

# SERVICE AND OPERATION MANUAL



**MODEL VC6-350 & VC6-350-SN  
HYDRAULIC HAND TOOLS**



POWER SYSTEMS, INC.

# ANDERSON

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NOTE: Because Hubbell has a policy of continuous product improvement, we reserve the right to change design and specifications without notice.

**Manual SM-18**  
**1110300000**  
**(7/97)**

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POWER SYSTEMS, INC.

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**1110300000**  
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**WARNING:** The black tool covering is designed to protect the tool surface against accidental momentary contact with low voltage parts. The covering is not intended to protect the operator in hot line work.

**COLD WEATHER NOTE:** This tool contains Anderson VCO hydraulic oil. For operation below approximately 20°F (-6.7°C), refill reservoir with VLTO low temperature oil.

In cold weather and non-use, o-ring seal sticking may cause non-pumping. Rotate the advance handle clockwise until it contacts the reservoir piston to apply pressure to the oil and free the hydraulic pistons.

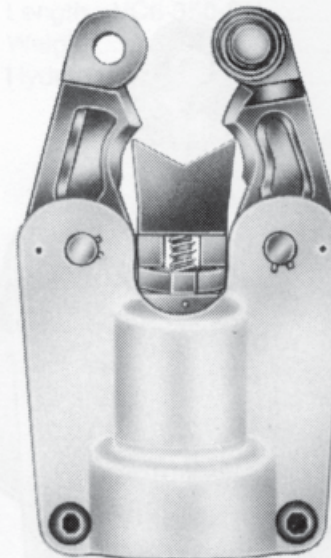
**NOTE:** When the tool is to be stored for extended period of non-use, the tools should be pumped up approximately every 3 weeks to keep o-rings and seals lubricated.

## VC6-350 & VC6-350-SN

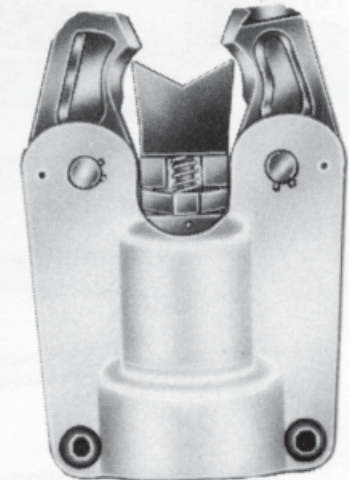
### THREE NIB ARRANGEMENT

#### VC6-350

For three nib operation, pull latch pin out and rotate counterclockwise to lock position. NOTE: Pin locks in both positions - In and out.



VC6-350

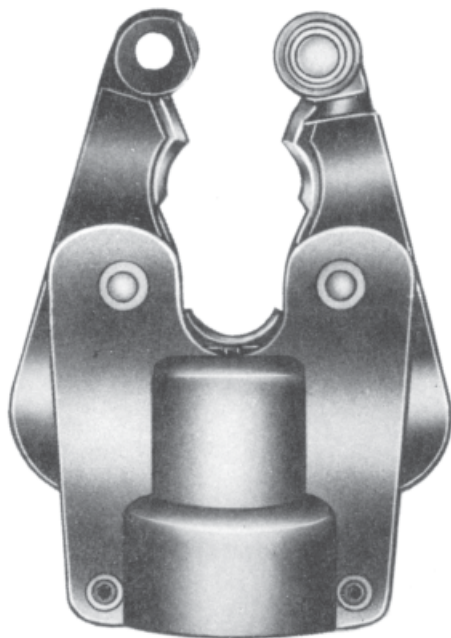


VC6-350-SN

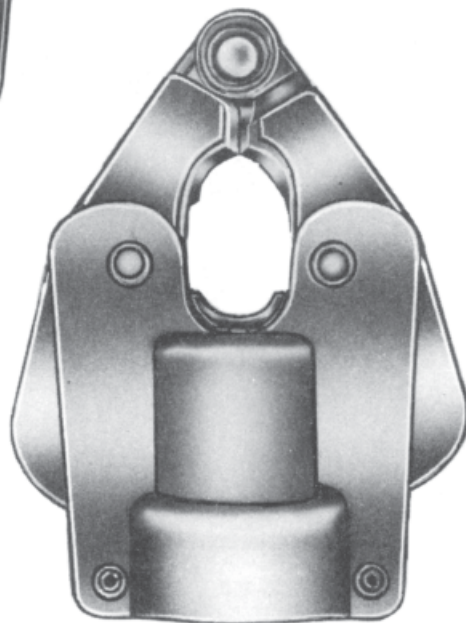
## VC6-350 NIB AND NEST CHANGEOUT

### NEST DIE ARRANGEMENTS

NOTE: Pin locks in both positions - In and out. For nest die operation:



1. Install nest die as shown (See "Operation Instructions" on page 7).
2. Bring side jaws together and pin. **CAUTION: Make sure pin is fully inserted and in lock position before crimping.**
3. To release side jaws, unlock pull pin out and turn to lock position counterclockwise.



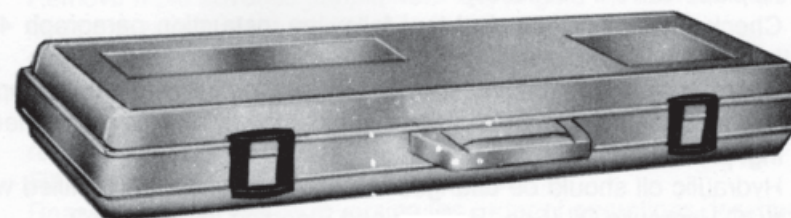
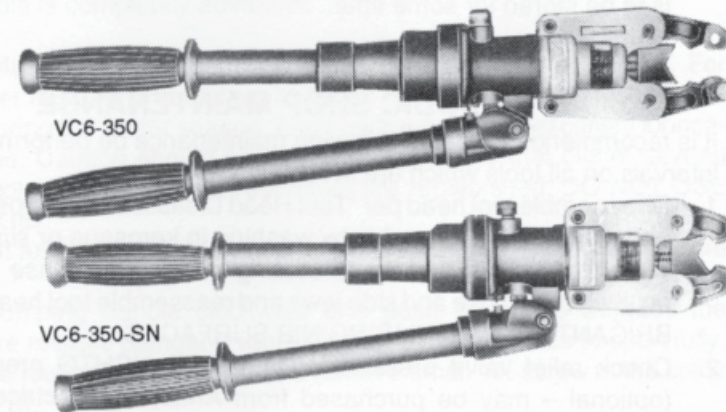
## GENERAL

This tool is designed to apply VERSA-CRIMP or VERSAtile fittings to copper, aluminum and ACSR conductors. The basic connector configurations are:



## SPECIFICATIONS

Piston Stroke .....	5/8"
Maximum Nib Opening .....	1-3/16" Diameter
Length - VC6-350 .....	25"
Length - VC6-350-SN .....	24"
Weight .....	10.0 pounds approximately
Hydraulic Oil .....	VCO (DTE-13)





