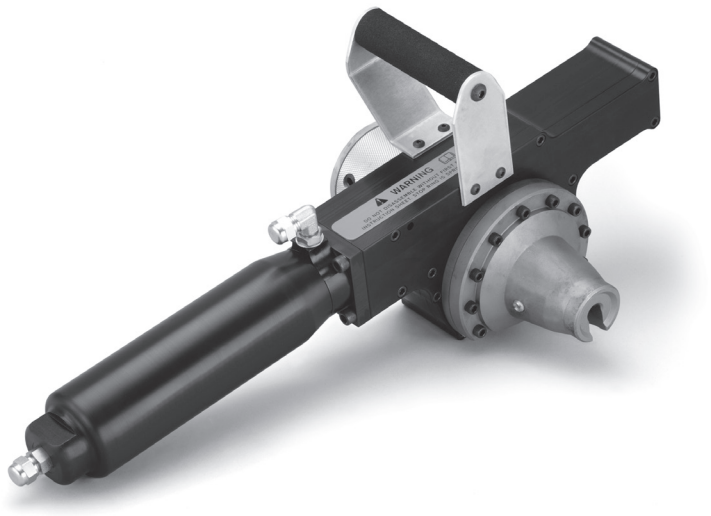
PRECISION-HAYES INTERNATIONAL

PocketShear®

PHI0104 Rev. D 05/16



Series:

PSH05-O
PSH06-O
PSH062-TH

(for 0.5", 0.6" and 0.62" PC Strand)

- **Easy to use in the field**
  The unit should leave a cut end that is even and free of burrs, at a specified dimension from the anchor face.
- **Does not pull, push or heat the strand, anchor or wedges**
  It simply rotates one cutting blade in relation to another. All of this is accomplished within the confines of the unit with no external moving parts except the rotation of the clamp assembly.
- **Operation requires standard safety precaution to be adhered to,**
  as any trained operator of field hydraulic equipment should be aware.

  All applicable OSHA rules and standards should be applied when utilizing this device.
- **PSH05-O for 0.5" Strand**
  is manufactured in configuration for most elevated structures.

  The unit is shipped in a configuration to allow 1¼" of strand from the anchor face. This also allows caps on encapsulated anchors to be placed effectively.
- **PSH06-O for 0.6" Strand, PSH062-TH for 0.62" Strand**
  is manufactured in configuration for most elevated structures.

  The unit is shipped in a configuration to allow 1½" of strand from the anchor face. This also allows caps on encapsulated anchors to be placed effectively.
- **Special Order Units**
  Special order units are available with special nosepieces for 45° pocket formers.

Cut Tendon Tails in

the Pocket —

Quickly, Safely and

Without Flame

Proudly made in the USA.

1 Unpacking and Assembly

Wear protective eye wear at all times.

Remove the PocketShear® from the box in which it was shipped. If the handle is not fully attached, rotate the front handle, aligning the mounting holes in the handle with the corresponding holes in the housing. Insert mounting screws through the handle on each side and tighten firmly. Firmly tighten the other two mounting screws that were purposely left loose in the handle prior to shipment. The PocketShear® is now ready to be attached to the actuating pump. (See Section 5)

The following are parts shipped with the PocketShear® Tools:

1 **PocketShear®**

2 **Handle and Screws**

3 **Grease Gun and Three Grease Tubes**

Recommended, not included in base price:

- *Allen Wrench for Handle Screws*
- *Extra Rotating Shear Blade*
- *Extra Stationary Shear Blade*
- *Set Allen Wrenches*
- *Additional Grease Tubes (order #385355)*

2 Safety Information

The PocketShear® is a special purpose device designed to cut the remaining tail of a stressed .5", .6" or .62" PC strand, in the pocket, at a specific dimension from the face of the ductile iron anchor. Any other use is considered a misuse and it is the responsibility of the purchaser to ensure that this does not occur. The following are important Safety Rules:

