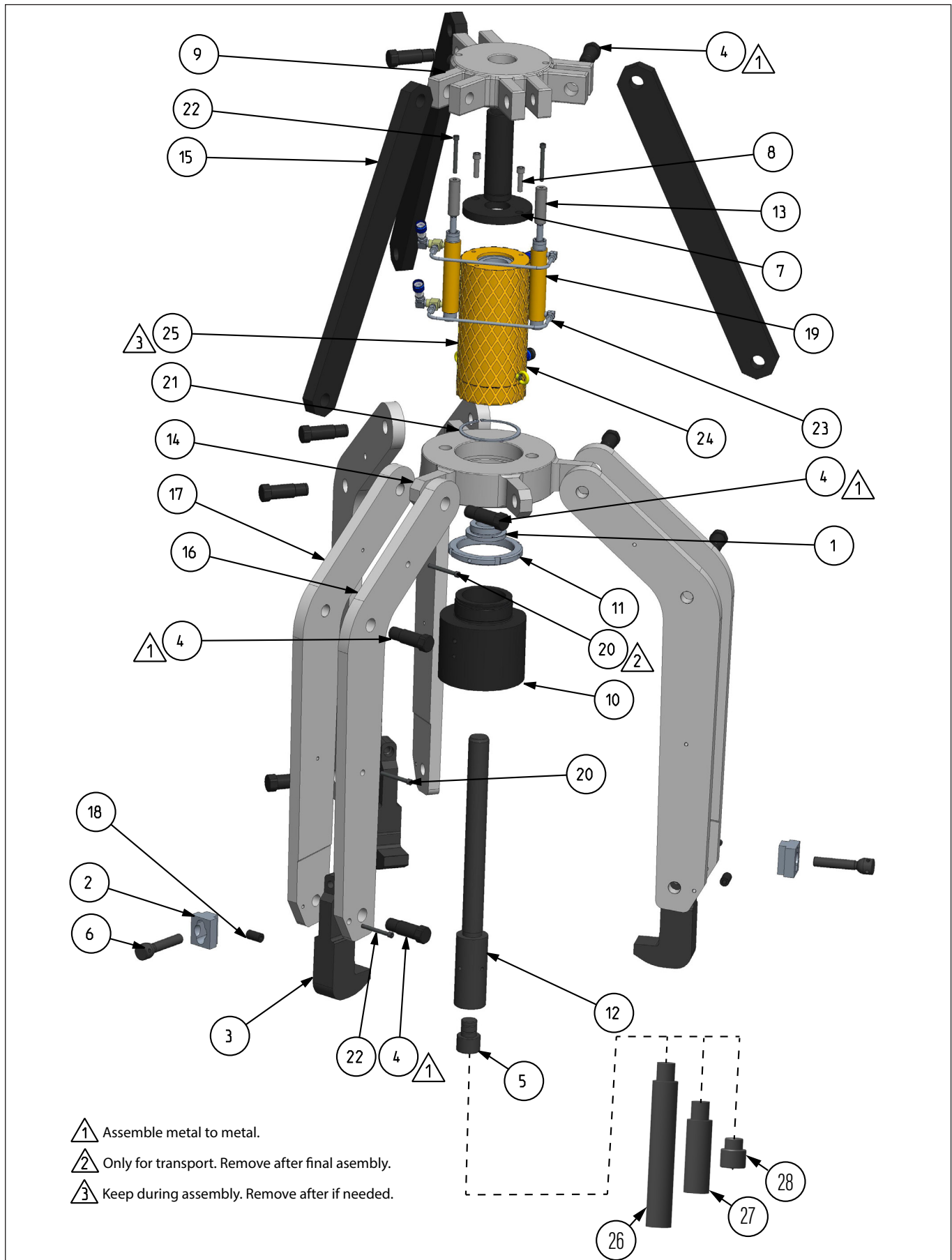


Figure 20: Exploded View - Hydraulic Puller

9.2.1 Hydraulic Puller LGH3100 Table of Parts (Figure 20)

Item	Description	Qty.	Part Number
1	Saddle 95 Ton	1	119557
2	Tip Regulator Guide ▲	3	759504
3	Jaw Tip	3	LGH100K3
4	Screw ▲	12	759507
5	Point Protector	1	LGH100K4
6	Tip Regulator Bolt ▲	3	759513
7	Cylinder Guide Base	1	759516
8	Screw, DIN 912 5/8" x 32 8.8	2	759517
9	Jaws Support Body	1	759523
10	Cart Support	1	759525
11	Nut	1	759556
12	Spindle, 100 Ton	1	LGH100K8
13	Rod Support	2	759588
14	Main Body	1	759592
15	Jaw Support Arm	3	759594
16	Through Hole Jaw	3	7595840
17	Threaded Hole Jaw	3	7595841
18	Separator ▲	3	7595842
19	Jaw Cylinder *	2	BRD46
20	SHCS Screw	3	CBA1249028-1A
21	Retaining Ring	1	CCA1175044-1A
22	M12 x 110 Hex Screw ▲	5	CCA1249028-1A
23	Assembly Connections	2	LGH100900-4
24	Pushing Cylinder **	1	RRH10010C100
25	Protector Mesh Cover	1	DD9905870
26	450 mm Spindle Extension	1	LGH100K7
27	250 mm Spindle Extension	1	LGH100K6
28	Plain Point Protector	1	LGH100K5
▲ Marked items only included in LGH100K2 Kit. * Refer to Enerpac Repair Parts Sheet L2811 for further information about the cylinder repair kit. ** Refer to Enerpac Repair Parts Sheet L1762 for further information about the cylinder repair kit.			

