

# VersaClipper 2000

Model # \_\_\_\_\_

Serial # \_\_\_\_\_



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## DESCRIPTION OF EQUIPMENT

The VersaClipper 2000 is a specially designed machine used by upholstered furniture manufacturers to quickly and accurately install patented VersaClips into wooden frame rails. This all pneumatic machine accommodates rails from 5/8" to 2 1/2" thick and up to 94" long. In addition, curved rails and one-piece front panels are easily handled with the VersaClipper 2000. The straightforward, innovative design elements have resulted in a productive, and versatile machine for all manufacturers.

The VersaClipper 2000 is made up of five main components:

1. Clip Dispenser Frame
  - a. The Clip Dispenser Frame holds a spool of VersaClips containing 1,500 pieces.
2. Tool Assembly (Clipping Head)
  - a. The Tool Assembly, which installs VersaClips into wooden furniture rails, is height adjustable to accommodate rails from 5/8" to 2 1/2" thick.
3. Clip Trigger Assembly
  - a. The Clip Trigger assembly is adjustable giving the operator a center-to-center clip range of 2" to 8".
4. End Stop
  - a. The End Stop, used to install the first clip, is operator adjustable and can accommodate rails from 20" to 94" long.
5. Pneumatic Control Circuit

## OPERATION INSTRUCTIONS

### Loading a Spool of VersaClips

1. Load clips so they run off top of spool (Fig. 1).
2. Push spool against magnetic brake.
3. Remove stretch film.
4. Thread clips over clip lifter and along the inside clip chute.
5. Verify that feed cylinder is down.
6. While depressing knee switch, push clips into back of tool until clips contact driver blade. Release knee switch.

FIGURE 1

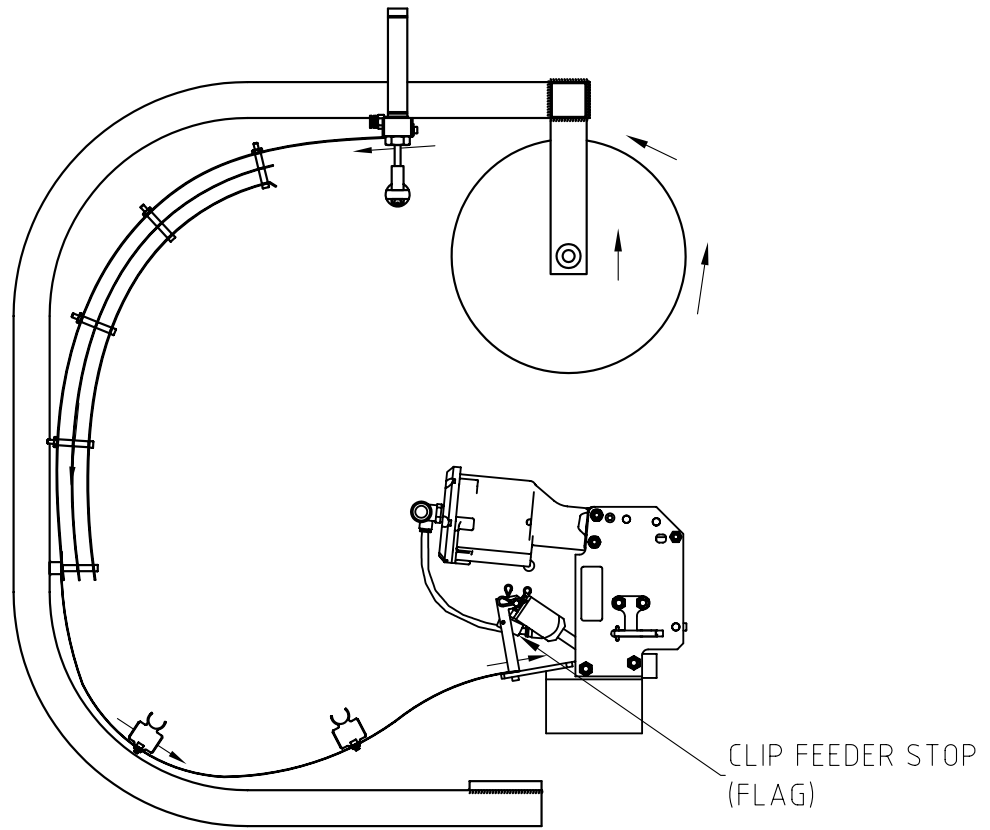
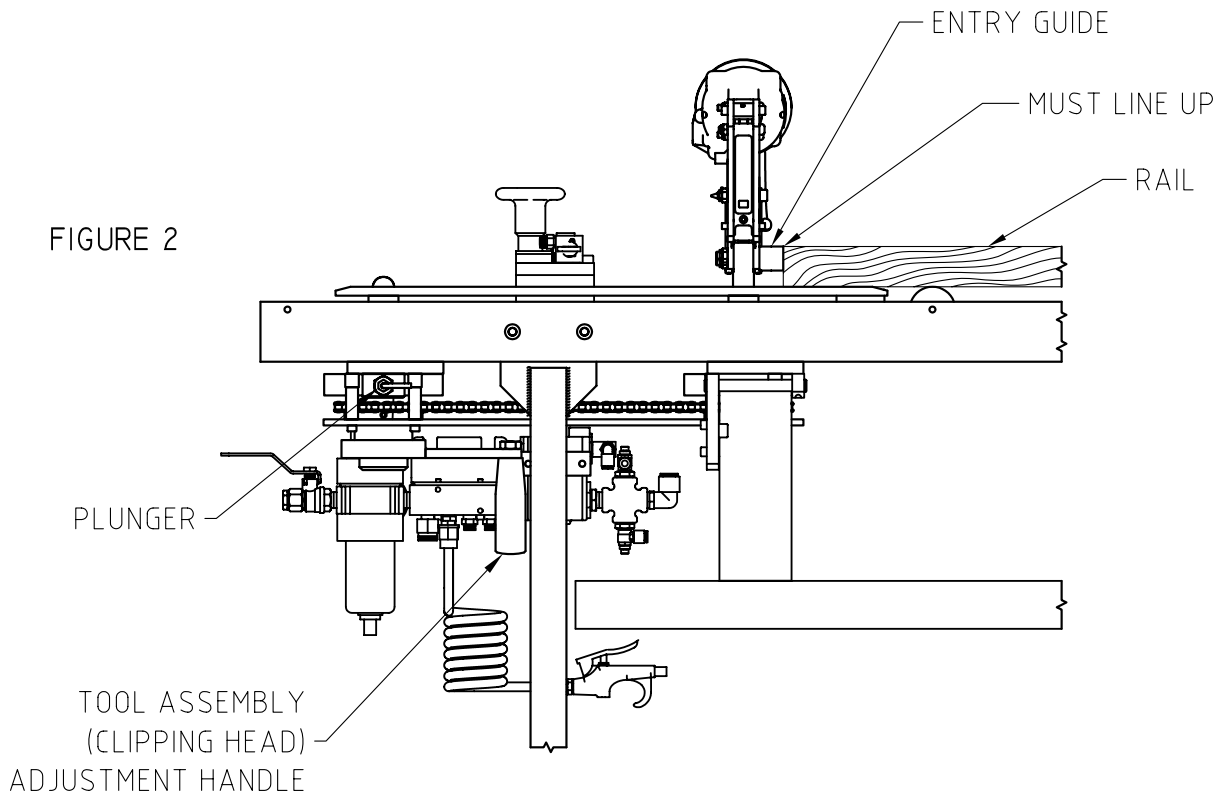


FIGURE 2



### Removing VersaClips from Tool Assembly

1. Lift feed cylinder up, swing flag up to support cylinder.
2. Spread left and right pawls away from side plates while removing clips from rear.

Caution: Do not overspread pawls.

### Adjusting Tool Assembly

1. Retract plunger and lock.
2. Use handle, adjust assembly to desired height (1/16" increments).
  - a. This is achieved by lining up top of entry guide to top of rail (Fig. 2).
3. Unlock plunger.

### Adjusting Clip Trigger Assembly

1. Loosen hand knob.
2. Slide assembly to desired location. (Align pointer with scale.)
3. Tighten knob to lock Clip Trigger in place.

### Adjusting End Stop

1. Loosen hand knob.
2. Slide assembly to desired location. (Align pointer with tape measure.)
3. Tighten knob to lock End Stop in place.

Set air pressure between 60 – 100 psi for proper operation of the VersaClipper 2000. After the required adjustments have been made and the clips have been loaded you may begin production. To install the first clip:

1. Lay rail on VersaClipper.
2. Push rail back against entry guide.
3. Slide rail against End Stop, press knee switch for placement of first clip.

Once the first clip has been placed, slide the rail away from the End Stop toward the Clip Trigger. The VersaClipper will then install clips the length of the rail according to the spacing that you have set. To insure accuracy, use a consistent speed while running the rail through the machine.

## **SAFETY INSTRUCTIONS**

1. Operators should ALWAYS wear safety glasses while operating, maintaining or repairing the equipment.
2. NEVER place hands or fingers near clip exit area when operating tool or when connecting air supply to machine.
3. Always shut off air supply when servicing tool.

## **MAINTENANCE**

### **Recommended Daily Maintenance**

1. Using supplied air gun; blow off woodchips and debris from Tool and Trigger assembly.
2. Add 2-3 drops of 30-weight oil to opening between front plate and top of blade of Tool assembly.

The Trigger assembly should be checked for ease of movement. Lightly lubricate if necessary.

### **Recommended Weekly Maintenance**

Drain Reservoir Tank for condensation.

### **Recommended Monthly Maintenance**

Remove front plate from tool and lubricate driver blade and front plate.

