ENERPAC

Operation and Maintenance Manual

SC Series Cordless Hydraulic Pump
Model SC1201M

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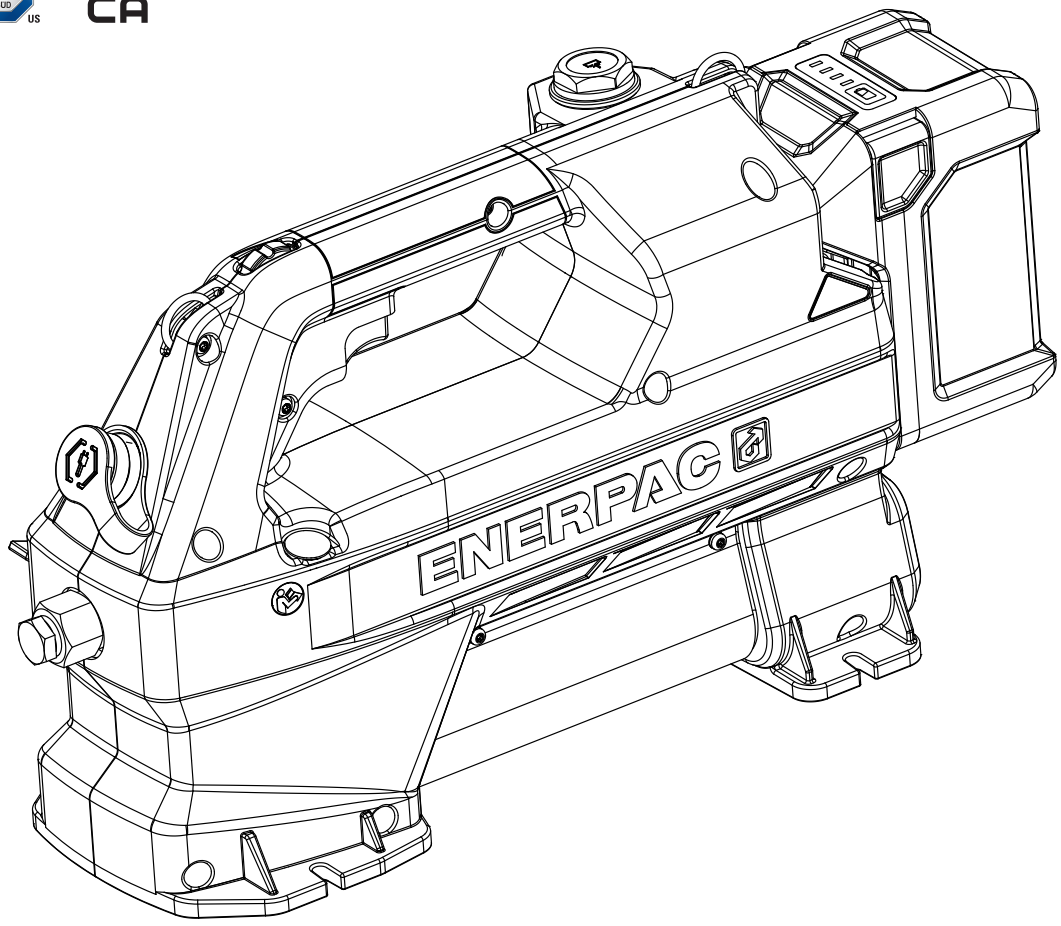

⚠ To reduce the risk of injury, user must read and understand this document before use.

ABOUT US

Enerpac is a global market leader in high pressure hydraulic tools, controlled force products, portable machining, on-site services and solutions for precise positioning of heavy loads. As a leading innovator with over a 100 year legacy, Enerpac has helped move and maintain some of the largest structures on earth. When safety and precision matters, elite professionals in industries such as aerospace, infrastructure, manufacturing, mining, oil & gas and power generation rely on Enerpac for quality tools, services and solutions. For additional information, visit www.enerpac.com.

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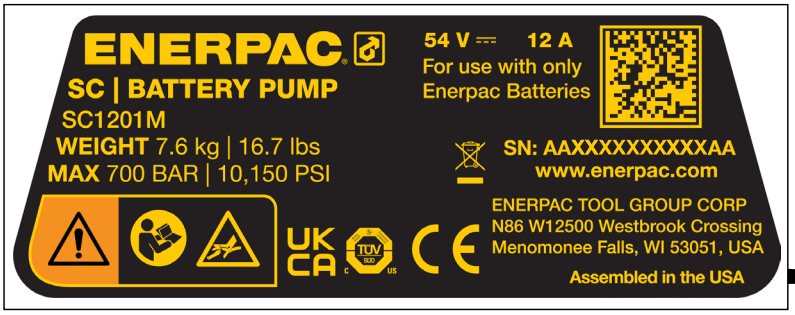
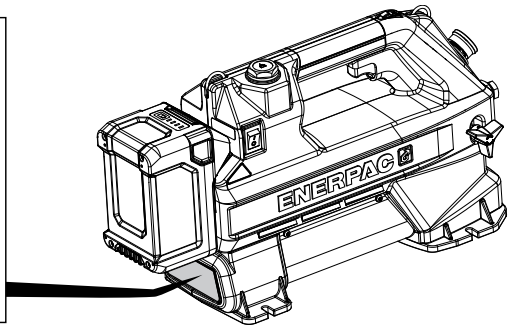
WARRANTY

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.

NAMEPLATE

Refer to the pump nameplate for the product model number, serial number and other applicable information.





Note: A typical SC Series nameplate is shown above. Nameplate data will vary depending on pump model and configuration.

AVAILABLE LANGUAGES

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

- EN English - For other languages, visit www.enerpac.com.
- CS Čeština - Další jazyky naleznete na adrese www.enerpac.com.
- DE Deutsch - Weitere Sprachen finden Sie unter www.enerpac.com.
- ES Español - Para otros idiomas visite www.enerpac.com.
- FI Suomi - Muita kieliä on osoitteessa www.enerpac.com.
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- KO 한국어 - 이 지침 시트의 다른 언어 버전은 www.enerpac.com.
- NL Nederlands - Ga voor de overige talen naar www.enerpac.com.
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- SV Svenska - För andra språk, besök www.enerpac.com.
- ZH 中文 - 如需其他语言，请前往 www.enerpac.com.

CONTENTS

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1.0 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.

Appropriate training in the safe use of high pressure, high force hydraulic tools is required prior to the operation of the pump. If training is needed, contact your local Enerpac distributor or authorized service center for information about a Enerpac hydraulic safety training course.

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 WARNING, CAUTION and NOTICE.

⚠ 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 **I**ndicates 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 Hydraulic 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.

1.1.1 General Hydraulic Safety Precautions

- Do not remove, modify or disable the pump's user adjustable pressure relief valve.
- Never set the pressure relief valve to a higher pressure than the maximum rated working pressure of the pump.
- Never remove, modify, disable or readjust the pump's internal safety relief valve.
- Do not handle pressurized hydraulic hoses. Escaping oil under pressure can penetrate the skin. If oil is injected under the skin, see a doctor immediately.
- Do not pressurize uncoupled hydraulic couplers.
- Do not exceed the pump's maximum pressure rating of 10,150 psi [700 bar]. Overloading may cause equipment failure and possible personal injury.
- The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. All hoses, fittings and couplers used with the pump must be rated at 10,150 psi [700 bar] minimum.
- Install pressure gauge(s) in the system to monitor operating pressure. It is your window to see what is happening in the system.
- Wear personal protective equipment (P.P.E.) when operating hydraulic equipment.
- Always wear eye protection. Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- 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 pump to malfunction. Personal injury and property damage may also occur.

⚠ CAUTION

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

- Do not use or repair damaged hydraulic hoses. Avoid sharp bends and kinks when routing hydraulic hoses. 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 hydraulic 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 swivel couplers. Use the carrying handle or strap.
- 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.
- Protect all hydraulic equipment from weld spatter.

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

1.1.2 Lifting 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.

- Do not allow persons to be under a hydraulically supported load. Always support the load with stands, blocking or other suitable supports before allowing persons to enter the work area below the load.
- Stay clear of cylinders and tools while they are being pressurized or in operation. To avoid personal injury, keep hands and feet away from pinch point areas.
- Never use a cylinder or tool with uncoupled couplers. If the cylinder or tool becomes extremely overloaded, components can fail catastrophically.
- Use only rigid pieces to hold loads. Carefully select steel or wood blocks that are capable of supporting the load.
- Never use a hydraulic cylinder or tool as a shim or spacer in any application.
- Distribute the load evenly across the entire saddle surface. Always use a saddle to protect the plunger.
- Avoid situations where loads are not directly centered on the cylinder plunger. Off-center loads produce considerable strain on cylinders and plungers. In addition, the load may slip or fall.
- Do not exceed equipment ratings. Never attempt to lift a load weighing more than the capacity of the cylinder. Overloading may cause equipment failure and possible personal injury.
- Be sure setup is stable before lifting load. Cylinders should be placed on a flat surface that can support the load. Where applicable, use a cylinder base for added stability. Do not weld or otherwise modify the cylinder to attach a base or other support.

1.2 Battery Operated Pump 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.

- Do not use a battery operated pump in an explosive atmosphere, such as in the presence of flammable liquids, gases, or dust. Sparks and electrical arcing could ignite combustible vapors or airborne dust.
- Do not expose the pump to rain, water spray or wet conditions. Water entering the pump will increase the risk of electric shock and may damage the motor and other components. The pump can be used outdoors, but should be brought inside in the event of rain or other moisture.
- To avoid accidental pump startup, be sure that the pump power switch is OFF (**O**) before moving or transporting the pump. Never carry the pump with your hand or fingers on the trigger switch.
- Ensure that the pump power switch is OFF (**O**) before performing inspections, maintenance procedures, repairs or cleaning the pump. As an alternative, remove the battery from the pump.
- Battery power will remain connected to some electrical components inside the pump even when the pump power switch is OFF (**O**). For this reason, always remove the battery from the pump before opening the pump housing for any reason. All servicing must be performed only by qualified personnel with appropriate training and expertise, following standard shop safety precautions.
- Use insulated tools and wear electrician's gloves if it is necessary to troubleshoot the pump or observe operation with the pump housing removed (qualified personnel only).
- Do not use the pump if the trigger switch or pendant controls (if equipped) do not turn the motor on and off. Any power tool that cannot be controlled with the trigger switch or pendant controls is dangerous and must be repaired before being used.
- Use the Enerpac SC Series pump only with the specified Enerpac 54 volt Li-Ion battery. Use of any other battery may create a risk of injury and fire.
- When battery is not in use, keep it away from other metal objects like paper clips, coins, keys, nails, screws, or other small metal objects that can make a connection from one terminal to another. Shorting the battery terminals together may cause burns or a fire.
- The battery cells may develop a small leak under extreme usage or temperature conditions. Avoid contact with battery liquid. Liquid ejected from the battery may cause irritation or burns. Refer to Section 1.3 for battery first aid instructions.
- If battery case is broken or damaged and/or if leakage occurs, do not reinstall the battery on the pump. Replace with a new battery.
- Recharge the battery only with the specified Enerpac battery charger. A charger that is suitable for one type of battery may create a risk of fire when used with another battery.
- Separate manuals are provided with the battery and battery charger and are also available online at www.enerpac.com. Read and understand all information contained in these manuals. Observe and comply with all communicated safety precautions when using the battery or charger.
- Remove the battery from the pump before storing the pump.
- The battery and battery charger have no serviceable parts. Do not attempt to disassemble or repair these items.

1.3 Battery First Aid Instructions

- If battery liquid comes in contact with skin, wash immediately with soap and water, then neutralize with lemon juice or vinegar.
- If battery liquid gets in your eyes, flush with clean water for a minimum of 10 minutes, then seek immediate medical attention.
- If battery liquid is swallowed, seek immediate medical attention.

1.4 Symbols

Various pictorial symbols are affixed to the pump or molded directly into the pump housing or components. Additional pictorial symbols are located on the battery and battery charger nameplates.

In some instances, these symbols may advise the user of potentially hazardous situations. Other symbols may be informational only. Understand the meaning of each symbol before using the pump.

Selected symbols are shown in the following chart:

Symbol	Definition
	Risk of electric shock. High voltage.
	Device shall not be exposed to high heat, fire/flame, or any heat source.
	Read instruction manual. Save instructions for future use.
	Do not expose device to rain, water or moisture.
	Do not dispose of device in trash.

1.5 Labels

Make sure all labels and decals are legible and securely affixed to the pump. If worn or missing, obtain replacements from Enerpac.

1.6 State of California Proposition 65 Warning (pump)

⚠ WARNING The pump uses hydraulic oil as the fluid medium. Hydraulic oils contain ethylbenzene, which may cause cancer and reproductive harm. Hydraulic oils need to be handled carefully, so that contact is avoided.

A warning decal is affixed to the pump, informing the operator of these risks. For additional information, go to www.P65Warnings.ca.gov.

1.7 State of California Proposition 65 Warning (battery)

⚠ WARNING The battery used with the pump can expose you to chemicals including cobalt lithium manganese nickel oxide and carbon black, which are known to the State of California to cause cancer and reproductive harm. For additional information go to www.P65Warnings.ca.gov.

2.0 COMPLIANCE

2.1 Compliance Statements

Cordless Hydraulic Pump
Model SC1201M

Enerpac declares that the model SC1201M cordless hydraulic pump has been tested and conforms to applicable standards and are approved to carry the CE, TÜV and UKCA certification marks.

NOTICE For all pumps, a copy of the product's EU Declaration of Conformity is enclosed with each shipment. A copy of the UK Self-Declaration of Conformity is also enclosed.

2.2 Electromagnetic Compatibility (EMC)

The model SC1201M cordless hydraulic pump has been tested and certified to conform to CE-EMC, FCC, and Japanese EMC emission and immunity standards.

2.3 Battery Safety Certifications

Refer to the separate battery manual for additional certifications pertaining to the Li-Ion battery used with the pump.

2.4 IP Rating

The model SC1201M cordless hydraulic pump carries an IP20 ingress protection rating:

- The pump is resistant to objects that are over 12.5 mm [0.49 in] in size.
- The pump has no protection against liquid entry, such as rain or water-spray.
- The pump can be used outdoors, but should be brought inside in the event of rain or other moisture.

3.0 PRODUCT DATA

3.1 Specifications

Pump Model	Valve	For Use With Cylinder or Tool Type:	Hydraulic Connection	Operating Temp Range*		Motor Rating		Motor Speed	Sound Pressure**
				˚F	˚C	hp	kW	RPM	dBA
SC1201M	Manual, 3-Way, 2 Position (pressure release valve)	Single-acting	3/8" NPTF	+14 to +122	-10 to +50	0.94	0.70	14,000-18,000	82

* At 85% relative humidity. ** Typical. Sound level will vary depending on pump speed and load.

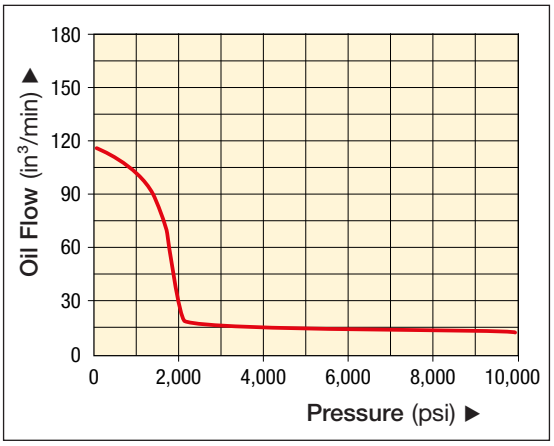
3.2 Pressure and Flow

Pump Model	Maximum Hydraulic Operating Pressure*		Flow Rate (also see Section 3.3)						Relief Valve Adjustment Range	
	psi	bar	At No Load		At 2000 psi [138 bar]		At 10,150 psi [700 bar]			
			in^3/min	l/min	in^3/min	l/min	in^3/min	l/min	psi	bar
SC1201M	10,150	700	115	1.9	20	0.32	12	0.20	1,000 - 10,150	69 - 700

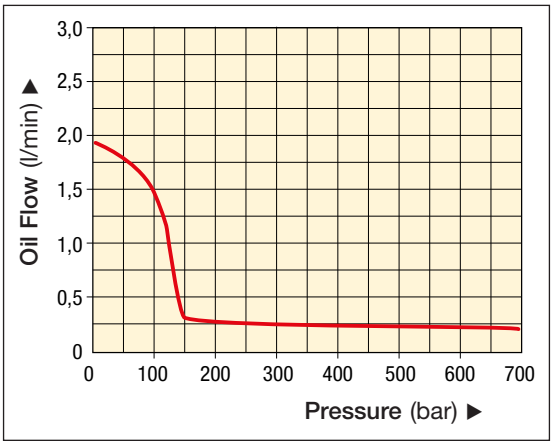
* Maximum system pressure is limited to approximately 10,400 -10,800 psi [717 - 744 bar] by an internal safety relief valve.

3.3 Performance Graphs

MODEL SC1201M (IMPERIAL)



MODEL SC1201M (METRIC)



Note: Graphs show typical pump pressure/flow curves.