9.3 Manifold Assembly LGH100900 Exploded View

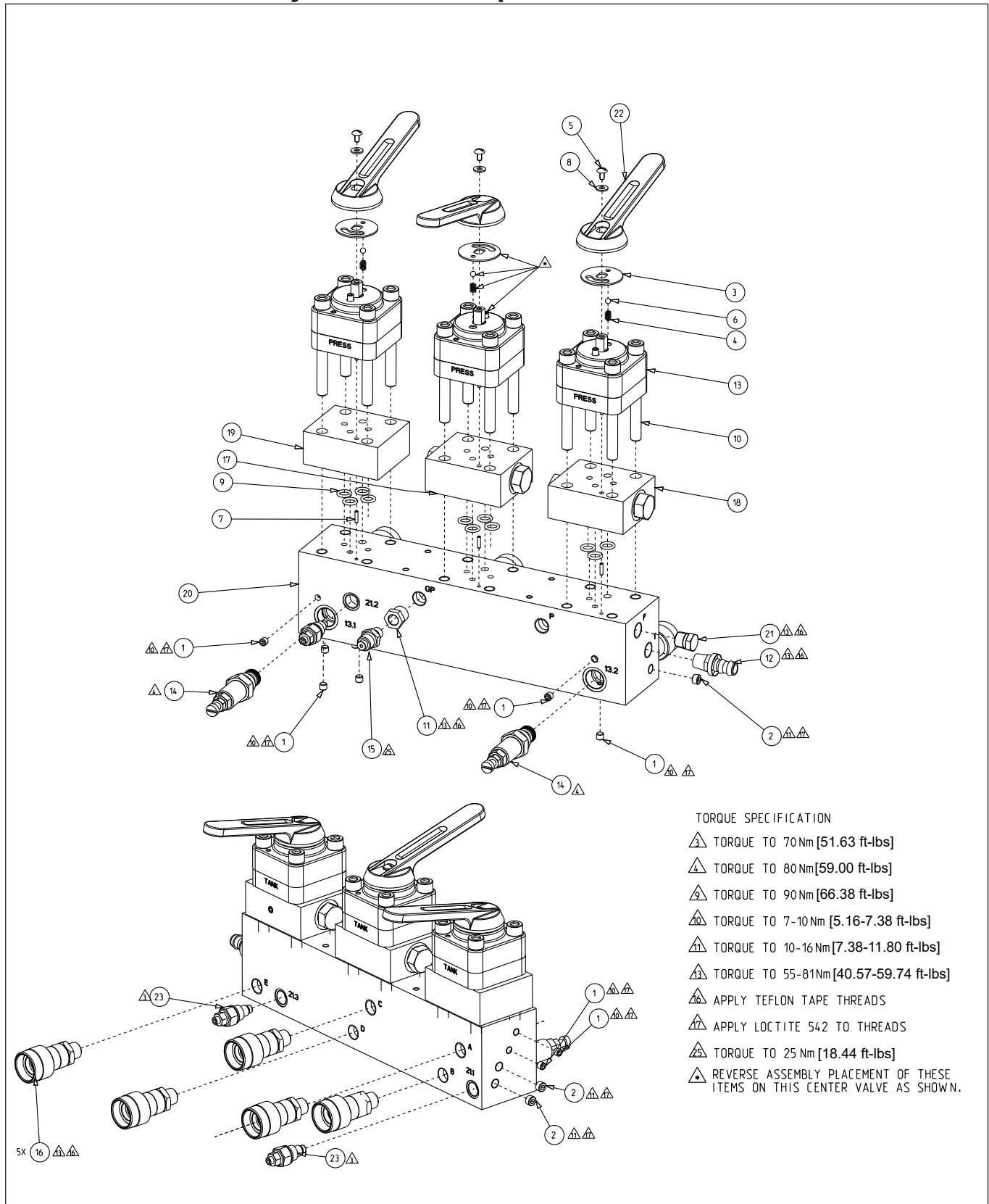


Figure 21: Exploded View - Manifold Assembly

9.3.1 Manifold Assembly LGH100900 Table of Parts (Figure 21)

Item	Description	Qty.	Part Number
1	Flush Plug, Hex, 27	9	A1006245
2	Flush Plug, Hex, 27	3	A1007245
3	Disc	3	A8005071
4	Compression Spring 31.9 ▲	3	A8039110
5	Screw ▲	3	A8076048
6	Ball ▲	3	B1006016
7	Pin Spring	1	B1051057
8	Flat Washer ▲	3	B1086108
9	Round O-Ring ▲	11	B1111803
10	SHCS Screw	12	B1401028
11	Reducer	1	BFZ16301
12	Coupling	1	C724034
13	4 Way Manual Valve	3	CB319900
14	Relief Valve	2	DB1062663-1
15	Coupler	1	DB2725034
16	Female Coupler	5	CR400
17	4 Way Locking Block Valve	1	Y123900SR
18	3 Way Locking Valve Block	1	Y383900SR
19	Manifold Block	1	DD9121840
20	Manifold Block	1	LGH100840
21	Plug	1	R515245-2
22	Handle	3	U052315070
23	Flow Control Valve, CQR22	3	U102941660-5
▲ Marked items only included in VM4K3 Kit. Refer to Enerpac Repair Parts Sheet L2613 for further information.			

