The VCM-200, VCM-200HT (Hi-Temp.) and VCM-200HS (High Speed) Portable Flame Cutting Machines have many outstanding design and construction features to give dependable, trouble-free operation. A constant speed AC induction motor is located on the side opposite the cutting torch for cooler operation. The cone disk drive has an automatic wear adjusting mechanism that prolongs the life of the disk drive. Design simplicity makes the VCM-200 extremely easy to service. Downtime and repair costs are reduced to a minimum.
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INTRODUCTION

All Victor VCM-200 Series portable cutting machines are carefully assembled and thoroughly tested at the factory before shipment. The machine is designed to provide dependable, trouble-free service with minimum maintenance. This manual contains information needed to operate and maintain the machine properly. If additional information is required, contact your Authorized Victor Distributor.

Section 1, General Information, gives descriptive information on the VCM-200 Series. This information will help the operator to become more familiar with the machine and its capabilities. Installation instructions are not included in this manual since the VCM-200 is a portable cutting machine and not usually used in a fixed location.

Section 2, Machine Operation, provides information on setting up the machine and making the necessary electrical and gas connections. It also contains operating instructions, including information such as the identification of all operating controls and an explanation of their functions, operational checks to be performed, and cautions to be observed. It is assumed that the operator is thoroughly familiar with cutting practices and procedures; however, a set of Victor tip charts is included with the machine. Use of these charts will allow even inexperienced operators to make successful cuts with the VCM-200.

Section 3, Machine Maintenance, details inspection to be performed, troubleshooting and corrective maintenance procedures, and a description of the machine components. The exploded views of the VCM-200 shown in Section 4, Replacement Parts, may be used for reference in maintenance procedures, as well as, parts identification.

Section 4, Replacement Parts, illustrates all parts of the VCM-200 Series cutting machine for easy identification.

In presenting the information contained in this manual, a system of notes is used to call particular attention to specific information. The method used to identify these notes, and the purpose for each type of note is as follows:

**NOTICE** An operational procedure, or background information, which aids the operator in efficient use of the machine, the serviceman in performing maintenance, or information that requires additional emphasis.

**CAUTION** An operational procedure which, if not properly followed, may cause damage to the machine.

**WARNING** An operational procedure which, if not properly followed, may cause injury to the operator or others in the operating area.

Figure 1-1.
VCM-200, VCM-200HT and VCM-200HS Outline Dimensions
SECTION 1
GENERAL INFORMATION

1-1. MACHINE DESCRIPTION.

The VCM-200 is a tough, ruggedly constructed cutting machine, yet compact and light enough that it may be taken to the work site, wherever it may be. It is a versatile, economic, basic guidance system that can be used for oxy-fuel flame cutting, flame treating or hardening, MIG and TIG welding, high-speed plasma arc cutting, or movement of special equipment set-ups. It is suitable for field jobs and repair work, as well as, straight line and circle cutting operations required in metal fabrication.

The complete VCM-200 cutting machine consists of a heavy duty tractor unit fitted with an adjustable torch mount and a three-hose gas manifold block. The torch holder has a 32 pitch pinion to accommodate a variety of cutting torches available for use with the machine. Large knobs are provided for easy torch position adjustments on both the cross rack holder and the cutting torch holder.

Accessories available for the VCM-200 cutting machine include a six-foot track section for straight line cutting, a radius rod assembly for circle cutting operations, a dual torch mount assembly, a torch holder slide assembly and a heat shield. The dual torch mount assembly provides an adjustable mount for up to four cutting torches. The torch holder slide assembly is used to install additional torches on the cross-arms of either standard or dual torch mounts. Additional six-foot track sections are available for extending the VCM-200 operating track to any length desired. The VCM-200 is listed with Underwriters Laboratories, Inc.

1-2. MACHINE FEATURES.

The VCM-200 Series cutting machine offers the following operation, performance and design features:

Operating Features:
- Makes straight-line cuts of any length.
- Makes circle cuts up to 96 inches in diameter.
- Makes bevel or chamfer cuts - has calibrated scale for easy torch angle selection.
- Makes X, Y, V or K cuts with multiple torches for plate edge operation.
- Cuts strips, with two or more torches, in a single pass.
- Infinitely variable cutting speeds from 1 to 60 inches per minute (VCM-200 and VCM-200HT) or 5 to 120 inches per minute (VCM-200HS).
- Speed indicator is calibrated at the factory to indicate speed over the entire speed range.
- Dual speed and clutch controls make the machine easy to operate from either end.
- Routine maintenance is quickly and easily accomplished.

