Porta-Punch
Manual

CLEVELAND STEEL TOOL

474 E. 105th Street
Cleveland, OH 44108-1378
(216) 681-7400 • Fax (216) 681-7009
www.clevelandsteeltool.com • E-mail: sales@clevelandsteeltool.com

800-446-4402
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The information and illustrations in this bulletin cover The Porta Punch, Cleveland Steel Tool’s 35-Ton portable hydraulic punching unit.

Read and carefully follow these instructions before installation and use of this equipment. Most problems and personal injuries can be avoided with proper installation and operation.

Inspect the equipment upon arrival. It is the carrier’s responsibility for any damage resulting from shipment.

For further information, please contact your Cleveland Steel Tool representative.

800-446-4402
The Cleveland Steel Tool Company will, within one (1) year of date of purchase, replace or repair F.O.B. the factory, any goods, which are defective in materials and workmanship provided that the buyer returns the defective goods, freight prepaid, to the seller, which shall be the buyer’s sole and exclusive remedy for the defective goods. THIS WARRANTY IS VOID IF YOU ATTEMPT REPAIRS YOURSELF. This warranty is void if the items have been damaged by accident, neglect, or other causes not arising out of defects in materials or workmanship. This warranty does not apply to machines and/or components which have been altered, changed or modified in any way, or subjected to use beyond recommended capacities and specifications. Electrical components are subject to respective manufacturer’s warranties. In no event shall The Cleveland Steel Tool Co. be liable for loss or damage resulting directly or indirectly from the use of merchandise or from any other cause. The Cleveland Steel Tool Co. is not liable for any costs incurred on such goods or consequential damages. No officer, employee or agent of the Cleveland Steel Tool Co. is authorized to make oral representations or warranty of fitness or to waive any of the foregoing terms of sales and none shall be binding on The Cleveland Steel Tool Co.

Proof of purchase date required

This warranty does not apply to machines and/or components which have been altered, changed or modified in any way, or subjected to use beyond seller recommended capacities and specifications. In no event shall seller be liable for labor costs expended on such goods or consequential damages. Seller shall not be liable to the purchaser or any other person for loss, downtime, or damage directly or indirectly arising from the use of the goods from any other cause. The Cleveland Steel Tool Co. reserves the right to make improvements and design modifications to the machine without prior notice.

———- Company Name ————

Date of Purchase ___________ Serial # ___________________
Warning!

- Read, understand and follow the operating instructions before using the equipment.
- Failure to observe all warnings and instructions may result in personal injury or property damage.
- It is the responsibility of the user to set up and use the machine and tooling in accordance with local and national OSHA laws and ANSI B11.5 safety standards. Do not allow unqualified personnel to set up or operate machines. Use extreme care at all times.

SAFETY PRECAUTIONS

Punching Unit

- Always wear safety glasses.
- Die must be properly inserted with the smaller hole facing upward.
- Never exceed the maximum capacity of this machine.
- Match the punch and die correctly.
- Never use chipped or worn punches and dies. Replace them immediately.
- Properly align and tighten all tooling.
- Disconnect the power source to the machine when changing tooling.

Hydraulic Hoses

- Securely tighten all connections to insure that they are leak-free and periodically check for tightness.
- Periodically inspect the hose for signs of wear or deterioration. Should a hydraulic hose burst, rupture or need to be disconnected, immediately shut off the pump.
- Never attempt to grasp a leaking hose with your hands. The force of escaping hydraulic fluid may result in serious personal injury.
- Do not use the hose to move attached equipment. Stress may damage the hose which can result in serious injury.
- Keep hoses away from any potential hazard such as fire, extreme heat or cold, sharp surfaces, corrosive materials and heavy impact.
- Do not allow the hose to kink, twist, curl or bend so the oil within the hose can flow freely.
- The hydraulic fluid must be compatible with the hose material and coupler seals. Use Mobil Hydraulic Oil AW 46. Do not mix fluids as this could result in a fluid incompatible condition that would cause the fluids to congeal.
THE PORTA-PUNCH

Parts Diagram

Handle 250494
Screw (M10x25) 250495
Lockwasher (M10) 250496
Spacer 250497
Threaded End Cap 250498
Sealed End Cap 250499
Back up O-Ring 250500
Sealing O-Ring 250501
Sealing O-Ring 250501
Piston Rod 250502
Spring (481) 250507
Spring (405) 251505
Lower Spring Retainer 250506

Key Screw 250522
Striper 250508
Stopper Nut 250509
O-Ring 250510
Locking Collar 250511
Cotter Pin 250513
3/8 NPT Nipple 250510
Coupler 256000

Set Screw (M8x14, DP) 250514
250506

Lockwasher M6 250516
Supporter H70-02B 250517

Lockwasher M6 250516
250517

Key Screw 250522

28 Locking Collar Tool
29 Hex Key Wrench (2.5mm)
30 Hex Key Wrench (4mm)
PUNCHES AND DIES

The Cleveland Steel Tool Company maintains an inventory of replacement punches and dies for The Porta Punch.

