

vale



**MAINTENANCE MANUAL  
AND  
GENERAL OPERATION  
PROCEDURES**



## CONTENTS

<b>Description</b>	<b>page 3</b>
<b>Safety Information</b>	<b>page 4</b>
<b>Specifications</b>	<b>page 4</b>
<b>Installation</b>	<b>page 5</b>
<b>Operation</b>	<b>page 7</b>
<b>Maintenance</b>	<b>page 8</b>
<b>Troubleshooting</b>	<b>page 9</b>
<b>Description (Battery &amp; Charger)</b>	<b>page 10</b>
<b>Safety (Battery &amp; Charger)</b>	<b>page 10</b>
<b>Specifications (Charger)</b>	<b>page 11</b>
<b>Charging the battery</b>	<b>page 11</b>
<b>Maintenance (Battery &amp; Charger)</b>	<b>page 12</b>
<b>Battery recycling</b>	<b>page 13</b>
<b>Bill of Lading</b>	<b>page 14</b>
<b>Revision Notes</b>	<b>page 15</b>



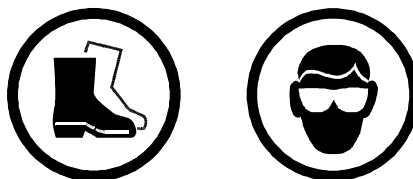


READ THESE INSTRUCTIONS CAREFULLY!  
FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN  
SEVERE PERSONAL INJURY

#### OPERATING MACHINE



- READ OPERATING INSTRUCTIONS
- WEAR EYE, FACE, AND FOOT PROTECTION
- INSPECT TOOL DAILY FOR UNSAFE CONDITIONS
- CHECK THAT ALL GUARDS ARE IN PLACE AND ALL SAFETY DEVICES ARE WORKING PROPERLY. DO NOT OPERATE TOOL WITH ANY SAFETY GUARDS REMOVED.
- DO NOT WEAR LOOSE CLOSING OR JEWELRY
- NEVER PUT ANY PART OF YOUR BODY INTO, UNDER, OR NEAR MOVING PARTS
- NEVER OPERATE TOOL ABOVE SPECIFIED PRESSURE
- DO NOT EXCEED RECOMMENDED PERFORMANCE LIMITATIONS



#### SERVICING MACHINE

- SHUT OFF & LOCK OUT POWER SOURCE TO TOOL
- NEVER LIFT HEAVY TOOLS BY HAND. USE MACHINERY MOVING EQUIPMENT.
- FOLLOW THE MAINTENANCE INSTRUCTIONS IN YOUR MANUAL
- USE THE CORRECT TOOLS TO REPAIR MACHINE



## DESCRIPTION

The battery Power unit is a lightweight, battery operated pump capable of producing up to 10,000 psi (700bar) of hydraulic pressure. These power units are highly portable power sources for single acting tools that crimp, cut, press, and lift. The unit comes with a shoulder strap and rechargeable Nickel-Cadmium battery pack. Battery packs and chargers may also be ordered separately.

## SAFETY INFORMATION

To avoid personal injury or property damage during system operation, read and follow all CAUTIONS, WARNINGS, and INSTRUCTIONS included with or attached to each product. VALE CANNOT BE HELD RESPONSIBLE FOR DAMAGE OR INJURY RESULTING FROM UNSAFE USE OF PRODUCT, LACK OF MAINTENANCE, OR INCORRECT PRODUCT AND SYSTEM APPLICATION. Contact Vale Industries when in doubt as to applications and safety precautions.

### WARNING

**To avoid personal injury, always wear proper personal protective gear when operating hydraulic equipment.**

### WARNING

**The system operating pressure must not exceed the pressure rating of the lowest rated component in the system.**

### WARNING

**Make sure that all system components are protected from external sources of damage, such as excessive heat, flame, moving machine parts, sharp edges, and corrosive chemicals.**

### CAUTION

**Carry the pump by the handle or the strap. Carrying or dragging the pump by the hose can damage the hose and/or the pump.**