3.4 Reservoir Capacities and Pump Weights

Pump Model Number	Pump Weight*		Reservoir Usable Oil Capacity		Hydraulic Oil
	lb	kg	in^3	l	
SC1201M	20.2	9.2	61	1.0	Enerpac HF

* Approximate weight of pump with oil in reservoir and with battery installed. Weight of battery is approximately 3.5 lb [1.6 kg].

3.5 Battery and Battery Charger

Pump Model Number	Item	Region/Country	Enerpac Model No.
SC1201M	Battery, 54V, Enerpac Lithium-Ion, 4.0 Ah, 216 Wh	(all)	EBH544
	Charger (includes AC power cord for selected region or country)	North America 115V	EC1F541B
		Europe 230V	EC1F542E
		Australia 230V	EC1F542A
	Charger AC power cord for Japan (order separately if needed)	Japan 100V	ECC541N
	Charger AC power cord for UK (order separately if needed)	United Kingdom 240V	ECC542U
Note: Battery and charger may be included with pump or may need to be purchased separately (varies depending on how pump was ordered). Charger power input is 100-240 VAC, 50-60 cycles, auto voltage sensing. Charger AC power cord (detachable) will vary depending on region/country and voltage. Refer to Figure 26 of this manual and also to the separate battery and charger manuals for additional information.			

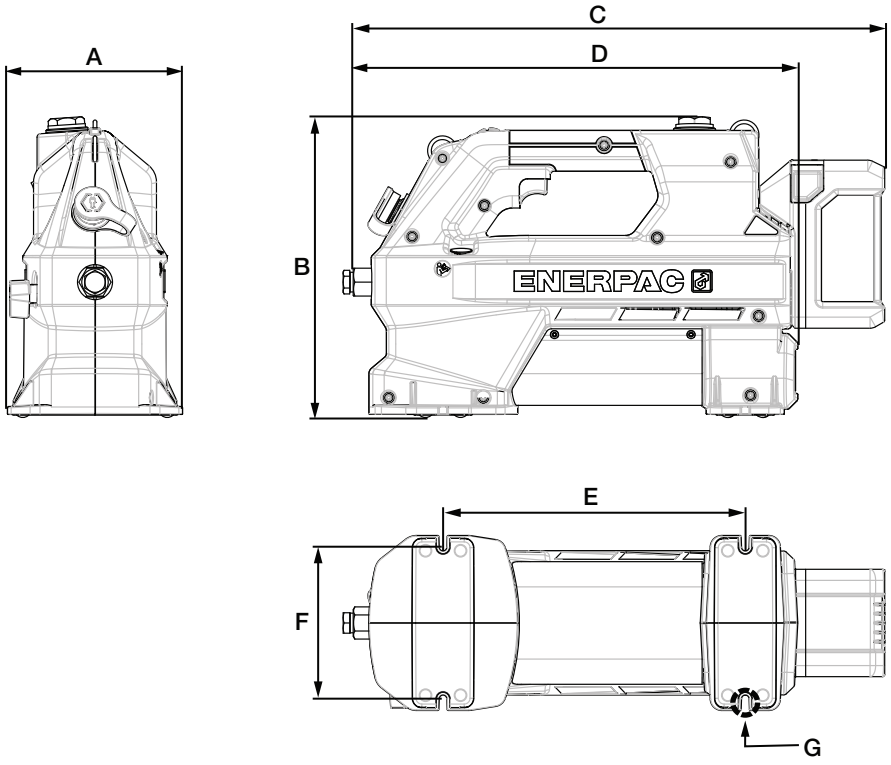
3.6 Selected Pump Accessories (optional equipment)

Pump Model Number	Item	Enerpac Model No.
SC1201M	Corded Remote Pendant, 10 ft [3 m]	CC131
	Corded Remote Pendant, 20 ft [6 m]	CC132
	Pendant Extension Cord, 10 ft [3 m]	CC010
	Shoulder Strap	SSTRP55
Note: Refer to Enerpac website or catalog for a complete description of available pump accessories.		

3.7 External Dimensions

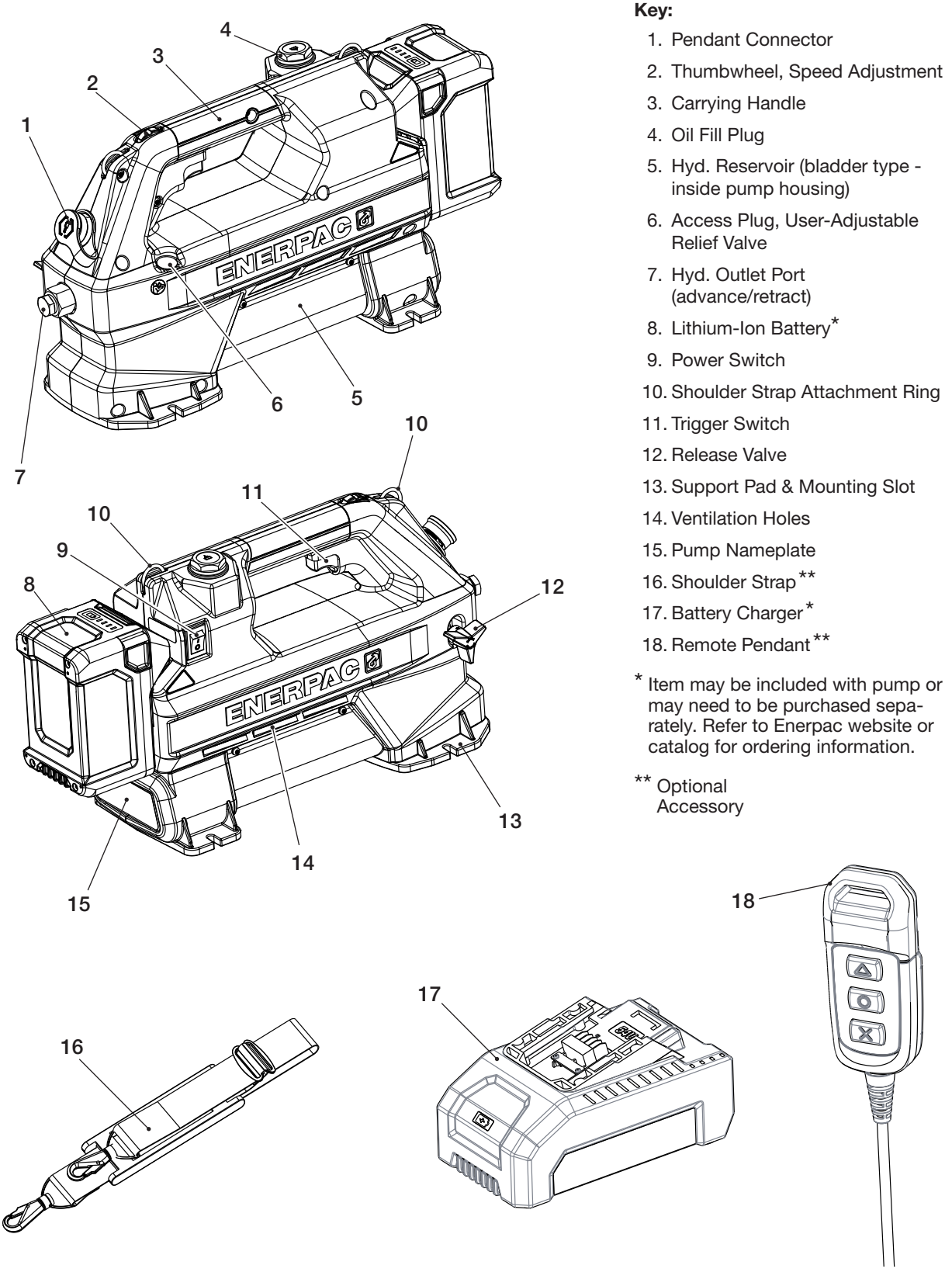
Item	Dimension	
	inch	mm
A	5.9	150
B	10.1	258
C	17.9	455
D	14.9	381
E	10.2	259
F	5.1	130
G	Bolt Size: 1/4 inch or M6	

Model SC1201M



Note: Dimensions shown are for reference only and may vary slightly from pump to pump.

4.0 FEATURES AND COMPONENTS



Key:

1. Pendant Connector
2. Thumbwheel, Speed Adjustment
3. Carrying Handle
4. Oil Fill Plug
5. Hyd. Reservoir (bladder type - inside pump housing)
6. Access Plug, User-Adjustable Relief Valve
7. Hyd. Outlet Port (advance/retract)
8. Lithium-Ion Battery*
9. Power Switch
10. Shoulder Strap Attachment Ring
11. Trigger Switch
12. Release Valve
13. Support Pad & Mounting Slot
14. Ventilation Holes
15. Pump Nameplate
16. Shoulder Strap**
17. Battery Charger*
18. Remote Pendant**

* Item may be included with pump or may need to be purchased separately. Refer to Enerpac website or catalog for ordering information.

** Optional Accessory

Figure 1: Features & Components, Model SC1201M

5.0 DESCRIPTION

The Enerpac Model SC1201M cordless pump combines the performance of a powered pump with the portability of a hand operated pump. Its cordless operation eliminates the need for extension cords and noise and emission producing generators.

Designed for use with single-acting hydraulic cylinders and tools, this compact and lightweight pump features a high-performance, brushless DC electric motor and two-stage hydraulic pump element. Its manually operated pressure release valve enables controlled retraction of the connected cylinder or tool.

An integral bladder type oil reservoir allows pump operation in any position and helps prevent contamination. Its 1.0 liter [61 in^3] capacity provides ample oil volume to power a wide range of hydraulic cylinders and tools.

Power is supplied by a rechargeable 54 volt, 4 Ah Lithium-Ion battery which is capable of providing extended run times, even under demanding conditions.

A convenient trigger switch operates the pump motor. A thumbwheel style speed adjustment knob allows precise regulation of cylinder or tool advance speed. For those users who require it, a remote control corded pendant is available as an optional accessory.

6.0 INSTALLATION & SETUP

6.1 Receiving Instructions

Visually inspect all components for shipping damage. Shipping damage is not covered by warranty. If shipping damage is found, notify carrier at once. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

The pump can be ordered either with or without batteries and a compatible AC-powered battery charger. These items will be included in the shipment if ordered.

6.2 Hydraulic Connections

The pump is designed for use only with single-acting hydraulic cylinders and tools. It contains an integral manual pressure release valve which is operated by a rotary knob.

NOTICE Installation of a pressure gauge (user-supplied) in the hydraulic line is strongly recommended. All hoses couplers, fittings and other hydraulic components used with the pump must be rated to at least 10,150 psi [700 bar].

NOTICE As hoses, fittings and other components are assembled, apply 1-1⁄2 wraps of PTFE thread sealing tape to all threaded NPT or NPTF fittings, leaving the first complete thread free of tape as shown in Figure 2. Use care to prevent pieces of tape from entering the hydraulic system.

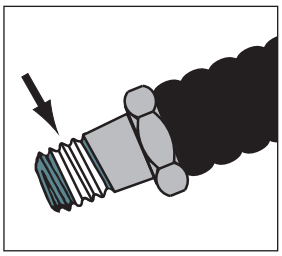


Figure 2: Sealing Tape

Make hydraulic connections as described in the following steps. Refer to Figure 4 for an example of a typical single-acting system setup.

1. To prevent the pump from starting while hydraulic connections are being made, be sure that the pump power switch is OFF (**O**). Or, remove the battery from the pump (if installed).
2. Open the pump release valve (turn it counter clockwise at least one full turn) to relieve any residual hydraulic pressure inside the pump. Refer to Figure 11 later in this manual.

Refer to Figure 3 during steps 3 and 4.

3. Use a 15/16" wrench to hold the pump outlet port fitting in place. Then, using an 11/16" wrench, remove the shipping plug.

NOTICE The pump outlet port has 3/8" NPTF threads. During installation, tighten threaded end of hose fitting or hydraulic coupler (if used) so it is finger tight. Then, tighten it an additional 2 full turns. During tightening, use a 15/16" wrench to hold the port fitting in place.

4. Connect one end of the hydraulic hose to the pump outlet port. Connect the other end of the hose to the pressure port of the single-acting cylinder or tool.

NOTICE Threaded connections for items such as hydraulic fittings, gauges, etc. must be securely tightened and leak-free. If using hydraulic couplers, make sure that all couplers are fully engaged.

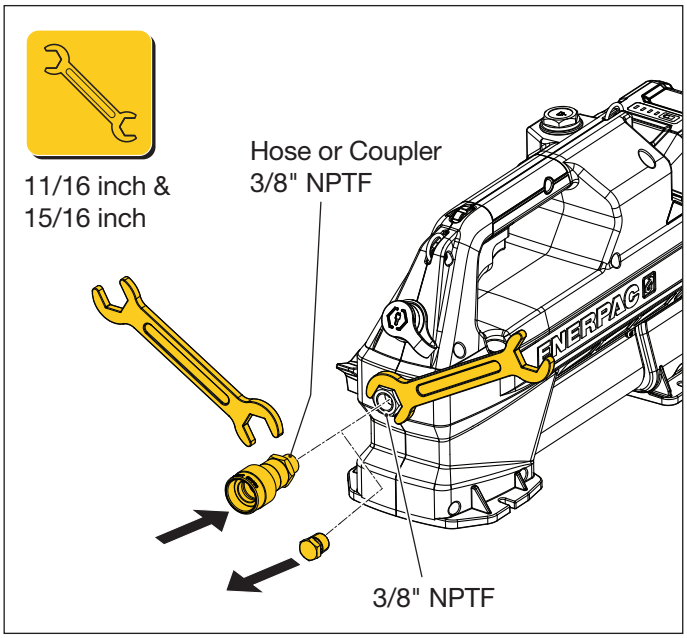
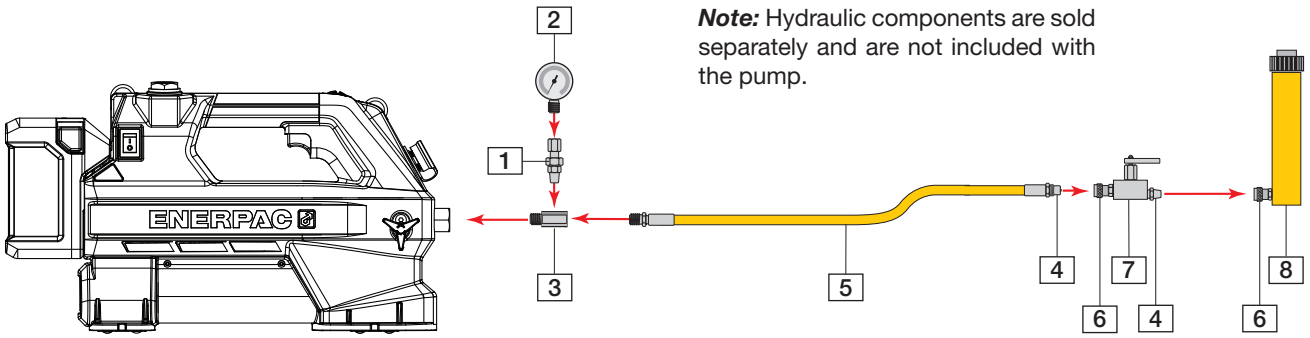


Figure 3: Hydraulic Connection to Pump



Note: Hydraulic components are sold separately and are not included with the pump.

Note: Shown in this graphic are various hydraulic components and devices typically recommended for use with a single-acting cylinder or tool. However, actual items required will vary, depending on application, size of load, cylinder or tool being used and other factors.

Key:

1. Swivel Connector
2. Pressure Gauge
3. Gauge Adapter
4. Coupler (male)
5. Hose (advance/retract)
6. Coupler (female)
7. Safety Holding Valve
8. Hydraulic Cylinder or Tool (single-acting)

Figure 4: Single-Acting Hydraulic Circuit and Components (typical)

7.0 BATTERY

NOTICE Press battery charge indicator button to determine charge level before using or charging battery for the first time.

NOTICE New batteries should be fully charged before use. Battery and charger must be purchased separately if not included in the shipment with the pump. Refer to Section 3.5 of this manual for battery charger model numbers.

NOTICE Refer to the separate battery and charger manuals for complete battery use and care information and charging instructions.

7.1 Charge Level Indicator

A small panel containing a charge indicator button and four charge indicator lights is located on the battery housing. Press the button to display the battery charge level. The lights will remain on for 3 seconds and then turn off automatically. See Figure 5.