The following round punch sizes and corresponding dies are available for immediate shipment:

5/16"  3/8"  7/16"  1/2"  17/32"  9/16"  5/8"  11/16"  3/4"  25/32"  13/16"

Non-stock sizes of round, oblong, square, hexagonal and rectangular shapes can be shipped within 48 hours.

For further information, please contact your Cleveland Steel Tool representative.

Punch and Die Installation

Disconnect the power source to the machine when changing tooling.

Care should be used in matching the proper punch to the correct die. Each will be marked with the hole size required.

The die should be placed in the holder with the smaller hole facing upward. Tighten the set screw.

Position the punch in the coupling nut with the effective working length of the punch facing downward. Thread the locking collar on to the piston rod. Tighten with the locking collar tool.

Proper alignment of the punch over the die in shaped tooling (oblong, square, rectangular, etc.) must be maintained. A locating pin is provided with each shaped punch and locating spots on shaped dies.

The punch ram has two locating holes to align shapes at 90°. Check for proper alignment by slowly advancing the punch into the die.

Periodically check the coupling nut and set screw to ensure that the tooling is secure.

Lubrication of punches and dies is recommended but not required. This may extend the life of the tooling.
<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ram will not advance.</td>
<td>Bad hose connections</td>
<td>Check hose connections</td>
</tr>
<tr>
<td></td>
<td>Material hardness</td>
<td>Tool rated for 65,000 psi tensil strength. Harder material requires more tonnage.</td>
</tr>
<tr>
<td></td>
<td>Power source</td>
<td>Unit operates with 10,000 psi power source. Lower psi reduces tonnage.</td>
</tr>
<tr>
<td>Ram will not retract.</td>
<td>Check clearance between</td>
<td>Standard clearance is 1/16&quot; Some materials may require greater die clearance.</td>
</tr>
<tr>
<td></td>
<td>punch and die.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weak or worn stripper spring</td>
<td>Springs must be replaced.</td>
</tr>
<tr>
<td></td>
<td>Stopper nut has loosened.</td>
<td>Check to see if there is a 9/16&quot; gap between the stripper forks and the top of the die. If less then 9/16&quot; contact our repair department</td>
</tr>
<tr>
<td></td>
<td>Material is not perpendicular to the line of the punch.</td>
<td>Bevel top dies are available for punching tapered flanges on channel and &quot;I&quot; beams.</td>
</tr>
</tbody>
</table>
Warranty Statement

Cleveland Steel Tool Co. pumps are warranted to be free of defects in workmanship and materials for 1 year from the date of purchase.

Any Cleveland Steel Tool Co. pumps proven to be defective in workmanship or material will be repaired or replaced at no charge. To obtain the benefits of this warranty, first contact Cleveland Steel Tool Co. at (800) 446-4402 for a return goods authorization (RGA) number. Drain all oil from the pump and deliver via prepaid transportation the complete hydraulic pump with proof of purchase to:

Attn.: Warranty Repair Department
CST/ValPower Hydraulic Products
326 N. County Rd. 400 East
Valparaiso, IN 46383

If any pump product or part sold by Cleveland Steel Tool Co. is found to be defective by CST/ValPower Hydraulics, CST/ValPower Hydraulics, at its option, will either repair or replace the defective part or product and return via ground transportation, freight prepaid.

This warranty does not cover any product or part which is worn or abused, altered used for a purpose other than for which it was intended, or used in a manner which was inconsistent with any instructions regarding its use.

Electric motors are separately warranted by their manufacturer under the conditions stated in their separate warranty.
PUMP SAFETY PRECAUTIONS

VEP0751-PM-CST ELECTRIC HYDRAULIC PUMP
3/4 hp, 115 volt, 60/50 Hz, single phase, with internal auto dump valve

NOTE: These instructions cover all 'Automatic Return' style pumps. Some units may have different specifications than others and may have additional items. Electric models with standard manifold block are illustrated.