# VERSACLIPPER 2000

## RECOMMENDED SPARE PARTS LIST

| PART # | DESCRIPTION         | QTY |
|--------|---------------------|-----|
| VC0009 | ROLLER              | 1   |
| VC0011 | LINK                | 2   |
| VC0340 | AIR LUBE OIL        | 1   |
| VC5102 | TOP PLATE           | 1   |
| VC5113 | FRONT PLATE         | 1   |
| VC5117 | TORSION SPRING      | 1   |
| VC5118 | LINK PIN            | 2   |
| VC5121 | PAWL SPRING         | 2   |
| VC5122 | LEFT-HAND PAWL      | 1   |
| VC5123 | RIGHT-HAND PAWL     | 1   |
| VC5127 | PISTON FEED SPRING  | 2   |
| VC5132 | PIN, FEED CYLINDER  | 1   |
| VC5304 | SPRING              | 1   |
| VC5305 | SPRING              | 1   |
| VC5320 | AIR VALVE CARTRIDGE | 1   |
| VH0029 | O'RING, #114        | 1   |
| VH0030 | O'RING, #111        | 2   |
| VH0069 | PUSH-IN FTG, 90 DEG | 2   |
| VH0135 | O'RING, #210        | 3   |
| VH0483 | SWITCH, KNEE        | 1   |
| VH0531 | HAIR PIN            | 1   |

## TROUBLESHOOTING INFORMATION

| <b>PROBLEM</b>                                | <b>CAUSE</b>   | <b>SOLUTION</b>   |
|---|--|---|
| Blade does not return.                        | Obstruction in tool.   | Remove obstruction.   |
| Clips not feeding.                            | Dispenser obstruction.<br>Feed cylinder not engaged.                                     | Remove obstruction.<br>Engage by lifting up cylinder allowing flag to drop (Fig. 1).                            |
| Top of clip not seated against rail (Fig. 3). | Low air pressure.<br><br>Incorrect Flow Control Valve setting.<br>Incorrect tool height. | Increase pressure.<br>(Never exceed 100 psi)<br>Turn Flow Control Valve Clockwise. (Dwg. VC5402)<br>Lower tool. |
| Clip's base is away from rail (Fig 4).        | The board is warped.<br>Rail is not against entry guides.                                | Operator must run rail against entry guides.  |
| Incorrect clip spacing.                       | Clip Trigger is set inaccurately.  | Reset Clip Trigger to correct location.   |
| Clip driven too far into rail.                | Air pressure too high.<br>Incorrect Flow Control Valve setting.                          | Reduce air pressure.<br>Turn Flow Control Valve Counterclockwise. (Dwg. VC5402)                                 |



FIGURE 3

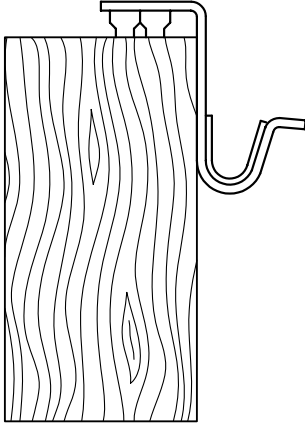
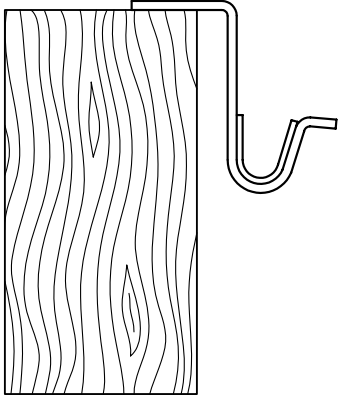


FIGURE 4



MATERIAL:

-

HEAT TREATMENT:

-

FINISH:

-

TOL. UNLESS SPECIFIED

INCHES  
.X = ±.125  
.XX = ±.030  
.XXX = ±.005

TURN CLOCKWISE  
FOR LONGER TOOL CYCLE

TURN COUNTERCLOCKWISE  
FOR SHORTER TOOL CYCLE

FLOW CONTROL  
VH0050

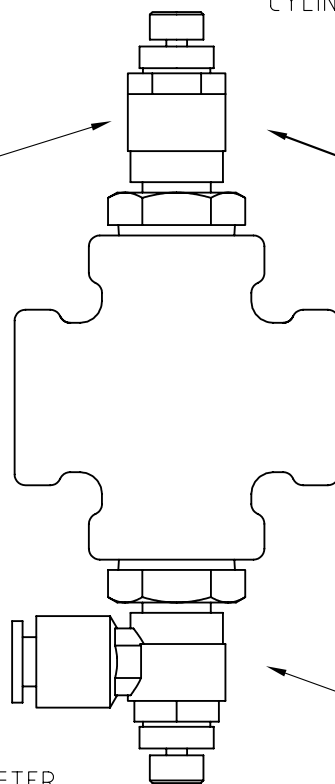
TO CLIP TRIGGER  
CYLINDER BODY

CONTROLS  
TRIGGER PISTON VC5301  
RETRACT SPEED

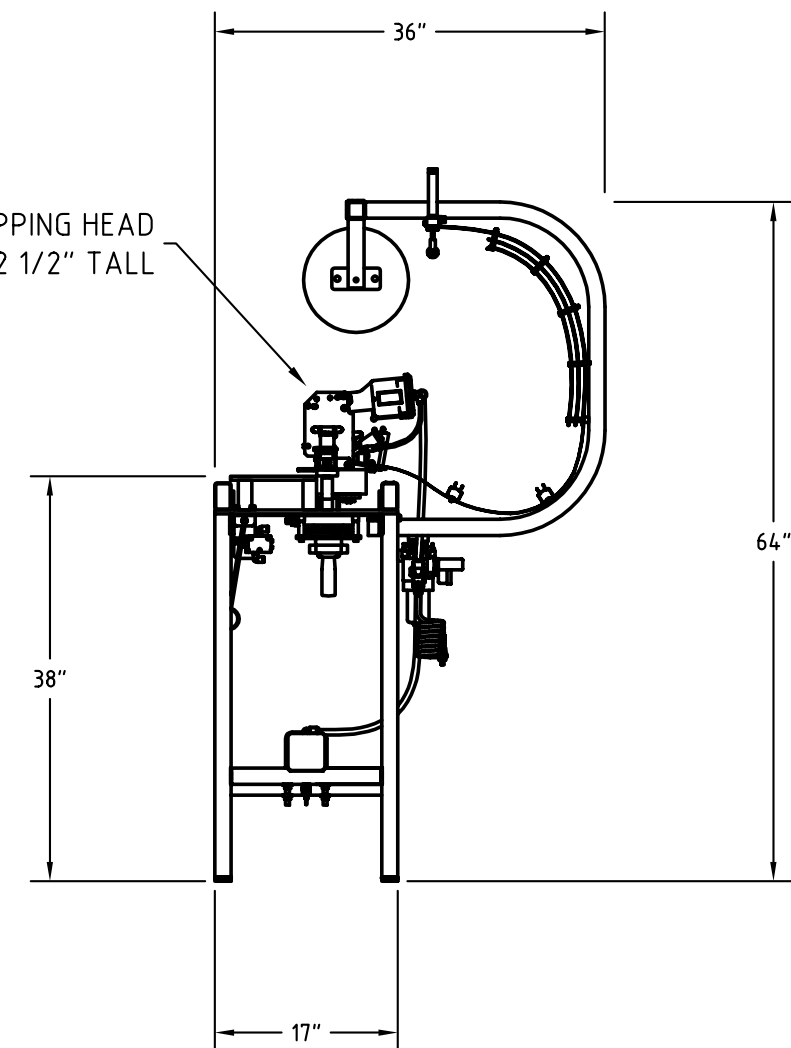
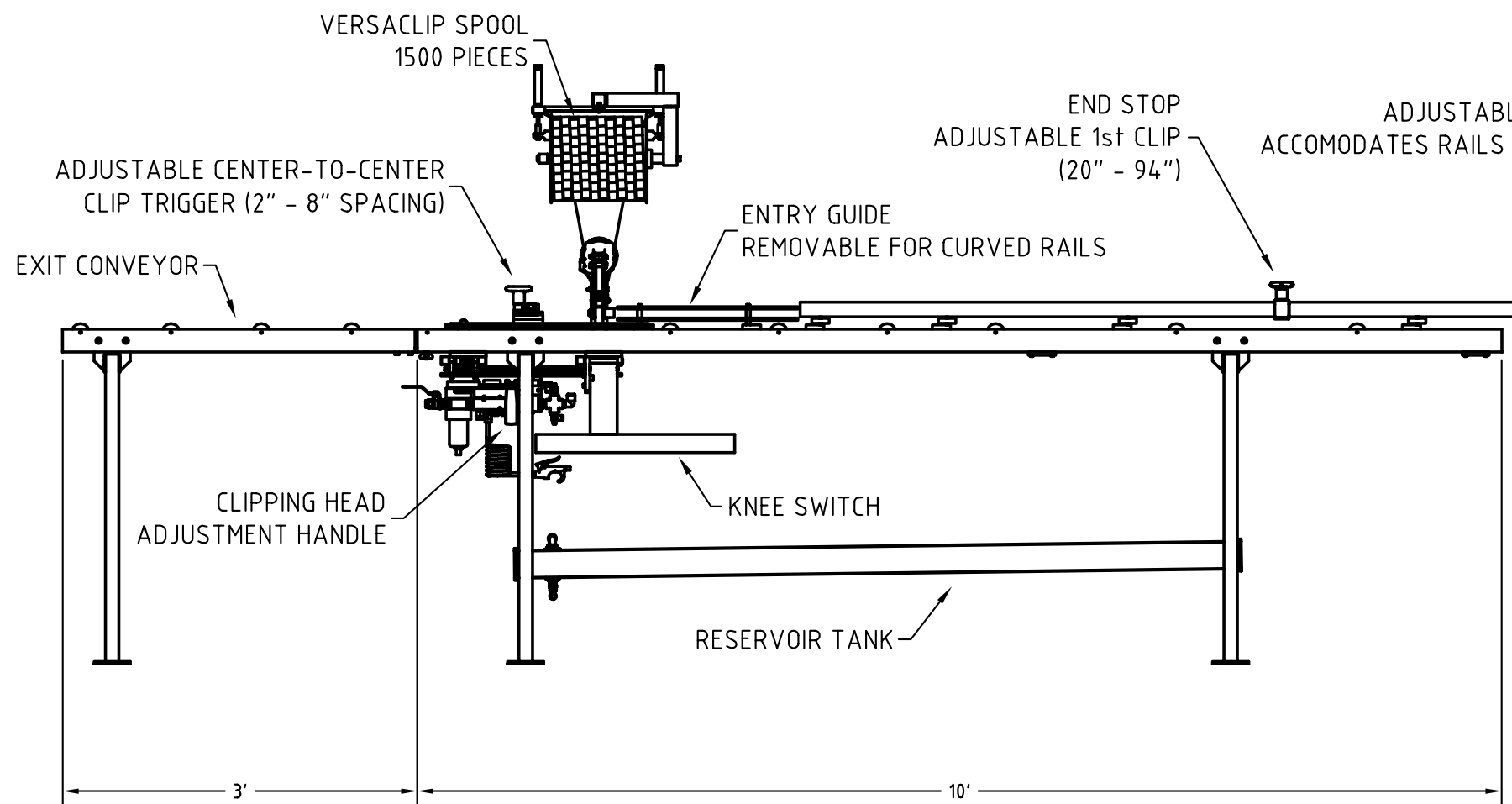
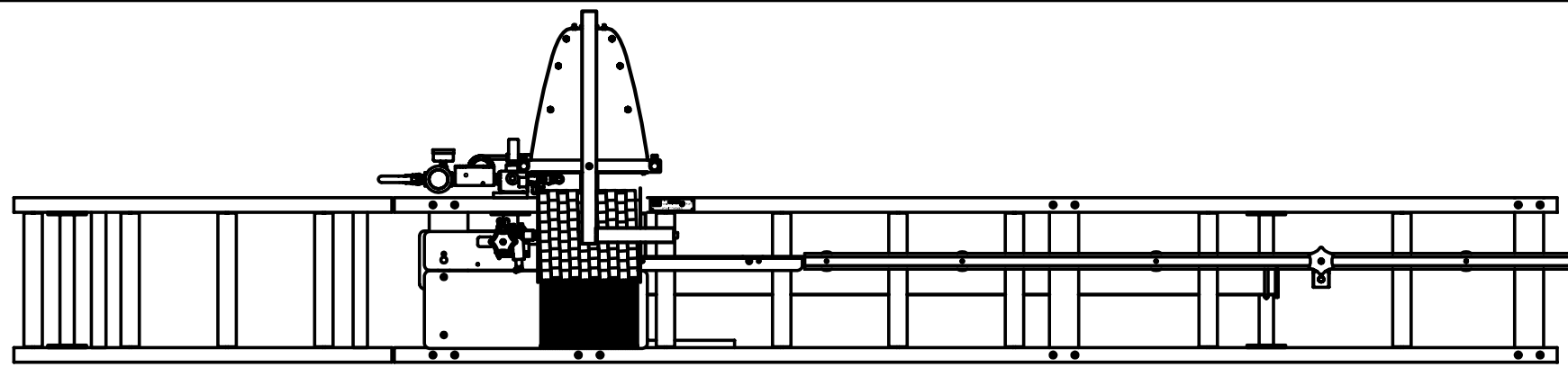
CROSS  
VH0536