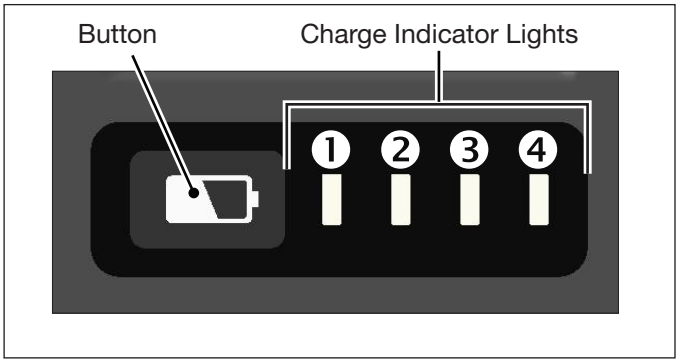


Figure 5: Battery Charge Level Indicator

Refer to the following table to determine the level of charge:

When battery charge indicator button is pressed:		Percent Charge: (approximate)
Lights 1-4 on		Above 75%
Lights 1-3 on		51 - 75%
Lights 1-2 on		26 - 50%
Light 1 on		10 - 25%
Light 1 flashing red	Remaining Charge < 5%	

One or more of the indicator lights should glow white when the charge indicator button is pressed. If the #1 indicator light flashes red when the button is pressed, the battery charge is very low. If none of the lights illuminate when the button is pressed, the battery is fully discharged.

NOTICE Run time between battery charges is mostly dependent on the pressure required for the application. The higher the required pressure setting, the shorter the runtime will be. To increase runtime, whenever possible use a cylinder or tool capable of operation below 8,000 psi [552 bar].

7.2 Low Voltage Shut-off

The pump will stop running (or will be prevented from starting) if battery voltage drops below a pre-determined low limit.

The pump may slow down or operate sluggishly before shut-off occurs, providing a signal that the battery is approaching full discharge.

NOTICE It is recommended that the battery be removed from the pump and placed in the charger before it becomes fully discharged. Full discharge cycles may cause permanent damage to the battery cells.

NOTICE If the battery becomes fully discharged while the pump is in use, it should be placed in the charger within 12 hours and kept in the charger until fully charged. This will help prevent battery damage and premature battery failure.

7.3 Overcurrent and Overtemperature Protection

The battery will shut-off automatically in the event that battery current draw becomes excessive or if the battery's internal temperature rises above acceptable limits.

Both faults are self-resetting. Normal battery operation will resume when the excessive current draw condition is eliminated or after the battery has cooled down.

In order to reset these faults, it may sometimes be necessary to cycle the pump power switch off and on, or to remove and reinstall the battery.

7.4 Cold Weather Operation

If the battery's internal temperature drops below approximately -13°F [-25°C], battery shut-down will occur and the pump will be prevented from starting.

If the pump will not start and the ambient temperature is very cold, remove the battery from the pump and take it to a room temperature location. Allow time for the battery to warm-up and be sure it is fully charged. Then, re-install the battery and try starting the pump again.

7.5 Battery Installation and Removal

- **To install battery on pump:** Slide the battery down onto the battery interface at the rear of the pump. Make sure it latches securely into place. See Figure 6.
- **To remove battery from pump:** Press and hold the release buttons located on each side of the battery. Then, slide the battery upward and remove it from the pump. See Figure 7.

NOTICE To ensure compatibility and proper operation, use only the specified Enerpac 54V Lithium-Ion battery with the pump. Refer to Section 3.5 for battery specifications and model number.

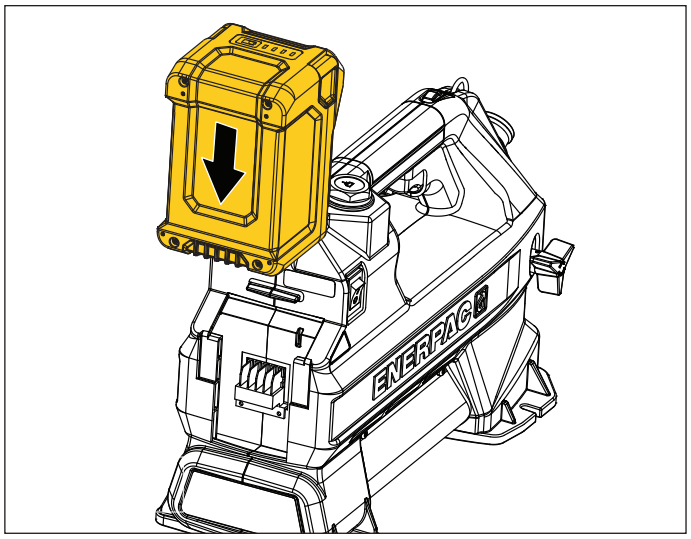


Figure 6: Battery - Install

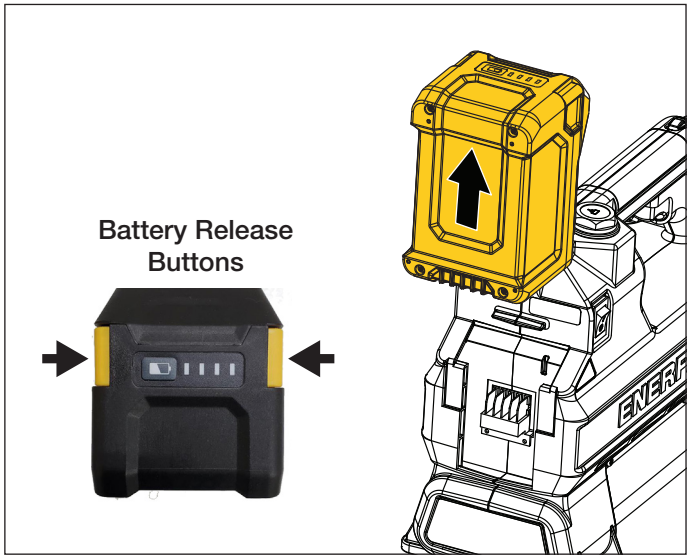


Figure 7: Battery - Remove

8.0 OPERATION

8.1 Power Switch

The pump is equipped with a two-position rocker style power switch. It is located on the right-hand side of the pump housing near the battery. Refer to Figure 8.

Depressing the top (**I**) half of the power switch connects battery power to the pump motor control circuit. Depressing the bottom (**O**) half of the power switch disconnects battery power to the motor control circuit.

The power switch must be in the ON (**I**) position to allow the pump motor to start, whether it is being controlled by the pump's built-in trigger or the optional remote pendant. The trigger switch and all pendant buttons are non-functional when the power switch is in the OFF (**O**) position.

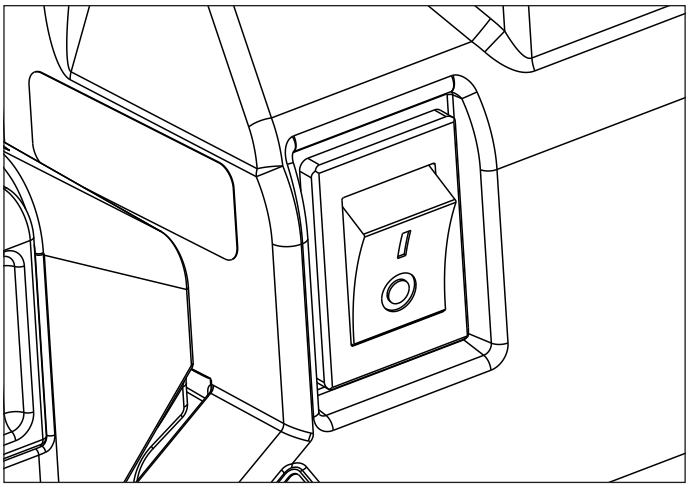


Figure 8: Power Switch

The power switch can remain ON (**I**) when the pump is temporarily idle, but in regular use.

However, always turn the power switch OFF (**O**) in any of the following conditions:

- If an emergency occurs and the pump must be stopped immediately.
- Before moving or transporting the pump.
- During sustained periods of non-use (overnight, etc.) while the battery remains installed on the pump.
- When performing routine inspection and maintenance procedures while the battery is installed.

NOTICE The pump motor control circuits will consume a small amount of battery power when the pump is idle and the power switch is in the ON (**I**) position. To prolong the battery charge, it is recommended that the power switch be turned off overnight and during other long periods of inactivity.

8.2 Before Start-up

1. Connect the hydraulic hose. Check all hydraulic fittings and connections to be sure they are tight and leak free. Refer to instructions in Section 6.2.
2. Check the hydraulic oil level. Add oil if necessary. Refer to sections 9.1, 9.2 and 9.3 for procedures.
3. If ordered with the pump: Connect the remote pendant (optional accessory) to the connector on the front of the pump housing. Attach the shoulder strap (optional accessory) to the ring at each end of the pump carrying handle.
4. Install a fully charged battery on the pump. Refer to Section 7.5 for additional information.

NOTICE Press battery charge indicator button to determine charge level before using or charging battery for the first time.

NOTICE New batteries should be fully charged before use. Refer to Section 7.1. Also refer to the separate manuals for the battery and battery charger for additional information.

5. Before operating the pump under load, perform the air removal procedure to purge any trapped air from the system. Refer to Section 8.9.
6. Pump relief valve is factory set to approximately 10,150 psi [700 bar]. If a lower setting is desired, readjust the relief valve pressure as described in Section 9.5.

8.3 Operating Precautions

⚠ WARNING Never allow any personnel to be under an object that is being supported only by the pump hydraulics. Death or serious personal injury could result if hydraulic pressure is relieved or if leakage occurs and the load drops on persons below.

⚠ WARNING Failure to observe the following precautions and instructions could allow the load to drop on persons working in the area. Death or serious personal injury could result.

- Keep persons away from area under load during lifting, lowering and whenever the release valve knob is turned to relieve system pressure.
- To prevent the load from dropping, always immediately support it with jack stands or other mechanical blocking devices of adequate rated capacity after lifting is completed. The pump does NOT contain a safety locking valve.
- Be certain that blocking is fully in place before opening the pump release valve and relieving hydraulic pressure. An unsupported load will drop when the release valve is opened.
- Although the pump hydraulics may temporarily hold the load, be aware that the load can drift downward or drop suddenly at any time if it is not mechanically supported.

8.4 Operating the Pump Motor

A trigger switch is used to control the pump motor. See Figure 9.

1. Be sure that the pump power switch is ON (**I**).
2. To start the pump motor, firmly grasp the carrying handle and pull the trigger switch upward. To run the motor faster, roll the thumbwheel forward. To run the motor slower, roll the thumbwheel backward. See Figure 9 and Figure 10.
3. To stop the pump motor at any time, fully release the trigger switch.

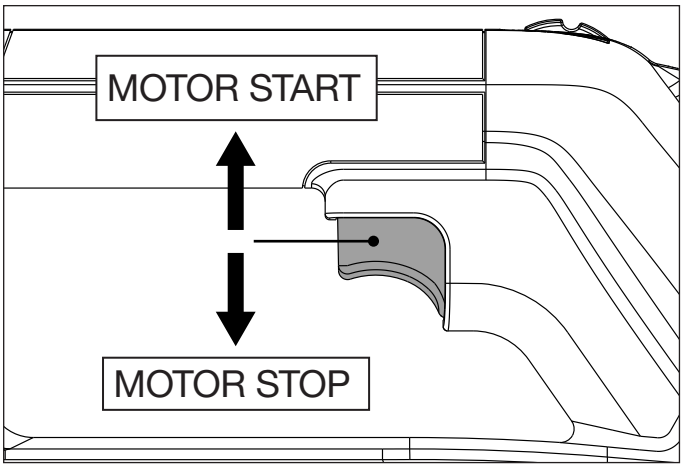


Figure 9: Trigger Switch Operation

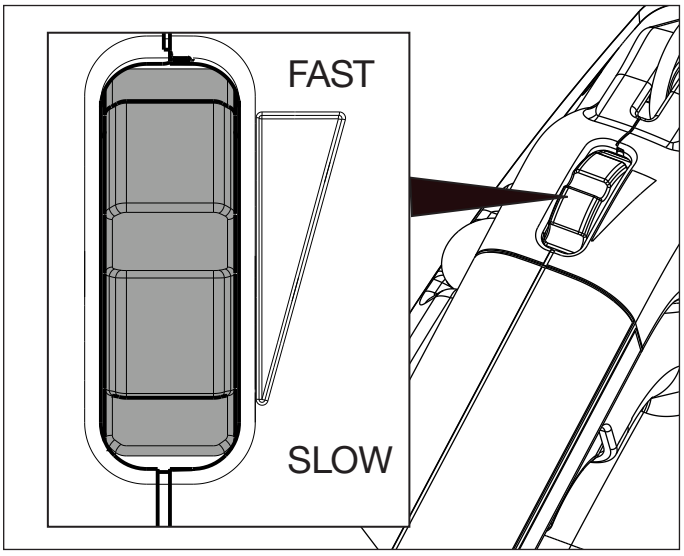


Figure 10: Motor Speed Control Thumbwheel

8.5 Pump and Valve Operation

The pump contains a built-in manually operated pressure release valve. System hydraulic pressure is maintained when the valve is closed. Pressure is released to the pump hydraulic reservoir when the valve is opened. See Figure 11.

- **To advance:** Turn the release valve clockwise until it is fully closed. Then, pull the trigger switch upward to start the motor and begin advancing.

⚠ CAUTION Close release valve firmly using fingers ONLY. Do not use tools. Excessive force may result in damage and cause the pump to malfunction.

- **To stop:** Release the trigger switch.
- **To retract:** Slowly open the release valve (turn counter-clockwise) as needed to release hydraulic pressure and to retract the cylinder or tool at the desired rate of speed. The motor does not need to be operated while retracting.
- The pump is not designed to hydraulically hold or support the load while persons are working in the area. After lifting is completed, the load must be mechanically supported (refer to warning statements and related information in Section 8.3).

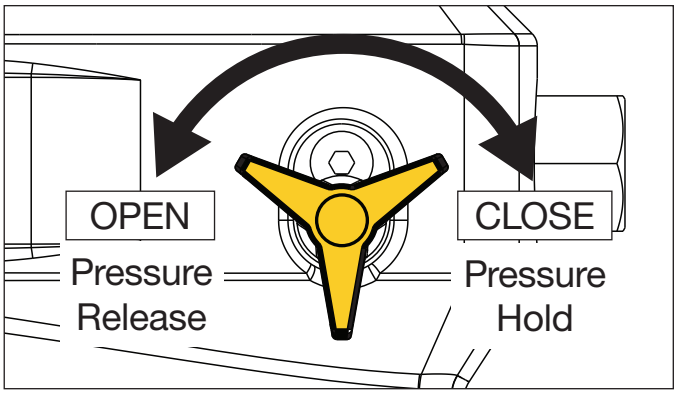


Figure 11: Release Valve

8.6 Remote Pendant Operation

A corded remote pendant is available as an optional accessory.

The pendant cable connection is located on the front of the pump, above the pump outlet port.

Pendant operation is as follows. See Figure 12:

- Press and hold the JOG button to start the motor.
- Release the JOG button to stop the motor.
- The and buttons are NOT used on this pump version.
- The motor speed can be adjusted as needed by using the thumbwheel on the pump. Roll the thumbwheel forward to run the motor faster. Roll the thumbwheel backward to run the motor slower. See Figure 10.

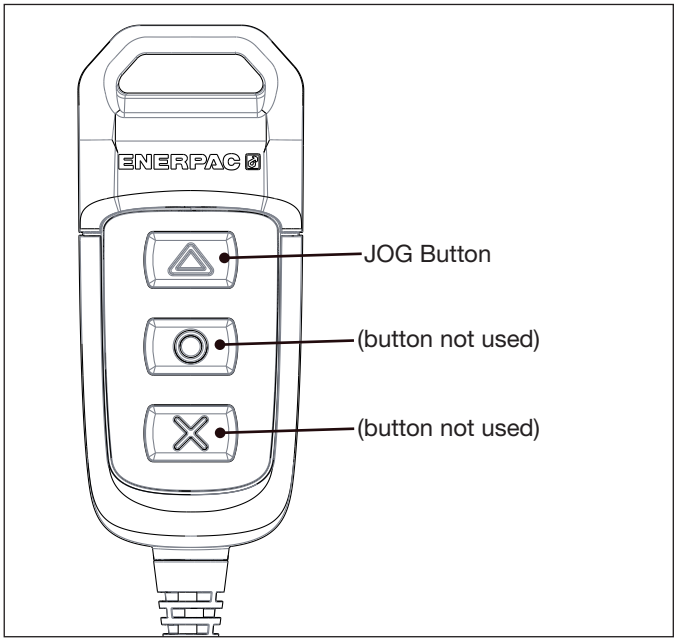


Figure 12: Remote Pendant (optional accessory)

8.7 Fault Conditions

If a fault condition is initiated while the pump motor is running, the motor will stop immediately. In addition, when a fault condition is active, the motor will not restart when using either the trigger switch or the optional remote pendant.

Any of the following occurrences will initiate a fault condition:

- Pressing any two pendant buttons at the same time.
- Pressing any pendant button at the same time while the pump trigger switch is being operated.
- If battery voltage falls below a pre-determined limit.
- Excessive pump internal temperatures.
- Damaged pump components and/or abnormal conditions sensed by the pump electronic control system.

8.8 If Motor Fails To Start (Fault Reset)

If the battery is charged, and the pump motor fails to start when the trigger switch is operated or the pendant JOG button is pressed:

1. Turn off the pump power switch (**O**).
2. Wait for 3 to 5 seconds. Then, turn on the pump power switch (**I**) to reset the fault.
3. If a fault has been successfully reset and the battery is adequately charged, normal pump operation should resume.