9.4 Pressure Measurement Assembly LGH100900-5 Exploded View

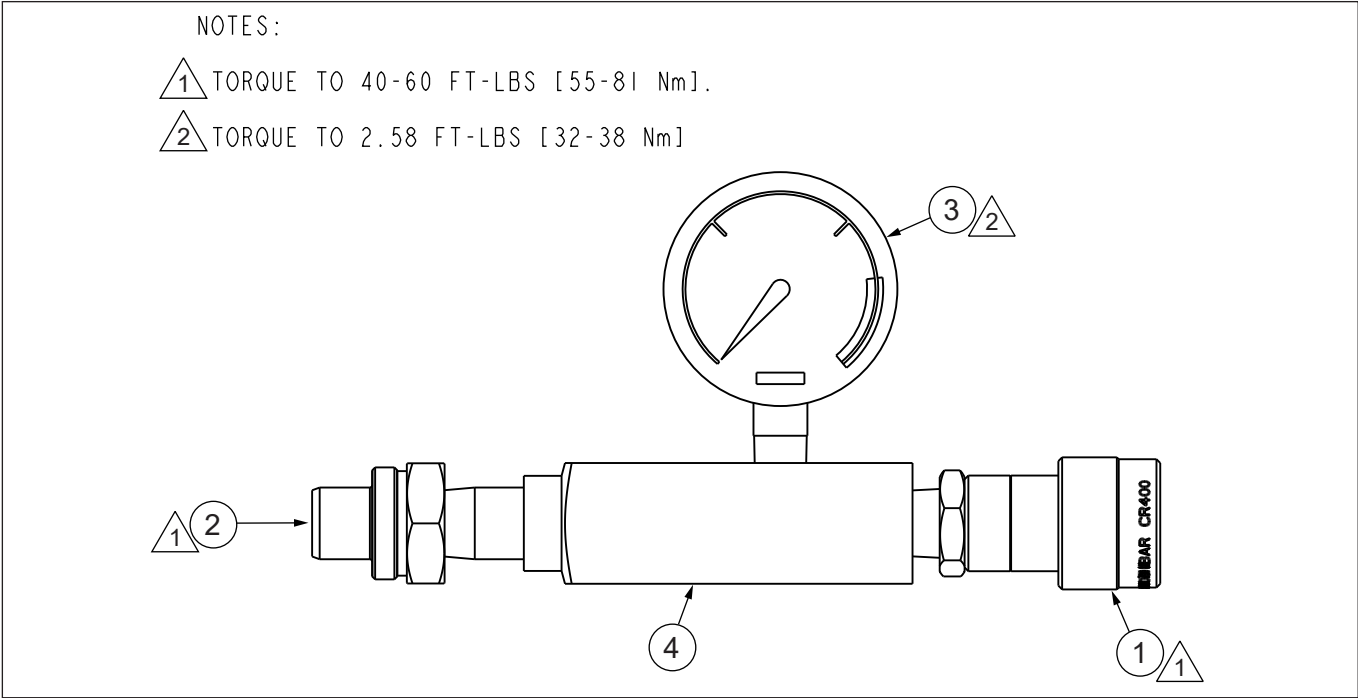


Figure 22: Exploded View - Pressure Measurement Assembly

9.4.1 Pressure Measurement Assembly LGH100900-5 Table of Parts (Figure 22)

Item	Description	Qty.	Part Number
1	Female Coupler	1	CR400
2	Male Coupler	1	CH604
3	Gauge	1	G2536L
4	Gauge Adaptor	1	GA3