## SPECIFICATION

Flow at 0 psi (0 bar)	16 cubic inches/min (262 cubic centimeters/min)
Flow at 10,000 psi (700 bar)	10 cubic inches/min (164 cubic centimeters/min)
Usable Oil Capacity	38 cubic inches ( 662 cubic centimeters)
Voltage	24 VDC
Weight	18.5 lbs. (8.4kg)
LED Status - Flashing	Low Battery
LED Status - Steady On	Fault

## INSTALLATION

### Battery Pack

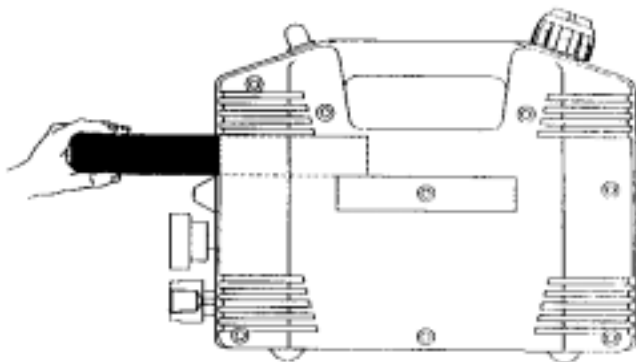
Slide the A-4504 battery pack into the battery compartment until it latches into place. Illustration 1 on page 4 shows the proper installation of the battery pack.

### CAUTION

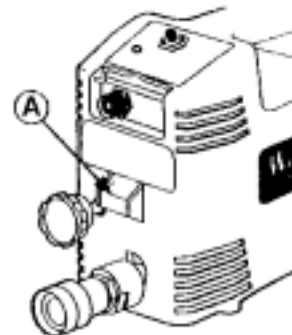
**The battery can be inserted only in the proper direction. Do not force the battery into the compartment.**

To remove the battery pack, press battery inward while pushing down on the battery release latch (A). The battery will eject far enough to grasp and pull out.

**IMPORTANT:** Remove the battery from the pump when not in use. Storing the battery in the pump will cause the battery to discharge rapidly. Store the battery in the battery charger.



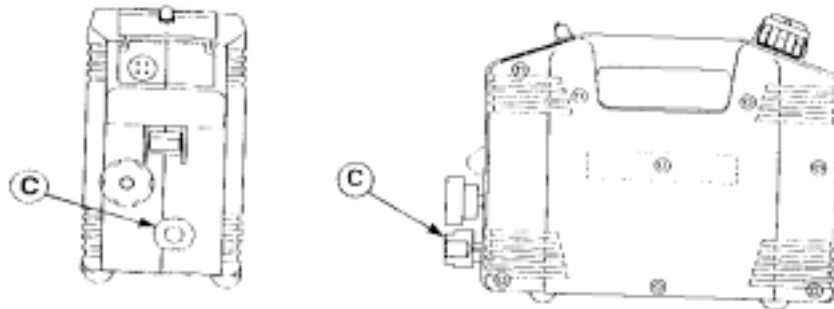
I



## Hydraulic Connections

Connect a hose from the pump to the tool.

Hand tighten couplers (C) fully to ensure that all connections are tight and leak free.

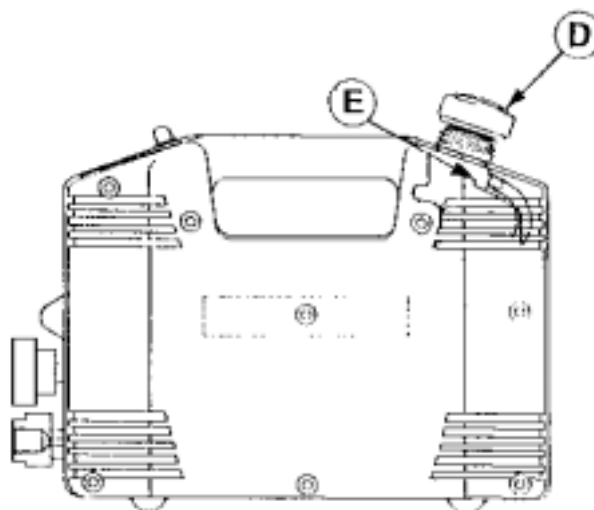


2

## Oil Level

Place pump on level surface. Unscrew the vent/fill cap (D) to expose the reservoir fill port. Add Enerpac hydraulic oil. The reservoir is full when the oil level reaches the lip (E) in the neck of the fill port.