NOTICE If the pump still fails to start, take it to an Enerpac authorized service center for inspection and diagnosis.

8.9 Air Removal

When hydraulic connections are made to a new pump, air will be trapped inside the hoses and other components. This trapped air can cause erratic operation of cylinders or tools.

To ensure smooth, safe operation, remove the pump oil fill plug and run the cylinder or tool through several complete advance-retract cycles. Do this under no load and with the pump positioned *higher* than the cylinder or tool.

When the cylinder or tool advances and retracts smoothly without hesitation, it is an indication that air has been successfully vented from the system. Fully retract the cylinder and re-install the oil fill plug after procedure is completed.

8.10 Disconnecting Hydraulic Hose

Relieve hydraulic pressure and disconnect the hydraulic hose from the pump as described in the following steps:

1. Slowly turn the pump release valve counter clockwise to retract the cylinder or tool and to relieve hydraulic pressure in the system. Be sure that cylinder or tool is fully retracted and that the load is completely removed.
2. If a pressure gauge has been installed, verify that the gauge indicates zero (0) psi/bar. Verify that hose is not stiff and that there are no other indications of possible trapped hydraulic pressure.
3. Turn off the pump power switch (**O**).
4. Disconnect hose from the pump outlet port.
5. To prevent dirt entry and contamination, install a dust cap or plug (as required) in the pump outlet port connection.

8.11 Transporting the Pump

Before moving or transporting the pump, be sure that the pump power switch is OFF (**O**) or that the battery is removed. This will help prevent accidental pump startup.

Always move or transport the pump using only the built-in carrying handle or the shoulder strap (optional accessory).

NOTICE Never attempt to transport or reposition the pump by lifting or dragging it by the hoses. Damage to the pump and/or hoses may result.

9.0 MAINTENANCE

9.1 Check Oil Level

1. Be sure that the hydraulic cylinder or tool is fully retracted and that the load is completely removed.
2. Open the release valve by turning it counter-clockwise to relieve any residual hydraulic pressure in the system.
3. Turn off the pump power switch (**O**).
4. Be sure the pump is on a level surface.
5. Remove the oil fill plug from the fill opening. Use a 27 mm wrench. See Figure 13.

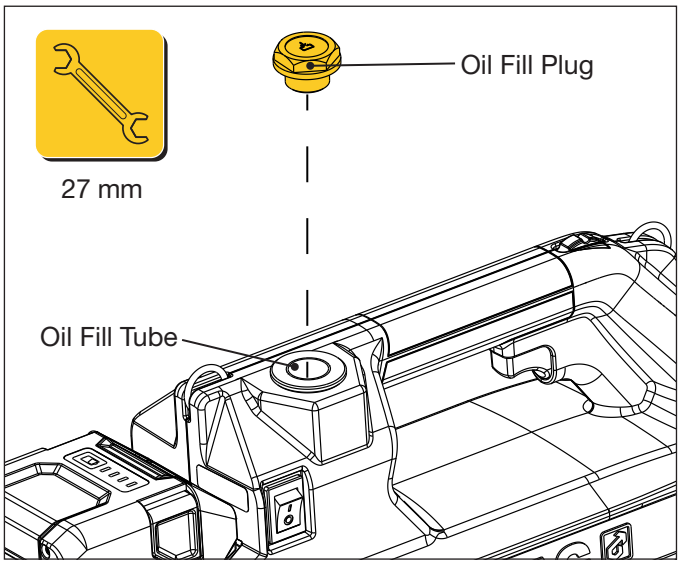


Figure 13: Oil Fill Location

6. Check the oil level. Reservoir is FULL when oil level is near the top of the oil fill tube.
7. If oil level is low, add oil as described in Section 9.3. Refer to Section 9.2 for oil requirements.

NOTICE An O-ring fits inside a groove on the underside of the oil fill plug. Check for this O-ring and reinstall it if it has dropped out of the groove. If the O-ring is missing or worn, replace the oil fill plug. A new O-ring will be included with the replacement oil fill plug.

8. Reinstall the oil fill plug after checking oil level. Tighten the plug until it is hand-tight. Do not overtighten.

9.2 Hydraulic Oil Requirements

Use only Enerpac HF hydraulic oil when adding additional oil or when performing an oil change. Enerpac HF hydraulic oil is available from Enerpac distributors and Enerpac authorized service centers.

NOTICE Use only Enerpac HF hydraulic oil. Use of other oils may result in damage to pump components. Such damage is not covered under the Enerpac product warranty.

9.3 Adding Oil

⚠ CAUTION Be certain that cylinder or tool is fully retracted before adding any oil to the reservoir. If an oil-filled cylinder or tool is retracted after additional oil has been added to the reservoir, the reservoir could become overfilled and burst. Oil leakage and possible personal injury could occur.

NOTICE

- Always turn off the pump power switch (**O**) before removing the oil fill plug and adding oil. This will prevent accidental pump start-up.
- Use only Enerpac HF hydraulic oil. Refer to Section 9.2. Use only new oil poured from a clean container.
- To avoid spillage and to allow proper venting, always use a funnel of the proper size when adding oil. Spillage and under filling will occur if a funnel is not used.

Add oil as described in the following steps:

1. Be sure that the hydraulic cylinder or tool is fully retracted and that the load is completely removed.
2. Open the release valve by turning it counter-clockwise to relieve any residual hydraulic pressure in the system.
3. Turn off the pump power switch (**O**).
4. Be sure the pump is on a level surface.
5. Remove the oil fill plug from the fill opening. Use a 27 mm wrench. See Figure 13.
6. Place a funnel (maximum 3/4" [19 mm] stem outer diameter & at least 1-3/16" [30 mm] long) through the fill opening and into the oil fill tube. See Figure 14.

NOTICE Pour oil slowly to avoid spillage. If oil begins to overflow from the fill opening, stop pouring immediately.

7. SLOWLY add Enerpac HF oil while watching the oil level in the funnel stem. To avoid spillage, stop pouring immediately when oil reaches the top of the fill opening or begins overflowing.
8. Remove funnel from fill opening. Wipe off and/or remove any spilled oil.

NOTICE Dispose of spilled oil in accordance with all applicable laws and regulations.

NOTICE An O-ring fits inside a groove on the underside of the oil fill plug. Check for this O-ring and reinstall it if it has dropped out of the groove. If the O-ring is missing or worn, replace the oil fill plug. A new O-ring will be included with the replacement oil fill plug.

9. Reinstall the oil fill plug. Tighten the plug until it is hand-tight. Do not overtighten.

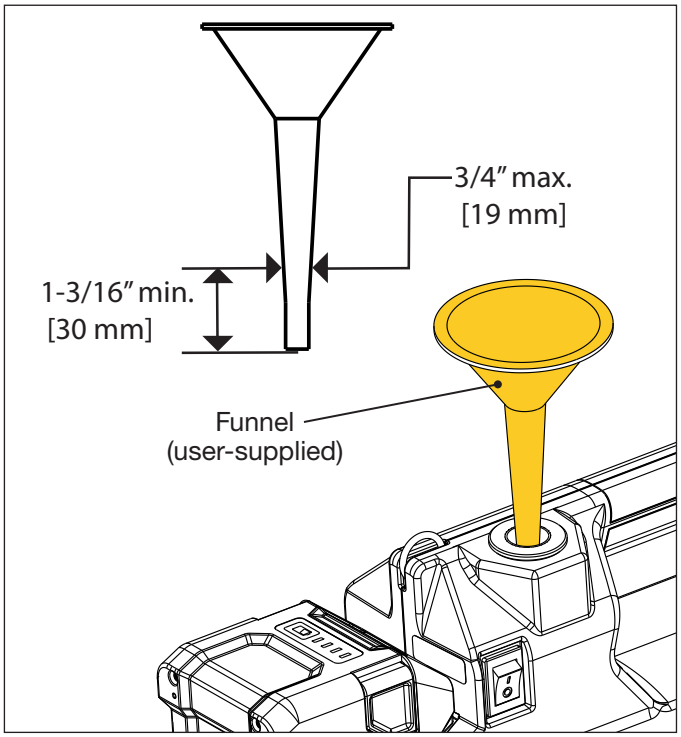


Figure 14: Adding Oil Using Funnel

9.4 Oil Change

Check oil for contamination by comparing the color of the oil in the reservoir fill tube to new unused Enerpac HF oil. Unused Enerpac HF oil is a crisp blue color.

As a general rule, completely drain and refill the pump's bladder type reservoir every 250 hours of operation, or more frequently if used in dirty environments. Refer to the following procedure:

1. Be sure that the hydraulic cylinder or tool is fully retracted and that the load is completely removed.
2. Relieve any residual hydraulic pressure and disconnect the hydraulic hose from the pump outlet port. Refer to instructions in Section 8.10 of this manual.
3. Place the pump on a level work surface. Be sure the pump power switch is OFF (**O**).
4. Connect an open-ended hose to the pump outlet port. Place the open end of the hose in a suitable pan or container that is large enough to collect all the used oil.

NOTICE Oil capacity of the model SC1201M pump is approximately 1.0 liter [61 in^3]. Be sure that pan or container is large enough to hold all the used oil.

5. Close the release valve by turning it clockwise until fully closed. Close it finger tight only. Do not use tools.
6. If removed, reinstall the oil fill plug in the pump oil fill opening. This plug must remain installed in steps 7-9.
7. Turn on the pump power switch (**I**).
8. Pull the trigger switch upward to start the pump motor and begin draining the reservoir. Continue running the motor until oil stops flowing from the open-ended hose. Then, release the trigger switch. See Figure 15.

NOTICE Dispose of used oil in accordance with all applicable laws and regulations.

9. Turn off the pump power switch (**O**).
10. Remove the oil fill plug and fill the reservoir with new Enerpac oil. Refer to Section 9.2 for hydraulic oil requirements and Section 9.3 for detailed oil fill instructions. The actual amount of oil required to fill a completely empty reservoir may be slightly more than the pump's rated 61 in^3 [1.0 liter] usable oil capacity.
11. Disconnect the open-ended hose from the pump outlet port. Reconnect the hydraulic hose from the cylinder or tool to the pump outlet port.
12. Run the pump and cycle the cylinder or tool several times without load to bleed any trapped air from the system. Refer to Section 8.9 for additional information.
13. Recheck oil level after cycling the cylinder or tool. With the cylinder or tool fully retracted, verify that oil level has not dropped. Add additional oil if level is low.

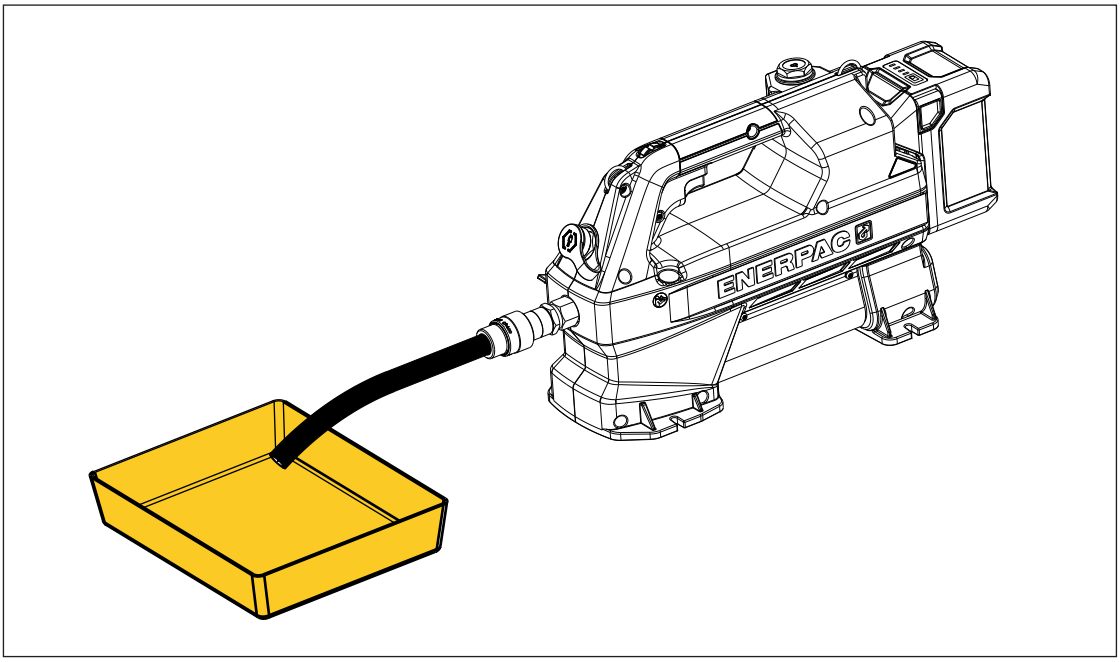


Figure 15: Draining the Hydraulic Reservoir

9.5 Relief Valve Pressure Adjustment

The pump contains a user-adjustable hydraulic pressure relief valve that is factory set before shipment to approximately 10,150 psi [700 bar]. Check the setting and readjust it if necessary as described in the following steps. See Figure 16.

1. Be sure that the hydraulic cylinder or tool is fully retracted and that the load is completely removed.
2. Turn off the pump power switch (**O**).
3. Relieve any residual hydraulic pressure and disconnect the hydraulic hose from the pump outlet port. Refer to instructions in Section 8.10 of this manual.
4. Connect a 0-15,000 psi [0-1000 bar] pressure gauge to the pump outlet port.
5. Close the release valve by turning it clockwise until fully closed. Close it finger-tight only. Do not use tools.
6. Turn on the pump power switch (**I**).
7. Pull the trigger switch upward to start the pump motor. While the motor is running, check the gauge reading to verify the relief valve pressure setting:
   - If the pressure setting shown on the gauge is correct for your application and does not exceed the maximum rated pressure of the cylinder or tool to be used, skip step 8 and go to step 9.
   - If the pressure setting shown on the gauge is not correct for your application and/or exceeds the maximum rated pressure of the cylinder or tool to be used, readjust the setting as described in step 8.

⚠ WARNING Be certain that the pressure setting does not exceed the maximum rated pressure of the cylinder (or tool) to be used, or of any other components in the system (hoses, fittings, etc.). Failure to observe this precaution may result in failure of cylinder or tool and related components. Death or serious personal injury could occur.

NOTICE Maximum system pressure is limited to approximately 10,400-10,800 psi [717 - 744 bar] by an internal safety relief valve.

8. If needed, adjust the relief valve pressure setting as described in the following steps:

   a. Using a flat blade screwdriver, remove the access plug from the side of the pump housing.

   b. Place a long 7/32" Allen (user supplied) wrench through the opening until it engages with and fits into the socket head of the pressure adjustment screw.

   c. Turn the release valve counter-clockwise to open it and relieve hydraulic pressure in the pump. Verify that the pressure gauge indicates zero (0) psi/bar.

   d. Only if pressure setting is to be decreased: Using the Allen wrench, turn the pressure adjustment screw about two turns counter-clockwise.

NOTICE To help ensure an accurate final pressure setting, always start from a lower setting and gradually increase the pressure to the final setting.

   e. Pull the trigger switch upward to start the pump motor.