⚠️ WARNING ⚠️ The VCM-200 is not designed to detect the end of its track or work piece. Take care that an unattended machine does not fall from an elevated work piece.

Performance Features:
- Constant speed AC induction motor located on the side opposite the cutting torch runs cooler; therefore, the drive speed is not adversely affected by temperature, as are electronically controlled motors.
- Speed regulation is as good at low speeds as it is at high speeds due to the cone disk variable speed drive and the AC induction motor.
- Flat top mounting surface has standard bolt pattern to accommodate MIG, TIG, plasma or other welding or cutting equipment.
- Location of the special rotating manifold ensures easy cutting in either direction and aids in machine balance and stabilization.

Design Features:
- Integral carrying handle, light weight and balanced design allow the machine to be carried with one hand.
- A balanced design makes the machine stable when cutting, allowing a racking distance of up to 18" from the machine with a standard torch, and no counter weight is required.
- Cone disk drive has an automatic wear adjusting mechanism which prolongs the life of the drive.
- Knobs and levers are recessed for added protection.
- Ball bearings or special bushings are used at all critical locations.
- All rotating shafts run on permanently lubricated bearings.

1-3. MACHINE SPECIFICATIONS.

OUTLINE DIMENSIONS:
Outline dimensions are shown in Figure 1-1, page 1

CAPACITIES:
Cutting Length.......................Increments of 72" (1829 mm)
Circle Diameter ......................4" to 96" (102 to 2438 mm)
Speed Range:
VCM-200 and VCM-200HT
..............................................1 to 60 ipm (25 to 1524 mm/pm)
VCM-200HS
..............................................5 to 120 ipm (127 to 3048 mm/pm)

POWER REQUIREMENTS:
115 V .42 A 60 Hz, single phase
E Models; 220 V .23A 50 Hz/.21A 60 Hz, single phase

WEIGHTS:
Tractor Unit alone ......................30.5 lbs (13.8 Kg)
Tractor Unit with rigging ..............37.5 lbs (17.0 Kg)

⚠️ NOTICE ⚠️ The VCM-200HT is modified to withstand 300°F continuous operating temperatures such as found in mill and foundry applications.
SECTION 2
MACHINE OPERATION

2-1. GENERAL.

The information in this section is provided to familiarize the operator or serviceman with operating controls and procedures.

**NOTICE** Other recommended operating instructions available at your distributor are:
0056-0135 - Safety & Operating Instructions for Compressed Gas Regulators;
0056-0136 - Safety & Operating Instructions for Cutting Torches.

2-2. PRE-OPERATION SET-UP.


Set-up of the VCM-200 with standard torch mount and manifold block is shown in Figure 2-1. Secure the single torch mount post (1) the outer case mounting surface with four allen-head cap screws. Slip the rack handle assembly (2) over the torch mount post and secure it with its set-screw. The rack handle assembly is free to rotate until the clamping bolt is tightened. Insert racking bar assembly (3) so that its rack properly engages the pinion gear in the rack handle assembly.

Connect the torch holder assembly (4) to the torch pivot knuckle (5) which, in turn, fits over the round end of the racking bar assembly. Leave clamping screws provided at each of these points slightly loose for adjustment. Tighten securely after positioning adjustments are made.

Insert the cutting torch (6) into the torch holder so that the torch rack properly engages the adjusting gear of the torch holder. Tighten the torch holder wing nuts enough to hold the torch securely, yet permit vertical adjustment of the torch in the torch holder with the adjusting knob. Use either two-hose or three-hose torches.

Figure 2-1.
Pre-Operation Set-Up with Standard Torch Mount

Figure 2-2.
Pre-Operation Set-Up with Dual Torch Mount
Insert the manifold block (7) in the end of the rack handle assembly. Screw the proper hose adapters into the inlets and outlets of the manifold block. Use fuel gas hose adapters in the center pair of holes and oxygen hose adapters in the outer two pairs of holes. Connect the required hoses from the manifold block to the cutting torch. If using a two-hose cutting torch, omit the right-hand hose.


Set up the optional dual torch mount assembly as shown in Figure 2-2. Install the dual torch mount plate (1) on the machine housing in place of the single torch mount post supplied with the standard machine package. Attach the removed single torch mount post, along with the second one supplied with the dual torch mount assembly, at the ends of the dual torch mount plate.

Install the rack handle assembly (2) supplied with the dual torch mount assembly on one of the torch mount posts, and install the rack handle assembly from the single torch mount assembly on the other torch mount post (3). Then install the two torch holders (4) on their respective racking bar assemblies and torches as explained in Section 2-2-1. Use the Y-fittings (5) furnished with the dual torch mount assembly to make the necessary dual connections at the gas manifold to accommodate the additional cutting torch.