## SERVICE INSTRUCTIONS

### CARE OF HYDRAULIC TOOLS

This tool requires well-trained experienced personnel for major repairs, adjustments or maintenance. The following rules for men in the field, if followed, will prolong the time between major repair work and help assure dependability of the tool:

- (1) **KEEP THE TOOL CLEAN** ...Dirt and grit are the worst enemies to any type of hydraulic equipment. Keep the tool in its case when not in use. Do not lay the tool on the ground. **Particularly avoid joint compounds from building up on the crimping nibs. Most such compounds are highly abrasive and will work into the hydraulic mechanism if not regularly removed.** Wipe the entire tool thoroughly with a clean dry or slightly oily cloth after each day's use.
- (2) **DO NOT MAKE ADJUSTMENTS TO THE TOOL**...There are no adjustments on this tool which can be made in the field. If a tool become inoperative and the instructions in this booklet do not correct the malfunction, return it to the storeroom or other designated place and exchange it for a spare unit.
- (3) **STORE THE TOOL PROPERLY**...Before storing tools in their cases back the rapid advance handle to full open position and depress the hydraulic release plunger so that the crimping nibs fully retract. This protects the operating ram from moisture condensation and will help assure correct operation at the next period of use, particularly if the tool is to be stored for some time.

### PERIODIC SHOP MAINTENANCE

It is recommended that the following maintenance be performed at 30 day intervals on all tools which are in regular daily use:

1. Disassemble tool head per "Tool Head Disassembly" steps 1 through 4, and clean parts thoroughly by washing in kerosene or similar solvent. Wipe parts clean and apply coating of silicone grease lubricant (or equivalent) to yoke and side jaws and reassemble tool head. **WIPE LUBRICANT FROM CRIMPING NIB SURFACES.**
2. Check relief valve pressure setting using VCHTG pressure gauge (optional – may be purchased from Anderson Electrical Products.) Replace valve if necessary.
3. Check reservoir oil level of tool following instruction paragraph 4 of Inspection Procedures of this manual. Add oil if required.
4. Check number of pumping strokes required to complete a full crimp. If tool requires more than thirty-five strokes, follow "Refilling and Bleeding" procedure.
5. Hydraulic oil should be changed at 90 day intervals and refilled with VCO Hydraulic Oil (See "Refilling and Bleeding Instructions").

## IMPORTANT

### CLEANING THE TOOL HEAD

Inhibitor with grit is a highly abrasive compound which must be cleaned from the tool head at frequent intervals. The procedure shown below should be followed to prevent excessive wear on the internal parts of the tool head.

1. Disassemble the tool head following instructions outlined in "Tool Head Disassembly."
2. Wash all parts in kerosene and soak for approximately five minutes.
3. Remove parts and wipe clean.
4. Coat all bearing surfaces with silicone grease (or equivalent).
5. Reassemble tool head by following instructions outlined in "Tool Head Assembly."

### ADDITION OF HYDRAULIC OIL

**LOSS OF HYDRAULIC OIL**...Hydraulically actuated tools will gradually lose their hydraulic oil over a period of time. This loss is caused by adherence of part of the oil to moving parts exposed partly to the outside such as the plunger and ram; also from occasional leakage around mechanical seals. A small loss of hydraulic oil is normal and will not affect the operation of a VC6-350 and VC6-350-SN tool; however, if the level drops too low, air can become trapped in the hydraulic system causing the tool to develop a "spongy" feel preventing it from operating. Occasional hydraulic oil level checks can be simply performed as follows: To check oil levels screw inward on advance handle of pump. Crimping nibs should close before handle is completely advanced.

**ADDING OIL**...Each new tool contains standard VCO hydraulic oil. For cold weather regions, a container of VLTO hydraulic oil is furnished with each tool during the winter season. Each hydraulic oil has excellent lubrication qualities. Caution should be exercised to assure that oils of several types are not mixed when tool reservoirs are replenished. **DO NOT USE BRAKE FLUID.**

1. Back off fully (counter clockwise) on the rapid advance handle (Figure 1).
2. Turn pumping handle clockwise and push inward to depress the pressure release plunger (Figure 2). This allows the nibs to open fully.
3. Hold the tool head downward and remove small set-screw in the collar (Figure 3).
4. Remove rapid advance handle from tool (Figure 4). This will expose a large cap screw at the end of the oil reservoir piston stem.
5. Grip the stem beneath the cap screw with a wrench and remove the slotted head cap screw (Figure 5).
6. Pull upward on the reservoir piston stem until piston reaches fully retracted position (Figure 6).
7. Fill reservoir with VCO hydraulic oil (Figure 7).
8. Reassemble the tool by reversing the order of operations described.

**IMPORTANT NOTICE** – Hydraulic tools will not operate properly if air is present inside the system. When removing the pumping handle on this tool do not allow the pump plunger to be pulled fully out of the pump body as this will allow air to be forced into the system when the plunger is re-installed.



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6



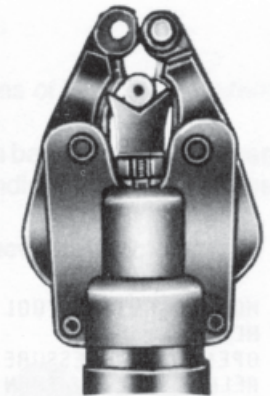
Figure 7

## OPERATING INSTRUCTIONS

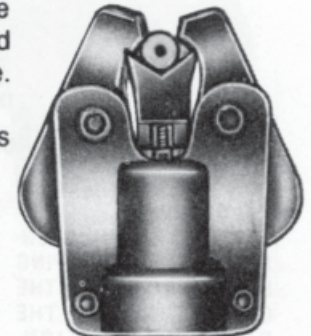
The VC6-350 and VC6-350-SN tools have a nib assembly that automatically centers sleeves. The VC6-350 tool has a reversible "D"/"O" nest die. To change out dies simply pull up on nib or nest and replace with desired nib or nest. To remove the "D" die, advance die until tabs are exposed, grasp tabs and lift out die.

### INSTALLATION OF SLEEVE CONNECTORS (Three Nib Arrangement)

1. Place connector in vee notch of bottom nib assembly and pump handle until **all three nibs contact connector**.
2. Pump handle until audible click occurs, accompanied by a drop in resistance in the handle. This indicates that the tool has reached its preset pressure and the crimp is fully made.
3. Retract nibs as shown on page 8.
4. Repeat steps 1, 2 and 3 until connection is made.