FLOW CONTROL  
VH0050

TO CLIP LIFTER



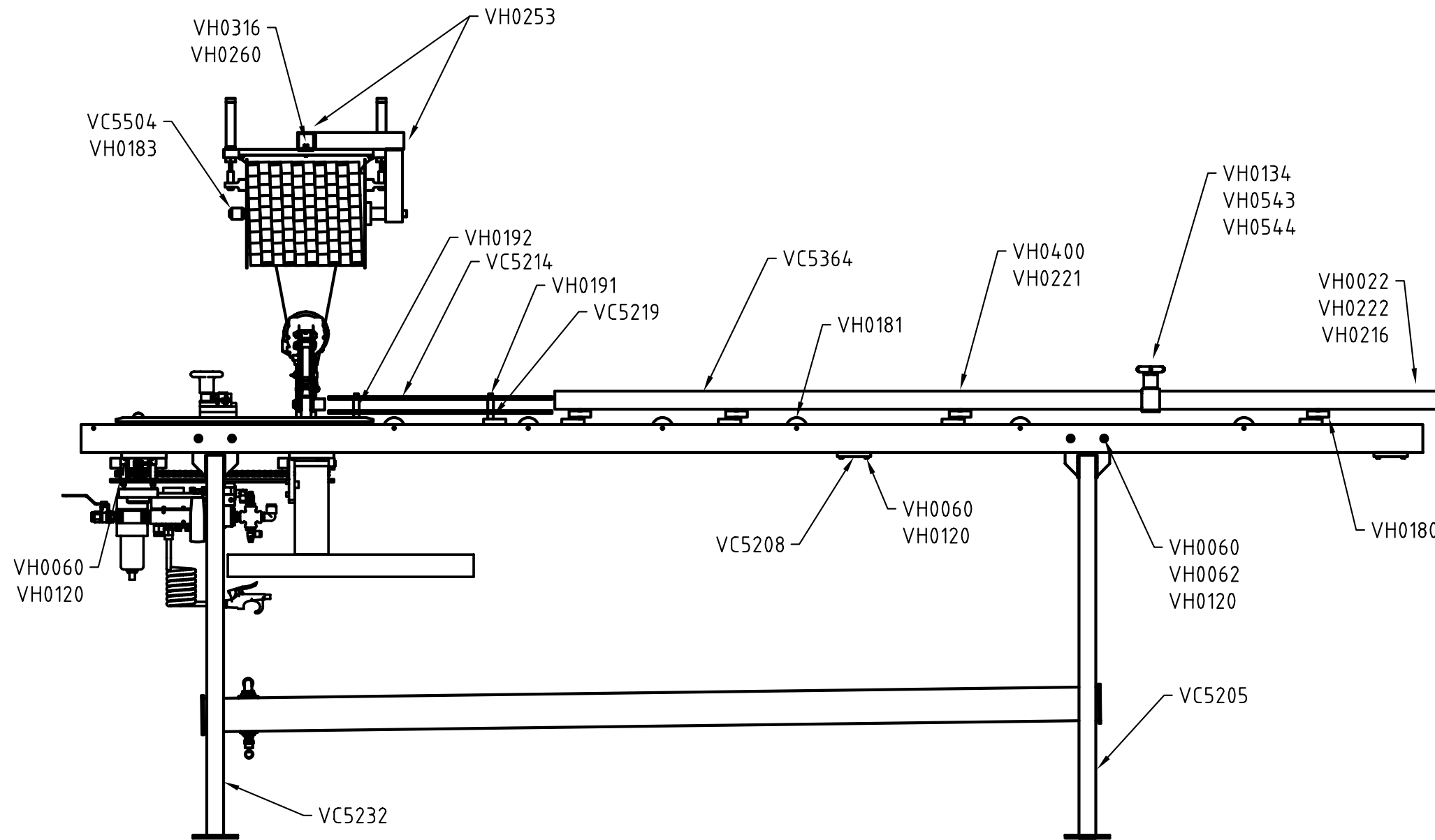
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| A   |   | JMW |      | 3-14-00 | DWN BY JMW      |  |
| B   | REMOVED VH0171 FOR TOOL,<br>INVERTED TRIGGER VH0171 | JMW |      | 8-30-02 | APPD DA         | FLOW CONTROL<br>VALVE DETAIL   |
| C   | ECN 393   | JMW | DA   | 8-12-04 | DATE 3-14-00    |  |
|     |   |     |      |         | SCALE NONE      |  |
|     |   |     |      |         | DWG. NO. VC5402 | A  |



AIR PRESSURE: 60-90 PSI

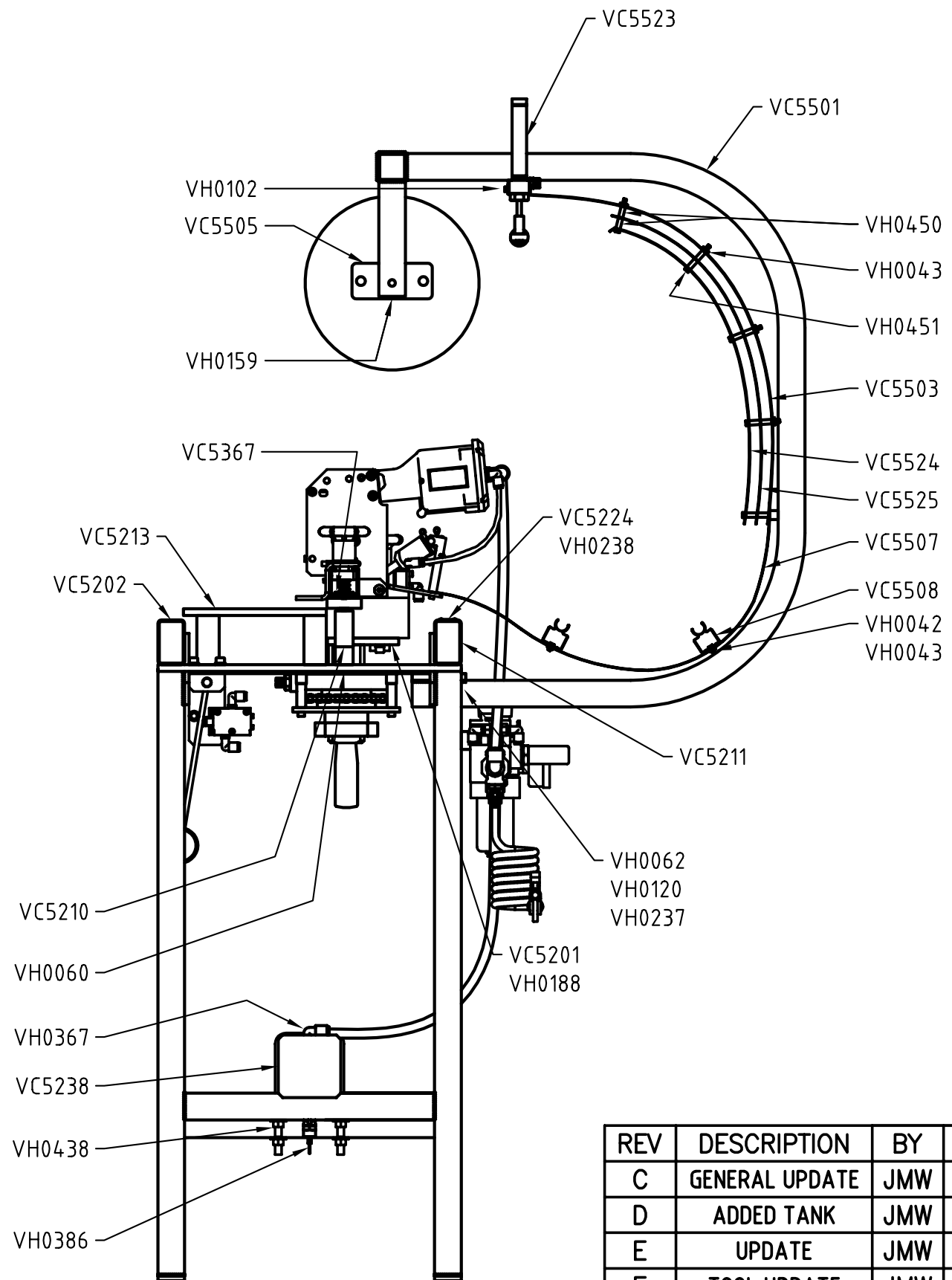
| REV | DESCRIPTION        | BY  | APPD | DATE    | MATERIAL:       | © 1999          | VERTEX FASTENERS INC.<br>3714 JARVIS AVENUE<br>SKOKIE, IL 60076 U.S.A. |
|-----|--------------------|-----|------|---------|-----------------|-----------------|--|
| B   | 2000 FORMAT        | JMW |      | 4-11-00 | -               | DWN BY JMW      |  |
| C   | TANK & SPOOL FRAME | JMW |      | 8-17-00 | HEAT TREATMENT: | APPD DA         |  |
| D   | UPDATE             | JMW |      | 8-17-01 | -               | DATE 10-6-99    |  |
| E   | TOOL UPDATE        | JMW |      | 4-18-02 | FINISH:         | SCALE NONE      |  |
| F   | ECN 393            | JMW | DA   | 8-11-04 | -               | DWG. NO. VC5001 | B  |