2-3. CUTTING OPERATIONS.

2-3-1. General Information.

Operating procedures vary widely for the many different types of jobs on which the VCM-200 is used. For this reason, no typical operating procedure is given, but the following general suggestions may be helpful.

2-3-2. Directional Control.

A unique feature of the VCM-200 is its ease of operation in either direction, forward or reverse. Dual speed adjustment and clutch engagement controls are conveniently located on each end of the machine. Machine direction is set by the FWD-OFF-REV toggle switch located next to the power cord.

2-3-3. Speed Control.

Set cutting speeds for straight line cuts directly on the speed indicator located on top of the VCM-200 and the VCM-200HS. The speed range is infinitely variable from 1 ipm (inch per minute) to 60 ipm (VCM-200/VCM-200HT) or 5 ipm to 120 ipm (VCM-200HS). Turn the large knob on either end of the machine to position the speed indicator to the desired cutting speed. Determine the speed settings for circle cuts with the formula given in Section 2-3-7.

**NOTICE** Use the export (E) models of the VCM-200 Series with either 50 Hz or 60 Hz, 220 VAC power. When used with 50 Hz power, the actual speed is approximately 12% less than the indicated speed.

2-3-4. Clutch Operation

Engage the clutch by rotating one of the two clutch levers, located on either end of the machine, to the DRIVE position.

Place the clutch lever in the FREE position to permit easy manual positioning of the machine prior to or after the actual cutting operation.

2-3-5. Torch Adjustment.

The VCM-200 racking assembly provides full adjustment for the torch. The rack handle assembly permits the torch holder assembly movement toward or away from the tractor unit. The torch holder allows the torch vertical positioning. The torch pivot knuckle allows the torch positioning at an angle from +90° to -90° in a plane perpendicular to the track. If additional torch clearance is needed, rotate the torch holder assembly 180° for an additional clearance of 2 inches. After adjusting the torch to the desired position, tighten all clamping screws to prevent the torch from making any unexpected movements.
2-3-6. Straight Line Cutting.

**WARNING** The VCM-200 is not designed to detect the end of its track or work piece. Take care that an unattended machine does not fall from an elevated work piece.

Cut straight lines using the following procedure:

1. Place the machine track on the work and line it up before placing the machine on the track.

2. Be sure the track is long enough for the cut to be made. If not, install additional track. Connect track sections carefully. When properly connected, the machine should travel smoothly from one track section to the next.

3. Place the machine on the track. Place the clutch lever to the FREE position. Be sure that the gas hoses and the power line are long enough and free to move with the machine so that it can complete the cut properly.

4. Move the machine to the approximate point where the cut will start. Set the drive speed control to the desired cutting speed. Set the FWD-OFF-REV switch to the OFF position. Plug the power cord into a 115 AC, 60 Hz power outlet.

**NOTICE** The export (E) model of the VCM-200 Series is equipped with a step-down transformer which permits operation with 220 VAC, 50 Hz (or 60 Hz) power.

5. Ensure that all clamping screws are properly tightened. Lightly and properly adjust the torch. Set the FWD-OFF-REV switch to the desired direction of travel. Set the clutch lever to the DRIVE position.

6. When the cut is completed, stop the machine and shut off the torch.

2-3-7. Circle Cutting.

The radius rod and center point make it possible for the VCM-200/VCM-200HS to cut circles from 4 inches to 96 inches in diameter. Remove the two bolts located over the drive wheels in the outer case. Position the radius rod assembly on the cutting machine, reinsert the bolts and tighten securely. Adjust the radius rod assembly to the desired length.

Drill a small pilot hole or punch the center of the circle to be cut. Place the point of the center point in the center of the circle and adjust the radius rod so that the cutting torch can be properly positioned. Position the torch between the machine and the center point for small diameter circles. Position the machine between the torch and the center point for large diameter circles. Adjust the center point so that the inside driving wheel lifts slightly off the work. Loosen the caster wheel lock knobs so that the caster wheels pivot freely. The machine is now free to follow the desired radius.

**NOTICE** Readjust the cutting torch to its proper cutting position after making the adjustment to lift the inside driving wheel.
Cutting speeds for circle cuts are not set directly on the VCM-200 speed indicator. The indicator shows the speed of the drive wheel. The driving wheel moves along the circumference of a larger or smaller circle than the one being cut by the cutting torch. The following formula provides a simple method of determining the proper speed setting for circle cuts, regardless of whether the torch is positioned inside or outside the tractor path.