- Only trained, qualified operators should use this device
- Cutting strand shorter than 16" can cause flying debris and potentially damage the device
- Cutting strand without the clamp fully engaged can cause severe damage to the unit and injury to the operator
- Wear eye protection at all times
- Do not hang off of edge of building to use this device
- NEVER PLACE HANDS OR FINGERS IN THE SLOT INTENDED FOR .5" or .6" PC STRAND
- Confirm tightness of all hydraulic fittings before, during and after use
- Periodically check the mounting bolts on the nosepiece to make sure they are tight
- Perform cutting test (see Section 4) periodically to assure proper functioning of unit
- Do not operate unit if in conflict with other .5", .6" or .62" PC strands

2.1 Safe Use of the PocketShear®

The .5" Model PSH05-O Series is intended for use ONLY on .5" PC Strand that has been stressed. The .6" Model PSH06-O Series is intended for use ONLY on .6" PC Strand that has been stressed. The .62" Model PSH062-TH Series is intended for use ONLY on .62" PC Strand that has been stressed.

Wear protective eye wear at all time.

Never place hands or fingers in the slot or near the clamp during operation!

Check all hydraulic fittings and hoses for proper, tight connections and general condition. Repair or replace, if necessary, prior to use. Make sure that the nosepiece mounting bolts are tight.

Confirm that elongations have been approved by the engineer of record prior to cutting any tendons!!

1. With the PocketShear® in its "Home" position (all slots lined up with a clear path for the strand) place the unit over the tendon tail left after the stressing operation.
2. Push the nose of the PocketShear® into the pocket, pressing the nosepiece firmly on the anchor face.
3. Pulling up on strand tail, turn the clamp on the rear of the tool clock-wise (approximately ¼ turn) fully engaging the clamp mechanism on the strand end.

Failure to properly engage the clamp EACH TIME a cable is cut is both dangerous to the operator and can cause SEVERE DAMAGE to the unit.

4. The clamp should now hold the PocketShear® unit in place.
   - Actuate the pump
5. When the cut is complete, remove the PocketShear® from the pocket. When the clamp can be opened without dropping the tendon tail, return the clamp to its home position to release the tendon.

⚠ Due to irregularities in strand hardness, the required pressure to cut the strand will vary. The cutting pressure required can tell a lot about the condition of the blade and the operation of the tool and should be monitored during use.

Typically, the following pressures are good guidelines to use while operating the Shear.

.5" strand: 1,200 to 1,800 psi

.6" strand: 1,600 to 2,200 psi

As the blades wear, the cutting pressures will increase. If the pressure required to cut exceeds 2,500 psi on a regular basis, it is time to reverse or replace the blade!!

Never apply more than 3,000 psi to the tool, as damage may occur to the internal components of the Shear!

3 Electric *PocketPump*

Your hydraulic PocketShear® will work best when powered by the Enerpac "*PocketPump*" electric pump. It has been designed for the proper performance and operation of your PocketShear® by featuring the auto-return operation and high-flow needed to speed your cutting operations.

⚠ **WARNING:** The PocketShear® should not be operated with a pump that provides pressures higher than 3,000 psi, or damage to the SHEAR or anchorage zone may occur.

3.1 Pump Attachments

Hydraulic hoses of varying length can be used. We recommended the Enerpac TLH-Series Twin-Line hose for maximum performance and ease of use. The hose is designed specifically for the PocketShear® and will have the mating 37° Flare fittings and the correct hose off-set for use on your PocketShear®. To complete your pump installation we recommend the F-304 series of couplers be installed between the pump and TLH hose assembly, allowing your SHEAR and hose assembly to be easily removed from the pump for transportation.

HOSES

Shear	Length (ft)	Hose Number
PSH05-O	12	**TLH-9212PS5**
PSH05-O	20	**TLH-9220PS5**
PSH06-O/PSH062-TH	12	**TLH-9212PS6**
PSH06-O/PSH062-TH	20	**TLH-9220PS6**

Wear protective eye wear at all time.

3.2 Bleeding the Tool and System

Make sure your *PocketPump* has sufficient oil in the reservoir. All Enerpac pumps are filled with oil when leaving the factory, but after the hoses and tools are bled, the pump may require additional oil to bring it back up to the proper level. Use Enerpac *HF oil* or equivalent to fill your *PocketPump*.