VersaClipper 2000



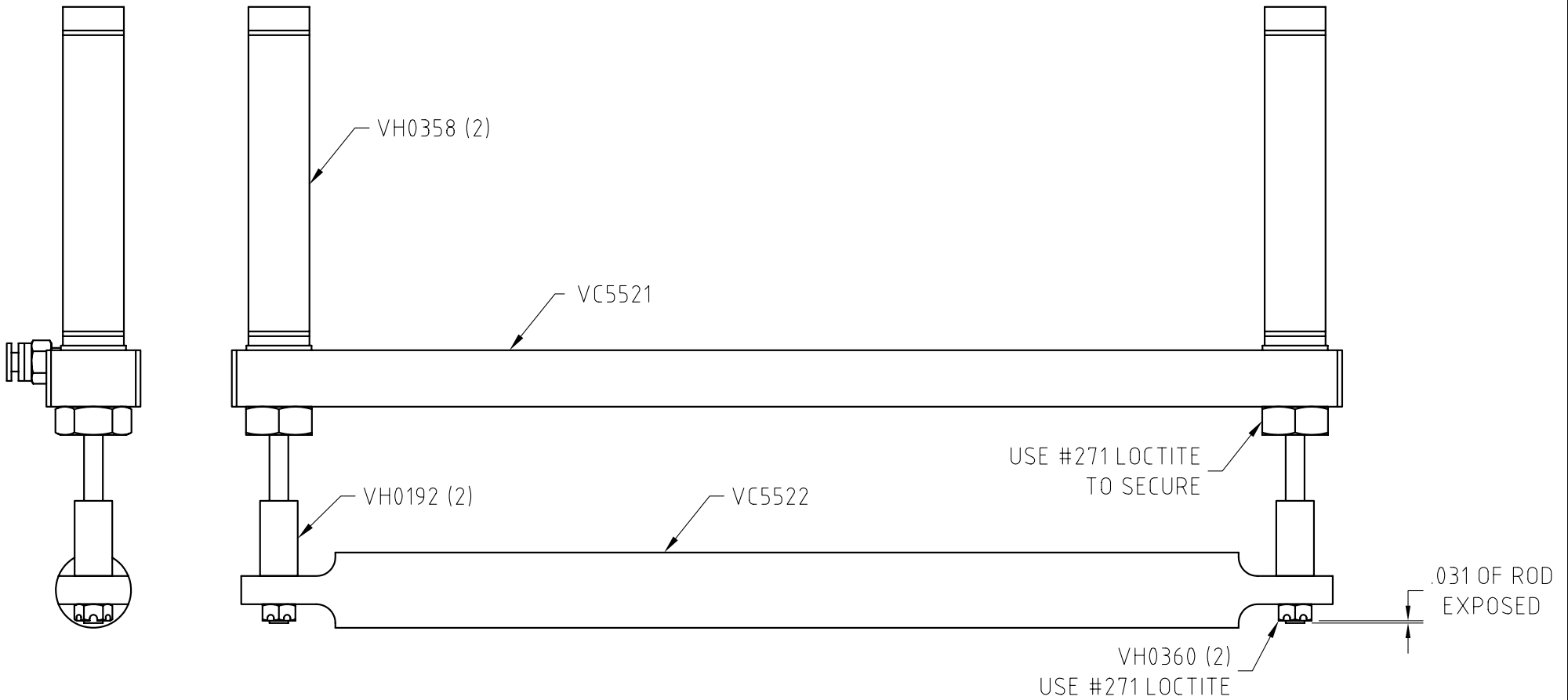
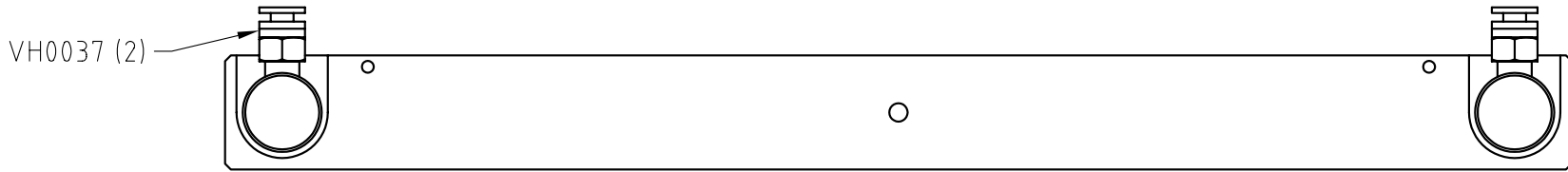
| PART # | DESCRIPTION                      | QTY |
|--------|----------------------------------|-----|
| VC5205 | LEG ASSEMBLY                     | 1   |
| VC5208 | STRUT                            | 2   |
| VC5214 | ENTRY GUIDE RAIL                 | 2   |
| VC5219 | ENTRY GUIDE RAIL STUD            | 2   |
| VC5232 | LEG ASSY W/ WELDED MNTG BRKT     | 1   |
| VC5364 | UNI-STRUT RAIL                   | 1   |
| VC5504 | SPOOL ROD                        | 1   |
| VH0022 | BHCS, 10 - 32 x 1/2              | 2   |
| VH0060 | SHCS, 5/16 - 18 x 3/4            | 22  |
| VH0062 | NUT, 5/16 - 18                   | 8   |
| VH0120 | LOCK WASHER, 5/16                | 22  |
| VH0134 | KNOB                             | 1   |
| VH0180 | SKATE WHEEL                      | 4   |
| VH0181 | ROLLER                           | 6   |
| VH0183 | SHCS, 3/8 - 16 x 3/4             | 1   |
| VH0191 | SHCS, 1/4 - 20 x 2 1/4           | 2   |
| VH0192 | STANDOFF, 1/4 ID, 1/2 OD, 1 LONG | 2   |
| VH0216 | FLEX NUT, 10 - 32                | 2   |
| VH0221 | WASHER, 1/4 SAE                  | 4   |
| VH0222 | WASHER, 3/4 OD 3/16 ID           | 2   |
| VH0253 | CAP                              | 2   |
| VH0260 | WASHER, LOCK, 1/4                | 1   |
| VH0316 | SHCS, 1/4 - 20 x 3/4             | 1   |
| VH0400 | SHCS, 1/4 - 20 x 1 1/2           | 4   |
| VH0543 | Z-BRACKET                        | 1   |
| VH0544 | NUT, STUD                        | 1   |

| REV | DESCRIPTION             | BY  | APPD | DATE    | MATERIAL:       | © 2000          | VERTEX FASTENERS INC.<br>3714 JARVIS AVENUE<br>SKOKIE, IL 60076 U.S.A.<br><br>FRONT FRAME<br>DETAIL |
|-----|-------------------------|-----|------|---------|-----------------|-----------------|---|
| C   | GENERAL UPDATE          | JMW |      | 4-27-00 | -               | DWN BY JMW      |   |
| D   | TANK & SPOOL FRAME      | JMW |      | 8-16-00 | HEAT TREATMENT: | APPD DA         |   |
| E   | LEG, REG BLK, CLIP LFTR | JMW |      | 8-17-01 | -               | DATE 12-10-99   |   |
| F   | TOOL UPDATE             | JMW |      | 4-17-02 | FINISH:         | SCALE NONE      |   |
| G   | ECN 393                 | JMW | DA   | 7-30-04 | -               | DWG. NO. VC5226 | B   |