Calculate the VCM-200 speed setting for any radius or cutting speed using the following formula:

\[ \text{Speed} = \text{CS} \times \left( \frac{A}{B} \right) \]

where:
- Speed = speed indicated on the VCM-200
- CS = desired cutting speed
- A = distance from the outside driving wheel to the center of the circle
- B = distance from the cutting torch to the center of the circle

**Example 1.** The cutting torch positioned inside the path of the cutting machine

IF:
- A = 25 inches
- B = 15 inches
- CS = 20 ipm

\[ \text{Speed} = 20 \text{ ipm} \times \left( \frac{25}{15} \right) = 33.3 \text{ ipm} \]

**Example 2.** The cutting torch position outside the path of the cutting machine.

IF:
- A = 25 inches
- B = 35 inches
- CS = 20 ipm

\[ \text{Speed} = 20 \text{ ipm} \times \left( \frac{25}{35} \right) = 14.3 \text{ ipm} \]
SECTION 3
MACHINE MAINTENANCE

3-1. GENERAL.

The Victor VCM-200, VCM-200HT and VCM-200HS cutting machines are designed to operate over extended periods with minimum maintenance. However, continued satisfactory operation of the machine depends upon the careful performance of a few simple periodic inspections and the cleaning procedures outlined in this section. With proper care, problems can usually be detected and corrected before the result in loss of machine operating time. Troubleshooting procedures are included to help diagnose and correct problems as they occur and before serious trouble occurs.

Following the inspection and troubleshooting procedures are the maintenance procedures necessary for maintaining the machine. These sections are designed to provide an understanding of the components involved and to supply additional maintenance information which cannot be noted in detail in the Troubleshooting Chart.

3-2. ROUTINE INSPECTION.

Inspect the machine carefully each day before placing it in operation. Visually inspect the machine and perform the following steps, which include operating checks of all machine components. If faults or malfunctions are noted while performing these procedures, refer to the Troubleshooting Chart, Section 3-4, and the following maintenance procedures for the components involved.

1. Wipe off all parts of the machine, rack, torch and all track surfaces.

2. Turn the clutch control lever to the FREE position. Check to see that the machine can be easily pushed along the track.

3. Set the FWD-OFF-REV toggle switch to the OFF position. Turn the SPEED knob to 1 rpm. Plug the power cord into a 115 V, 60 Hz power outlet.

**NOTICE** The export (E) model of the VCM-200 Series is equipped with a step-down transformer which permits operation with 220 VAC, 50 Hz (or 60 Hz) power.

4. Set the FWD-OFF-REV toggle switch to the FWD position. With the clutch lever still in the FREE position, slowly advance the SPEED knob to 60 rpm (VCM-200) or 120 rpm (VCM-200HS). The sound level should increase as the knob is advanced. Return the FWD-OFF-REV toggle switch to the OFF position.

5. Set the clutch lever to the DRIVE position and set the FWD-OFF-REV switch to FWD. If the clutch engaging mechanism is properly adjusted, the machine should move along the track at the selected speed. Move the FWD-OFF-REV toggle switch to the REV position and verify that the machine reverses direction.

6. Check to see that the torch (or torches) can be moved up and down with the adjusting knob(s) and that the torch holder clamping screws are tight enough to maintain the selected torch position. Also, check the torch pivot knuckle to see that its clamping screw is properly adjusted. Adjust tension of clamping screws, if required.

7. Check for free movement of the racking assembly in the rack handle by rotating the rack adjustment knob.

8. Inspect all hoses and the power cord carefully for signs of deterioration or damage. See that all hose connections to the manifold block and the torch (or torches) are secure.

9. Inspect power cord for frayed insulation or signs of damage.

10. Inspect all gas connections for leaks.

3-3. ROUTINE LUBRICATION.

The only periodic inspection or maintenance required for the VCM-200, other than the inspection and maintenance covered in the daily procedures, is the following periodic lubrication procedure:

1. Redistribute the grease on the gear train and the groove in the clutch dog every 100 hours. It is not necessary to add grease. Remove the outer case cover and the inner case cover to gain access to the gear train (Refer to Section 3-6-1). Use the blade of a small screwdriver or similar object to redistribute the grease.

**WARNING** Unplug the power cord before performing any maintenance on the machine. Whenever the bottom cover of the machine is removed, short out the capacitor. Capacitors hold an electrical charge even after the power has been disconnected. Touch an insulated screwdriver (plastic or rubber handle) across the capacitor terminals, DO NOT touch the metal blade of the screwdriver with your fingers.