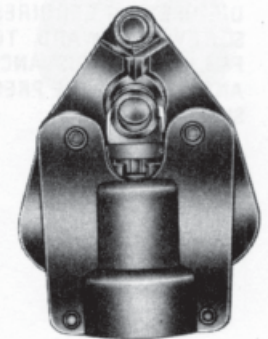
VC6-350



VC6-350-SN

### INSTALLATION OF FULL TENSION SLEEVES ("O" Die Arrangement) VC6-350 Only

1. Place "O" nest die in tool.
2. Place prepared sleeve in tool.
3. Push side jaws together, unlock and engage pin to form upper nest die. **CAUTION: Be sure pin is completely engaged before crimping connectors.**
4. Pump handle until audible click occurs, accompanied by a drop in resistance in the handle. This indicates that the tool has reached its preset pressure and the crimp is fully made.
5. Retract die as you would crimping nibs.
6. Repeat steps 1, 2 and 3 until connection is made.

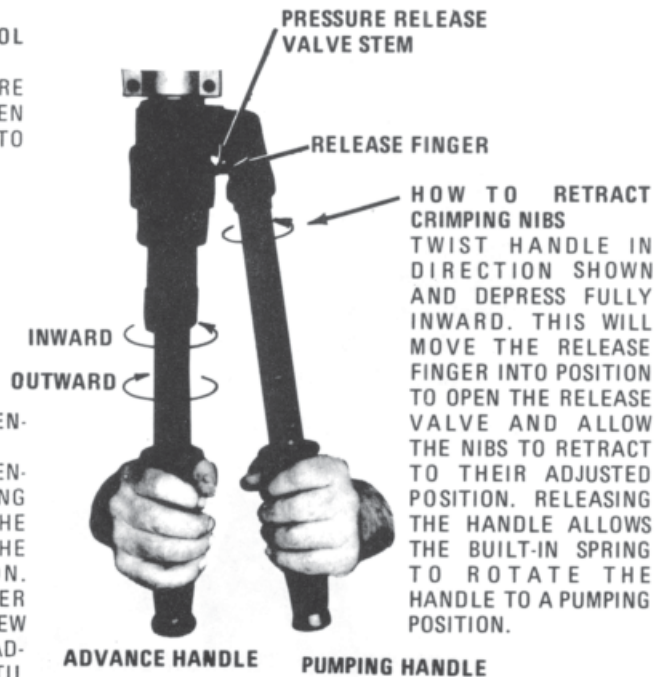


VC6-350



**HOW TO ROTATE TOOL HEAD**  
OPEN THE PRESSURE RELEASE VALVE & THEN TURN TOOL HEAD TO POSITION DESIRED.

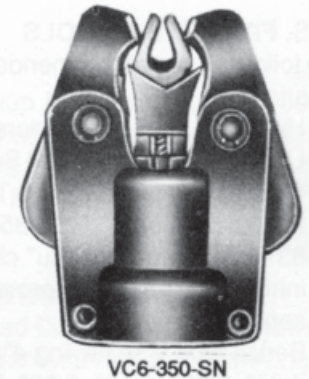
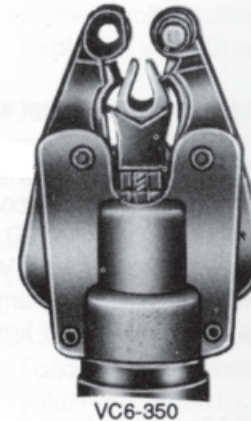
**HOW TO ADJUST OPENING OF NIBS**  
FOR SMALLER NIB OPENING, USE THE PUMPING HANDLE TO CLOSE THE CRIMPING NIBS TO THE DESIRED POSITION. NEXT USE LIGHT FINGER PRESSURE AND SCREW INWARD ON THE ADVANCE HANDLE UNTIL IT MEETS FIRM RESISTANCE. WHEN MAXIMUM DIE OPENING REQUIRES, SCREW OUTWARD TO FULL STOP DISTANCE AND DEPRESS THE PRESSURE RELEASE.



**HOW TO CRIMP A CONNECTOR BY PUMPING TOOL**  
WITH CONNECTOR PLACED PROPERLY BETWEEN NIBS, START THE CRIMPING ACTION BY MOVING PUMP HANDLE TOWARD THE ADVANCE HANDLE, THEN OUTWARD AND REPEAT THIS PROCESS UNTIL AN AUDIBLE 'CLICK' IS HEARD. THIS CLICK IS A SIGNAL THAT THE CRIMP IS COMPLETE. RELEASE THE CRIMPING NIBS AS DESCRIBED ABOVE.

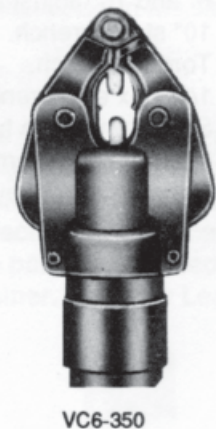
## INSTALLATION OF U-GROOVE CONNECTORS (Three Nib Arrangement)

1. Place conductor in groove and close top edges of U-groove together with pliers.
2. Place prepared U-groove connector in tool with base of U resting in vee notch of bottom nib assembly and pump handle until **all three nibs contact connector**.
3. Follow steps 2, 3 and 4 of Installation of sleeve connectors.



## INSTALLATION OF H-FRAME CONNECTORS ("D" or "O" Die Arrangement) VC6-350 Only

1. Select proper nest die called for on connector and place in tool.
2. Place prepared H-frame in tool.
3. Push side jaws together, unlock and engage pin to form upper nest die. **CAUTION: Be sure pin is completely engaged before crimping H-frame connectors.**
4. Follow steps 2, 3 and 4 of installation of sleeve connectors.
5. To release side jaws from nest position to nib position, simply press side jaws together and pin will disengage automatically, and side jaws will spring back to nib position.
6. Remove nest die, replace nib assembly, lock push pin and the tool is back to nib arrangement.



## SERVICE INSTRUCTIONS

### GENERAL

The VC6-350 and VC6-350-SN tools are hydraulically actuated mechanisms which require well trained, experienced personnel having a clean work area equipped with adequate tools, jigs and fixtures for major repairs, adjustment or maintenance. It is suggested that tools requiring repairs be returned to Anderson for correction unless overall local conditions are adequate. The Anderson Tool Department is set up to provide quick maintenance and overhaul service. See "Instructions for Returning Tools" in this manual.

### JIGS, FIXTURES & TOOLS

The following are recommended in order to have adequate equipment and materials:

1. Hydraulic Oil – Use Anderson's type VCO or Mobil D.T.E. 13. DO NOT USE BRAKE FLUID. 3M Super Weather—Stripping Adhesive, Silicone Grease Lubricant, Teflon Tape Thread Seal ("Ribbon Dope" #412D by Permacel Corp.), VC6-350 and VC6-350-SN Seal Repair Kits VP-8376, "Chlorothene Nu" cleaning solvent (Dow Chemical Company's inhibited 1,1,1, Trichloroethane), #400 grit abrasive cloth and kerosene.
2. Bench type vise having 4" minimum opening.
3. 7/64", 3/32", 1/16", 5/32", 3/16", 1/4" and 9/64" Allen wrenches.
4. 3/64", 1/8", 3/16", and 5/64" pin punches.
5. 10" standard screwdriver (magnetized).
6. Channel-Lock pliers.
7. 6" and 10" adjustable wrenches.
8. 10" strap wrench.
9. Torque wrench.
10. 1/2" box end wrench.
11. Spanner wrench hook type.
12. Internal and external snap ring pliers.
13. Copper gasket key number 53.