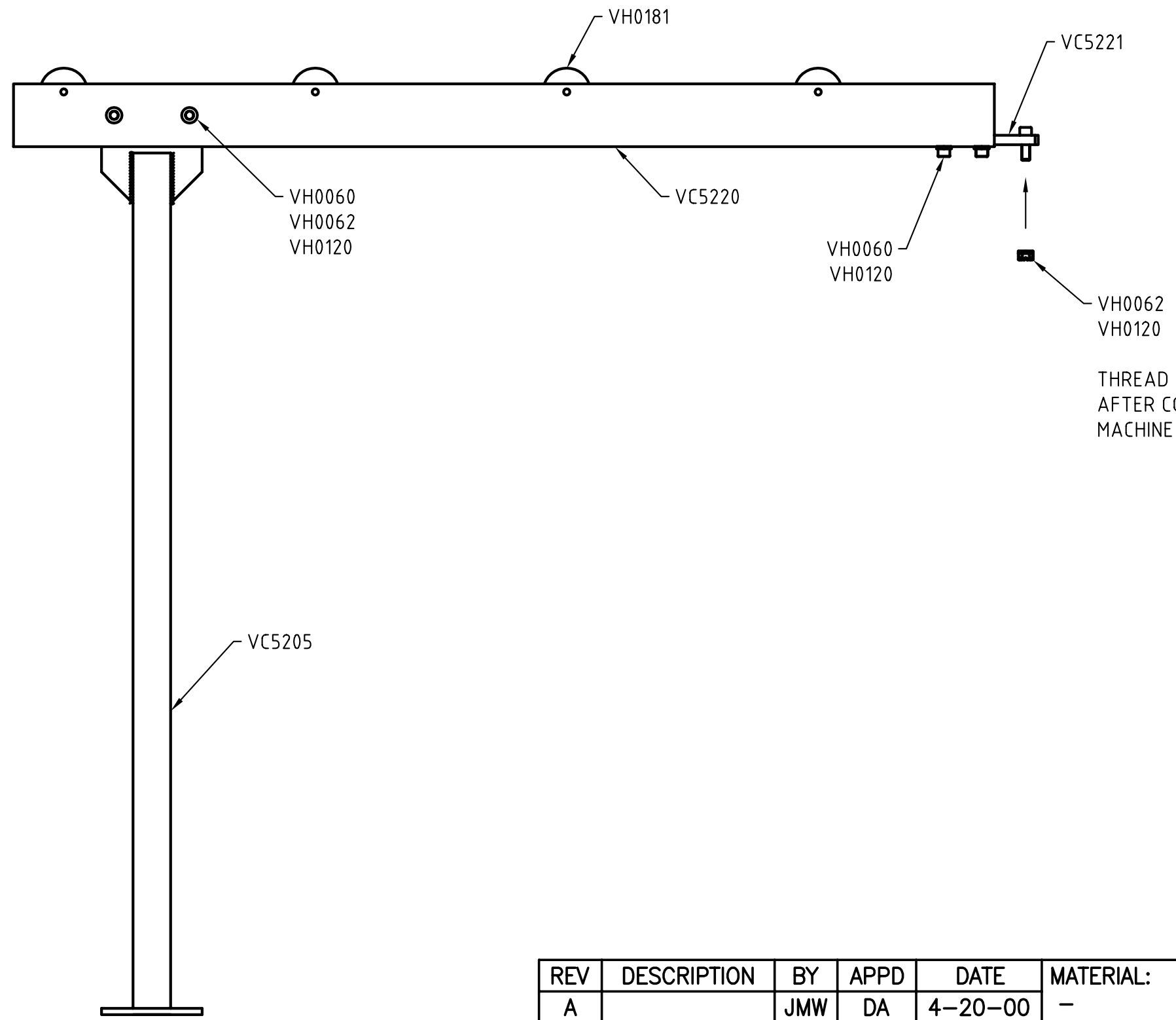


| PART # | DESCRIPTION                         | QTY |
|--------|-------------------------------------|-----|
| VC5201 | SUB-PLATE                           | 1   |
| VC5202 | FRONT RAIL                          | 1   |
| VC5210 | CENTER RAIL                         | 1   |
| VC5211 | REAR RAIL                           | 1   |
| VC5213 | BASE PLATE                          | 1   |
| VC5224 | VC NAMEPLATE                        | 1   |
| VC5238 | TANK ASSEMBLY                       | 1   |
| VC5367 | MEASURING TAPE, ENGLISH             | 1   |
| VC5501 | DISPENSER FRAME                     | 1   |
| VC5503 | CLIP CHUTE                          | 1   |
| VC5505 | MAGNETIC BRAKE BLOCK                | 1   |
| VC5507 | TRACK                               | 1   |
| VC5508 | TRACK GUIDE                         | 2   |
| VC5523 | CLIP LIFTER                         | 1   |
| VC5524 | INSIDE CLIP CHUTE                   | 1   |
| VC5525 | STRIP GUIDE FOR CHUTE               | 2   |
| VH0042 | SHCS, 8 - 32 x 1/4                  | 4   |
| VH0043 | LOCK NUT, 8 - 32 (THIN HEIGHT)      | 12  |
| VH0060 | SHCS, 5/16 - 18 x 3/4               | 3   |
| VH0062 | NUT, 5/16 - 18                      | 2   |
| VH0102 | SHCS, 8 - 32 x 3/8 w/ LOCKING PATCH | 3   |
| VH0120 | LOCK WASHER, 5/16                   | 2   |
| VH0159 | SET SCREW, 5/16 - 18 x 1/2          | 1   |
| VH0188 | FHCS, 3/8 - 16 x 7/8                | 1   |
| VH0237 | SHCS, 5/16 - 18 x 1 1/2             | 2   |
| VH0238 | DRIVE SCREW, #4 x 5/16              | 4   |
| VH0367 | PUSH-IN TUBE FTG, 90°               | 1   |
| VH0386 | SAFETY VALVE                        | 1   |
| VH0438 | U-BOLT                              | 2   |
| VH0450 | SPACER                              | 20  |
| VH0451 | SHCS, 8 - 32 x 1 3/4                | 10  |

| REV | DESCRIPTION    | BY  | APPD | DATE    | MATERIAL:       | © 2000          | VERTEX FASTENERS INC.<br>3714 JARVIS AVENUE<br>SKOKIE, IL 60076 U.S.A.<br><br>RIGHT-SIDE FRAME<br>DETAIL<br>-ENGLISH- |
|-----|----------------|-----|------|---------|-----------------|-----------------|---|
| C   | GENERAL UPDATE | JMW |      | 5-5-00  | -               | DWN BY JMW      |   |
| D   | ADDED TANK     | JMW |      | 8-18-00 | HEAT TREATMENT: | APPD DA         |   |
| E   | UPDATE         | JMW |      | 8-17-01 | -               | DATE 12-10-99   |   |
| F   | TOOL UPDATE    | JMW |      | 4-17-02 | FINISH:         | SCALE 1/8       |   |
| G   | ECN 393        | JMW | DA   | 8-3-04  | -               | DWG. NO. VC5225 | B   |



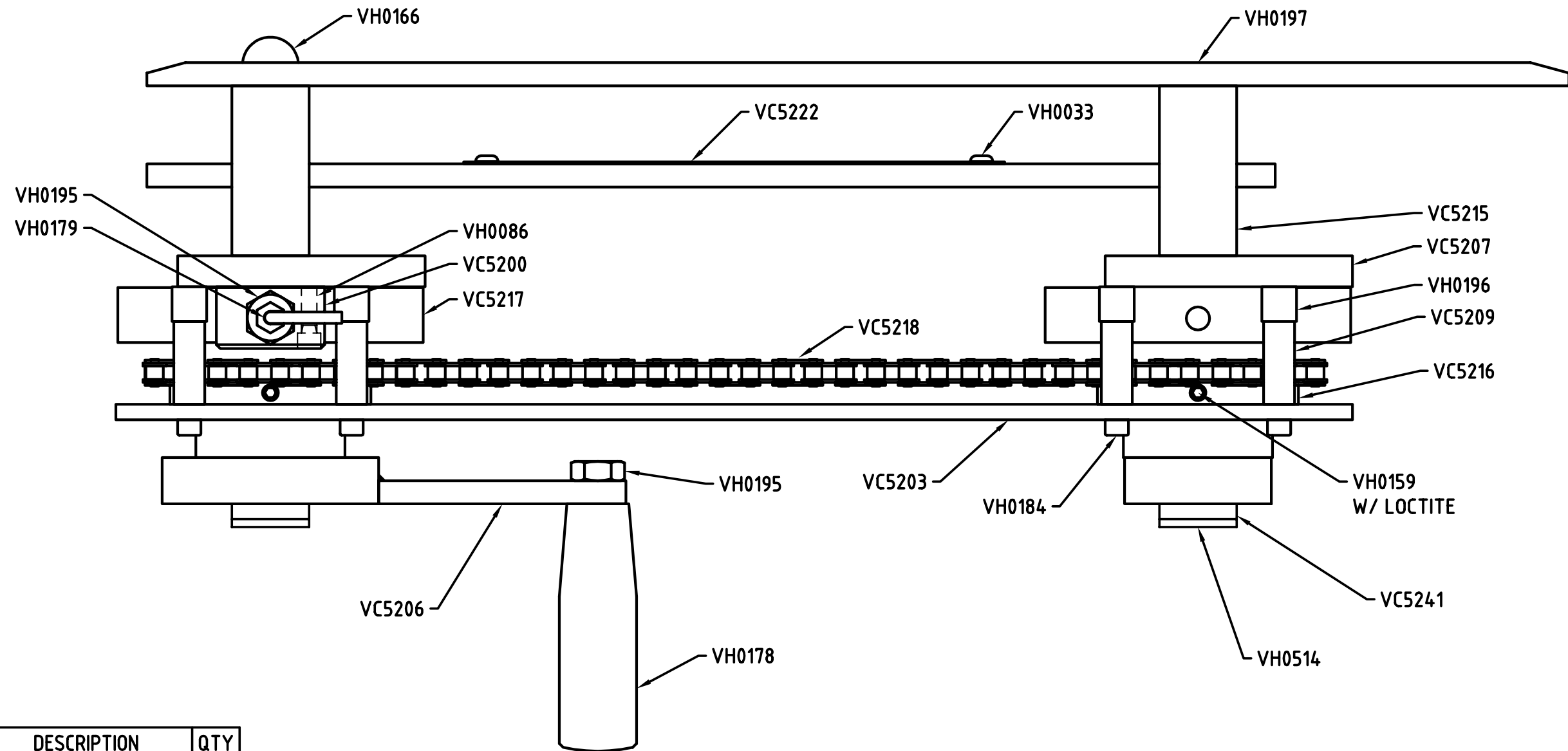
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|-----|-------------|-----|------|---------|-----------------|---|----------|--|---------|
| REV | DESCRIPTION | BY  | APPD | DATE    | MATERIAL:       | <u>TOL. UNLESS SPECIFIED</u><br>INCHES<br>.X = ±.125<br>.XX = ±.030<br>.XXX = ±.005 | © 2000   | VERTEX FASTENERS INC.<br>3714 JARVIS AVENUE<br>SKOKIE, IL 60076 U.S.A. |         |
| A   |             | JMW | DA   | 3-27-01 | -               |   | DWN BY   |  | JMW     |
|     |             |     |      |         | HEAT TREATMENT: |   | APPD     |  | DA      |
|     |             |     |      |         | FINISH:         |   | DATE     |  | 3-27-01 |
|     |             |     |      |         | -               |   | SCALE    |  | 1:2     |
|     |             |     |      |         |                 |   | DWG. NO. | VC5523A  | A       |



| PART # | DESCRIPTION           | QTY |
|--------|-----------------------|-----|
| VC5205 | LEG ASSEMBLY          | 1   |
| VC5220 | EXIT CONVEYOR         | 1   |
| VC5221 | BRACKET               | 2   |
| VH0060 | SHCS, 5/16 - 18 x 3/4 | 8   |
| VH0062 | NUT, 5/16 - 18        | 6   |
| VH0120 | LOCK WASHER, 5/16     | 10  |
| VH0181 | ROLLER                | 4   |

THREAD & TIGHTEN  
AFTER CONNECTION TO  
MACHINE HAS BEEN MADE

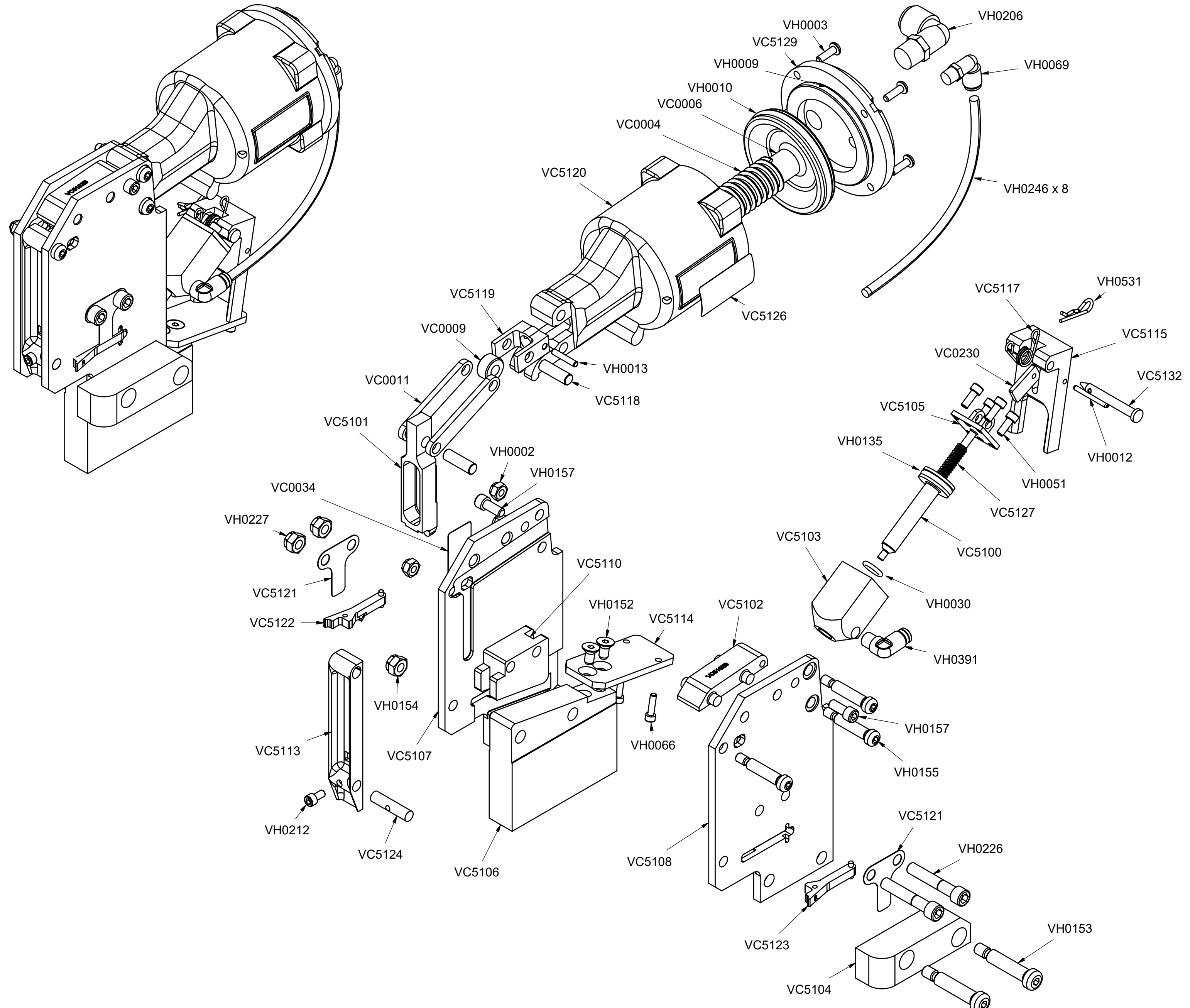
| REV | DESCRIPTION | BY  | APPD | DATE    | MATERIAL:       | © 2000       | VERTEX FASTENERS INC.<br>3714 JARVIS AVENUE<br>SKOKIE, IL 60076 U.S.A. |
|-----|-------------|-----|------|---------|-----------------|--------------|--|
| A   |             | JMW | DA   | 4-20-00 | -               | DWN BY JMW   |  |
|     |             |     |      |         | HEAT TREATMENT: | APPD DA      | EXIT CONVEYOR<br>DETAIL  |
|     |             |     |      |         | -               | DATE 4-20-00 |  |
|     |             |     |      |         | FINISH:         | SCALE NONE   | DWG. NO. VC5230A   |
|     |             |     |      |         | -               |              |  |