2. Keep the drive disks and cone free of grease. Clean them by wiping with a rag dampened with a solvent that does not leave a residue. Alcohol is not an effective cleaner.

**WARNING** Use solvents only in well ventilated areas. Avoid contact with skin or prolonged exposure to fumes. Read and follow the manufacturer's warning label for the solvent used.

3. Ball bearings or special bushings are used at all critical locations and require no greasing.
3-4. TROUBLESHOOTING.

The Troubleshooting Chart serves as an aid in locating possible troubles that may occur in operating the machine.

**TROUBLESHOOTING CHART**

<table>
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<tr>
<th>TROUBLE</th>
<th>POSSIBLE CAUSE</th>
<th>REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Motor will not run.</td>
<td>1. No power to machine.</td>
<td>* Check power source and cord; replace cord if required.</td>
</tr>
<tr>
<td></td>
<td>2. Wire connection is loose.</td>
<td>* Check all wire connections.</td>
</tr>
<tr>
<td>B. Motor runs, but wheels do not turn.</td>
<td>1. Disk Drive slipping because output disk shaft is not sliding freely in worm shaft.</td>
<td>Remove output disk assembly. Clean and re-grease the shaft with a grease containing molybdenum disulfide, such as EM Lubricants ME-62 or equivalent.</td>
</tr>
<tr>
<td></td>
<td>2. Gears worn.</td>
<td>Check gear train and replace worn parts.</td>
</tr>
<tr>
<td>C. Motor runs, but will not reverse.</td>
<td>1. Faulty capacitor.</td>
<td>* Replace capacitor.</td>
</tr>
<tr>
<td>D. Clutch does not disengage.</td>
<td>1. Clutch out of adjustment.</td>
<td>Adjust Clutch. See Section 3-5</td>
</tr>
<tr>
<td></td>
<td>3. Grooved pin in clutch yoke broken or missing.</td>
<td>Replace pin.</td>
</tr>
<tr>
<td></td>
<td>4. Tabs on yoke not positioned in groove on clutch dog.</td>
<td>Reassemble properly.</td>
</tr>
<tr>
<td></td>
<td>5. Control knobs not in proper position on shaft.</td>
<td>Readjust after checking all of the above.</td>
</tr>
<tr>
<td>E. Clutch does not engage.</td>
<td>1. Broken clutch spring.</td>
<td>Replace spring.</td>
</tr>
<tr>
<td></td>
<td>2. Worn clutch gears.</td>
<td>Replace gears.</td>
</tr>
<tr>
<td></td>
<td>2. End play of speed knobs too loose.</td>
<td>Loosen set screws securing speed knobs. Then snub-up knobs against spring washer and retighten set screws.</td>
</tr>
</tbody>
</table>

*See Wiring Diagrams, Figure 3-3, Figure 3-6, and Figure 5-3.
Figure 3-1.
VCM-200, VCM-200HT and VCM-200HS Internal Assemblies
3-5. DRIVE CLUTCH ADJUSTMENT.

Turn the machine upside down; remove the two casters and the bottom cover to access the clutch. Operate the clutch a few times by moving the clutch lever from FREE to DRIVE and observe how the "over-center" action engages the clutch. With the clutch lever in the DRIVE position, the end of the lever should have about 1/4-inch movement for ideal free-play. This is necessary to assure that the clutch will fully engage and have enough travel for disengagement.

Adjust the clutch free-play by the following steps:
1. Place the clutch in DRIVE position.
2. Rotate the drive wheels by hand to assure that the clutch teeth are fully engaged.
3. Loosen the screw in the throw-out lever and rotate the throw-out lever until it presses against the cam on the clutch shaft.
4. Retighten the screw.
5. Free-play will automatically be obtained; this allows approximately 1/4-inch movement at the extreme end of the throw-out lever.

![Diagram of Drive Clutch Adjustment]

1. LOOSEN SCREW
2. PRESS LEVER DOWN, HOLDING CLUTCH SHAFT ASSEMBLY CAM AGAINST ROLL PIN
3. TIGHTEN SCREW

Figure 3-2. Drive Clutch Adjustment

3-6. CUTTING MACHINE REPAIR.

Remove the inner case from the outer case when making major repairs to the cutting machine. This is not necessary for minor work such as lubrication or clutch adjustment.

3-6-1. Inner Case Removal.