ATTENTION:
Inspect pump upon arrival. Make sure that there is no apparent damage due to handling during shipment. Cleveland Steel Tool Co. is not responsible for damaged caused by shipper. Report damage to shipper immediately.

Read and follow instructions carefully. Many problems are the result of improper installation and use.

WARNING SAFETY PRECAUTIONS

• All WARNING statements must be carefully observed to prevent personal injury.
• Always wear eye protection when working with equipment.

General Precautions
• Before operating the pump make sure all hose connections are tightened properly. Do not overtighten connections. They only need to be secure and leak free. Overtightening may cause premature thread failure or may cause high pressure fittings to split at pressures lower than their related capacities.
• In the event that a hydraulic hose should rupture, burst or need to be disconnected, immediately shut off the pump. Never attempt to grasp a leaking hose under pressure with your hand(s) as escaping hydraulic fluid could penetrate your skin and cause serious injury.
• Do not subject the hose to potential hazards such as fire, extreme heat or cold, sharp edges or heavy impact. Do not allow the hose to kink, curl, twist or bend so that the flow of oil inside can become blocked or reduced. Periodically inspect the hose for wear because any of these conditions can damage the hose and result in personal injury.
• Do not use the hose to move the pump, this may result in damage to the pump and/or hose.
Hose Precautions

• Hose material and coupler seals must be compatible with the hydraulic fluid used in the pump. Consult hose and fittings manufacturers for a list of compatible fluids with respect to their products. Never paint hose couplers. Improper care of hose and fittings may result in personal injury.

Pump Precautions

• Do not exceed the hydraulic pressure rating noted on the name plate attached on the pump. Do not tamper with the internal high pressure relief valve as higher pressures beyond rated capacities could result in personal injury.

• Do not over fill pump reservoir. Before filling, make sure all hydraulic cylinders are fully retracted. Maintain oil level to the middle of the sight glass located on the side of the tank.

• Never operate the pump in advance at 10,000 psi for more than 1 minute without tool movement as this might overheat the oil and could damage the pump.

Cylinder Precautions

• Do not exceed rated capacities of the cylinder(s) or tools as excess pressure may result in personal injury.

• Make sure all hydraulic equipment is properly positioned and aligned before operating

• Jerky or sluggish movement of the tool usually indicates air is trapped in the hydraulic system and must be bled out before pressurizing system to maximum pressure.

• Bleed air out of the system by placing cylinder(s) or tools lower than the pump. Lay the tool(s) on their side with the hydraulic coupling in an “up” position. Cycle the pump several times and this will purge any air out of the system.

General Operation

• Energize pump to start flow of oil to cylinder, the pump will build up to 10,000 psi until power is terminated. The automatic return valve will allow oil to return to tank.
PUMP SAFETY PRECAUTIONS

Electrical Supply Precautions
• Do not use an ungrounded (two-prong) extension cord, and never run the motor on a long extension cord.
• Replace any cords that have exposed wiring or show damage. Electrical shock may cause personal injury.
• Check to be sure the voltage rating on the pump matches the voltage in the electrical outlet that the pump is to be plugged into. Incorrect voltage could cause permanent damage to the motor. Correct voltage is required for the pump to operate correctly.
• Low voltage may cause the motor to overheat, surge when trying to start, or stall before maximum pressure is reached.
• Always measure voltage at the motor with pump running at full pressure, voltage will be at the lowest under these conditions. (Low Voltage = 10% less than name plate voltage.)

Electric Motor
• To help avoid possible personal injury all electrical work must be done by a qualified electrician.
• Disconnect the power supply before performing repairs any maintenance.

Hydraulic Set-up
1. Clean all areas around the oil ports of the pump and cylinders.
2. Inspect the threads and fittings for signs of wear or damage and replace if necessary. Clean all hose ends, couplers and union ends.
3. Remove the plastic thread protectors from the hydraulic hose. Connect the hose half coupler assembly to the valve and connect the hose to the tool.
4. Seal pipe/hose connections with pipe sealant. Teflon tape can be used to seal hydraulic connections provided only one layer of tape is used. Apply the tape carefully to prevent it from being pinched by the coupler and broken off inside the pipe end. Any loose pieces of tape could travel through the system and obstruct the flow of oil or cause jamming of precision fit parts.
5. Remove oil filler cap in cover plate.
6. Fill oil reservoir to within 1-1.5 inches below the cover plate (or so it can just be seen in the sight glass) with an ISO 46 hydraulic oil or equivalent. Remove vent cap and use a funnel with a filter screen to add oil.
# PUMP TROUBLESHOOTING

**WARNING:** To help avoid possible personal injury disconnect the power supply before performing repairs or maintenance.