| PART # | DESCRIPTION         | QTY |        |                            | REV | DESCRIPTION | BY  | APPD     | DATE    | MATERIAL:       | © 2000          | VERTEX FASTENERS INC.<br>3714 JARVIS AVENUE<br>SKOKIE, IL 60076 U.S.A.<br><br>CLIPPING HEAD HEIGHT<br>ADJUSTMENT DETAIL<br>-ENGLISH- |
|--------|---------------------|-----|--------|----------------------------|-----|-------------|-----|----------|---------|-----------------|-----------------|--|
| VC5200 | PLUNGER BRACKET     | 1   |        |                            |     |             |     |          |         | -               | DWN BY JMW      |  |
| VC5203 | KEEPER PLATE        | 1   |        |                            | A   |             | JMW | 12-10-99 |         |                 | APPD DA         |  |
| VC5206 | HANDLE EXTENSION    | 1   | VH0086 | SHCS, 1/4 - 20 x 1 1/4     | 2   |             |     |          |         |                 | DATE 12-10-99   |  |
| VC5207 | FIXED PLATE         | 2   | VH0159 | SET SCREW, 5/16 - 18 x 1/2 | 2   | 2000 FORMAT | JMW | 4-10-00  |         | HEAT TREATMENT: | SCALE 1/2       |  |
| VC5209 | SPACER              | 8   | VH0166 | ACORN NUT, 5/8 - 11        | 1   | ECN 393     | JMW | DA       | 7-20-04 | -               | DWG. NO. VC5227 |  |
| VC5215 | SPACER              | 4   | VH0178 | HANDLE                     | 1   |             |     |          |         |                 |                 |  |
| VC5216 | SPROCKET            | 2   | VH0179 | PLUNGER                    | 1   |             |     |          |         |                 |                 |  |
| VC5217 | ELEVATOR NUT        | 2   | VH0184 | SHCS, 1/4 - 20 x 2 1/2     | 8   |             |     |          |         |                 |                 |  |
| VC5218 | CHAIN               | 1   | VH0195 | JAM NUT, 1/2 - 13          | 2   |             |     |          |         |                 |                 |  |
| VC5222 | SCALE, ENGLISH      | 1   | VH0196 | BEARING, CAM ROLLER        | 8   |             |     |          |         |                 |                 |  |
| VC5241 | ACME ROD            | 2   | VH0197 | FHMS, 5/16 - 18 x 3 1/2    | 4   |             |     |          |         |                 |                 |  |
| VH0033 | BHCS, 10 - 32 x 1/4 | 2   | VH0514 | SHCS, 5/8 - 11 x 6         | 2   |             |     |          |         |                 |                 |  |



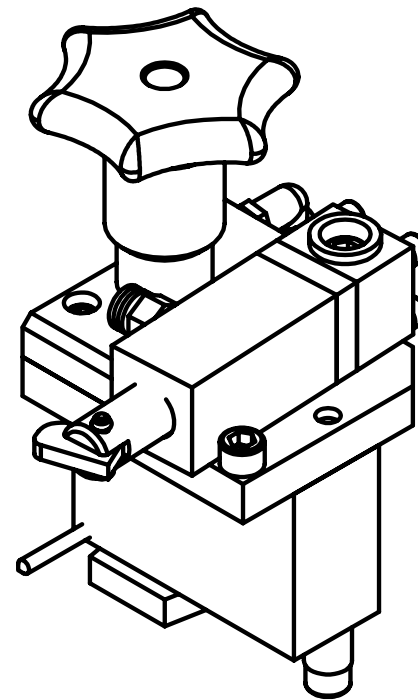
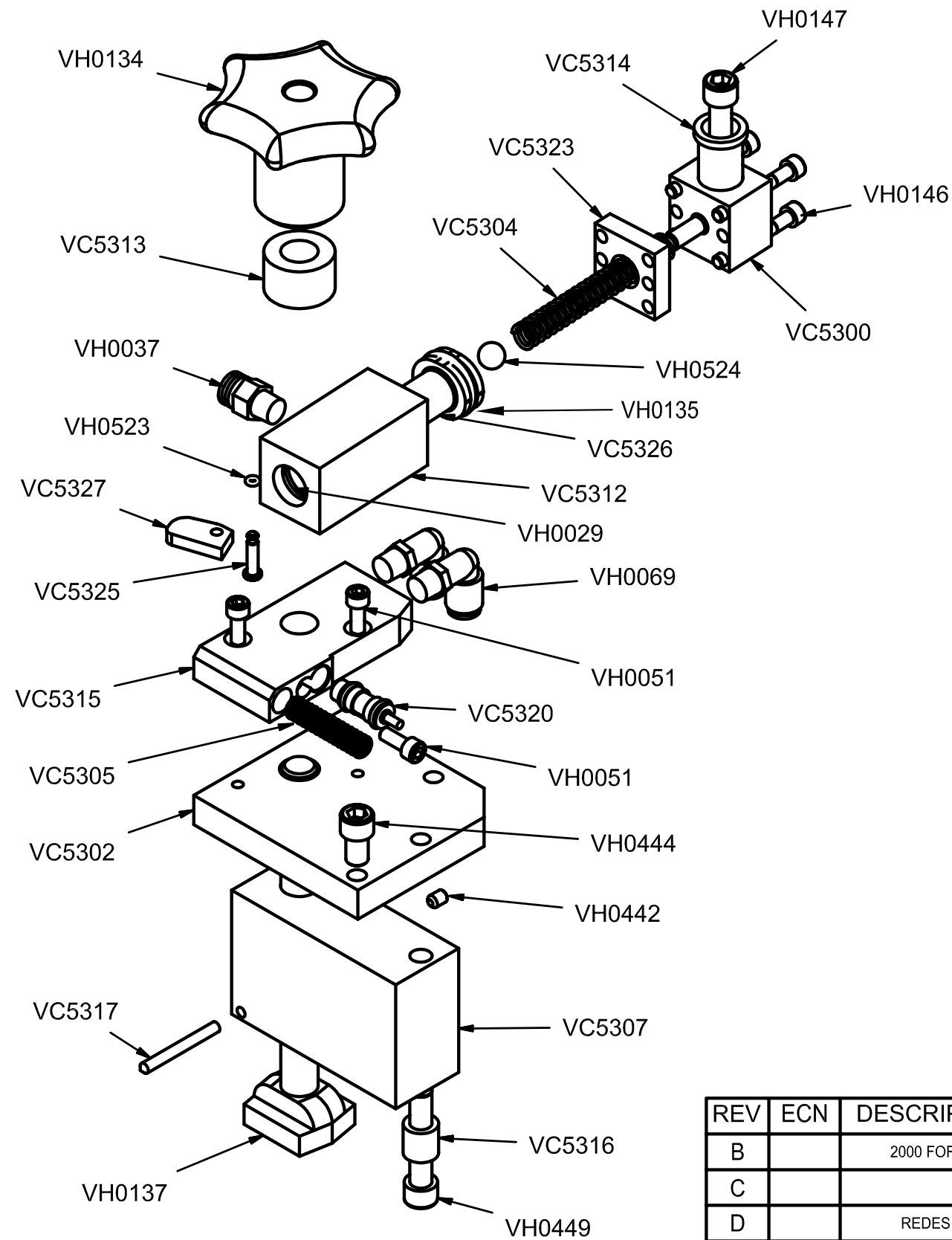
| PART # | DESCRIPTION                      | QT |
|--------|----------------------------------|----|
| VC0004 | SPRING, PISTON                   | 1  |
| VC0006 | PISTON ASSEMBLY                  | 1  |
| VC0009 | ROLLER                           | 1  |
| VC0011 | LINK                             | 2  |
| VC0034 | WARNING LABEL                    | 1  |
| VC0230 | CLIP FEEDER STOP                 | 1  |
| VC5100 | PISTON (CLIP FEEDER)             | 1  |
| VC5101 | DRIVER BLADE                     | 1  |
| VC5102 | TOP PLATE                        | 1  |
| VC5103 | CYLINDER BODY (CLIP FEEDER)      | 1  |
| VC5104 | ENTRY GUIDE                      | 1  |
| VC5105 | CYLINDER END CAP (CLIP FEEDER)   | 1  |
| VC5106 | ANVIL                            | 1  |
| VC5107 | LEFT-HAND SIDE PLATE             | 1  |
| VC5108 | LEFT-HAND SIDE PLATE             | 1  |
| VC5110 | BLADE GUIDE                      | 1  |
| VC5113 | FRONT PLATE                      | 1  |
| VC5114 | MOUNTING BRACKET                 | 1  |
| VC5115 | CYLINDER MOUNT                   | 1  |
| VC5117 | TORSION SPRING                   | 1  |
| VC5118 | LINK PIN                         | 2  |
| VC5119 | YOKE                             | 1  |
| VC5120 | BODY                             | 1  |
| VC5121 | PAWL SPRING                      | 2  |
| VC5122 | LEFT-HAND PAWL                   | 1  |
| VC5123 | RIGHT-HAND PAWL                  | 1  |
| VC5124 | FRONT PLATE PIN                  | 1  |
| VC5126 | VERSACLIPPER LABEL               | 1  |
| VC5127 | SPRING                           | 1  |
| VC5129 | CAP                              | 1  |
| VC5132 | PIN, FEED CYLINDER               | 1  |
| VH0002 | NUT, FLEX, 1/4 - 20              | 3  |
| VH0003 | SHCS, 10 - 14 x 5/8 PLASTITE     | 5  |
| VH0009 | O-RING, #040                     | -  |
| VH0010 | O-RING, #335                     | -  |
| VH0012 | PIN, SPRING, 1/8 x 1 1/4         | 1  |
| VH0013 | PIN, DOWEL                       | 1  |
| VH0030 | O-RING, #111                     | -  |
| VH0051 | SHCS, 10 - 32 x 1/2              | 4  |
| VH0066 | SHCS, 8 - 32 x 5/8               | 2  |
| VH0069 | PUSH-IN FTG, 90 1/4 OD x 1/8 NPT | 1  |
| VH0135 | O-RING, #210                     | -  |
| VH0152 | FHCS, 1/4 - 20 x 1/2             | 2  |
| VH0153 | SHOULDER BOLT, 3/8 x 1 1/2       | 2  |
| VH0154 | NUT, FLEX, 5/16 - 18             | 2  |
| VH0155 | SHOULDER BOLT, 5/16 x 1 1/4      | 3  |
| VH0157 | SHCS, 1/4 - 20 x 5/8             | 2  |
| VH0206 | PUSH-IN FTG, 90 1/2 OD x 3/8 NPT | 1  |
| VH0212 | SHCS, 10 - 32 x 3/8              | 1  |
| VH0226 | SHCS, 5/16 - 24 x 1 3/4          | 2  |
| VH0227 | NUT, FLEX, 5/16 - 24             | 2  |
| VH0246 | TUBING, 1/4 x 8                  | 1  |
| VH0391 | PUSH-IN FTG, 1/4 x 1/8 NPT       | 1  |
| VH0531 | HAIR PIN                         | 1  |