10. Hydraulic Schematics

10.1 LGH3100B Hydraulic Schematic

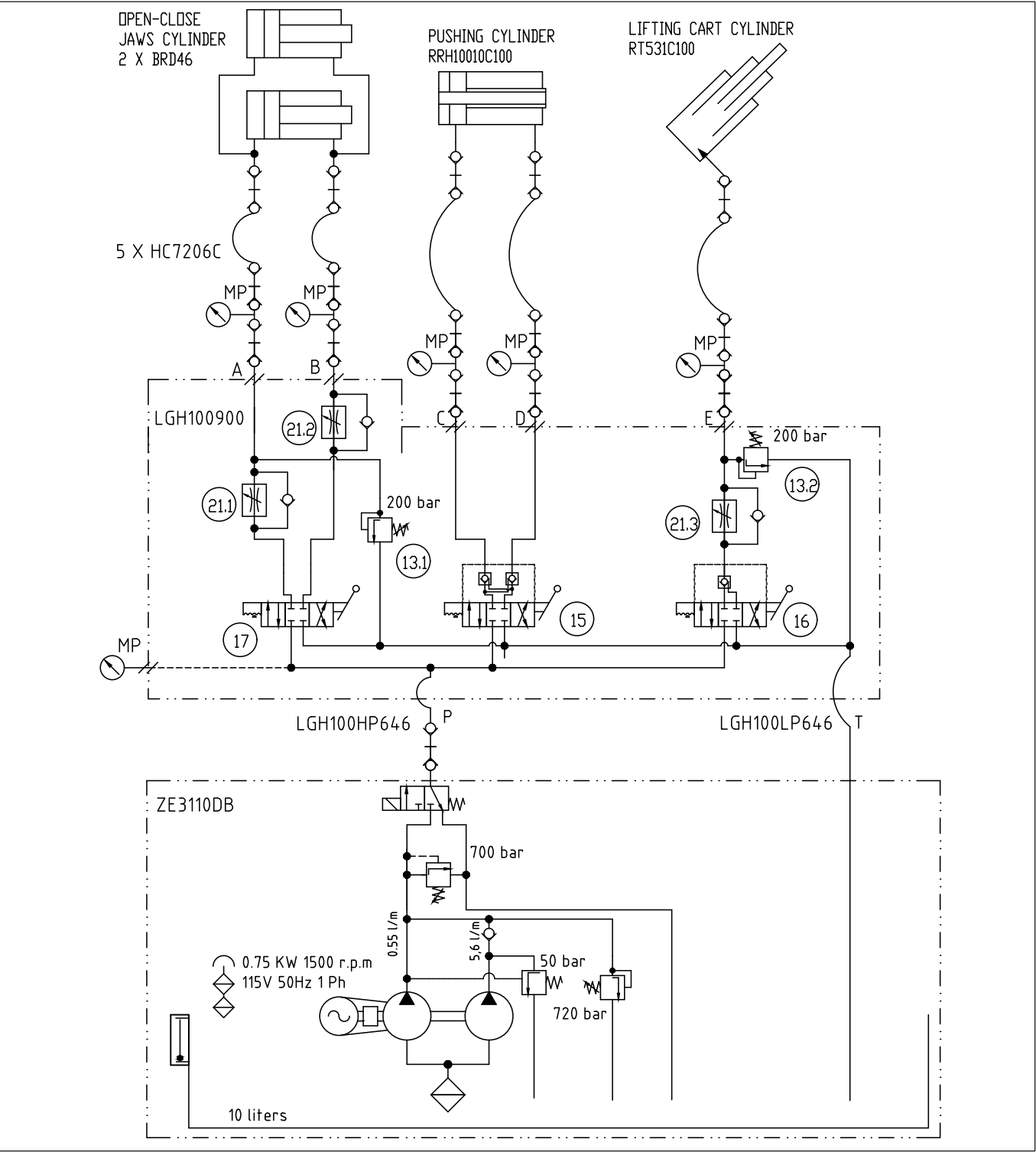


Figure 23: LGH3100B Hydraulic System

10.2 LGH3100E Hydraulic Schematic

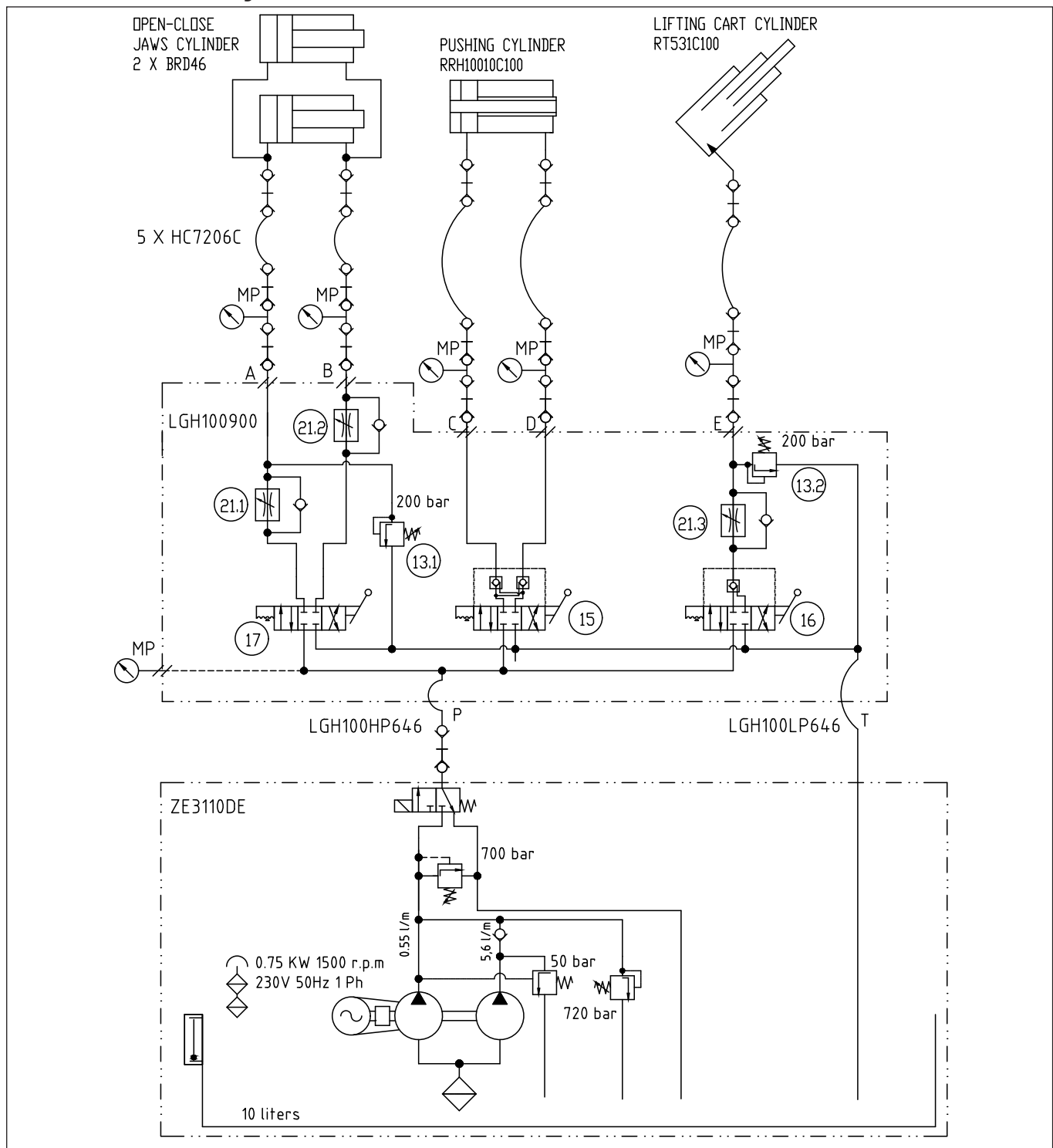


Figure 24: LGH3100E Hydraulic System

11. Troubleshooting

Refer to the troubleshooting guide when diagnosing operational problems. Please note that the troubleshooting guide is not all-inclusive and should only be considered as an aid to help diagnose the most common possible problems. For repair service, contact your nearest Enerpac authorized service center. As required, also refer to the troubleshooting information provided with your hydraulic pump or power unit.

Troubleshooting Guide		
Symptom	Possible Cause	Solution
1. Cart cylinder will not raise. Spindle will not advance/retract. Arms will not close/open.	a. Pump release valve open.	Close pump release valve.
	b. Directional control valve not in proper position.	Shift directional control valve to proper position.
	c. Coupler not fully tightened.	Tighten coupler.