### TOOL HEAD DISASSEMBLY

1. Fully retract rapid advance handle by turning counterclockwise to full stop position.
2. Depress the pressure release plunger with pump handle. This permits the hydraulic oil to flow back into the reservoir.
3. Remove two retainer rings on same side of cover and take out pivot pins.
4. Remove tool head covers by unscrewing each of the two socket head screws.
5. Remove roller, roller pins, side jaws, side jaw springs and spacers (See Exploded View Drawing).

### TOOL HEAD ASSEMBLY

Reassemble tool head by reversing the step by step sequence recommended for disassembly. Observe the following precautions during assembly. The 5/16" cap screws holding the covers to the pump block should be snugly tightened to the extent that the tool head can still be rotated to a degree that is practical for field use.

### DISASSEMBLY OF RAM PISTON AND RETRACTION SPRING

1. Follow recommended steps of "Tool Head Disassembly", then remove yoke from piston by taking out the 1/8" diameter ball after removing the #10-32 x 1/4 set screw.
2. Remove advance handle and spring following steps 1 thru 4 of "Removal of Advance Handle".
3. Remove socket screw in top of piston as shown in Figure 8. **NOTE: A washer is under screw head and must be reassembled in the same order.**
4. Remove piston from cylinder as shown in Figure 9.
5. Pour hydraulic fluid from cylinder.
6. Insert 7/64" allen wrench down through center of retraction spring and unscrew retaining screw. Lift out retraction spring assembly as shown in Figure 10. **NOTE: A socket screw, ball thrust bearing, and spacer, items numbers 31, 32 and 33, respectively, are located within the retraction spring. Access to these parts is obtained by removal of the bottom retraction spring retainer. Caution: Leave allen wrench in place.**

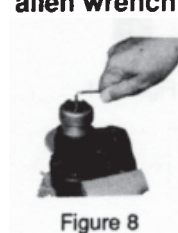


Figure 8



Figure 9



Figure 10



### ASSEMBLY OF RAM PISTON AND RETRACTION SPRING

Reassemble by reversing the step by step sequence recommended for disassembly. Observe the following precautions:

1. When filling cylinder with hydraulic fluid, pour oil into center of retraction spring. This will prevent air entrapment in the hydraulic system.
2. Fill cylinder with hydraulic fluid through center of retraction spring to the point that when piston is fully inserted the fluid level is at top of screw hole in piston. **NOTE: Use oil specified in "Jigs, Fixtures & Tools".**
3. Align piston in cylinder before insertion to prevent O-Ring or back-up ring damage (Rotating piston during insertion will reduce the force required).
4. Align locating pin in piston with hole in top spring retainer.
5. Upon installing screw, pump tool one or two strokes to expose the groove for the 1/8" ball.

### REMOVAL OF 3/16" AND 1/4" BALL VALVE ASSEMBLY

1. Remove advance handle and spring following steps 1 through 4 of "Removal of Advance Handle".
2. To disassemble check valve balls, remove VCG-A adaptor.
3. Hold the tool over a paper towel (or other absorbent material). With open hole facing downward, shake tool slightly to remove spring, spring cap, 1/4" diameter ball, spacer and 3/16" diameter ball. See Figure 11. **NOTE: A small amount of hydraulic fluid will flow out. Also, tool may be flushed to some degree by pushing reservoir piston to bottom of reservoir thus forcing any foreign material out of tool with the oil.**



Figure 11

### INSTALLATION OF 3/16" AND 1/4" BALL VALVES

1. Insert 3/16" diameter ball, spacer, 1/4" diameter ball, spring cap and compression spring (Item number 36 thru 40).
2. Apply teflon tape thread seal to threads of VCG-A adaptor and install in pump block. Tighten. **IMPORTANT: Do not apply "Teflon Tape Dope" to bottom thread of VCG-A adaptor as the excess material may come off and enter the hydraulic system.**
3. Follow "Refilling and Bleeding Instructions".

### REMOVAL OF RELEASE PLUNGER

1. Remove advance handle and spring following Steps 1 through 4 of "Removal of Advance Handle."
2. Unscrew release plunger nut and remove release plunger (Figure 12). Turn tool over to remove compression spring.



Figure 12

### INSTALLATION OF RELEASE PLUNGER

1. Assemble release plunger by reversing the steps of disassembly, being careful not to damage O-ring. See Exploded View Drawing for correct assembly order.
2. Follow "Refilling and Bleeding Instructions".

### REMOVAL OF ADVANCE HANDLE

1. Back off fully (counter-clockwise) on advance handle.
2. Lift out slightly on pumping handle, turn clockwise and push inward to depress the release plunger. This relieves pressure in the tool and allows crimping nibs to fully retract.
3. Roll back the covering and unscrew knurled retaining nut from lower end of pump body (See Figures 13 and 14). **IMPORTANT: The knurled retaining nuts on all tools are provided with a locking screw. THIS SCREW MUST BE LOOSENED BEFORE REMOVING THE LOCKING NUT IN ORDER TO PREVENT DAMAGE.**
4. Unscrew the advance handle fully from pump body. This will expose a coil spring and a large cap screw in the end of the oil reservoir piston stem. Remove this spring. See Figure 15.



Figure 13

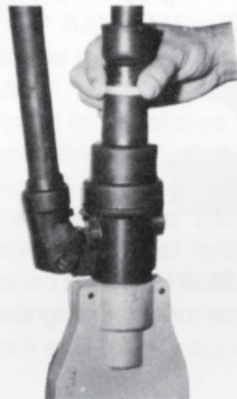


Figure 14



Figure 15

### INSTALLATION OF ADVANCE HANDLE

Assemble advance handle by reversing the steps of disassembly.

### REMOVAL OF RESERVOIR AND RELIEF VALVE

1. Follow steps for removal of advance handle.
2. Clamp the tool in a downward position and grip the reservoir piston stem beneath the cap screw with an adjustable wrench. Remove the slotted head cap screw and o-ring as shown in Figure 16. Remove tool from vise and pour all oil from the reservoir with release plunger depressed.
3. Loosen the screw holding the reservoir housing in place and unscrew reservoir housing from pump body. See Figure 17.
4. Remove reservoir piston and o-ring from housing.
5. Remove relief valve and seal washer, using a crescent wrench on base of valve. See Figure 18.