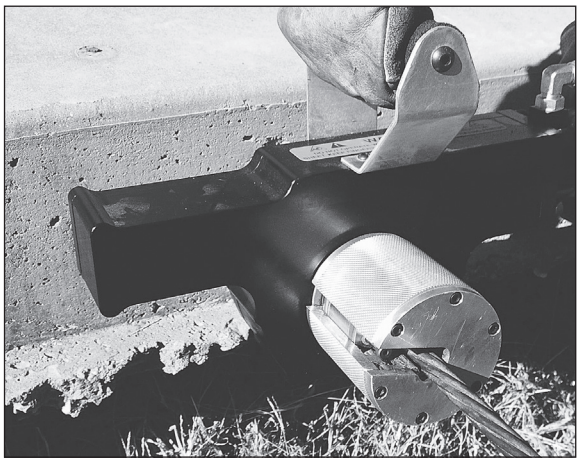
Press the advance button on the two-button pendent. The unit will go through the cut cycle (the button must remain pressed for the entire cut cycle). Once the SHEAR has reached full stroke, release the button and the unit returns to the home position, ready for the next cut. Repeat this cycle 2 to 3 times to make sure all air is removed from the system. (Read pump Safety and Operating Instructions carefully prior to use.)

Fill the pump reservoir one more time to make sure it is full after all bleeding operations are complete.

4 *Enerpac PocketPump* Cutting Operation

NOTE: If you are using earlier versions of the *PocketPump* please refer to the specific instructions for that pump.

The *PocketPump* is designed to automate the shearing process and conserve power when not in use. **DO NOT BEGIN THE CUTTING PROCESS UNTIL THE UNIT IS PROPERLY PLACED IN THE POCKET AND THE CLAMP IS FULLY ENGAGED.** Once the advance button on the two-button pendent is pressed, the unit goes through the cut cycle. (The button must remain pressed for the entire cut cycle.) Once the strand is cut, release the button and the unit returns to the home position, ready for the next cut. If the advance button is not pressed for 30 seconds, the pump will automatically turn off to conserve power and reduce heat build-up. At anytime the pump can be manually turned off by pressing the OFF button.



5 Care and Maintenance

The PocketShear® is easy to use and intuitive to maintain once a qualified operator is properly trained on the unit.

The PocketShear® does not require extensive maintenance. However, a few issues must be dealt with regularly in order to extend the life of the unit. Review all subsections of this heading for pertinent information.

5.1 Storage

Always store the PocketShear® in a safe, dry area that is out of traffic lanes and not near the edge of any area that could allow it to be knocked off of a ledge when stored on a jobsite.

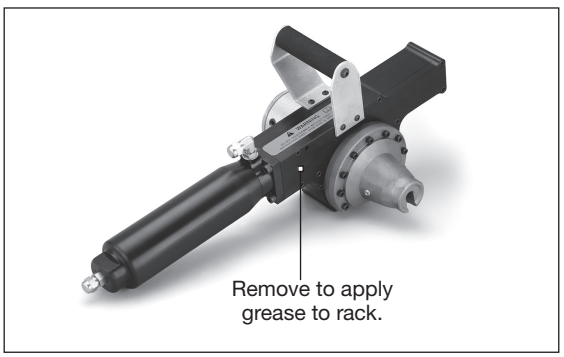
The PocketShear® should always be cleaned prior to placement in storage. NOTE: If you did not order a toolbox for the PocketShear® you should furnish a suitable box for this purpose.

5.2 Cleaning and Lubrication

The PocketShear® should be kept clean at all times. The outer surfaces are aluminum and should need only water and a clean rag to maintain.

All Enerpac produced units are hard-coated aluminum. Clean with a damp rag and water.

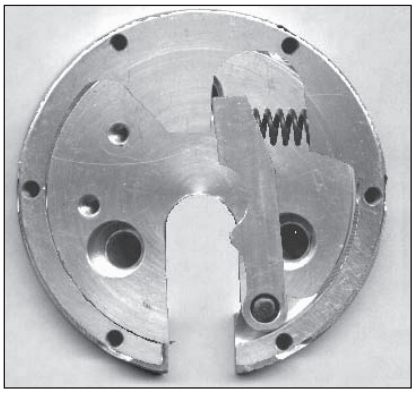
Approximately every 10,000 cuts the front plate should be removed and the Gear Rack should be coated heavily with approved Moly-fortified multi-purpose grease which can be ordered from the factory. This may be required more frequently if the cutting conditions are extremely dirty.