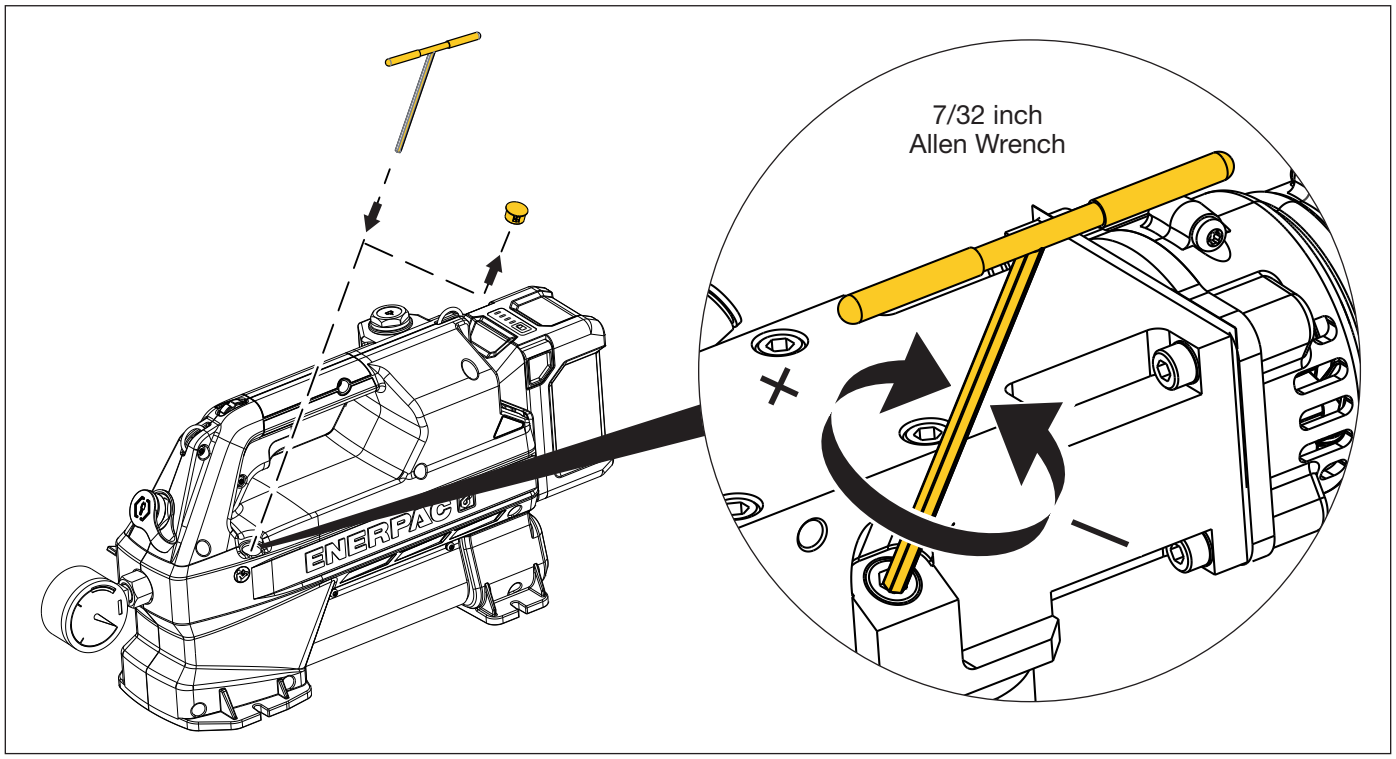


Figure 16: Relief Valve Pressure Adjustment

f. With the motor running, slowly turn the Allen wrench clockwise to increase the pressure setting to the desired setting. Observe the pressure gauge to determine when this setting has been reached.

g. After adjusting the pressure setting, release the trigger switch to stop the motor.

h. Open the release valve by turning it counter-clockwise to relieve hydraulic pressure in the pump. Verify that the pressure gauge indicates zero (0) psi/bar.

i. Re-close the release valve by turning it clockwise until fully closed. Close it finger-tight only. Do not use tools.

j. Pull the trigger switch upward again to restart the pump motor. Re-check the pressure gauge reading.

NOTICE If pressure is too high or too low, stop the pump and repeat steps 8c through 8j. Note that it will first be necessary to relieve any residual pump pressure as described in step 8c before performing step 8d.

9. After verifying that the desired pressure setting has been achieved, remove the Allen wrench and reinstall the access plug.
10. Open the release valve by turning it counter-clockwise to relieve hydraulic pressure in the pump. Verify that the pressure gauge indicates zero (0) psi/bar.
11. Turn off the pump power switch (**O**).
12. Disconnect pressure gauge from the pump outlet port.
13. Reconnect hydraulic hose from cylinder or tool to the pump outlet port.

10.0 CLEANING

- Before beginning any cleaning procedures, always turn off the pump power switch (**O**) or remove the battery. Be sure that hydraulic pressure is completely relieved (0 psi/bar).
- Motor cooling vents are located on both sides of the pump housing, around each ENERPAC logo. To help ensure unrestricted airflow, remove any dust or dirt from these vents. Use a suitable soft brush.

⚠ WARNING To avoid a shock hazard, do not insert any objects inside the vents. Do not spray water or cleaners inside the vents.

- Wipe the pump exterior with a dry, soft cloth. Avoid using strong detergents or cleaners.
- Refer to the battery manual for battery cleaning instructions.

11.0 STORAGE

Store the pump as described in the following procedure:

1. Be sure that hydraulic pressure is completely relieved (0 psi/bar).
2. Turn off the pump power switch (**O**).
3. Remove the battery from the pump.
4. Store the pump and battery in a clean, dry and secured location, away from unauthorized users. Avoid storing in extreme heat or cold.

NOTICE After removing battery from storage, press charge indicator button to determine battery charge level. Do this *before* using or charging battery.

NOTICE Refer to the separate manuals for the battery and battery charger for additional storage information pertaining to those items.

12.0 SAFE DISPOSAL PROCEDURE

When the pump has reached the end of its useful life, dispose of it as described in the following steps:

1. Drain all hydraulic oil from the pump hydraulic reservoir as described in Section 9.4 of this manual. Dispose of used oil in accordance with all applicable laws and regulations.
2. Remove battery from pump. Dispose of battery in accordance with instructions contained in the Enerpac battery manual.
3. Take the pump to an approved industrial recycling facility for disposal.

13.0 FIRMWARE UPDATES

When issued, product firmware updates will be made available via the Enerpac Connect App. Specific firmware updating instructions for your product model will be provided in the app.

ENERPAC CONNECT®

The Enerpac Connect App is available for download on the Apple App Store and on Google Play.

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14.0 TROUBLESHOOTING

Only qualified technicians should service the pump or system components. For repair service, contact your Enerpac authorized service center.

The troubleshooting guide is intended to be used only as an aid in determining if a problem exists. A system failure may or may not be the result of a pump malfunction. To determine the cause of the problem, the complete system must be included in any diagnostic procedure.

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

- Never tighten or loosen hydraulic fittings while the pump hydraulic system or connected components are pressurized. Escaping oil under pressure can penetrate the skin, causing serious personal injury.
- Keep hands, fingers and other body parts clear of pinch points and moving parts when observing operation during troubleshooting.
- To prevent accidental start-up of pump during servicing, always remove battery from pump before performing any repair procedures.

Troubleshooting Guide		
Problem	**Possible Cause**	**Action**
1. Pump will not start.	a. Battery not installed.	Install battery.
	b. Pump power switch is off (**O**).	Turn on pump power switch (**I**).
	c. Battery discharged.	Press battery charge indicator button to determine battery charge level. Place battery in charger if charge level is low. Replace battery if it is damaged and cannot be charged.
	d. Electrical contacts dirty or corroded.	Clean the pump electrical contacts. **⚠ WARNING** To avoid sparks or possible electric shock, DO NOT clean contacts on battery.
	e. Battery overtemperature or undertemperature condition.	Battery will shut-down and prevent pump from starting if its internal temperature becomes too high or too low. If this condition is suspected, remove the battery from the pump and take it to a room temperature location. Allow time for the battery to return to normal operating temperatures before reinstalling it on the pump.
	f. Fault Condition • Button Fault • Trigger Fault • Other Fault Condition	Cycle power switch off and on to reset fault condition. Or, remove and reinstall battery.
	g. Pendant controls or cable damaged. (pumps equipped with optional remote pendant only)	Try operating the pump using the trigger switch or a different compatible pendant. If pump starts and operates normally, repair or replace the pendant.

(continued on next page)

Troubleshooting Guide (continued)		
Problem	**Possible Cause**	**Action**
1. Pump will not start. (continued)	h. Motor and/or electronic control board damaged.	Contact Enerpac authorized service center.
	i. Pump jammed due to obstruction. Possible internal damage to pump.	Contact Enerpac authorized service center.
2. Low fluid output.	a. Motor running too slowly.	Roll thumbwheel forward to increase speed. See Figure 10.
	b. Pump needs priming.	To prime the pump, be sure that the pump reservoir is filled with oil. Then, run the pump with the release valve open while gently rocking the pump from side-to-side.
	c. Bypass valve malfunction.	Contact Enerpac authorized service center.
	d. Oil intake screen clogged with debris.	Contact Enerpac authorized service center.
	e. Internal leakage, wear and/or damage.	Contact Enerpac authorized service center.
	f. Pump element internal leakage, wear and/or damage.	Contact Enerpac authorized service center.
3. Cylinder will not advance.	a. Release valve open.	Close the release valve.
	b. Low oil level.	Add oil until reservoir is completely full.
	c. Pump needs priming.	To prime the pump, be sure that the pump reservoir is filled with oil. Then, run the pump with the release valve open while gently rocking the pump from side-to-side.
	d. Oil intake screen clogged with debris.	Contact Enerpac authorized service center.
4. Cylinder will not retract.	a. Release valve closed.	Open the release valve.
	b. Hydraulic coupler(s) not fully engaged.	Check hydraulic couplers for full engagement. A partially engaged hydraulic coupler may reduce or block hydraulic flow.
	c. Cylinder has no retract spring.	Manually retract the cylinder.

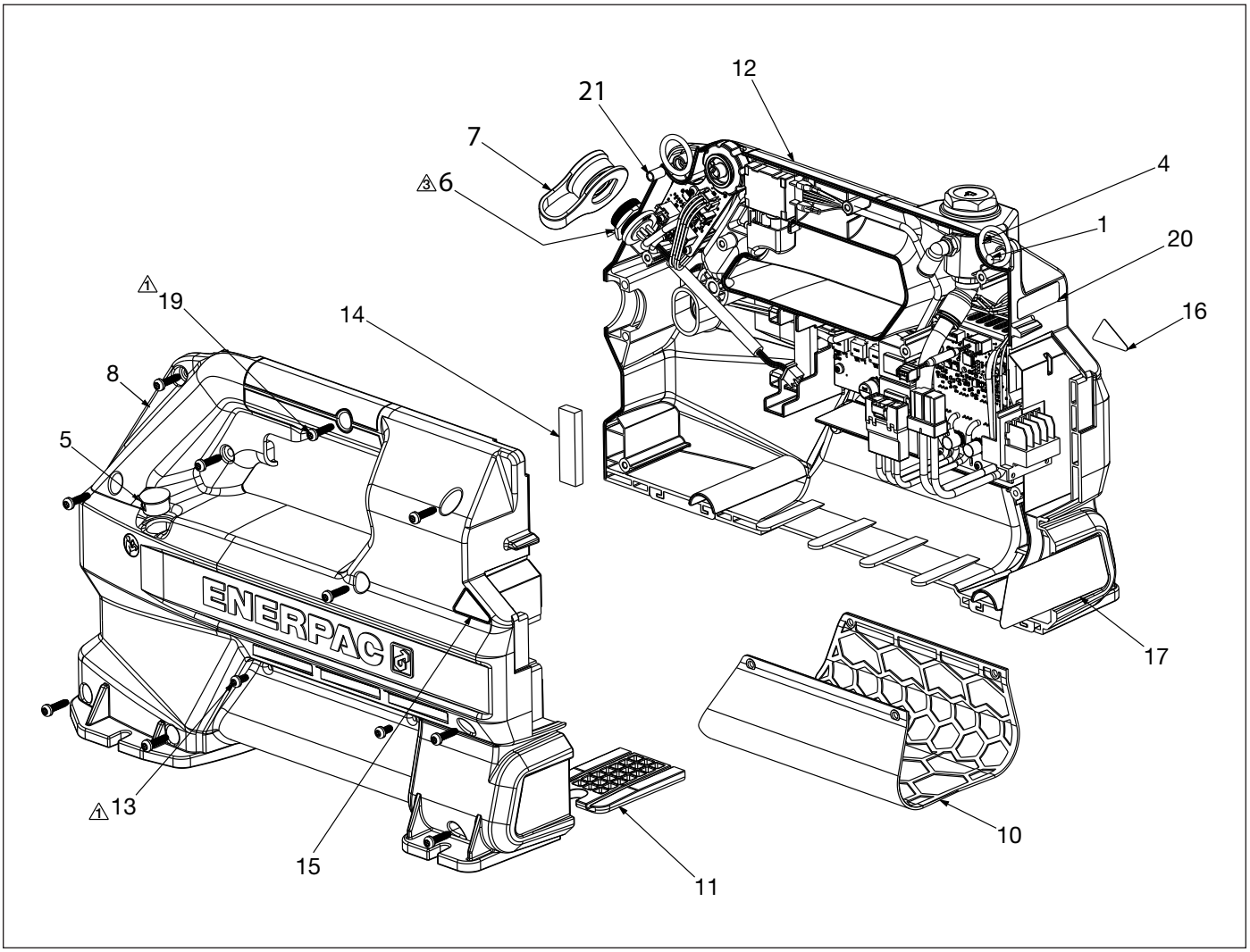
(continued on next page)

Troubleshooting Guide (continued)		
Problem	**Possible Cause**	**Action**
5. Pump slows down and stops.	Battery discharged.	Charge battery. Replace battery if it is damaged and cannot be charged.
6. Cylinder advances and retracts erratically.	a. Air in the system.	Advance and retract the cylinder until operation is smooth. Refer to procedure in Section 8.9.
	b. External hydraulic leak.	Tighten connections. Replace damaged components.
	c. Internal leakage, wear and⁄or damage.	Contact Enerpac authorized service center.
	d. Pump element internal leakage, wear and/or damage.	Contact Enerpac authorized service center.
7. Pump stops during prolonged or heavy operation.	Excessive current draw or overtemperature condition.	Immediately release the trigger switch or pendant JOG button ⏃. Allow time for pump to cool before restarting.
8. Pump does not build pressure.	a. Release valve open or not fully closed.	Fully close release valve.
	b. User-adjustable relief valve set too low.	Adjust relief valve pressure. Refer to procedure in Section 9.5.
9. Noisy pump operation.	a. Pump element piston sticking.	Contact Enerpac authorized service center.
	b. Motor or gear damaged.	Contact Enerpac authorized service center.

15.0 REPAIR PARTS SECTION

CONTENTS PAGE

Figure 17: Shroud Halves & Bladder Cover



Notes:

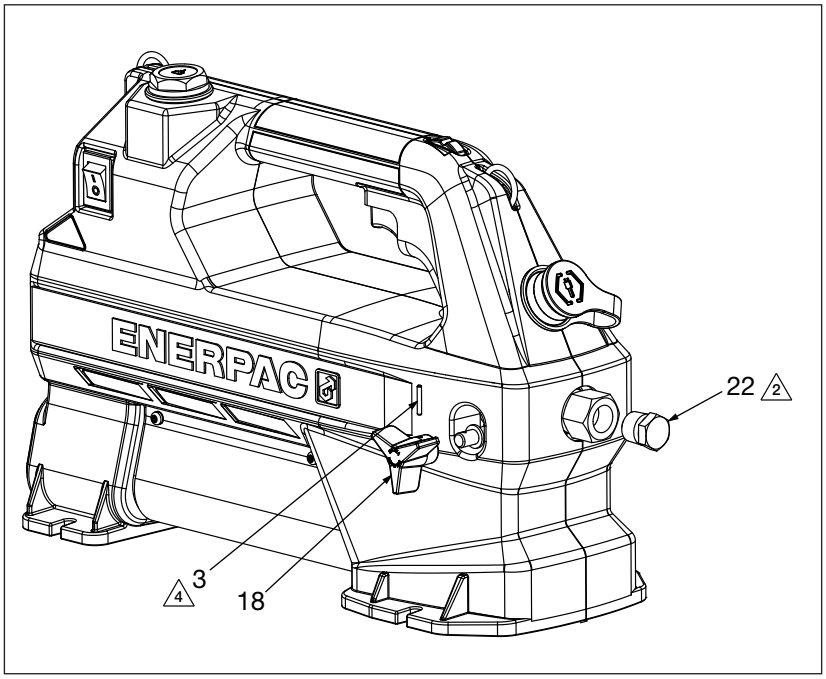
1 Torque to 10-12 in-lbs [1.1 - 1.4 Nm].

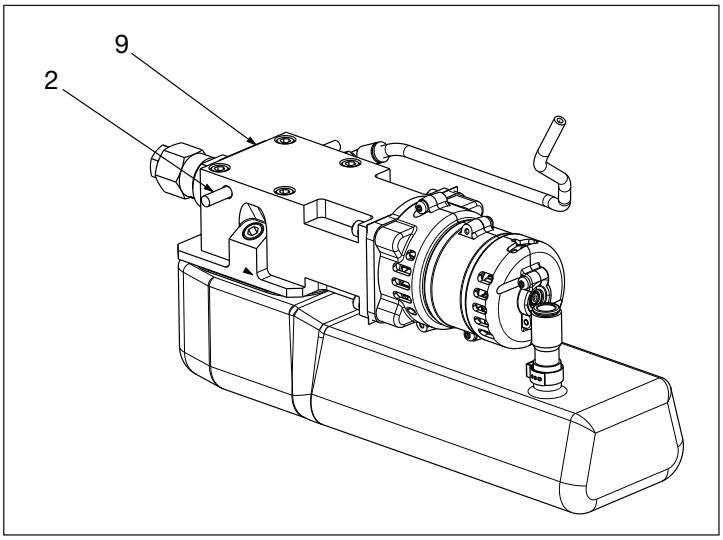
3 Torque to 8-10 in-lbs [0.9-1.1 Nm].