Perform the following steps:
1. Unplug the power cord.
2. Remove the rack handle assembly.
3. Remove the clutch control levers from each end of the machine.
4. Remove the SPEED knobs from each end of the machine. A flat washer and two (2) spring washers are provided under each SPEED knob.
5. Remove one end plate, which is held by two button head socket screws.
6. Remove the four socket head cap screws that have their heads counter bored into the top of the outer case. These screws secure the inner case.
7. Turn the machine upside down. Loosen the castor locking knobs a few turns to clear groove in castor, then remove casters.
8. Remove the bottom cover, which is held by six slotted head screws.

**WARNING** Unplug the power cord before performing any maintenance. Whenever the bottom cover of the machine is removed, short out the capacitor. Capacitors hold an electrical charge even after the power cord has been disconnected. Touch an insulated screwdriver (plastic or rubber handle) across the capacitor terminals under the rubber boot. Hold the screwdriver by the insulated handle.

9. Lift the inner case assembly from the outer case. Place it beside the outer case with the wires still connected.
10. Remove inner case cover and gasket which are secured by seven slotted head screws.
11. Reverse procedures for reassembly. When reassembling the SPEED knobs, apply enough pressure to the SPEED knob to flatten the spring washers and hold while tightening the set screws.

3-6-2. Rear Axle Removal.

1. Remove the inner case from the outer case (Refer to Section 3-6-1.).
2. Remove the drive wheel and the key from each end of the axle.
3. Remove the retaining ring at the end of the spring. Remove the ring by inserting a screwdriver under the ring and twist the screwdriver to pry the ring off the axle.
4. Remove the bushing on the end of the axle toward the motor.
5. Slide the axle and spring partway through the bushing hole. Remove the spring and the two (2) remaining retaining rings.
6. Slide the axle through the bushing hole and out of the clutch dog and drive gear.
7. Reverse this procedure for reassembly.

3-6-3. Transfer Shaft Removal.

1. Remove the inner case from the outer case (Refer to Section 3-6-1.).
2. Remove the capacitor which is held by two screws and a clamp.
3. Remove the retaining ring.
4. Remove the transfer shaft by sliding the entire assembly out of the inner case through the bearing mounting hole.
5. Note that the center bearing is captured on the transfer shaft and is not available separately.

3-6-4. Cone Disk, Output Disk and Worm Shaft Removal.
1. Remove the inner case from the outer case. (Refer to Section 3-6-1.)
2. Remove the retaining rings and washers from both ends of the speed adjusting shaft.
3. Loosen the cone block backlash adjusting cap screw using a 7/64 inch hex key. Gain access to the cap screw through the inner case speed indicator slot.
4. Temporarily reinstall a SPEED knob on the speed adjusting shaft end that is farthest from the drive cone. This will aid in turning the shaft to free both the shaft and the cone block assembly.
5. Lift the cone and cone block from the inner case.
6. Pull the output disk assembly from the worm shaft. Key the disk assembly to the worm shaft with a woodruff key.
7. If required, remove worm shaft retaining ring, then remove the worm shaft and outer bearing as one piece. A small spring is located inside the worm shaft. This spring provides automatic pressure adjustment for the entire disk drive.
8. Before reassembly, do the following:
   a. Clean the drive disks.
   b. Wipe a very thin coating of a moly grease on the shaft and key of the output disk assembly.
9. Install the washers and retaining rings on the speed adjusting shaft. Assemble the end of the shaft that requires the spring washer first. This will allow compression of the spring washer and ease the assembly of the larger retaining ring.
10. Tighten the cone block backlash adjusting cap screw until play between the cone block and speed adjusting shaft is minimized. Loosen cap screw slightly if speed knob requires excessive turning force or cone block rotates with adjusting shaft.
11. Tighten all knob set screws securely (15 in-lb).

3-6-5. Power Cord Replacement.
1. Unplug the power cord.
2. Remove the bottom cover from the machine.
3. Short out the capacitor by touching an insulated screwdriver to the capacitor terminals.
4. Disconnect the black and white power line leads and the green ground wire (See Figure 3-3 or 3-4 for VCM-200) (see Figure 3-5 or 3-6 for VCM-200HT).
5. Remove the power cord by loosening the power cord holder. We recommend that the replacement cord be Victor Part No. 0252-0058 (Use Hi-Temp cord assembly 0252-0068 for VCM-200HT). This is a cord and holder which includes the wire connectors.
6. Reconnect the power cord wires as disconnected in Step 4.