Figure 16

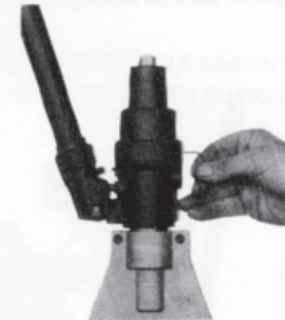


Figure 17

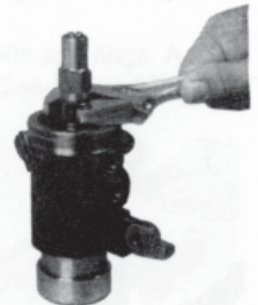


Figure 18

### RELIEF VALVE ASSEMBLY

1. Install relief valve with sealing washer using torque wrench to tighten valve securely. Torque to 30-35 ft./lbs.
2. See "Inspection Procedure" for making adequate pressure check after assembly.

### RESERVOIR ASSEMBLY

1. Install O-ring on reservoir piston and assemble into reservoir housing. **NOTE: Before installation, lubricate O-ring using hydraulic oil to prevent damage.**
2. Assemble reservoir housing to pump block and tighten set screw to lock reservoir housing to pump body making sure O-ring, item number 51, is in groove.
3. Follow recommended steps in "Refilling and Bleeding Instructions".



## REFILLING AND BLEEDING INSTRUCTIONS

1. Pull upward on the reservoir piston stem until piston reaches the fully retracted position. See Figure 19.
2. Insert a clean cloth or paper towel around piston stem to catch oil spillage. Fill reservoir to top of the piston stem with VCO hydraulic oil or Mobil D.T.E. 13. See Figure 20.
3. To be sure that no air bubbles are trapped inside the hydraulic system, operate the pumping handle slowly with the handle turned so that the release plunger is depressed with each stroke. Wait between each stroke until all air bubbles reach top of piston stem. Move tool from side to side to allow air bubbles to work out of piston stem. Repeat until no bubbles appear. Refill with oil to top of piston stem if necessary. See Figure 21.
4. Reassemble tool by reversing the order of operations described in "Removal of Advance Handle" (Steps 1 thru 4). **IMPORTANT: The knurled retaining nut and set screw on advance handle should be securely tightened with appropriate tools.**

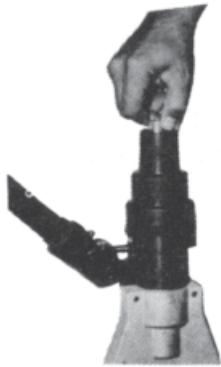


Figure 19



Figure 20



Figure 21

## PUMP HANDLE AND PLUNGER DIASSEMBLY

Before disassembly, first remove advance handle and coil spring, following steps 1 thru 4 of "Removal of Advance Handle".

1. To remove pumping handle assembly from pump block, remove retainer ring and fulcrum pin, then pull handle assembly downward toward reservoir end of tool, being careful not to remove plunger. See Figure 22.
2. To disassemble handle from fulcrum casting, roll back fulcrum cover to gain access to socket screw through hole in top of fulcrum head. See Figure 23.
3. Turn handle clockwise within fulcrum so that the socket screw may be removed. After socket screw has been removed, tap the driv-lok pin out through top of fulcrum, using 3/16" pin punch. See Figure 24.
4. Allow torsion spring to return to neutral position, disengage spring from slot in fulcrum. Remove handle and spring. See Figure 25.
5. If plunger pin is to be removed, it must be driven out of fulcrum casting.
6. If removal of pump plunger is required, tool should be clamped in vise so that plunger is in upward position. Slowly lift plunger from cavity. See Figure 26.
7. Unscrew pump packing nut and lift out spacer guide and rings. A small hook formed from wire is handy for this purpose. See Figure 27.



Figure 22



Figure 23

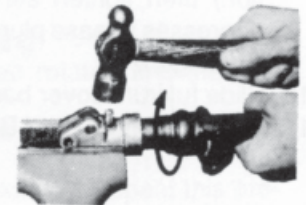


Figure 24

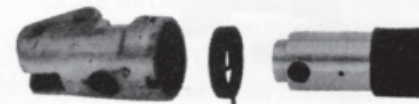


Figure 25

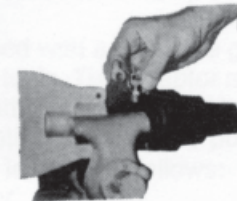


Figure 26



Figure 27



### PUMP HANDLE AND PLUNGER ASSEMBLY

1. Insert teflon packing washer, O-ring, another packing washer and plunger guide (see Exploded View Drawing for correct order).
2. Install packing nut and screw inward finger tight.
3. Insert pump plunger carefully so as not to damage O-Ring. Wrench tighten pump packing nut securely.
4. If plunger pin in fulcrum has been removed it must be pressed or driven into place.
5. Insert pump handle and torsion spring into fulcrum. Insert spring extension into slot of fulcrum.
6. Turn handle clockwise aligning hole in handle with hole in top of fulcrum, making sure that threaded portion of hole in handle is at the top, press tapered pin into hole (tapered end first) to a point that will permit thread engagement of set screw with tapped hole in handle.
7. Tighten set screw until it will permit torsion spring to turn handle to neutral position.
8. Mount pump handle assembly to pump block with fulcrum pin and retaining rings. **NOTE: Be sure that plunger pin engages pump plunger.**
9. Turn pump handle clockwise and push inward (as in pumping operation) then tighten set screw from top of fulcrum until tapered pin depresses release plunger enough to cause retraction of crimping nibs. See Figure 28.
10. Slide fulcrum cover back in place.
11. Follow "Refilling and Bleeding Instructions".



Figure 28

### INSPECTION PROCEDURE AFTER MAINTENANCE OR OVERHAUL

1. After repairs are completed, the tool should be cycled through several crimping operations by pumping the tool up to full pressure and spill off. This may be done without actually crimping any article in the tool. Any spongy feeling or free travel while pumping, indicates the probability of air in the hydraulic system and should be corrected before completing the crimping test.
2. Check the number of full pumping strokes required to close the nibs and spill off relief valve. The correct number will range from 31 to 37.
3. Rotate tool head counterclockwise (facing tool head) at least ten complete revolutions and check for the following:
  - a. Check for binding of spring retainer by means of having noticeable resistance to rotation of tool head.
  - b. After ten complete head revolutions, pump tool until it spills off at full pressure and check for rapid and full retraction of crimping nibs.
4. To check oil level, screw inward on advance handle of pump. Crimping nibs should close before handle is completely advanced.
5. Check for proper adjustment of release mechanism. Make certain that plunger will depress sufficiently to open ball valve and allow crimping nibs to retract.
6. Check for proper spring return of release plunger. Upon retraction of the pump handle release finger, the release plunger should return to its original position.
7. Check the full open dimension of crimping nibs. This dimension should be  $1\text{-}3/16" \pm 1/64"$  diameter.
8. Check nibs fully closed. Nibs should be touching.
9. Check for spring return of pump handle when rotated and then released.
10. Check for oil leaks while pumping up tool, as described in previous steps.
11. Partially pump up tool and depress release plunger. Repeat this procedure. If pump handle springs back or if nibs move up or down, check-ball leakage is indicated.
12. Pressure Check. This tool is equipped with a pressure gauge adaptor as are all new VERSA-CRIMP hand tools. This adaptor allows the user to check the hydraulic relief valve setting of the tool periodically by use of the VCHTG pressure gauge (optional – may be purchased from Anderson Electrical Products.) This is done as follows:
  - a. Remove plastic cap from adaptor.
  - b. Screw on VCHTG pressure gauge (follow gauge use instructions).
  - c. Pump tool until pressure begins to build up and read gauge pressure at spill-off. The pressure should be at the 9,350 PSI mark in the green band. If the spill-off pressure is below the 8,800 PSI mark in the green band, the relief valve should be replaced.