**IMPORTANT:** Add oil only when the tool is fully retracted, or the system will contain more oil than the reservoir can hold, causing oil to leak from the vent/fill cap.



3



## OPERATION

### Oil Level

Check the oil before operating the pump. If oil level is low, add oil until oil level reaches the lip in the neck of the fill port.

### Venting

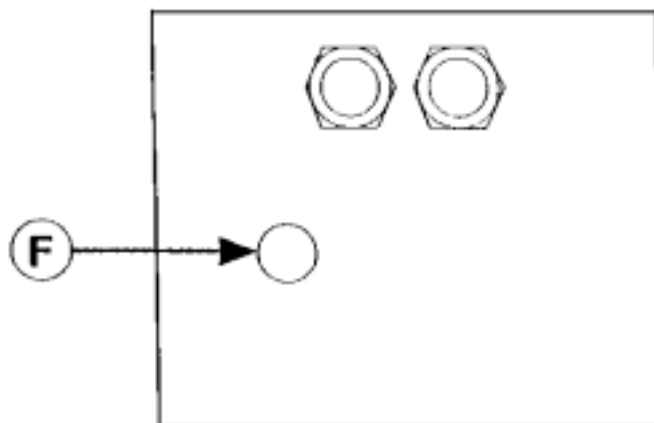
Venting is provided automatically through the vent/fill cap, which also protects against reservoir over-pressurization.

### Indicator Light

Illustration 4 shows the position of the indicator light (F). The light informs the operator when the battery is depleted and when the motor has failed to operate.

When the battery needs recharging, the indicator light flashes, and will continue to flash until the battery is removed.

If the motor does not operate, the indicator fault light will go on and remain on as long as the pressure pushbutton remains pressed. See the Troubleshooting table on page 8 if the motor fails to operate.

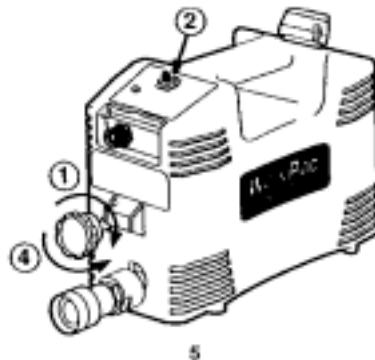


4



**With Manual Release Valve** (See Illustration 5)

1. Close the release valve by turning the knob clockwise.
2. To advance the tool, activate the pump motor by pressing the pushbutton.
3. Releasing the pushbutton stops the motor.
4. To release the system pressure, slowly turn the release valve clockwise.

**With Dump Valve**

1. To advance the tool, activate the motor by pressing the pushbutton.
2. Releasing the pushbutton stops the pump and releases system pressure, retracting the tool.

**MAINTENANCE****Battery Charging**

Charge the battery by plugging in the charger and sliding the battery into the battery holder. The yellow light flashes to indicate the battery is charging. When the green light goes on the battery is fully charged. For complete information, see charger and battery pack section.

**Battery Care**

Store the battery in the battery charger to maintain the battery in the fully charged condition. Shelf storage will result in a slow discharge of the battery. Store the battery and charger in a cool dry environment. For complete information, see the charger and battery pack section.

**Changing the Oil**

Change the oil in the pump about once a year.

1. Run the pump completely out of oil, letting the oil drain into a container.
2. Unscrew and remove the vent/fill cap.
3. Add new Vale hydraulic oil until the oil level reaches the lip in the neck of the fill port.
4. Dispose of used oil properly.



## BATTERY RECYCLING

The battery contains hazardous material. Dispose of the battery pack in accordance with local regulations. For more information on recycling, see the battery recycling section.