Parts List for Figure 17

Item		Description	Qty	Part Number
1	◆	Pin, Straight, 6.00 x 18.00 Stl Plain	1	CAA621061-2A
4		Ring, Round	2	DD4769667
5	◆	Access Plug, Dome, 0.625	1	DD8032009
6		Cord, Pendant Connector	1	DD8667960SR
7		Dust Cap, C1 Pendant Connector	1	DD8729020SR
8	◆	Shroud, Left-Hand	1	DD8942424
10	◆	Shroud Center, Bladder Cover	1	DD8950424
11	⌘	Foot Pad	2	DD8954339
12		Subassembly, Shroud, Right Hand	1	(See Figure 19)
13	◆	Screw, M4 x 8.0 Long, Thread Forming	4	DD9006128
14	◆	Bumper, Motor Isolator	1	DD9007339
15	◆	Decal, 54V Battery, Left Hand	1	DD9013026
16	◆	Decal, 54V Battery, Right Hand	1	DD9014026
17		Decal, Product Specification	1	DD9015026
19	◆	Screw, Thread Forming, M4 x 16 Long Blk Zinc	10	DD9060001
20	◆	Decal, California Proposition 65	1	DD9065026
21	◆	Spacer, 6 x 4.3 x 10 SS	1	DD9261186
◆ Items included in Shroud Kit, SC1SK.				
⌘ Items included in Rubber Feet Kit, SC1FK.				

Figure 18: Miscellaneous Pump Components





Notes:

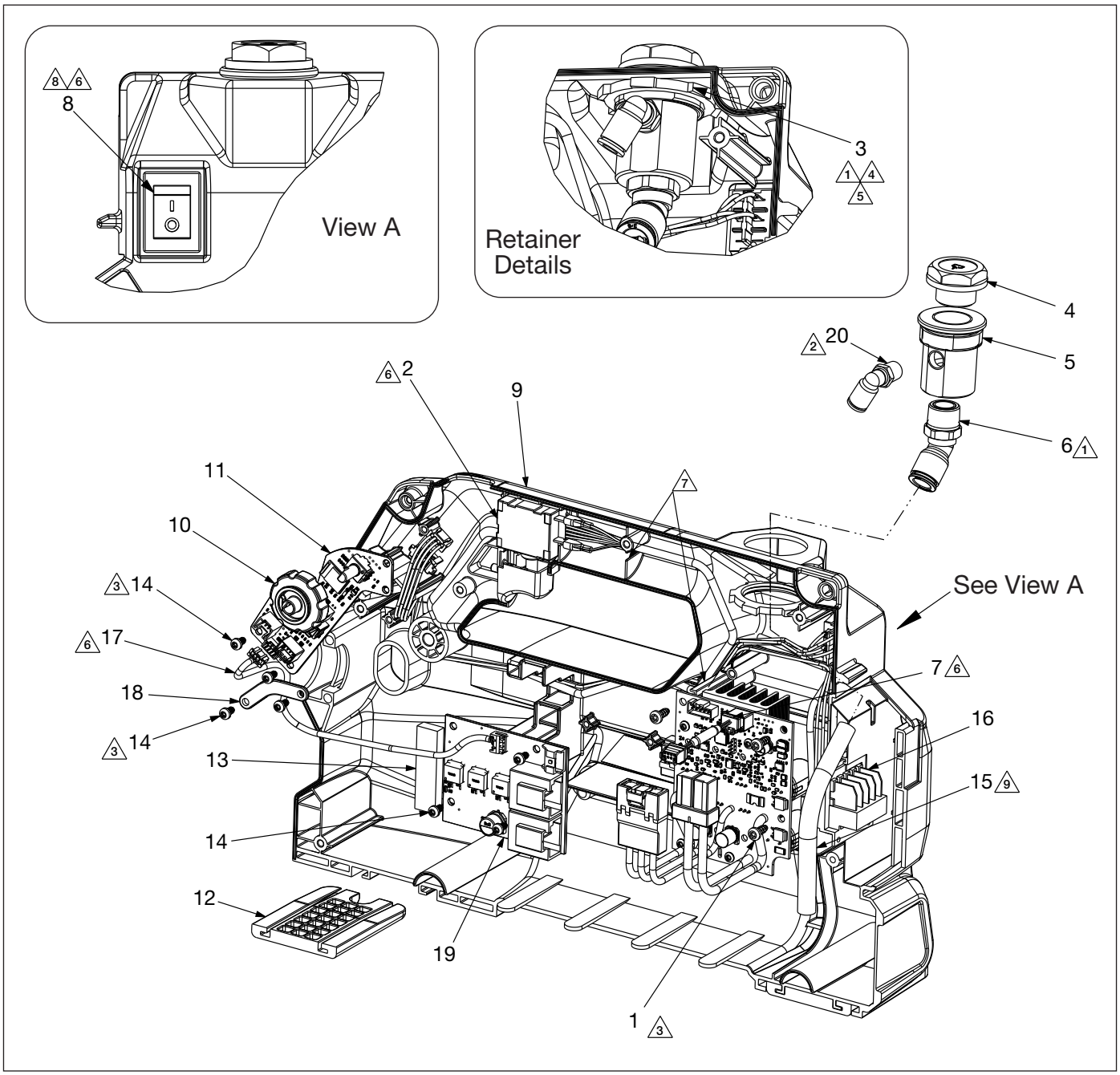
△2 Torque to 120-144 in-lbs [13.6 - 16.3 Nm].

△4 Press fit through valve spindle.

Parts List for Figure 18

Item		Description	Qty	Part Number
2	❖	Pin, Straight, 6.00 x 32.00 Stl Plain	2	CAA629061-2A
3	◎	Pin, Slotted Spring, 2mm x 16	1	CCA215057-1A
9		Power Unit & Hydraulic Reservoir Assembly	1	(See Figure 20)
18	◎	Handle, Release Valve	1	DD9016070
22		Plug	1	R515245-2
❖ Items included in Eccentric Housing Service Kit, SC1ECK.				
◎ Items included in Release Valve Handle Kit, SC1VHK.				

Figure 19: Right-Hand Shroud Subassembly



Notes:

1. Torque to 120-144 in-lb [13.6 - 16.3 Nm].
2. Torque to 36-60 in-lb [4.1 - 6.8 Nm].
3. Torque to 8-10 in-lb [0.9 - 1.1 Nm].
4. Secure with Loctite 271 thread locking compound.
   Refer to manufacturer's technical data sheet for application instructions.
5. Orient with tabs bent down away from shell.
6. Connect cables to boards per diagrams shown in Figure 29.
7. Secure cables into slots in the shroud.
8. Orient rocker switch as shown with "0" DOWN.
9. Assemble hose to fitting after mounting (in front of) motor controller.

Parts List for Figure 19

Item		Description	Qty	Part Number
1	⭘	Screw, M4 x 10 Thread Forming	3	DD3883028
2	✲	Trigger	1	DD7874372
3	☆	Retainer, Oil Fill	1	DD7926160
4	☆	Plug, Oil Fill G-1/2	1	DD7927006
5	☆	Threaded Insert, Oil Fill	1	DD7966225
6	✝☆	Fitting, Elbow 45 Degree, Tube 0.375 to 0.375	1	DD8426097
7	⭘	Motor Driver, 24-63 VDC	1	DD8815380
8		Switch, Rocker, DPST 30 VDC, 10 A	1	DD8866372SR
9	◆	Shroud, Right-Hand	1	DD8941424
10		Thumbwheel, Speed Control	1	DD8951559SR
11	✸	Control Board	1	DD8952827
12	⌘	Foot Pad	2	DD8954339
13	◆	Bumper, Motor Isolator	1	DD9007339
14	◆✸✪	Screw, M3.5 x 6 Long, Thread Forming	8	DD9017128
15	✝	Tube, Oil Fill	1	DD9018646
16		Plate, Battery Interface	1	DD9024101SR
17		Cable, Control Board to Power Switch Board	1	DD9044647SR
18	◆	Retainer, Cable	1	DD9086160
19	✪	Circuit Board, HSS, SPC	1	DD9019827
20	✝☆	Fitting M 90, 0.125 x 0.250, 1.135 x 0.844, Brass, Plain	1	F100097-52

◆ Items included in Shroud Kit, SC1SK.

✝ Items included in Oil Fill Tube Kit, SC1TK.

✲ Items included in Trigger Kit, XC2TRK.

☆ Items included in Oil Fill Service Kit, XC2VFK.

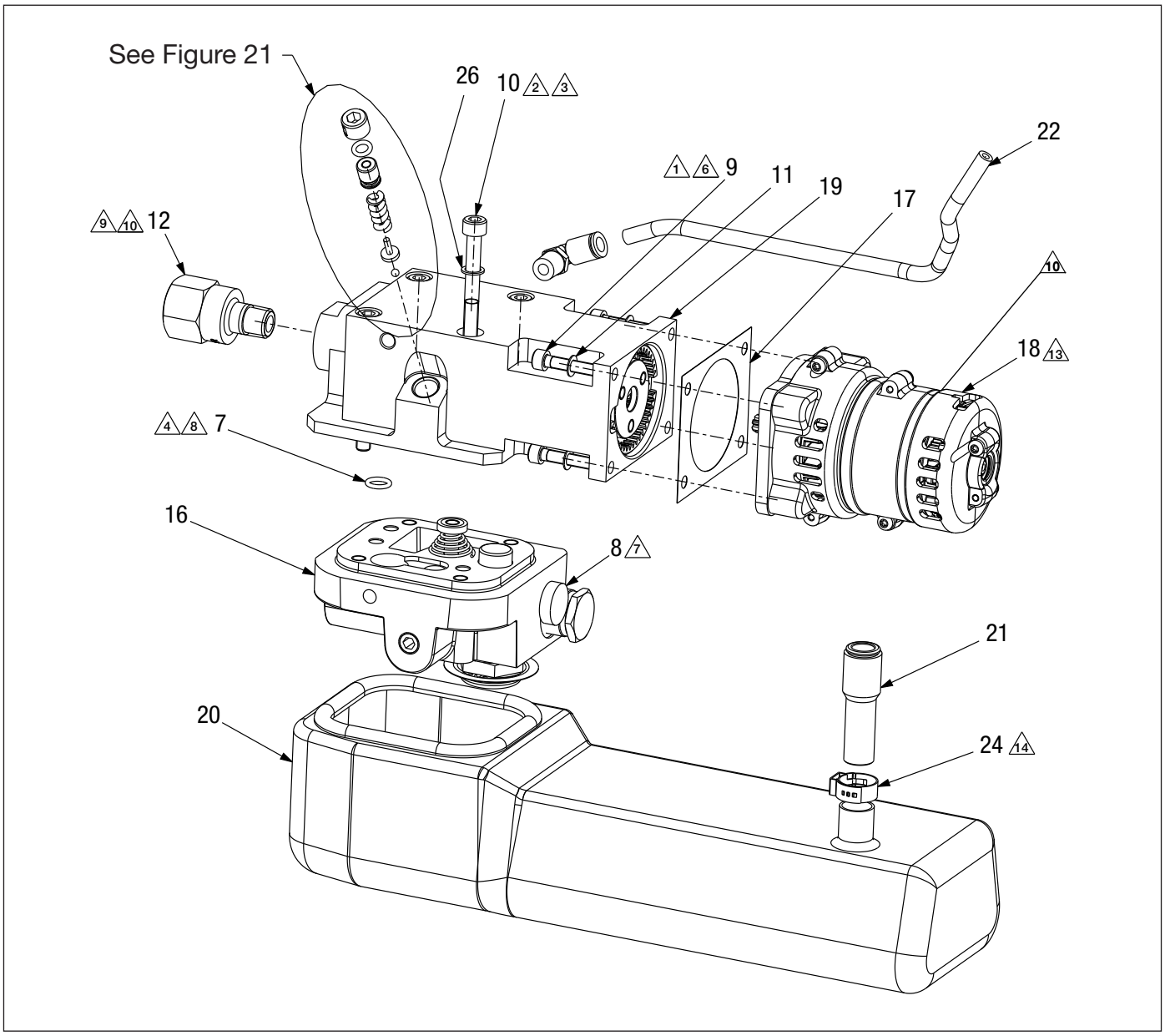
✸ Items included in PCB Service Kit, SC1ACK.

✪ Items included in Switch Circuit Service Kit, SC1SCK.

⭘ Items included in Motor Driver Service Kit, SC1MDK.

⌘ Items included in Rubber Feet Kit, SC1FK.

Figure 20: Power Unit & Reservoir Assembly View 1 of 2



Notes:

1 Torque to 45-60 in-lbs [5.1 - 6.8 Nm].
2 Torque to 12-15 ft-lbs [16.3 - 20.3 Nm].
3 Secure with Loctite 2760 thread locking compound.
Refer to manufacturer's technical data sheet for application instructions.
4 Install on eccentric housing.
6 Secure with Loctite 243 thread locking compound.
Refer to manufacturer's technical data sheet for application instructions.
7 Attach magnet (item 8) to pump element (item 16) prior to assembling bladder (item 20).
8 Lubricate seals before assembling into valve manifold and eccentric housing.
9 Apply PTFE tape.
10 Torque to 32-39 ft-lbs [43 - 53 Nm].
13 Orient motor so that wires exit DOWNWARD.
14 Crimp tight.

Parts List for Figure 20

Item		Description	Qty	Part Number
7	▲❖★	O-Ring, Round, 0.313, 0.438, 0.063	1	B1011803
8		Magnet	1	C187018
9	❖ ֍	Screw, SHCS, M5 x 25	4	CCA523028-1A
10	❖	Screw, SHCS, M6 x 55	4	CCA635028-1A
11	❖ ֍	Washer, Lock M5	4	CCE1050108-6A
12		Adaptor	1	FZ1055
16		Pump Element Assembly	1	(See Figure 24 and Figure 25)
17	֍	Gasket	1	DD6917037
18	֍	Motor, Sub Assembly	1	DD8826900
19		Eccentric Hsg Assy	1	(See Figure 22)
20	▲	Bladder, 1L	1	DD8947025
21	▲✝	Fitting, Push to Connect, Straight	1	DD9020099
22	✝	Hose, Breather	1	DD9021646
24	▲✝	Clamp, Pinch	1	DD9098299
26	▲★❖	Gasket	4	S3037

▲ Items included in SC 1L Bladder Kit, SC1B1LK.

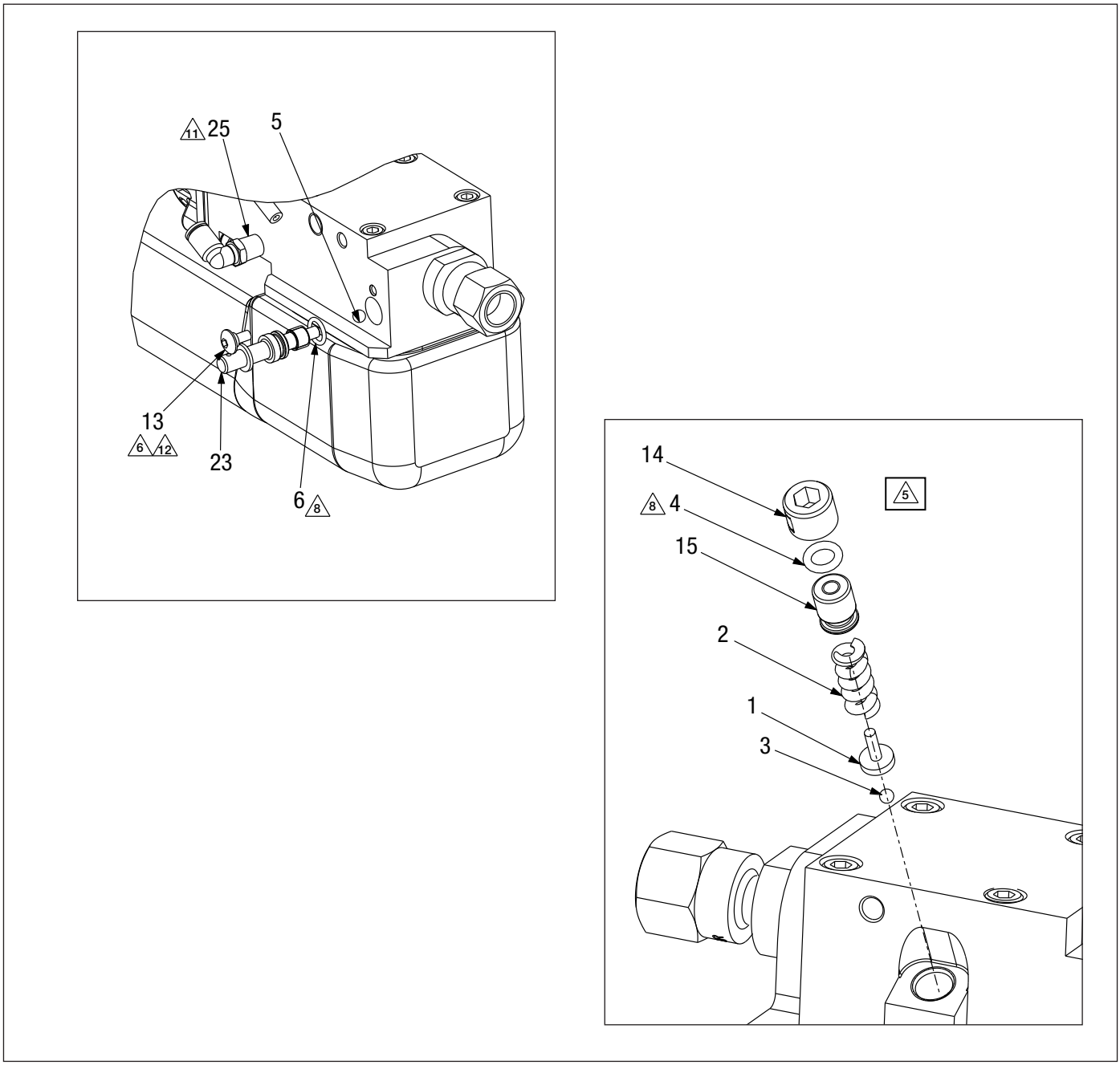
✝ Items included in Oil Fill Tube Kit, SC1TK.