5.3 Cleaning the Clamp

The clamp will attract considerable dirt, especially in Slab-on-Grade conditions. the clamp should be cleaned regularly, based on the jobsite conditions.

This can be accomplished by removing the rear cover plate of the clamp and cleaning the clamp arm cavity, including all areas. An air hose or stiff brush can be used. If water is used, be sure to lubricate the spring with WD-40 or equivalent to retard rusting. The rest of the components are aluminum and should not be affected.



View of clamp assembly with rear cover removed. Note that the spring is green in most applications (bolts not shown).

6 Lubrication and Replacement

6.1 Shear Blade Replacement and Lubrication

The cutting blades should be lubricated using the supplied lubrication gun every 200-300 cuts depending on the cutting conditions. This is completed by injecting 3-4 pumps of moly-fortified lube through the lubrication fitting on the nose piece. The lube will be distributed most effectively if the unit is cycled once during the lube process. The unit will need cleaning and lubrication every 1,000 to 1,250 cuts. This coincides with the need to rotate the fixed shear blade in order to use the other cutting edge and complete the expected 2,500 cuts per set of blades.

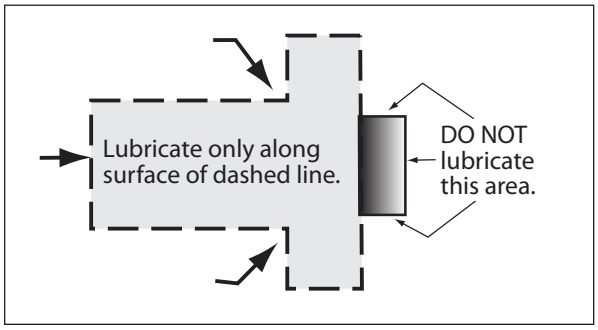
In order to lubricate the rotating blade it is necessary to remove the nose of the unit. This is accomplished by removing the nine (9) mounting bolts in the nose.

Upon removal of the nose, the wear plate is loose and exposed. Check for wear for excessive wear and flip over if necessary prior to assembly. The

wear plate should be cleaned and lubricated, with an approved lubricant **(Moly-Fortified Multi Purpose Grease, or equivalent)**, at the area of contact with the rotating blade only, prior to reassembly.

Hold the nose vertical with the base at the bottom. Gently shake the nose, up and down, to help the rotating blade fall free. The newer the unit, the tighter the fit. It may be necessary to turn the blade and pull on the square drive hub with a large pair of channel lock pliers to remove the blade. Inspect the blade for cracks and chips at the cutting surface. It is common to see slight "ding marks" at the cutting surface. This is not necessarily a cause for replacement of the rotating blade. Replace if necessary with a new blade.

Clean and lubricate the blade , with an approved lubricant, **Moly-Fortified Multi Purpose Grease, or equal**, on the surfaces shown in figure 6.3 below prior to re-assembly.



Gently tap the base of the nose flatly on a clean, dry surface to cause the small "fixed" blade to drop out of its pocket. As with the rotating blade, the fit is tight. The newer the unit, the tighter the fit. Clean and inspect the fixed blade for cracks. If none are found, replace the blade, reversed, into the nose pocket after cleaning the nose. This activity extends the life of the fixed blade. **(NOTE: DO NOT FORCE THE BLADE INTO THE POCKET. PROPERLY ORIENTED, THE BLADE WILL "FALL" INTO PLACE.)** Lubricate the center hole in the nose and insert the lubricated rotating blade. Position the blade slot to match the slot in the nose. Re-attach the nose and wear plate to the body of the PocketShear® with the nine bolts previously removed during the disassembly process.

6.2 Hydraulic Seal Replacement

Hydraulic seal replacement should only be attempted by a qualified hydraulic repair facility. The cylinder is not intended for field repair. Contact the factory for reference in this matter.