## TROUBLESHOOTING

The following information is intended as an aid in determining if a problem exists. DO NOT disassemble the pump. For repair service, contact the factory for instructions.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Tool does not advance, advances slowly, or advances in spurts.	Oil level in pump reservoir is low.	Add oil according to instructions on page 5.
	Release valve open.	Close the release valve.
	Loose hydraulic coupler.	Check that all couplers are fully tightened.
	Load is too great.	Do not attempt to apply more pressure than is rated.
	Air trapped in system.	Remove air by holding the pump higher than the tool and cycling it several times without building pressure.
Tool advances, but does not hold pressure.	Cylinder plunger binding.	Check for damage to cylinder. Have cylinder serviced by a qualified hydraulic technician.
	Leaking connection.	Check the all connections are tight and leak free.
	Leaking seals.	Locate leak(s) and have equipment serviced by a qualified hydraulic technician.
	Internal leakage in the pump.	Have pump serviced by a qualified hydraulic technician.
	Release valve closed.	Open release valve.
Tool does not retract, retracts part way, or retracts more slowly than normal.	Pump reservoir is over filled.	Drain oil level to lip in reservoir neck. See page 5 for filling instructions.
	Loose hydraulic coupler.	Check that all couplers are fully tightened.
	Air trapped in system.	Remove air by holding the pump higher than the tool and cycling it several times without building pressure.
	Hose I.D. too narrow.	Use hydraulic hose with a larger diameter.
	Cylinder retraction spring broken, or other cylinder damage.	Have cylinder serviced by a qualified hydraulic technician.
Motor fails to operate Red light "ON"	Internal thermal switch is open.	Wait approximately 20 minutes for the motor to cool.
	Break in wiring.	Have pump serviced by a qualified hydraulic technician.
	Failure of the motor relay.	Have pump serviced by a qualified hydraulic technician.



## BATTERY CHARGER AND BATTERY

### DESCRIPTION

#### Battery Charger

The battery charger fully charges the battery pack in approximately one hour. Because the charger monitors the charge on the battery, the battery can be removed from the charger at any time and replaced without starting the charging cycle from the beginning. When recharged in the battery charger, the battery will not exhibit any residual “memory effect”, and therefore, does not require full discharging before recharging. Indicator lights on the front panel show the status of the battery: ready, charging, overheat, or defective. If the battery is overheating, the charger shuts off, resuming the charging cycle once the battery is cooled down. If the battery is defective, the charger shuts off.

#### Battery

The battery pack is a 24-volt DC, 1.7 ampere/hour, rechargeable Nickel-Cadmium battery, designed specifically for use with the pump.

### SAFETY INSTRUCTIONS

Read and follow all CAUTIONS, WARNINGS, and INSTRUCTIONS included with, or attached to, each product to avoid personal injury or property damage during system operation.



#### CAUTION

**For indoor use only. Keep the battery charger and adapter away from direct sunlight, moisture, and extreme temperatures.**

#### CAUTION

**The battery charger is for use with rechargeable Nickel-Cadmium batteries only.**

#### WARNING

**The battery pack contains Nickel-Cadmium, a hazardous material. Do not puncture, disassemble, mutilate, or incinerate battery packs or cells.**

#### CAUTION

**To protect the life of the battery, use the battery pack only with the pump supplied. Also only use battery charger supplied to protect the battery from overcharging.**



## CHARGER SPECIFICATIONS

Voltage - 120VAC & 240 VAC  
Frequency - 50/60 Hz.  
Temperature range - 32°F to 122°F (0°C to 50°C)

## CHARGING THE BATTERY

The battery charger lights indicate the following:

YELLOW – Charging  
GREEN - Ready  
ORANGE - Overheat  
RED - Defective

First, plug the charger into the outlet and then insert the battery into the holder. The YELLOW indicator light flashes to show the battery is charging.

When the GREEN “ready” light comes on and flashes, the battery is fully charged.

If the ORANGE “overheat” light comes on, do nothing. The charger automatically shuts off until the battery has cooled, and then resumes the charging cycle.

NOTE: Batteries may need to be “formed” before they charge normally. “Forming” consists of charging and discharging the battery pack several times. Until the battery pack is formed, the batteries will generate more internal heat than normal during the charging cycle, causing the “Overheat” indicator lamp to light. This does not mean that the battery is bad. When the battery cools off, the charger will automatically restart the charging cycle.