7. Tighten the strain relief bushing securely (12in-lb).

3-6-6. Switch Replacement.
1. Unplug the power cord.
2. Remove the bottom cover from the machine.
3. Short out the capacitor by touching an insulated screwdriver to the capacitor terminals.
4. Disconnect the five switch leads. Four of these are the red, blue, yellow and black motor leads. The fifth switch lead is the black line from the power cord (See Figure 3-3).
5. Remove the jam nut on the threaded portion of the switch protruding outside of the case. Pull the switch inside the case and remove.
6. We recommend that the replacement switch be Victor Part No. 0252-0057 (Use Hi-Temp switch assembly 0252-0140 for VCM-200HT). This is a pre-wired switch and includes the wire connectors.
7. Install the new switch by reversing the procedure in Step 5.
8. Reconnect the switch as disconnected in Step 4.

3-6-7. Motor Replacement.
Victor recommends that the motor be replaced as an entire assembly. It includes the motor, mounting plate, spacer sleeve and drive disk. Purchase the assembly directly from Victor. This eliminates "down-time" and assures that the drive disk "runs true".
1. Remove the inner case from the outer case (Refer to Section 3-6-1).
2. Short out the capacitor by touching an insulated screwdriver to the capacitor terminals.
3. Remove the rubber boot from the capacitor and disconnect the two red leads.
4. Disconnect the red, blue, black, yellow and white motor wires leading to the switch. Note that red is connected to red, blue is connected to blue, etc.
5. Remove the four socket head cap screws that mount the motor plate to the inner case. Note that the green ground wire from the power cord is secured to the case by one of the four screws.
6. Loosen the motor disk set screw, if so equipped (optional on keyed motors). Slide the disk away from the motor to allow motor plate dowels to clear the inner case.

NOTICE
If the motor disk is to be re-used, DO NOT pry on back side of the disk. Remove a tight disk by bending a pry bar to reach behind the disk boss.
7. Remove the motor and drive disk assembly from the inner case.
8. Reverse this procedure for reassembly.
Figure 3-3.
Pictorial Wiring Diagram, VCM-200

Figure 3-4.
Schematic Wiring Diagram, VCM-200
115 VAC WIRING DIAGRAMS

115 VAC POWER SUPPLY

BOOT
WHITE
YELLOW
RED
BLUE
GREEN
BLACK

CAPACITOR

TERMINAL STRIP

MOTOR

IN-LINE FUSE (AGC 1A. FAST ACTING)

SWITCH

Figure 3-5.
Pictorial Wiring Diagram, VCM-200HT (Hi-Temp)

4µF CAPACITOR 440V

WHITE
RED
BLACK
GREEN

FUSE AGC 1A. FAST ACTING

WHITE
RED
BLACK

START

MAIN

FWD-OFF-REV SWITCH

AC MOTOR

Figure 3-6.
Schematic Wiring Diagram, VCM-200HT (Hi-Temp)
SECTION 4

REPLACEMENT PARTS

HOSE-FUEL 1412-0107
HOSE-OXY 1412-0106
MANIFOLD BLOCK 0251-0091
MANIFOLD ASSEMBLY 0252-0081
OXYGEN ADAPTOR (4) 0950-0068
FUEL ADAPTOR (2) 0590-0029
MANIFOLD SHAFT 0253-0041
Screw (4) 1400-0196
SWITCH LEGEND 0254-0020
SWITCH 0252-0057
DUST PROTECTION ASSY 1417-0051
CURVED WASHER (4) 1406-0153
SPRING 0761-0132
CASTER LOCKING KNOB 0251-0167
SET SCREW (8) 1401-0071
END PLATE (front) 0254-0016
CLUTCH LEVER (2) 0251-0045
SCREW (4) 1400-0191
SPEED ADJUSTING KNOB (2) 0251-0041
CASTER BUSHING (2) 0251-0136
OUTER CASE COVER 0250-0067
SCREW (5) 1400-0190
CASTER (2) 0252-0124

RIGGING ASSEMBLY 0252-0134
SEE FIG. 4-3 for breakdown

INNER CASE ASSEMBLY 0252-0130 (VCM 200)
0252-0131 (VCM 200HS)
SEE FIG. 4-4 for breakdown

The OUTER CASE 0251-0170,
POWER CORD 0252-0058,
SWITCH 0252-0057, SWITCH LEGEND 0254-0020, and
CASTER BUSHING 0251-0138
may be purchased as OUTER CASE ASSEMBLY 0252-0115

ORDERING INFORMATION
When ordering replacement parts, include the VICTOR part number and a complete description of the part. In addition, please give the model number and the serial number of your machine. Address all inquiries to your Authorized Victor Distributor.