★ Items included in XC Pump Seal Kit, XC1SK.

❖ Items included in Eccentric Housing Service Kit, SC1ECK.

֍ Items included in 54V Brushless Motor Service Kit, XC2EMK.

Figure 21: Power Unit & Reservoir Assembly, View 2 of 2



Notes:

5 Install these parts after pump element (Figure 20, item 16) is installed.

6 Secure with Loctite 243 thread locking compound.
Refer to manufacturer's technical data sheet for application instructions.

8 Lubricate seals before assembling into valve manifold and eccentric housing.

11 Torque to 36-60 in-lbs [4.1 - 6.8 Nm].

12 Torque to 29-35 in-lbs [3.3 - 4.0 Nm].

Parts List for Figure 21

Item		Description	Qty	Part Number
1	◘	Ball Cap	1	A8038570
2	◘	Spring, Compression	1	A8126110
3	◘	Ball, 0.125, Stl	1	B1003016
4	◘ ★	O-Ring, Round, 0.219, 0.344, 0.063	1	B1004503
5	◈	Ball, 0.219, Steel	1	B1006016
6	◈	O-Ring, Round, 0.375, 0.500, 0.063	1	B1007503
13	◈	Screw, Machine, Truss Head	1	CU921028
14	◘	Set Screw, Cup Point Nylock	1	DC10131048
15	◘	Plug	1	DC7234009
23	◈	Spindle, Release Valve	1	DD9029010
25	✝ ☆	Fitting, Male 90, 0.125 x 0.250, 1.135 x 0.844 Brass Plain	1	F100097-52

✝ Items included in Oil Fill Tube Kit, SC1TK.

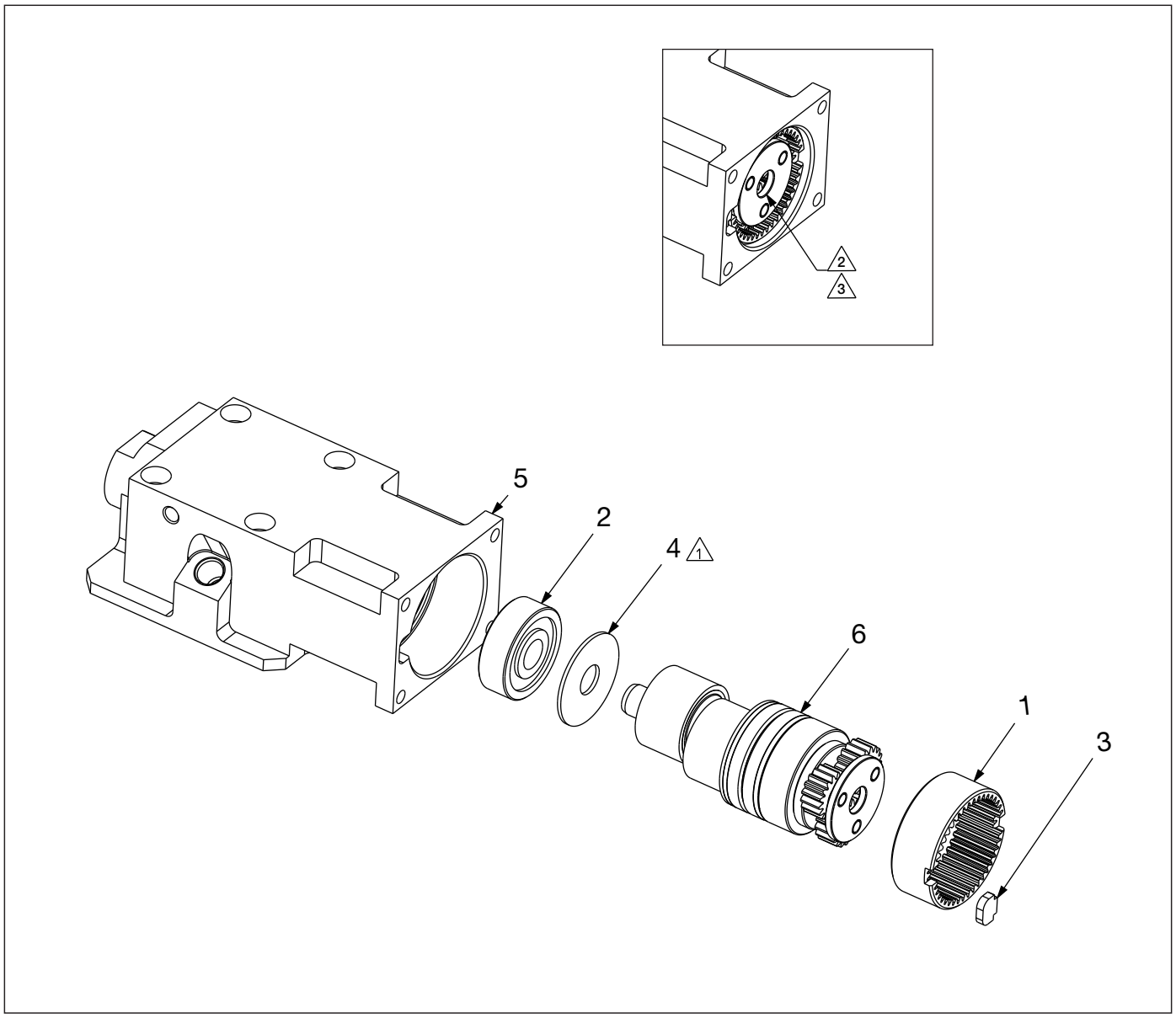
★ Items included in XC Pump Seal Kit, XC1SK.

◘ Items included in Service Kit, XA1UARVK.

◈ Items included in Release Valve Service Kit, SC1MVSK.

☆ Items included in Oil Fill Service Kit, XC2VFK.

Figure 22: Eccentric Shaft & Housing Subassembly



Notes:

1 Position gray coated side of bushing (item 4) toward eccentric (item 6).

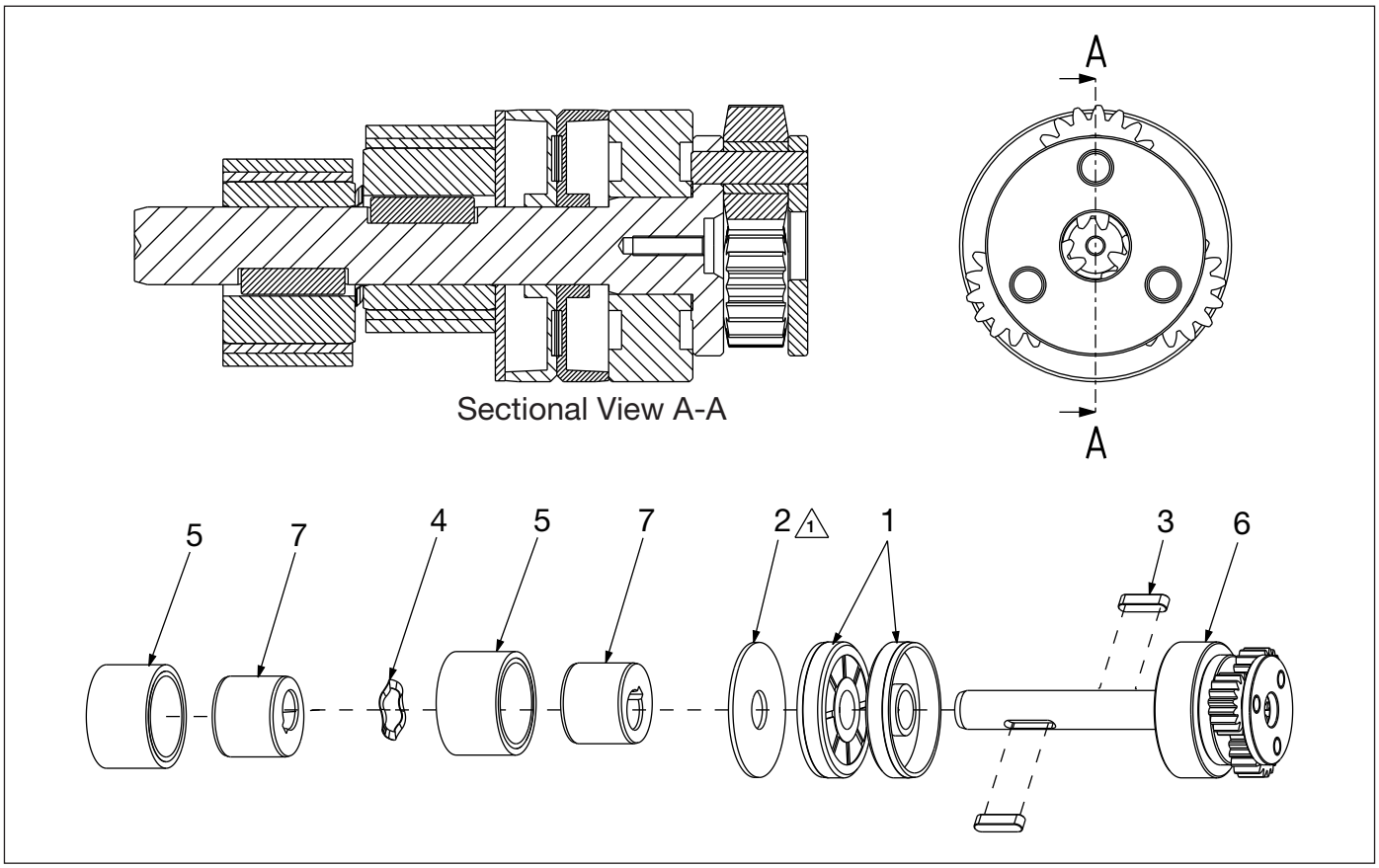
2 Spin test after assembly (1 full eccentric rotation).

3 Use a pick to align the gears with the ring gear.

Parts List for Figure 22

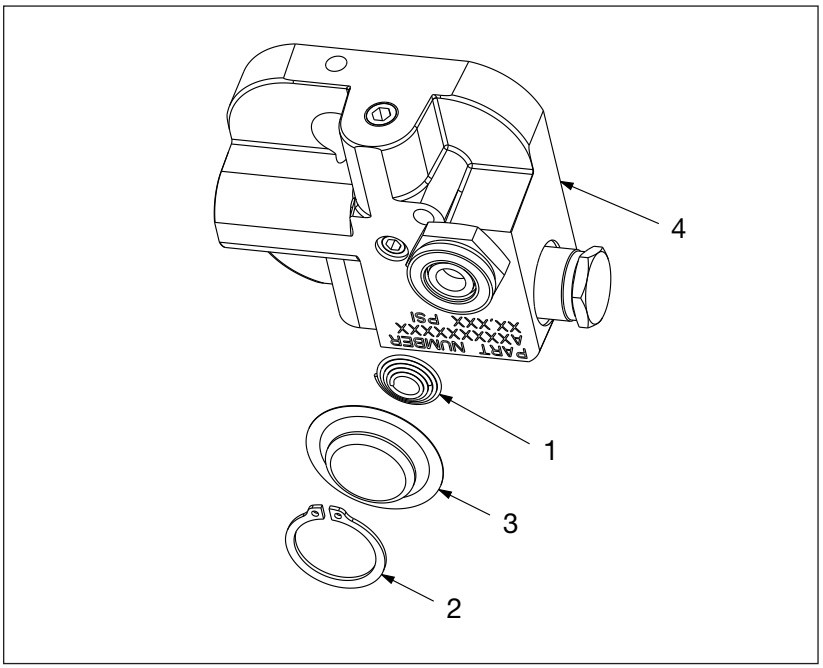
Item	Description		Qty	Part Number
1	❖	Inner Gear	1	DC7089228
2	❖	Bearing	1	DC7096155
3	❖ ❁	Key, Ring Gear	1	DC7452251
4	❖	Bushing	1	DC7464108
5	❖	Housing, Eccentric	1	DD8944001
6	❖	Assembly, Eccentric Shaft	1	(See Figure 23)
❖ Items included in Eccentric Housing Service Kit, SC1ECK.				
❁ Items included in 54V Brushless Motor Service Kit, XC2EMK.				

Figure 23: Eccentric Shaft Assembly



Notes:
⚠1 Position silver uncoated side of bushing (item 2) toward lip seal (item 1).

Figure 24: Pump Element



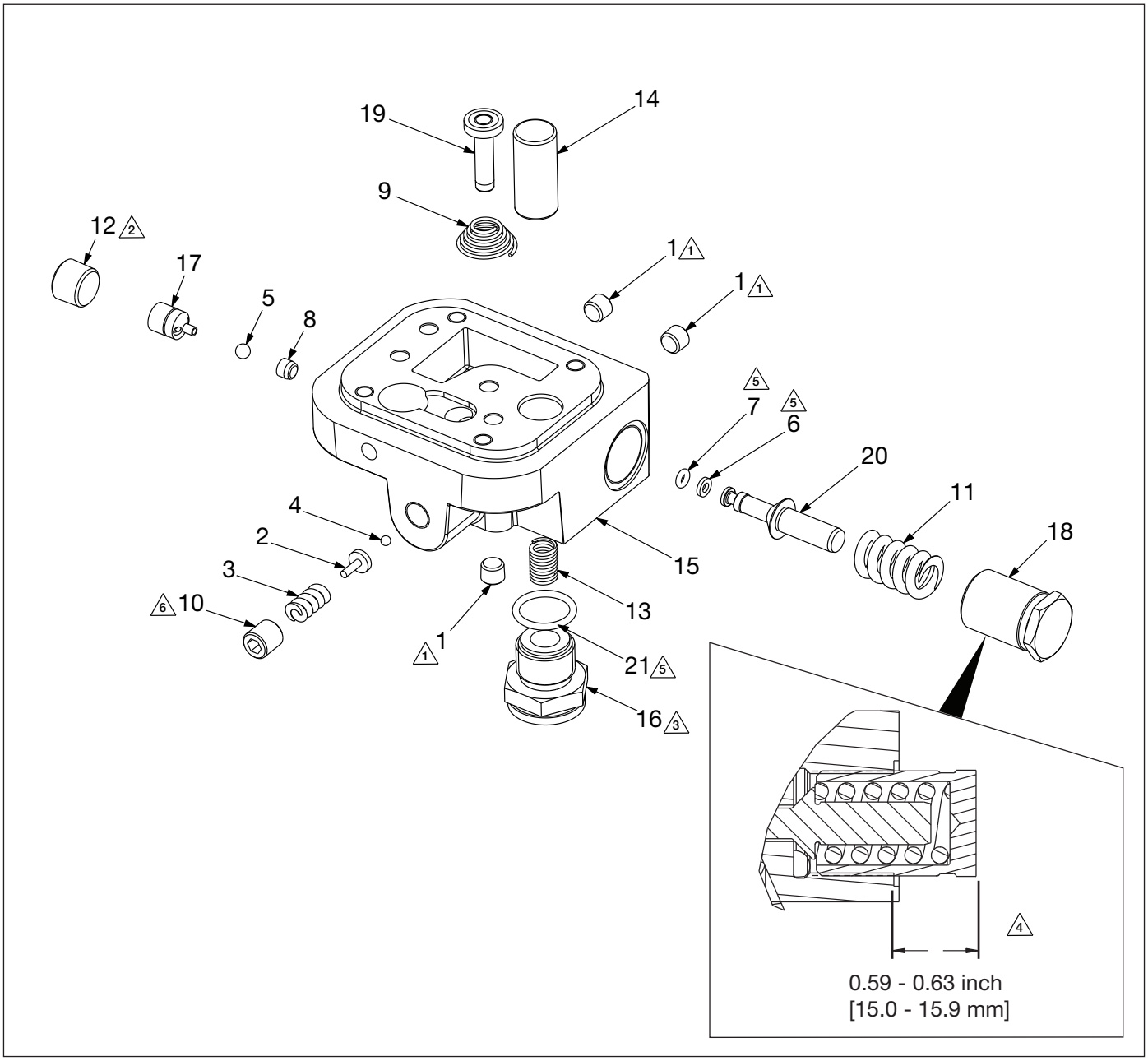
Parts List for Figure 23

Item		Description	Qty	Part Number
1	❖	Lip Seal	2	DC7090476
2	❖	Bushing	1	DC7186108
3	❖	Key	2	DC7191251
4	❖	Spring, Wave	1	DC7750410
5	❖	Subassembly, Cam	2	DC7755950
6	❖	Subassembly, Eccentric Shaft	1	DC7870950
7	❖	Eccentric Cam	2	DD9048537
❖ Items included in Eccentric Housing Service Kit, SC1ECK.				