7 Troubleshooting

This section corresponds to the FAQ on the PocketShear® website, located at: **http://www.PocketShear.com**. The latest and most complete list of troubleshooting items are listed in the FAQ on the website.

NOTE: The most common cause for problems with a PocketShear® is an operator that does not properly utilize the clamp. Failure to properly engage the clamp can cause severe damage to the unit as well as the operator.

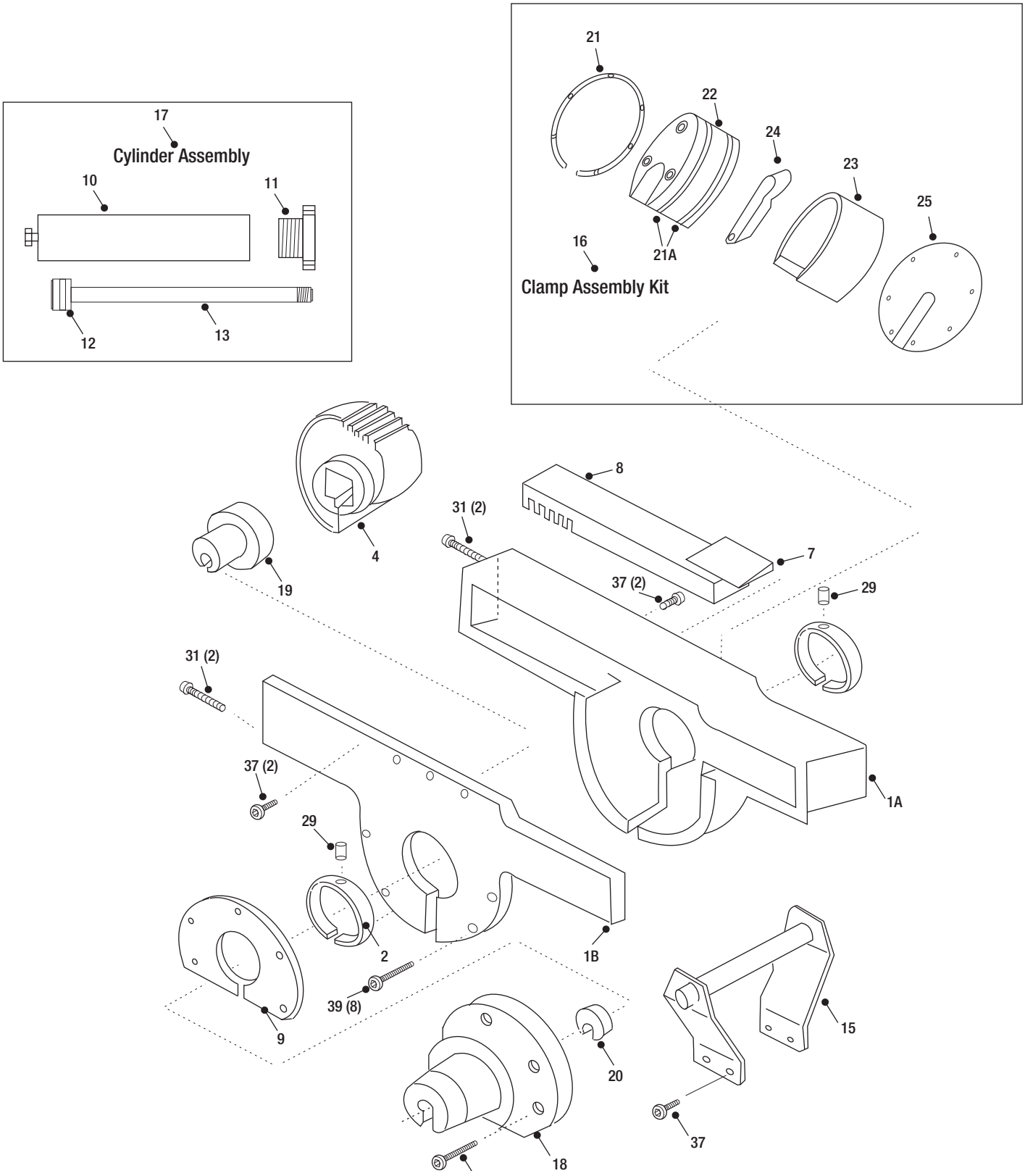
Q The unit doesn't do anything when I press the switch.