## Maintain Hydraulic Oil
- Check hydraulic oil level every 24 hours of operation or on a daily basis. Add ISO 46 or equivalent if necessary. Oil level should be 1-1.5 inches below cover plate or visible in sight glass with the tools fully retracted and drained back to tank.
- Change oil every 250 hours or six months and refill with ISO 46 hydraulic oil or equivalent. Change oil more frequently when used in extremely dusty conditions or when the oil has been overheated.
- Clean filter screen every 250 hours or six months, this can be performed in conjunction with periodic oil changes.

## Troubleshooting

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<th>PROBLEM</th>
<th>ITEMS TO CHECK</th>
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<tr>
<td>Pump will not Start</td>
<td>Make sure the power cord is plugged in to correct voltage outlet. Have electrician confirm correct voltage is available at outlet.</td>
</tr>
<tr>
<td>Sporadic Operation</td>
<td>Make sure switch on pump is in the ‘ON’ position. Pump may need service.</td>
</tr>
<tr>
<td></td>
<td>Check for blown fuse or tripped circuit breaker.</td>
</tr>
<tr>
<td>Noisy Operation</td>
<td>Check oil level.</td>
</tr>
<tr>
<td></td>
<td>Bleed hydraulic system to remove trapped air.</td>
</tr>
<tr>
<td>Pump runs but does not build pressure or will not pump oil</td>
<td>Low oil in reservoir. Check oil level.</td>
</tr>
<tr>
<td></td>
<td>Air in hydraulic system. Bleed entire system.</td>
</tr>
<tr>
<td></td>
<td>Dirty filter screen. Clean pump inlet filter screen.</td>
</tr>
<tr>
<td></td>
<td>Check oil level.</td>
</tr>
<tr>
<td></td>
<td>Clean pump filter screen.</td>
</tr>
<tr>
<td></td>
<td>Internal Leakage…Pump needs service. Contact Customer Service Department for repair facility information.</td>
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CST-3/4HP-PMDC Pump Sub-Assembly (104024)

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>101335</td>
<td>Reservoir Cover</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>101330</td>
<td>Motor Gasket</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>101329</td>
<td>Reservoir Gasket</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>101400</td>
<td>Upper Plate</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>101375</td>
<td>1/16-27 NPTF Pipe Plug</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>9528K15</td>
<td>Ø1/4&quot; Precision Ball</td>
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<tr>
<td>7</td>
<td>101932</td>
<td>Lower Plate &amp; 1/2 Gear Pump Ass’y.</td>
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</tr>
<tr>
<td>8</td>
<td>101406</td>
<td>Wear Washer</td>
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</tr>
<tr>
<td>9</td>
<td>101731</td>
<td>3/32 Offset Eccentric - 5/8&quot; Shaft</td>
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</tr>
<tr>
<td>10</td>
<td>101473</td>
<td>Bearing Sleeve Assembly</td>
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<tr>
<td>11</td>
<td>101382</td>
<td>1/8 X 3/8 Dowel Pin</td>
<td>4</td>
</tr>
<tr>
<td>12</td>
<td>101478</td>
<td>Piston Block Assembly</td>
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<tr>
<td>13</td>
<td>101352</td>
<td>010 O-Ring</td>
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<td>14</td>
<td>101476</td>
<td>Unloading Block Assembly</td>
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<tr>
<td>15</td>
<td>101355</td>
<td>014 Diso grin O-Ring</td>
<td>3</td>
</tr>
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<td>16</td>
<td>101443</td>
<td>Dump Block Assembly</td>
<td>1</td>
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<tr>
<td>17</td>
<td>92323A525</td>
<td>1/4-20 X 2&quot; Serrated Hex FLHCS</td>
<td>8</td>
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<tr>
<td>18</td>
<td>101385</td>
<td>1/4-20 X 2 1/2 Serrated Hex FLHCS</td>
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<tr>
<td>19</td>
<td>101328</td>
<td>CR-6247 Shaft Seal</td>
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