	d. Pump oil level is low.	Add oil to pump reservoir as required.
	e. Pump malfunctioning.	Repair or replace pump as required.
	f. Cylinder seals leaking.	Repair or replace cylinder.
2. Cart cylinder will raise only part way. Spindle will only advance/retract part way. Arms will only close/open part way.	a. Oil level in pump is low.	Add oil to pump reservoir as required.
	b. Coupler is not fully tightened.	Tighten coupler.
	c. Cylinder plunger binding.	Repair or replace cylinder.
3. Cart cylinder raises erratically. Spindle advances/retracts erratically. Arms close/open erratically.	a. Air in hydraulic system.	Remove air from hydraulic system.
	b. Cylinder plunger binding.	Repair or replace cylinder.
4. Cart cylinder raises slower than normal. Spindle advances/retracts slower than normal. Arms close/open slower than normal.	a. Leaking connection.	Repair leaking connection.
	b. Coupler not fully tightened.	Tighten coupler.
	c. Pump malfunctioning.	Repair or replace pump as required.
5. Cart cylinder raises, but will not stay in the up position. Spindle will not advance/retract. Arms will not close/open.	a. Pump malfunctioning.	Repair or replace pump as required.
	b. Leaking connection.	Repair leaking connection.
	c. Incorrect system set-up.	Check hose connections at pump and cylinders.
	d. Cylinder seals leaking.	Repair or replace cylinder.
6. Cylinders leak oil.	a. Worn or damaged cylinder seals.	Repair or replace cylinder.
	b. Internal cylinder damage.	Repair or replace cylinder.
	c. Loose connection.	Tighten or repair connection.
7. Cart cylinder will not lower or lowers slower than normal.	a. Directional control valve not in proper position.	Shift directional control valve to proper position.
	b. Pump reservoir is overfilled.	Drain oil from pump reservoir as required.
	c. Improper hose connections.	Check hose connections.
	d. Narrow hose restricting oil flow.	Replace with larger diameter hose.
	e. Internal cylinder damage.	Repair or replace cylinder.

NOTES

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