If the RED “defective” light comes on, remove and re-insert the battery pack several times to ensure that the battery is beyond recovery. If the YELLOW “charging” light comes on, the battery may recover. If, through several charge and use cycles, the use period increases dramatically, the battery is functioning properly. If the use period does not increase dramatically, the battery is defective and should be disposed of properly. See the recycling information on page 12.

NOTE: The battery will not overcharge if left in the charger indefinitely. Once the battery is fully charged, the charger enters the maintenance mode, monitoring the battery and keeping it fully charged. During the maintenance mode the YELLOW light will flash periodically as the charger “tops off” the charge on the battery.



## Battery Temperature

The batteries operate in a narrower temperature range while charging than they do during use. If the battery pack is cold (under approximately 41°F [5°C]) when put in the charger, the charger will not start the charging cycle. When the battery warms up, the charger will automatically start the charging cycle.

If the battery is hot (over approximately 122°F [50°C]) when put into the charger, the “OVERHEAT” lamp will light and the charging cycle will stop. This does not indicate a problem with the battery. If the battery is left in the charger, the charging cycle will automatically restart when the battery cools off.

## MAINTENANCE

### Battery Charger

The charger is basically maintenance free. However, if the fuse is blown, it must be replaced with a 5 x 20 mm, fast acting, 250V fuse with a current rating of 2 amps for 100 VAC and 120 VAC and a current rating of 1 amp for 220 VAC and 240 VAC chargers. A spare fuse is included with the charger for use if the fuse blows.

### Battery

Store the battery in the charger to keep it fully charged and ready for use. The battery may be stored in the charger without fear of overheating. See note on page 10 under “Charging the Battery”.

**IMPORTANT:** Storing the battery in the pump will cause the battery to discharge rapidly. If the battery is not removed from the pump when the low battery light turns on, the battery life could be shortened.

The battery pack is equipped with a fuse. If the fuse is blown, it must be replaced with a 30 amp automotive “mini” fuse (Little fuse part number 297030).

## RECYCLING

The battery pack contains hazardous material. Dispose of the battery pack in accordance with local recycling regulations. For more information on recycling the battery pack, see the battery recycling sheet on page 12.



**BATTERY RECYCLING**

The battery pack supplied contains Nickel-Cadmium, a hazardous material. The battery pack must be recycled.

Send used batteries to:

SANYO Energy (USA) Corporation  
2001 Sanyo Avenue  
San Diego, CA 92173

When shipping used batteries:

1. Store the battery for 90 days to ensure the battery is fully discharged.
2. Choose a box with minimal empty space to reduce the possibility of the contents shifting.

**CAUTION**

**Do not fill spaces with paper or flammable material.**

3. Seal the box with packing tape.
4. Used an approved carrier and label the box "Used Nickel-Cadmium Battery(s) for Recycling."

NOTE: You MUST use a Bill of Lading and include all information requested in the Bill, or Sanyo may return the shipment at your expense. The sample Bill of Lading, shown below may be used.



vale

BATTERY  
POWER UNIT  
RELEASE 1.1  
JUNE 1999

## Bill Of Lading

Date of transfer: \_\_\_\_\_

Shipper (from):

\_\_\_\_\_  
Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
Phone number

Consignee (to):

SANYO Energy (USA) Corp.

2001 Sanyo Avenue

San Diego, CA 93173

(619) 661-6620

Carrier (via)

Description of contents: Waste nickel Cadmium Battery(s) \_\_\_\_\_ lbs.

\_\_\_\_\_  
Shipper Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Consignee Signature

\_\_\_\_\_  
Date

Vale Industries Incorporated  
122 Simonds Avenue, Dekalb, Illinois 60115

Tel: (815) 756-2426 Fax: (815) 756-2735  
E-mail: info@vale-industries.com

Return  
to Index



vale

BATTERY  
POWER UNIT  
RELEASE 1.1  
JUNE 1999

### Revision Notes

Version Number	Description	Date
1.1	Initial issue of updated manual	6/99

Vale Industries Incorporated  
122 Simonds Avenue, Dekalb, Illinois 60115

Tel: (815) 756-2426 Fax: (815) 756-2735  
E-mail: [info@vale-industries.com](mailto:info@vale-industries.com)

*Return  
to Index*