A The PocketShear® requires the correct operation of the hydraulic pump attached. This is not an indication that there is anything wrong with the PocketShear®. Troubleshoot the pump.

1. If the electric motor is turning, remove the breather cap and check the tank for fluid. The tank should be filled to the top.
2. If you are using "quick couplers", check for dirt or any other obstruction. Remove "quick couplers" if necessary.
3. Read gauge pressure and see if any pressure (2,000 psi +) is building.

- If there is no pressure:
  - a. Using a small screwdriver, push on the end button of the solenoid valve to manually move the internal spool of the valve. If this does not create pressure, either the valve or the internal pump unit has failed. Contact the factory.
  - b. If the unit actuates with the manual movement of the spool:
    - — An electrical issue is probable. Check all wires, electrical connections and two button pendant.
- If there is pressure:
  - a. Check to see that you are not using any more than 100' of proper size electrical extension cord. The pump may not be able to draw adequate amperage for cutting.
  - b. It is possible that the seals in the cylinder have worn and failed.
  - c. It is possible that the piston rod or piston may have become loose inside the cylinder.
  - d. Remove cylinder and check for needed repairs.

Call the factory for more information.


17
Cylinder Assembly
10
11
12
13
21
22
24
23
25
16
21A
Clamp Assembly Kit
4
19
8
31 (2)
7
37 (2)
29
1A
31 (2)
37 (2)
29
2
1B
39 (8)
9
20
15
37
18

			Repair Part Numbers		
Item	**Qty**	**Description**	**PSH05-O**	**PSH06-O**	**PSH062-TH**
1A	1	Side Frame-Main Housing	460185	460440	460440
1B	1	Side Frame-Cover	460190	460445	460445
2	2	Side Frame-Bushing	460195	460195	460195
4	1	Main Drive Gear	460010	460454	460454
7	1	Rack Bearing	460200	460200	460200
8	1	Gear Rack	460205	460450	460450
9	1	Back-Up/Wear Plate	460270	460468	460468
10	1	Hydraulic Cylinder Body	460230	460420	460420
11	1	Hydraulic Cylinder Mount	460240	460240	460240
12A	1	Piston w/holes (outer)	460000	460000	460000
12B	1	Piston w/holes (inner)	460002	460002	460002
13	1	Piston Rod	460235	460460	460460
14	1	Piston Seal Kit	385270	385270	385270
15	1	Shear Handle Assembly	460210	460210	460210
16	1	Rotating Clamp assembly	460320	460475	460475
17	1	Hydraulic Cylinder Assembly	460212	460455	460455
18	1	Standard Nose Piece	460245	460465	460066
19	1	Standard Rotating Shear Blade	460020	460425	460430
20	1	Fixed Shear Blade	460265	460435	460438
21	1	Clamp Front Retainer	460325	460325	460325
21A	2	Clamp Core Bushing	460360	460360	460360
22	1	Clamp Core	460335	460335	460481
23	1	Clamp Rotator	460340	460340	460340
24	1	Clamp Actuator	460345	460472	460472
25	1	Clamp Rear Cover Plate	460350	460350	460479
26	1	Clamp Spring-Green	385365	385365	385365
27	6	8-32 x 1/2" SHCS Front Clamp Cover	385334	385334	385334
28	6	8-32 x 1/2" SHCS Rear Clamp Cover	385334	385334	385334
29	12	1/4-20 x 3/4" SHCS Side Plate	385298	385298	385298
30	3	5/16-18 x 2 1/4" SHCS Clamp Core	385325	385325	385325
31	4	5/16-18 x 1" SHCS Clamp Core	385315	385315	385315
32	1	#6 SAE x 3/8 NPT Swivel, Hyd Fitting	385015	385015	385015
33	1	#6 SAE x 3/8 NPT 90o Swivel, Hyd Fitting	385010	385010	385010
34	1	Bolt Kit Complete	384375	384375	384375
35	1	1/2-20 x 1/2" Set Screw-Clamp Spring	385290	385290	385290
36	1	1/2-13 x 3/4" Set Screw-Cylinder	460232	460232	460232
37	4	10-32 x 1/2" BHCS Handle Base	385310	385310	385310
38	2	5/16-18 x 1/2" BHCS Handle Grip	385320	385320	385320
39	1	0.250" x 1" Dowel Pin Clamp Arm	385340	385340	385340
40	9	1/4-20 x 1.25 SHCS Nose Piece	385297	385297	385297
41	2	10-24 x 5/8 Shoulder Bolt-Clamp	385300	385300	385300