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| REV | ECN | DESCRIPTION                                      | BY  | APPD | DATE    | MATERIAL:       | TOL UNLESS SPECIFIED | © 2004   | VERTEX FASTENERS INC. |
|-----|-----|--|-----|------|---------|-----------------|----------------------|----------|-----------------------|
| F   |     | NEW CAP  | JMW |      | 4-17-02 |                 |                      | DWN BY   | JMW                   |
| G   |     | VH0391 WAS VH0069 (CLIP FEEDER)                  | JMW | DA   | 7-3-03  | HEAT TREATMENT: |                      | APPD     | DA                    |
| H   | 304 | VC5132 & VH0531 REPLACE SHCS & NUT               | JMW | DA   | 12-9-03 |                 |                      | DATE     | 10-28-99              |
| J   | 348 | INVENTOR FILE                                    | JMW | DA   | 5-12-04 | FINISH:         |                      | SCALE    |                       |
| K   | 504 | O-RING CHNG WAS VH0158 (#211), NOW VH0135 (#210) | JMW | DA   | 6-15-05 |                 |                      | DWG. NO. | VC5125                |

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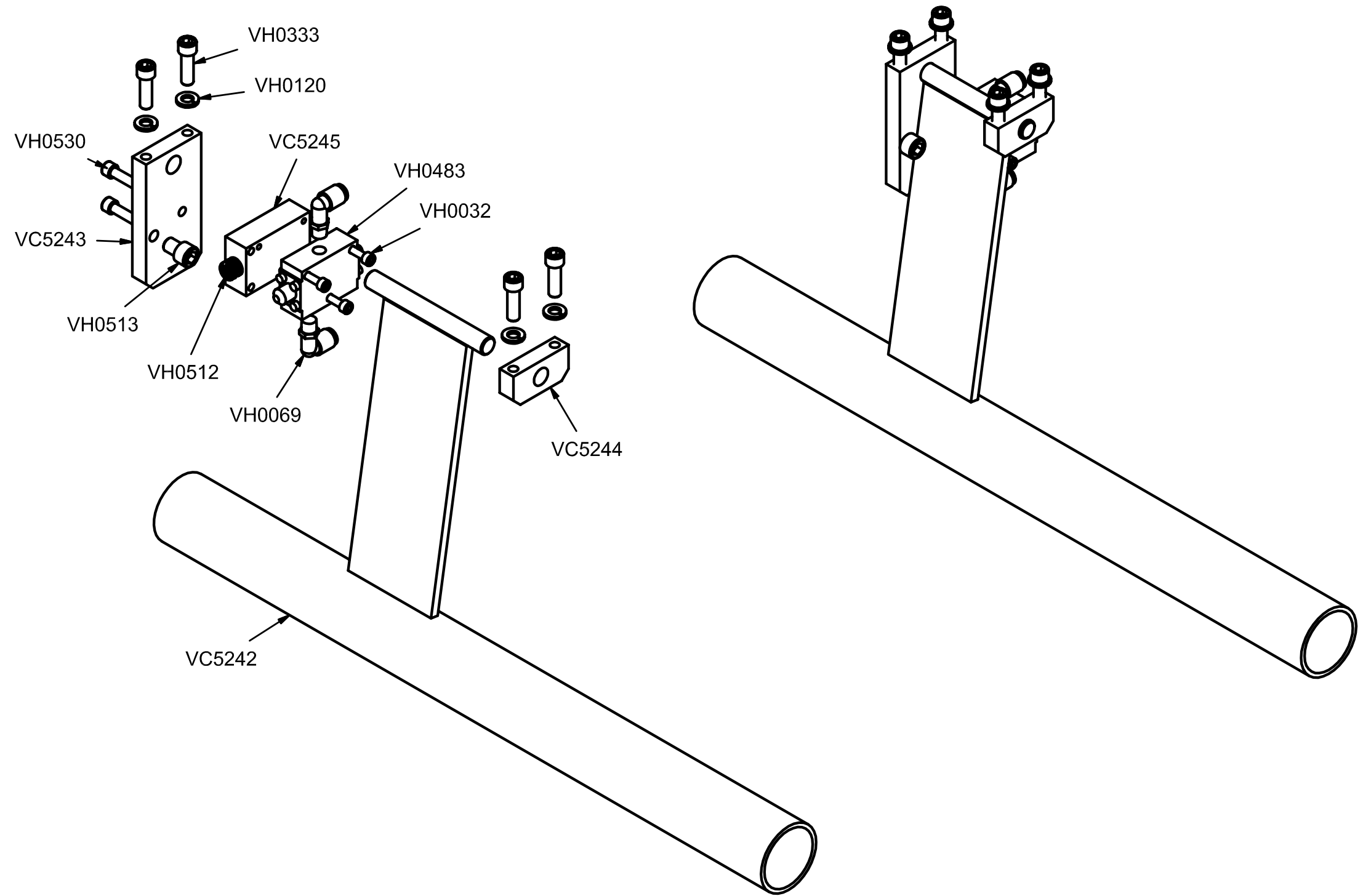


| PART # | DESCRIPTION                    | QT |
|--------|--------------------------------|----|
| VC5300 | CYLINDER END CAP               | 1  |
| VC5302 | MOUNTING PLATE                 | 1  |
| VC5304 | SPRING                         | 1  |
| VC5305 | SPRING                         | 1  |
| VC5307 | RISER                          | 1  |
| VC5312 | CYLINDER BODY                  | 1  |
| VC5313 | SPACER                         | 1  |
| VC5314 | BUSHING                        | 1  |
| VC5315 | MANIFOLD                       | 1  |
| VC5316 | SPACER                         | 1  |
| VC5317 | POINTER                        | 1  |
| VC5320 | AIR VALVE, CARTRIDGE           | 1  |
| VC5323 | CYLINDER SPACER                | 1  |
| VC5325 | PIN                            | 1  |
| VC5326 | TRIGGER PISTON                 | 1  |
| VC5327 | FLAG                           | 1  |
| VH0029 | O-RING, #114                   | -  |
| VH0037 | PUSH-IN FTG, 1/4 x 1/8 NPT     | 1  |
| VH0051 | SHCS, 10 - 32 x 1/2            | 3  |
| VH0069 | PUSH-IN FTG, 90, 1/4 x 1/8 NPT | 2  |
| VH0134 | KNOB                           | 1  |
| VH0135 | O-RING, #210                   | -  |
| VH0137 | 1/2 - 13 x 5 1/2 T-BOLT        | 1  |
| VH0146 | SHCS, 10 - 32 x 1 1/2          | 4  |
| VH0147 | SHCS, 5/16 - 24 x 1 1/4        | 1  |
| VH0442 | SET SCREW, 10 - 32 x 1/4       | 1  |
| VH0444 | SHCS, 5/16 - 24 x 1/2          | 1  |
| VH0449 | SHCS, 5/16 - 24 x 3            | 1  |
| VH0523 | O-RING, #004                   | 1  |
| VH0524 | 3/8 CHROME BALL                | 1  |

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|-----|-----|--------------------|-----|------|---------|-----------------|--|-----------------|---|
| B   |     | 2000 FORMAT        | JMW |      | 4-10-00 |                 | .INCHES<br>.X = ± .030<br>.XX = ± .015<br>.XXX = ± .005<br>ANGLES ± 1/2° | DWN BY JMW      | 3714 JARVIS AVENUE<br>SKOKIE, IL 60076 U.S.A. |
| C   |     |                    | JMW |      | 4-28-00 | HEAT TREATMENT: |  | APPD DA         |   |
| D   |     | REDESIGN           | JMW |      | 9-5-02  |                 |  | DATE 10-20-99   | CLIP TRIGGER ASSEMBLY                         |
| E   |     | WAS VH0072, VH0145 | JMW |      | 11-8-02 | FINISH:         |  | SCALE 1:2       |   |
| F   | 393 | INVENTOR FILE      | JMW | DA   | 7-28-04 |                 | INVENTOR   | DWG. NO. VC5318 | B   |

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| PART # | DESCRIPTION                      | QT |
|--------|----------------------------------|----|
| VC5242 | KNEE KNOCKER                     | 1  |
| VC5243 | HINGE BRACKET WITH SWITCH        | 1  |
| VC5244 | HINGE BRACKET                    | 1  |
| VC5245 | MOUNT BLOCK                      | 1  |
| VH0032 | SHCS, 10 - 24 x 1                | 3  |
| VH0069 | PUSH-IN FTG, 90 1/4 OD x 1/8 NPT | 2  |
| VH0120 | WASHER, LOCK, 5/16               | 4  |
| VH0333 | SHCS, 5/16 - 18 x 1              | 4  |
| VH0483 | SWITCH                           | 1  |
| VH0512 | SPRING, DIE, 1/2 x 2             | 1  |
| VH0513 | SHCS, 3/8 - 16 x 1/2             | 1  |
| VH0530 | SHCS, 1/4 - 20 x 1               | 2  |