Parts List for Figure 24

Item		Description	Qty	Part Number
1	✦	Spring, Conical	1	BSS5509D
2	✦	Retaining Ring, External, 25 mm Stl	1	CCA1025044-1A
3	✦	Screen	1	DC7152018
4	✦	Pump Element Components	1	(See Figure 25)
✦ Items included in XVARI Pump Element Kit, XA1PEK.				

Figure 25: Pump Element Components



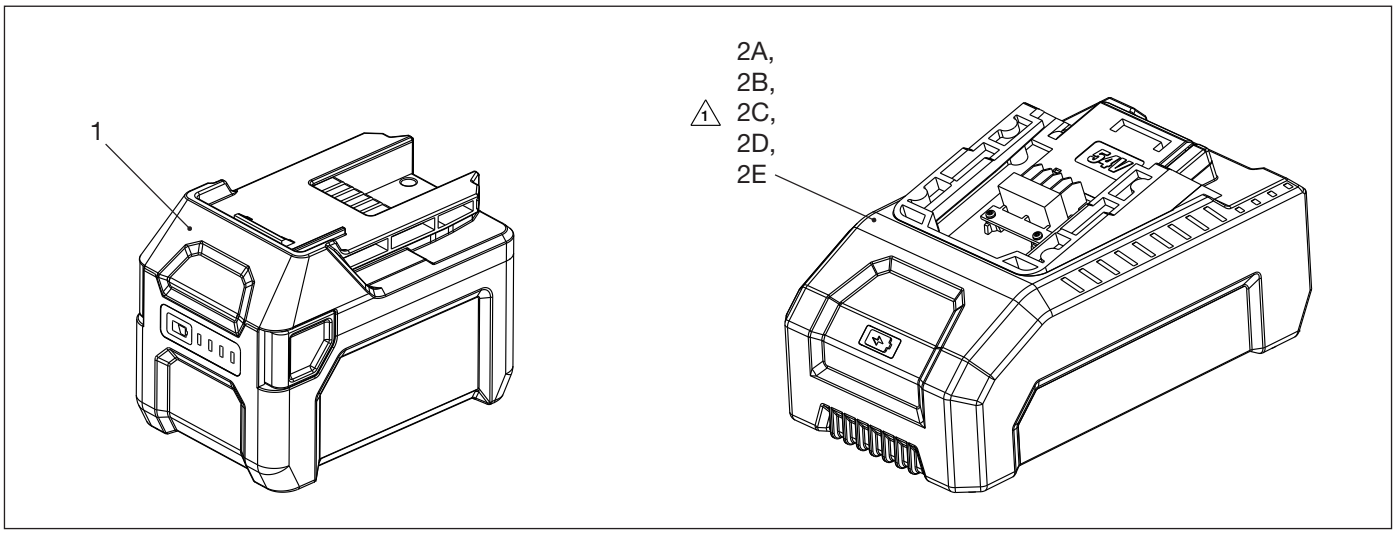
Notes:

1 Torque to 9.6-11.8 ft-lb [13 - 16 Nm].
2 Torque to 44.3-52.3 ft-lb [60 - 71 Nm].
3 Torque to 18.5-22.1 ft-lb [25 - 30 Nm].
4 Adjust length of bypass end cap (item 18) to between 0.59-0.63 inch [15.0 - 15.9 mm] from spot face.
5 Lubricate seals before assembly.
6 Safety relief valve to be set at 10,400-10,800 psi [717 - 744 bar].

Parts List for Figure 25

Item	Description		Qty	Part Number
1	✦	Plug, Flush, Hex 27.0 Stl Teflon	3	A1006245
2	✦	Ball Cap	1	A8038570
3	✦	Spring, Compression	1	A8126110
4	✦	Ball, 0.125 Stl	1	B1003016
5	✦	Ball 0.188 Stl	1	B1005016
6	★✦	Back Up Ring, Split	1	B1006564
7	★✦	O-Ring, Round, 0.125, 0.250, 0.063	1	B1006803
8	✦	Seat, Piston, Lower	1	BSS5358D
9	✦	Spring, Conical	1	BSS5509D
10	✦	Set Screw, Hollow Socket	1	DC1185048
11	✦	Spring, Bypass	1	DC394110
12	✦	PTF - SAE Flush Plug, 0.250	1	DC6794245
13	✦	Spring, Large Piston SAP	1	DC7026110
14	✦	Piston, 14 mm Dia, Lg	1	DC7027051
15	✦	Pump Body	1	DC7201190
16	✦	Plug Assembly, Inlet Check Valve	1	DC7453950
17	✦	Subassembly, Outlet Check Valve	1	DC7904900
18	✦	End Cap, Bypass	1	DC9208020
19	✦	Piston Assembly, MPE	1	DC9244920
20	✦	Piston, Bypass	1	DC9292051
21	★✦	O-Ring (included with item 16)	1	B1908503
✦ Items included in XVARI Pump Element Kit, XA1PEK.				
★ Items included in XC Pump Seal Kit, XC1SK.				

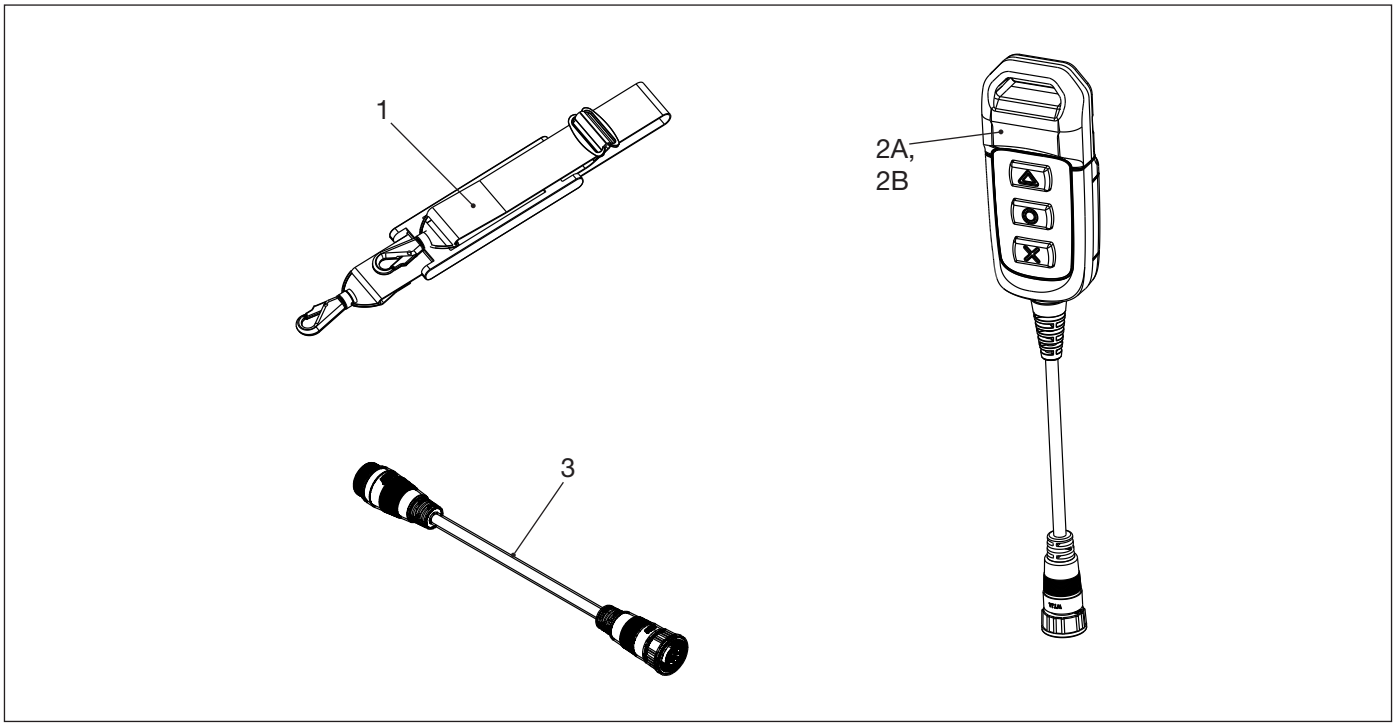
Figure 26: Battery and Battery Charger



Notes: ⚠1

- Charger must be purchased separately if not included in the shipment with the battery or tool. Unit is auto-voltage sensing, 100-240 VAC, 50/60 Hz.
- North America, Europe and Australia: Charger and power cord includes one Enerpac EC1F54 battery charger and the AC power cord for use in the selected region. Charger not sold without power cord.
- Japan and United Kingdom: Order charger and power cord EC1F542A, EC1F541B or EC1F542E plus the power cord applicable for your region/country. Replace the power cord included with the charger with the power cord that was ordered separately (ECC541N or ECC542U).

Figure 27: Selected Accessories



Parts List for Figure 26

Item	Description		Qty	Part Number
1		Battery, 54V, Lithium-Ion, 4.0 Ah, 216 Wh	1	EBH544
2A		Battery Charger & Power Cord, Australia - 230V	1	EC1F542A
2B		Battery Charger & Power Cord, North America - 115V	1	EC1F541B
2C		Battery Charger & Power Cord, European Union - 230V	1	EC1F542E
2D		Power Cord, Japan - 100V	1	ECC541N
2E		Power Cord, United Kingdom - 240V	1	ECC542U

Parts List for Figure 27

Item	Description		Qty	Part Number
1		Shoulder Strap	1	SSTRP55
2A		Corded Remote Pendant, 10 ft [3 m]	1	CC131
2B		Corded Remote Pendant, 20 ft [6 m]	1	CC132
3		Pendant Extension Cord, 10 ft [3 m]	1	CC010

Figure 28: Hydraulic Schematic

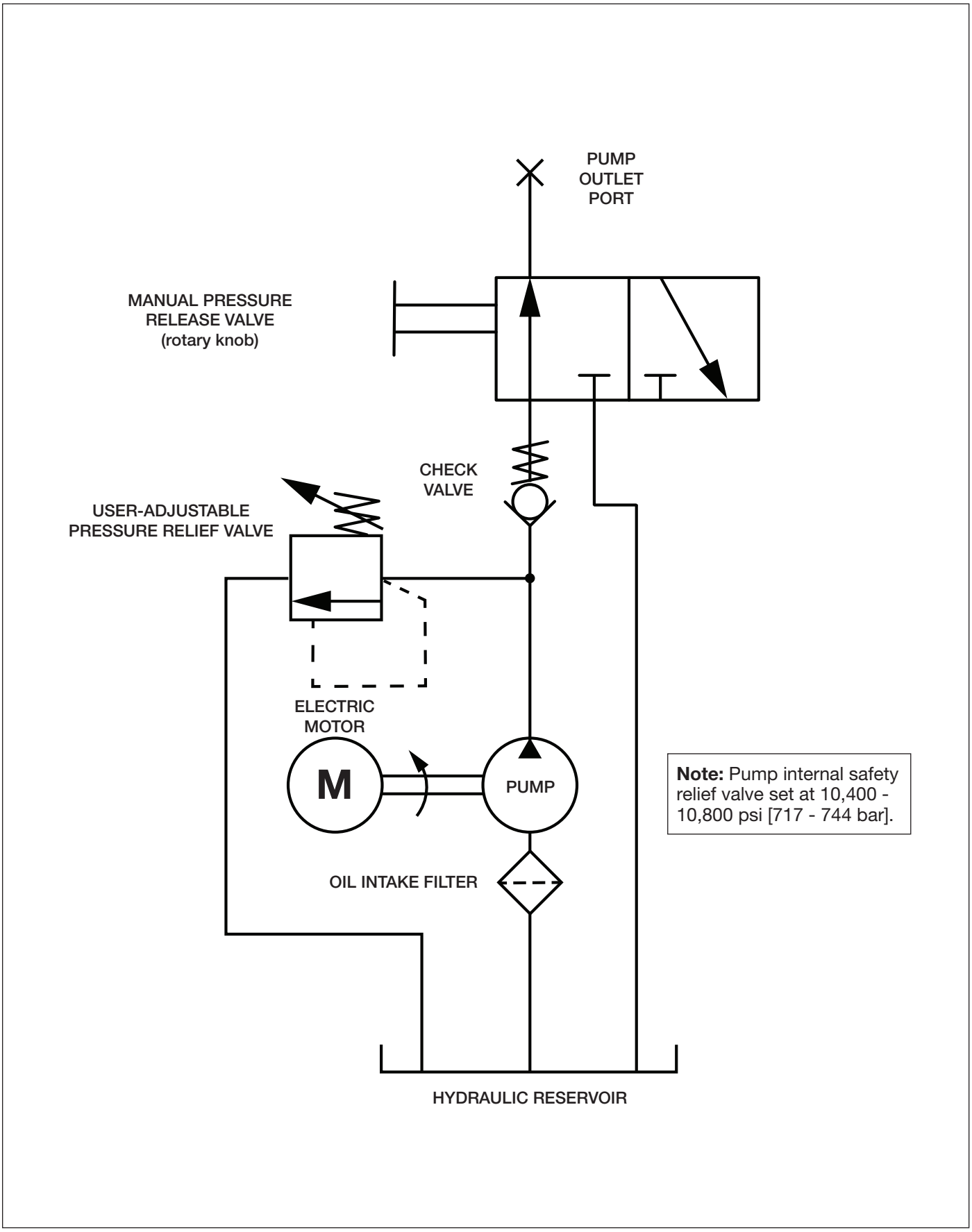
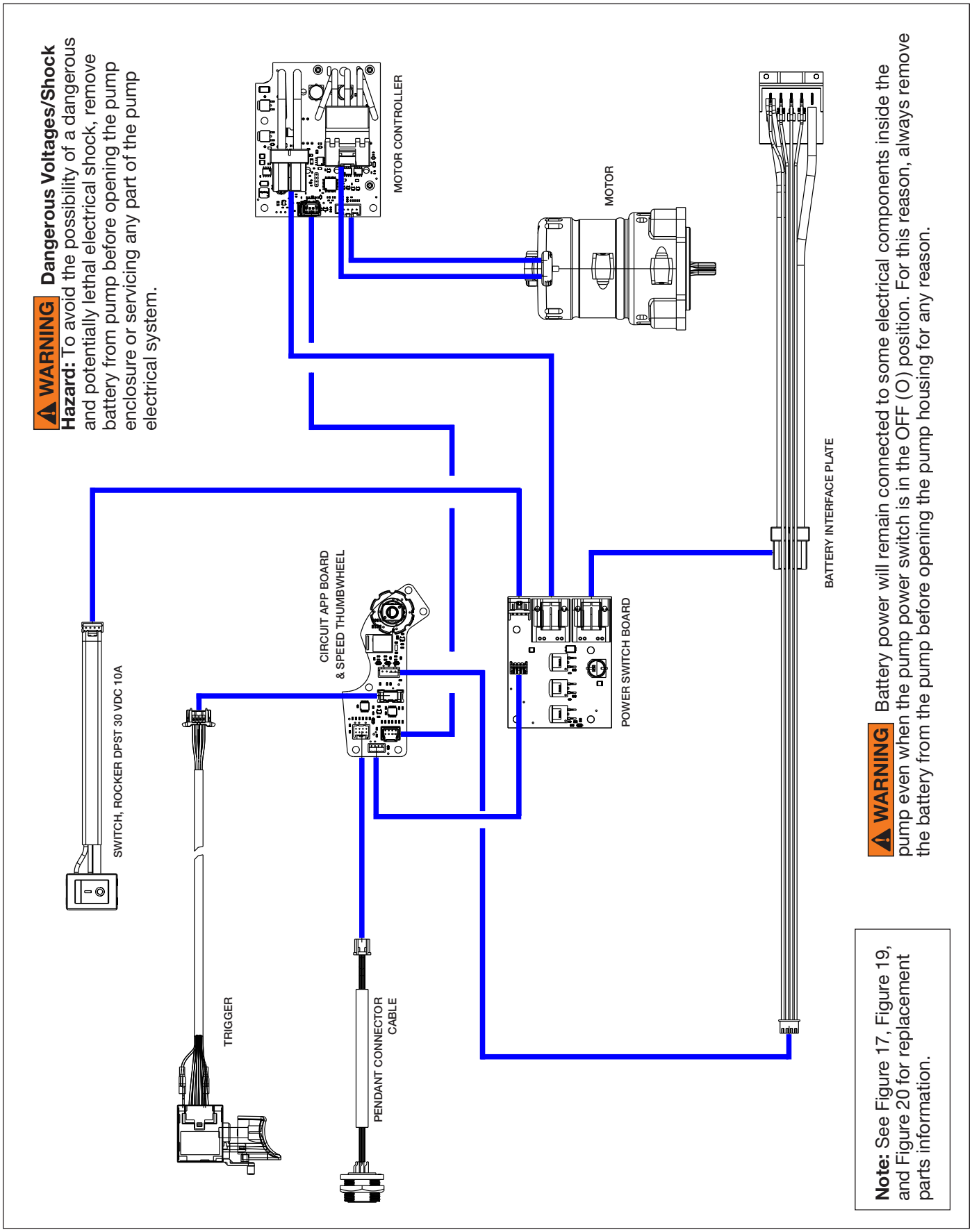


Figure 29: Electrical Schematic



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