Q: Can I use "quick-couple" fittings?

A: Yes. However, if the fittings are not properly attached the pump cannot get fluid to the unit and it will seem to not function.

Quick Couplers can be purchased from the factory.

Q: What size strand can I cut with a PocketShear®.

A: The Model 501HC will cut ½" PC strand. The Model 601HC is used for cutting .6" PC strand.

Q: I hear a "clicking" sound when the unit nears the end of the cut cycle or the return cycle. Is this OK?

A: Yes. This is the sound of the tool shearing the strand, which sometimes shears one wire at a time.

Q: The clamp seems too loose to hold the unit in the pocket.

A: Adjust the set screw on the clamp Rotator for a tighter fit.

Q: One wire was left after I cut the PC Strand. What went wrong?

A: PC Strand is 7 wire strand. This means that six wires are wrapped around one. ThePocketShear® actually cuts one wire at a time. Incomplete cutting cycles will leave wires uncut.

1. Put the PocketShear® back in the pocket and actuate fully to cut the remaining wire.
2. Check for excessive wear on the blades. Worn blades will also cause this condition.

Q: Why do I hear a different "popping" sound from time to time during the actual cutting cycle?

A: The PC Strand is manufactured under the ASTM A416 specification in the U. S. and abroad. Within this specification, there is no reference to allowable surface hardness ranges on the wires that make up the strand. Hard and soft spots occur randomly along the length of the strand.

Q: Why does blade life seem better in some batches as opposed to other batches?

A: All shear blades are manufactured to strict manufacturing standards. Each blade is individually checked through a detailed QA procedure. The variance you experience is generally due to the actual strand hardness variance. See answer above.

Q: Why won't thePocketShear® fit over the strand?

A: There can be several factors:

1. Check to see that the strand has not been "flattened", or otherwise deformed, during the stressing operation. Generally, a pair of channel lock pliers can fix the problem.
2. Check to see that thePocketShear® is fully returned to its "HOME" position. If not, actuate the pump to adjust. If the shear does not return to "HOME" position, it should be sent back for service.

Q: Why did the nose fall off during cutting?

A: There are two causes for this occurrence. Both are considered operator error.

1. Due to the repeated shock of cutting, the nose bolts on a brand new unit can tend to work themselves loose during the first several hundred cuts. Check periodically for tightness of the bolts.
2. Use "Locktight" to secure bolts.
3. Cutting with loose nose bolts allows the cutting surfaces of the blades to separate. This separation causes the blades to push away from each other (with a great deal of force) in a fashion that actually pulls the bolts out of the side frame housing. Loose bolts also leave fewer engaged threads to accomplish the designed load transfer to the housing.
4. Allowing the PC Strand to become "off center" with the uppermost part of the slot through the PocketShear® causes a conflict within the gear mechanism. Generally, the nose piece was not fully engaged in the anchor at the time of cutting and was therefore out of alignment. This conflict "locks" the unit mechanically. When this occurs, the rotating blade cannot rotate freely as it is smashing the strand into the side of the slot in the nosepiece. In this case, the nosepiece bolts relieve in "shear" fashion. It is important to note that the hydraulic force required to cut PC Strand is in excess of the shear strength of the bolts. Therefore, the force cannot be reduced and the bolts become the "point of relief."

FOR MORE INFORMATION: See the FAQ (Frequently Asked Questions) section of the PocketShear® website at: http://www.PocketShear.com

If you have found issues that should be listed in this manual, please don't hesitate to call or write to us in order to have your suggestions included.