**IN THE EVENT THAT THE TOOL DOES NOT MEET ALL OF THE ABOVE REQUIREMENTS, REFER TO "TROUBLE SHOOTING" SECTION FOR CORRECTIVE STEPS.**

## TOOL MAINTENANCE TIPS

### LUBRICATION

Satisfactory tool performance will not be realized unless lubrication is adequate. Sufficient lubrication is required at the following points:

1. On fulcrum pin, item number 64.
2. Between plunger pin, item number 65 and pump plunger, item number 42.
3. Between pump handle, item number 70, and fulcrum, item number 66.
4. On threads of advance handle, item number 62.
5. On head assembly components as follows:
  - a. Cam yoke, item number 13, roller surfaces.
  - b. Side jaws, item numbers 1 and 2, roller surface.
  - c. Pivot pins, item number 5.
  - d. Inner surface of tool cover set, item number 15, where cam yoke or side jaws may make contact.

Silicone grease is recommended for this use. **NOTE: All traces of lubrication should be completely removed from each tool nib before crimping connectors. Failure to do so will result in excessive metal extrusion.**

### O-RING INSTALLATION TECHNIQUE

1. Clean each ring groove, then apply a light coating of hydraulic oil to the groove and new ring.
2. Completely seat ring in groove or packing chamber.
3. Apply a light coat of hydraulic oil to the ram piston, pump plunger, release plunger and reservoir cavity before installing each of these parts.

**NOTE: All O-rings should be replaced during tool overhaul.**

### RESEATING OF BALL VALVES

1. To seat 1/4" ball, remove VCG-A adaptor, spring and spring cap. To seat the 3/16" ball beneath the 1/4" ball, remove VCG-A adaptor, spring, spring cap, 1/4" ball and spacer.
2. With pump block securely supported place a 3/16" flat end punch on top of ball and tap firmly one time.
3. Install a new ball and replace other components in correct order.
4. If ball still leaks repeat step 2 until tool operates properly.
5. If after several attempts tool fails to operate, return to factory for repair.

## WARRANTY

This tool is warranted for two years from date of purchase. Proof of purchase date is required for warranty claims. Obvious misuse or abuse voids warranty. The use of this tool in a manufacturing process renders this warranty null and void.

## INSTRUCTIONS FOR RETURNING TOOLS

**Do not ship any tool to the factory without first securing permission.** Our Receiving Department is not set up to accept any shipments without a Purchase Order or a Return Material Authorization number. Consult your Anderson Electrical Products representative or write the factory about returning tools for adjustment or repairs. They will obtain a Return Material Authorization number and see that your tool gets speedy handling by Anderson tool specialists. When corresponding about a tool, always refer to the serial number as this identifies the tool as a particular production model.

## TROUBLE SHOOTING DIAGNOSIS AND REMEDIES

TROUBLE	CAUSE OF TROUBLE	REPAIR INSTRUCTIONS
1. Tool fails to retract properly.	1. Excess hydraulic oil (oil added with nibs not fully retracted).	1. Follow recommended procedure in steps 1 thru 4 of "Removal of Advance Handle and Pump Handle Assembly". Then remove cap screw in end of oil reservoir piston stem. Insert cloth or paper towel tightly around piston stem to catch oil overflow and depress release plunger; allow excess oil to overflow. Then follow "Refilling and Bleeding Instructions".
	2. Ram Piston Binding.	2. Follow recommended procedure of "Disassembly of Ram Piston From Retraction Spring". Examine piston and cylinder for scoring or galling. Polish or replace.
	3. Tool head yoke and side jaws binding due to accumulation of inhibitor or dirt in head.	3. Follow recommended procedure for "Tool Head Disassembly". Wash each part in kerosene or similar solvent and wipe clean. Coat all bearing surfaces with silicone grease and reassemble.

TROUBLE	CAUSE OF TROUBLE	REPAIR INSTRUCTIONS
2. Side jaws fail to retract.	1. Side jaws binding due to accumulation of inhibitor or dirt.	1. Follow recommended procedure for "Tool Head Disassembly". Wash each part in kerosene or similar solvent and wipe clean. Coat all bearing surfaces with silicone grease and reassemble.
3. Tool fails to build up pressure.	1. Release plunger holding ball valves, item numbers 36 and 38, open.	1. Check release plunger for adequate retraction and freedom of movement.
	2. Ball valves, item numbers 36 and 38, not seating.	2. Remove ball valves following recommended procedure of "Removal of 3/16" and 1/4" Ball Valve Assembly". Inspect balls, ball seats, spacer and springs for damage, replacing parts as necessary. Also check for foreign matter. If all components are found in satisfactory condition, ball reseating is recommended. Re-seat ball seats following recommended procedure of "Reseating of Ball Valves" in Tool Maintenance Tips.