Figure 4-1.
VCM-200 Series Main Assembly.
Figure 4-2.
VCM-200HT Series Main Assembly.
(For continuous use at up to 300°F).

ORDERING INFORMATION
When ordering replacement parts, include the VICTOR part number and a complete description of the part. In addition, please give the model number and the serial number of your machine. Address all inquiries to your Authorized Victor Distributor.
Figure 4-6.
Radius Rod Assembly 0252-0040.

ORDERING INFORMATION
When ordering replacement parts, include the VICTOR part number and a complete description of the part. In addition, please give the model number and the serial number of your machine. Address all inquiries to your Authorized Victor Distributor.

Figure 4-7.
Heat Shield 0252-0103.
NOTICE
TO PREVENT A SHORT CIRCUIT, MAKE SURE THAT ALL WIRE STRANDS ARE INSERTED AND TIGHTLY CLAMPED IN THE TERMINAL STRIP.

*DUST BOOT 1417-0051
SWITCH LEGEND 0254-0020
*S SWITCH ASS’Y 0252-0140

TIGHTEN NUT UNTIL IT BOTTOMS OUT.

SLEEVING IS TO BE FLUSH TO 1/8" EXTRUDED OUT.

CAPACITOR - 0255-0041 (EXTRA HEAVY DUTY 440V - REQUIRES MOUNTING HORIZONTALLY AS SHOWN)
0255-0040 (ORIGINAL 370V MOUNTED VERTICALLY)

BOOT 0255-0050

FUSE (AGC 1A FAST ACTING) 0255-0044

SCREW 1400-0211

TERMINAL STRIP 0255-0042

CORD ASSEMBLY 0252-0068

BUSHING (2) 0251-0138

HOLE IN BUSHING O.D. TO CENTER ON THD’D HOLE IN CASE.

OUTER CASE 0251-0174

BEND LEG TO FIT

BLACK, RED, WHITE, BLACK, RED, WHITE

SCREW 1400-0190 (2)

WASHER 1408-0050 (2)

GREEN

Figure 4-8.
VCM-200HT Outer Case Assembly 0252-0116.
SECTION 5
EXPORT MODEL INFORMATION

CONVERSION KIT 0252-0139
(VCM-200 to VCM-200E)

Includes all parts listed with *(asterisk) plus instructions, transformer mounting hole location template and wiring diagram (switch and transformer complete with wiring connectors).

Figure 5-1.
VCM-200E/VCM-200HSE Assembly (Export Only).
Figure 5-2.
Pictorial Wiring Diagram, VCM-200E.

Figure 5-3.
Schematic Wiring Diagram, VCM-200E/VCM-200HSE.
VICTOR WARRANTY

"LIMITED WARRANTY: Victor warrants that its products will be free of defects in workmanship or material. The use with any Victor product of replacement parts or accessories, which are not manufactured or distributed by Victor and which may affect product safety or performance, shall render this warranty and all other warranties, whether express or implied, null and void. Should any failure to conform to this warranty appear within two years after the initial delivery, Victor shall, upon notification thereof and substantiation that the product has been stored, maintained and operated in accordance with Victor's recommendations and standard industry practice, correct such defects by suitable repair or replacement at its own expense.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY WARRANTY OR MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY OF QUALITY, WHETHER EXPRESSED OR IMPLIED, EXCEPT OF TITLE AND AGAINST PATENT INFRINGEMENT. Correction of non-conformities, in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of Victor to the Purchaser with respect to, or arising out of a Victor product, whether based on contract, negligence, strict tort or otherwise.

LIMITATION OF LIABILITY: Victor shall not under any circumstances be liable for special or consequential damages, such as, but not limited to, damage or loss of other property or equipment, loss of profits or revenue, cost of capital, cost of purchased or replacement goods, or claims of customers of Purchaser for service interruption. Any property damage or personal injury resulting from a Victor product, which contains replacement parts or accessories that affect the safety or performance of such product, shall be the responsibility of the Purchaser and the Supplier of such replacement parts or accessories and not the responsibility of Victor Equipment Company. The remedies of the Purchaser set forth herein are exclusive, and the liability of Victor with respect to any contract, or anything done in connection therewith such as the performance or breach thereof, or from the manufacture, sale, delivery, resale, or use of any goods covered by or furnished by Victor whether arising out of contract, negligence, strict tort or under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the goods upon which such liability is based."

VICTOR Equipment Company
P. O. Drawer 1007
Denton, Texas 76202-1007

Airport Road
Denton, Texas 76205

ATTN: Warranty Repair

NOTE: Product data, materials, specifications and availability subject to change without notice.