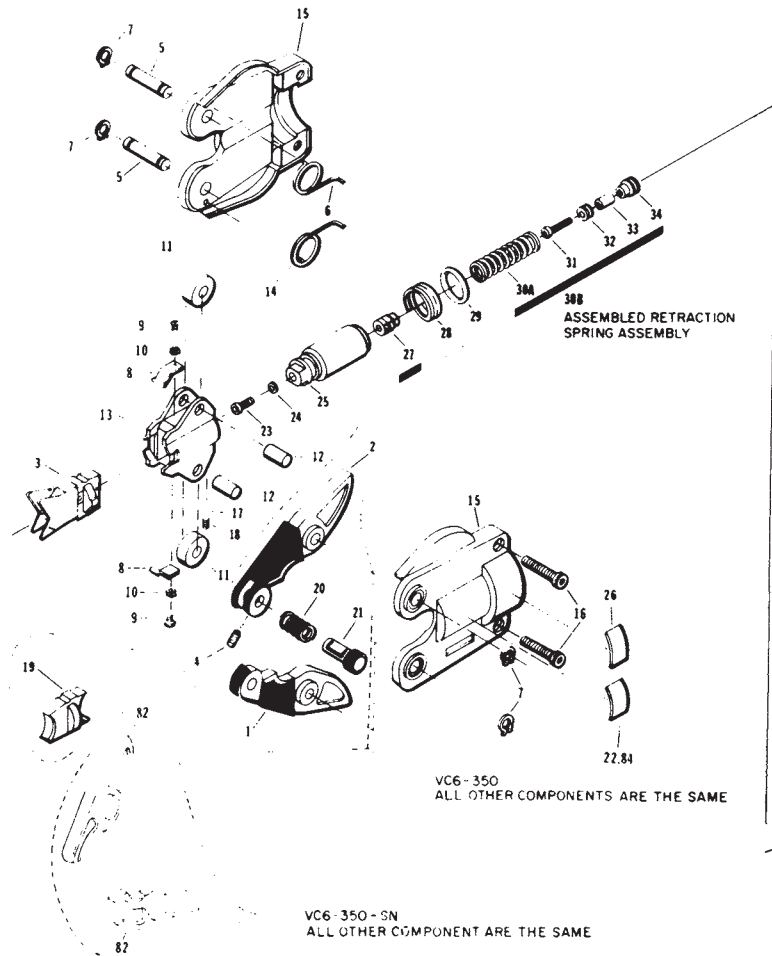
TROUBLE	CAUSE OF TROUBLE	REPAIR INSTRUCTIONS
3. Tool fails to build up pressure (continued).	3. Relief valve leaking.	3. Remove relief valve following recommended procedure of "Removal of Reservoir and Relief Valve". Replace valve, if condition of copper gasket does not indicate leakage.
4. Tool fails to build up to full pressure (as indicated by VCHTG pressure gauge).	1. Relief valve out of allowable operating range.	1. Follow recommended procedure of "Removal of Reservoir and Relief Valve". Install new relief valve, item number 52, with new seal washer and reassemble.
	2. Lack of sufficient lubrication on moving parts in tool head causing excessive friction.	2. Follow recommended procedure for "Tool Head Disassembly". Wash each part in kerosene or similar solvent and wipe clean. Coat all bearing surfaces with silicone grease and reassemble.
	3. Air in system.	3. Follow recommended procedure of "Refilling and Bleeding Instructions".

TROUBLE	CAUSE OF TROUBLE	REPAIR INSTRUCTIONS
5. Oil leak at pump plunger.	1. Excessive wear or damage to pump components.	1. Follow recommended procedure of "Pump Handle and Plunger Assembly". Inspect and replace worn or damaged parts. <b>NOTE: Pump packing, item numbers 45 and 46 should be replaced as a unit.</b>
6. Oil leak at pressure release plunger.	1. Plunger o-ring failure.	1. Replace release plunger o-ring following recommended procedure of "Removal of Release Plunger".
7. Oil leak inside tool head.	1. Failure of ram piston o-ring (examine inside of tool head for excess oil around top of cylinder).	1. Follow recommended procedure of "Disassembly of Ram Piston from Retraction Spring". Replace O-ring and back-up ring in cylinder. Examine piston and cylinder bearing surface for scoring or galling. If this condition exists, the part should be repolished if possible or replaced. Reassemble following recommended procedure for "Assembly of Ram Piston to Retraction Spring".

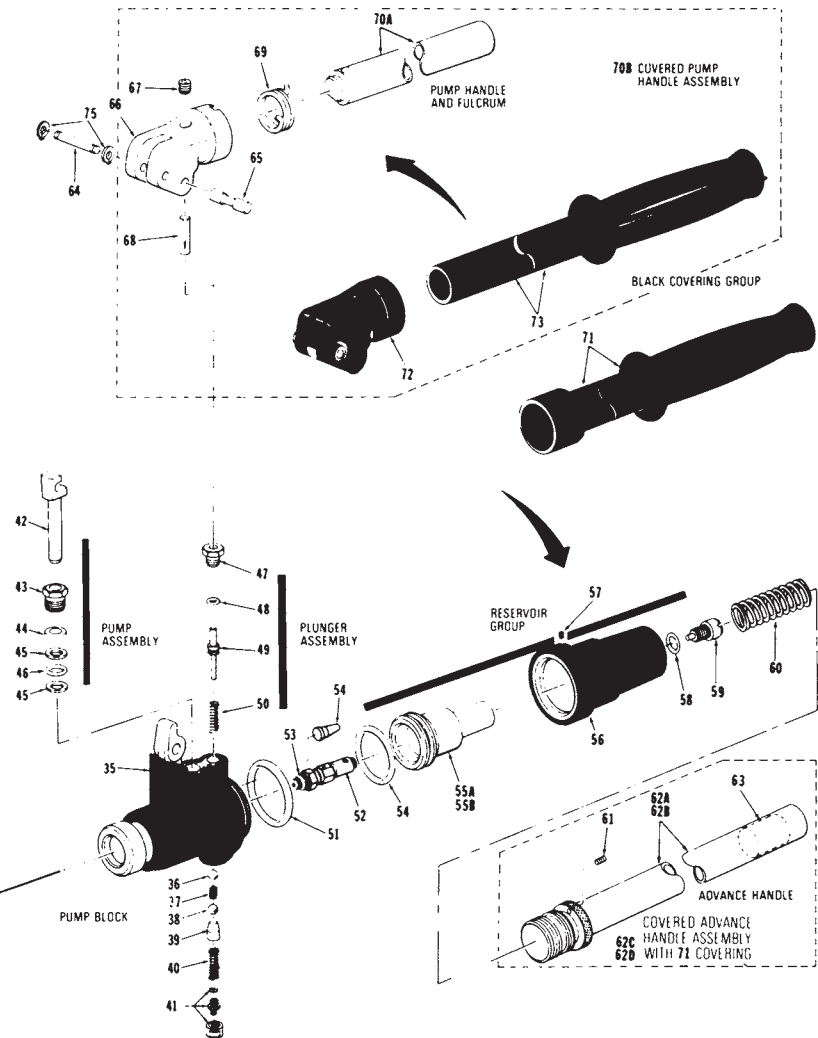
TROUBLE	CAUSE OF TROUBLE	REPAIR INSTRUCTIONS
7. Oil leak inside tool head (continued).	2. Leakage under socket screw, item number 23.	2. Remove screw and replace washer, item number 24, following recommended procedure in steps 1 thru 3 of "Disassembly of Ram Piston from Retraction Spring".
8. Oil leak at reservoir piston.	1. Excessive wear or damage to o-rings.	1. Remove and replace o-rings, item numbers 51 and 54, following recommended procedure in "Removal of Reservoir And Relief Valve". Inner reservoir housing surface must be smooth to prevent damage to o-ring. Reassemble, fill and bleed as recommended.
9. Too many pumping strokes required to complete a crimp.	1. Air in hydraulic system.	1. Follow recommended procedure in steps 1 thru 4 of "Removal of Advance Handle". Remove cap screw in the end of oil reservoir piston stem and follow "Refilling and Bleeding Instructions".

TROUBLE	CAUSE OF TROUBLE	REPAIR INSTRUCTIONS
9. Too many pumping strokes required to complete a crimp (continued).	2. Ball valves, item numbers 36 and 38, not seating.	2. Remove ball valves following recommended procedure of "Removal of 3/16" and 1/4" Ball Valve Assembly". Inspect balls, ball seats, spacer and springs for damage, replacing parts as necessary. Also check for foreign matter.
10. Pump handle fails to return to neutral position.	1. Handle binding in fulcrum due to foreign matter or lack of lubrication.	1. Disassemble handle from fulcrum following recommended procedures in "Pump Handle and Plunger Disassembly". Clean and relubricate prior to reassembling.
11. Difficult to pump and/or free play in pump stroke.	1. Flat surface on plunger, item number 42, due to wear.	1. Follow recommended procedure of "Pump Handle and Plunger Assembly" and replace plunger pin.

# VC6-350 & VC6-350-SN EXPLODED VIEW DRAWING



# VC6-350 & VC6-350-SN EXPLODED VIEW DRAWING





# VC6-350 & VC6-350-SN TOOL PARTS LIST

Order By Part Number Not Item Number

Item #	Part #	Qty	Description
1	VP-8035-2	1	Side Jaw Left VC6-350 Only
2	VP-8039	1	Side Jaw Right VC6-350 Only (includes item numbers 4, 20 and 21)
3	VP-8181	1	Nib Assembly
4	1-10599	1	Set Screw #6-32 x 1/4" VC6-350 Only
5	VP-8013	2	Pivot Pin (Side Jaw)
6	VP-8025	1	Spring (Side Jaw Right)
7	VP-8114	4	Retainer Ring
8	VP-8074	2	Spring (Nib Retainer)
9	VP-8097	2	Screw (Yoke)
10	VP-8098	2	Lockwasher
11	VP-8076	2	Roller
12	VP-8019	2	Roller Pin
13	VP-8075	1	Yoke
14	VP-8083	1	Spring (Side Jaw Left)
15	VP-8030-1	1	Cover Set
16	1-05404	2	Screw (Covers)
17	1-50023	1	1/8" Ball Grade 25
18	VP-8113	1	#10-32 x 1/4" Nylon Tip s/s Set Screw
19	VP-8140	1	"D" and "O" Die VC6-350 Only
20	VP-8308	1	Spring (Latch Pin) VC6-350 Only
21	VP-8298	1	Latch Pin VC6-350 Only
22	VP-281-33	1	Label VC6-350 Only
23	1-60019	1	Socket Head Cap Screw #10-32 x 5/8"
24	1-60020	1	Washer
25	VP-8336	1	Piston Assembly
26	VP-371	1	Warning Label
27	_____	1	Top Spring Retainer
28	1-10950	1	Spiral Back-Up Ring
29	1-10949	1	O-Ring
30A	_____	1	Retraction Spring
30B	VP-8347	1	Retraction Spring Assembly (includes item numbers 27, 30A, 31 32, 33 and 34 pre-assembled)
31	_____	1	Socket Head Cap Screw #6-32 x 3/4"
32	_____	1	Nice #FR-4 Bearing
33	_____	1	Swivel Spacer
34	_____	1	Bottom Spring Retainer
35	VP-8335	1	Pump Block

# VC6-350 & VC6-350-SN TOOL PARTS LIST

Order By Part Number Not Item Number

Item #	Part #	Qty	Description
36	1-50026	1	3/16" Diameter Ball
37	1-50027	1	Spacer Pin
38	1-60059	1	1/4" Diameter Ball
39	1-60117	1	Spring Cap
40	1-60033	1	Compression Spring
41	VCG-A	1	Adaptor Assembly
42	1-60107	1	Pump Plunger
43	1-60049	1	Packing Nut
44	1-60050	1	Packing Spacer
45	1-60051	2	Teflon Back-Up Washer
46	1-60052	1	O-Ring
47	1-60104	1	Release Nut
48	1-60056	1	O-Ring
49	1-10613	1	Release Plunger
50	1-60060	1	Compression Spring
51	1-60108	1	O-Ring
52	1-10106	1	Relief Valve 9400 PSI (includes item 53)
53	1-60088	1	Copper Gasket
54	1-50042	1	O-Ring 1-1/2" x 1-3/4" x 1/8"
55A	_____	1	Reservoir Piston
55B	8-10331	1	Reservoir Piston Kit (includes item numbers 55A and 58)
56	1-09908	1	End Cap
57	1-11058	1	Set Screw #10-32 x 1/4" Socket with Cone Point
58	1-60042	1	O-Ring
59	1-60043	1	Magnetic Screw
60	1-60063	1	Follower Spring
61	1-50049	1	Set Screw #8-32 x 1/4"
62A	1-09907	1	Advance Handle (includes 61 and 63)
62B	8-10123	1	Covered Advance Handle (includes 61, 62A, 63 and 71)
62C	8-10134	1	30" Fiberglass Hot Stick Advance Handle Assembly (Not Shown)
(VCF Type)			
63	1-60065	1	Felt Plug
64	1-50050	1	Fulcrum Pin
65	1-50051	1	Plunger Pin

## VC6-350 & VC6-350-SN TOOL PARTS LIST

Order By Part Number Not Item Number

Item #	Part #	Qty	Description
66	1-50054	1	Fulcrum
67	1-50053	1	Set Screw Flat Point 3/8"-16" x 3/8"
68	1-50052	1	Driv-lok Pin 5/16" x 1"
69	1-50055	1	Torsion Spring
70A	1-50056	1	Pump Handle
70B	8-10233	1	Covered Pump Handle Assembly Includes 65, 66, 67, 68, 69, 70A, 72 & 73)
70C (VCF Type)	8-10240	1	30" Fiberglass Hot Stick Pump Handle Assembly (Not Shown)
71	1-50059	1	Advance Handle Covering
72	1-50060	1	Fulcrum Covering
73	1-50061	1	Pump Handle Covering
74	1-09903	1	Carrying Case (Not Shown)
75	1-60114	2	Retainer Ring
76	VP-8288	1	Service and Operation Manual (Not Shown)
77	VP-373	1	Caution Label (Not Shown)
78	VP-8310	1	Side Jaw (Right) Assembly Covered (Not Shown) Includes Item Numbers 4, 20 and 21
79	VP-8035-3	1	Side Jaw Left Covered (Not Shown)
80	VP-8138-1	1	Cover Set Covered (Not Shown)
81	VP-8376	1	Seal Repair Kit (Not Shown)
82	VP-8134	2	Side Jaw VC6-350-SN Only
83	VP-8134-1	2	Side Jaw Covered VC6-350-SN Only (Not Shown)
84	VP-L281-34	1	Label VC6-350-SN Only