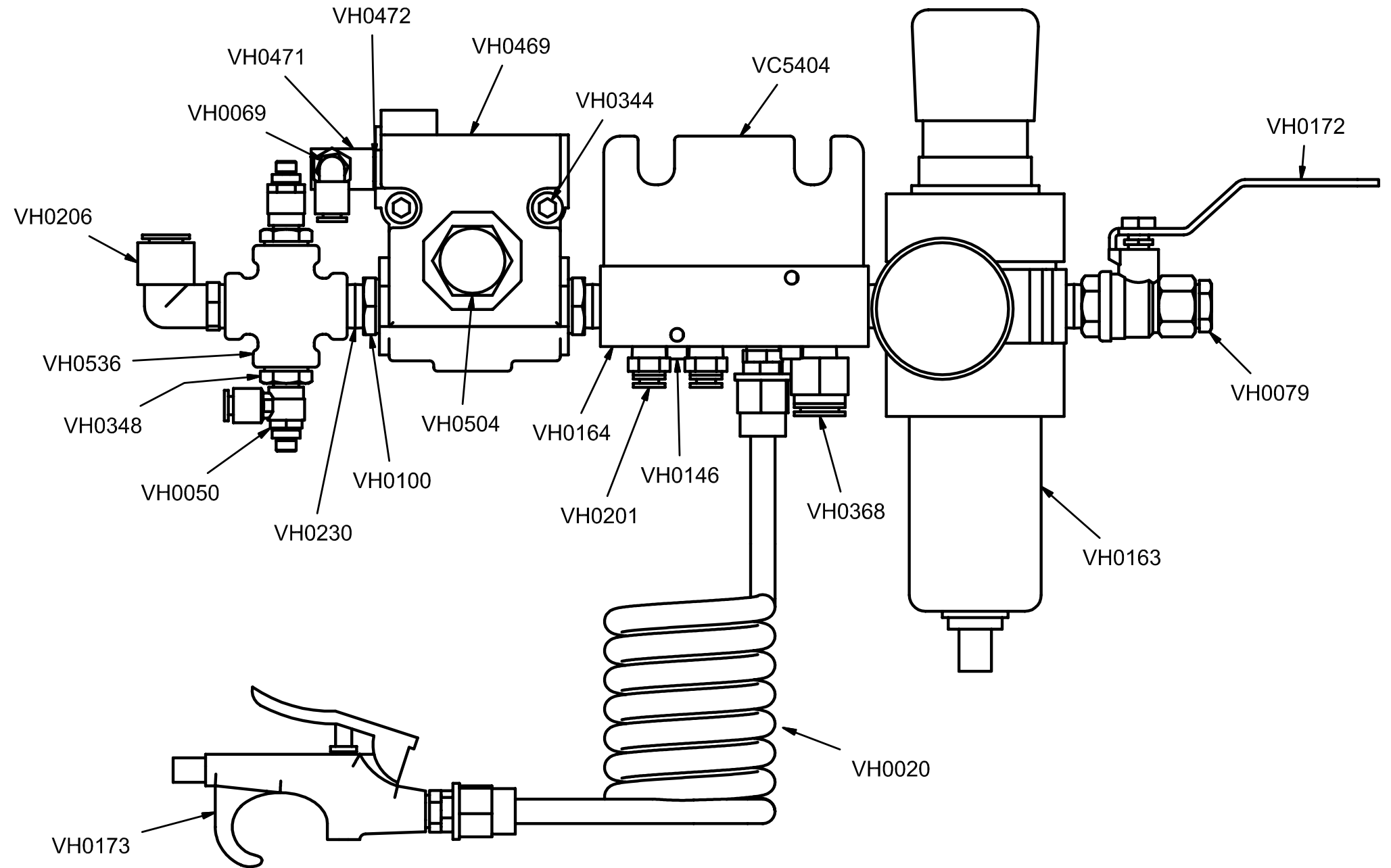


| REV | ECN | DESCRIPTION | BY | APPD | DATE | MATERIAL:       | TOL. UNLESS SPECIFIED   | © 2004          | VERTEX FASTENERS INC.                         |
|-----|-----|-------------|----|------|------|-----------------|---|-----------------|---|
|     |     |             |    |      |      |                 | INCHES<br>.X = ± .030<br>.XX = ± .015<br>.XXX = ± .005<br>ANGLES ± 1/2° | DWN BY JMW      | 3714 JARVIS AVENUE<br>SKOKIE, IL 60076 U.S.A. |
|     |     |             |    |      |      | HEAT TREATMENT: |   | APPD DA         | KNEE KNOCKER ASSEMBLY                         |
|     |     |             |    |      |      | FINISH:         |   | DATE 8-11-04    |   |
|     |     |             |    |      |      |                 |   | SCALE -         |   |
|     |     |             |    |      |      |                 |   | DWG. NO. VC5246 | B   |

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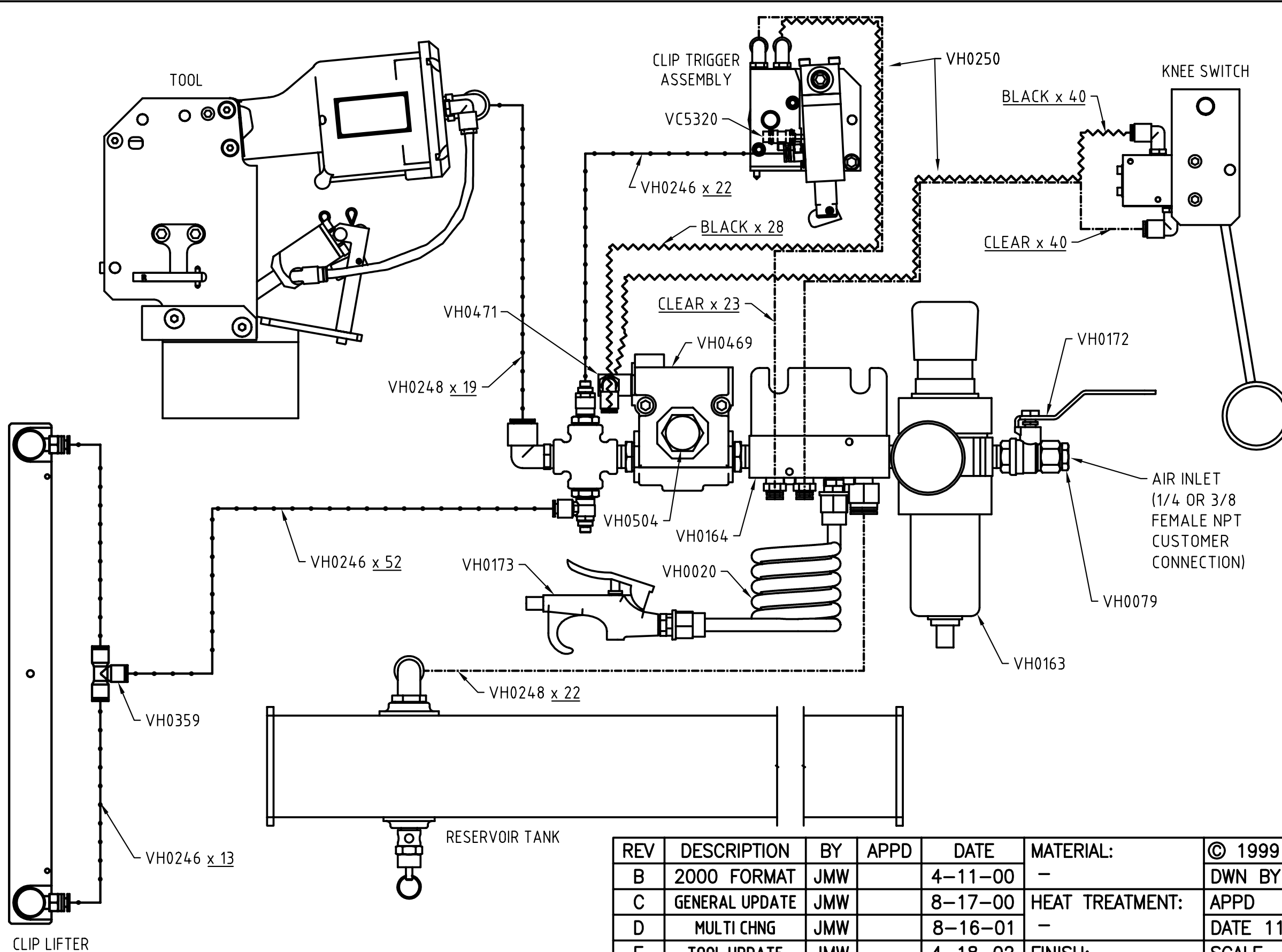
| PART # | DESCRIPTION                     | QT |
|--------|---------------------------------|----|
| VC5404 | CLIP TRIGGER BRACKET            | 1  |
| VH0020 | RETRACTABLE HOSE                | 1  |
| VH0050 | FLOW CONTROL                    | 2  |
| VH0069 | PUSH-IN FTG, 90, 1/4 x 1/8 NPT  | 2  |
| VH0079 | BUSHING, HEX REDUCER, 3/8 x 1/4 | 1  |
| VH0100 | BUSHING, HEX REDUCER, 1/2 x 3/8 | 2  |
| VH0146 | SHCS, 10 - 32 x 1 1/2           | 2  |
| VH0163 | FILTER/REGULATOR W/ GAUGE       | 1  |
| VH0164 | MANIFOLD                        | 1  |
| VH0172 | VALVE, VENTED SHUT-OFF BALL     | 1  |
| VH0173 | AIR GUN                         | 1  |
| VH0201 | PUSH-IN FTG, STR, 1/4 x 1/4 NPT | 2  |
| VH0206 | PUSH-IN FTG, 90, 1/2 x 3/8 NPT  | 1  |
| VH0230 | NIPPLE, 3/8 NPT                 | 4  |
| VH0344 | SHCS, 5/16 - 18 x 2             | 2  |
| VH0348 | BUSHING, HEX REDUCER, 3/8 x 1/8 | 2  |
| VH0368 | PUSH-IN FTG, STR, 1/2 x 1/4 NPT | 1  |
| VH0469 | VALVE                           | 1  |
| VH0471 | SHUTTLE VALVE                   | 1  |
| VH0472 | NIPPLE 1/8                      | 1  |
| VH0504 | MUFFLER                         | 1  |
| VH0536 | CROSS, 3/8                      | 1  |



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| B   |     | STR CHG TO 90 & GENERAL UPDATE | JMW |      | 8-16-00 |                 | .INCHES<br>.X = ± .030<br>.XX = ± .015<br>.XXX = ± .005<br>ANGLES ± 1/2° | DWN BY          | 3714 JARVIS AVENUE<br>SKOKIE, IL 60076 U.S.A. |
| C   |     | REDESIGN                       | JMW |      | 8-14-01 | HEAT TREATMENT: |  | APPD            |   |
| D   | 393 | UPDATE                         | JMW |      | 7-22-04 | FINISH:         |  | DATE 4-26-00    | CONTROL VALVE ASSEMBLY                        |
|     |     |                                |     |      |         |                 |  | SCALE 1:2       |   |
|     |     |                                |     |      |         |                 |  | DWG. NO. VC5403 | B   |

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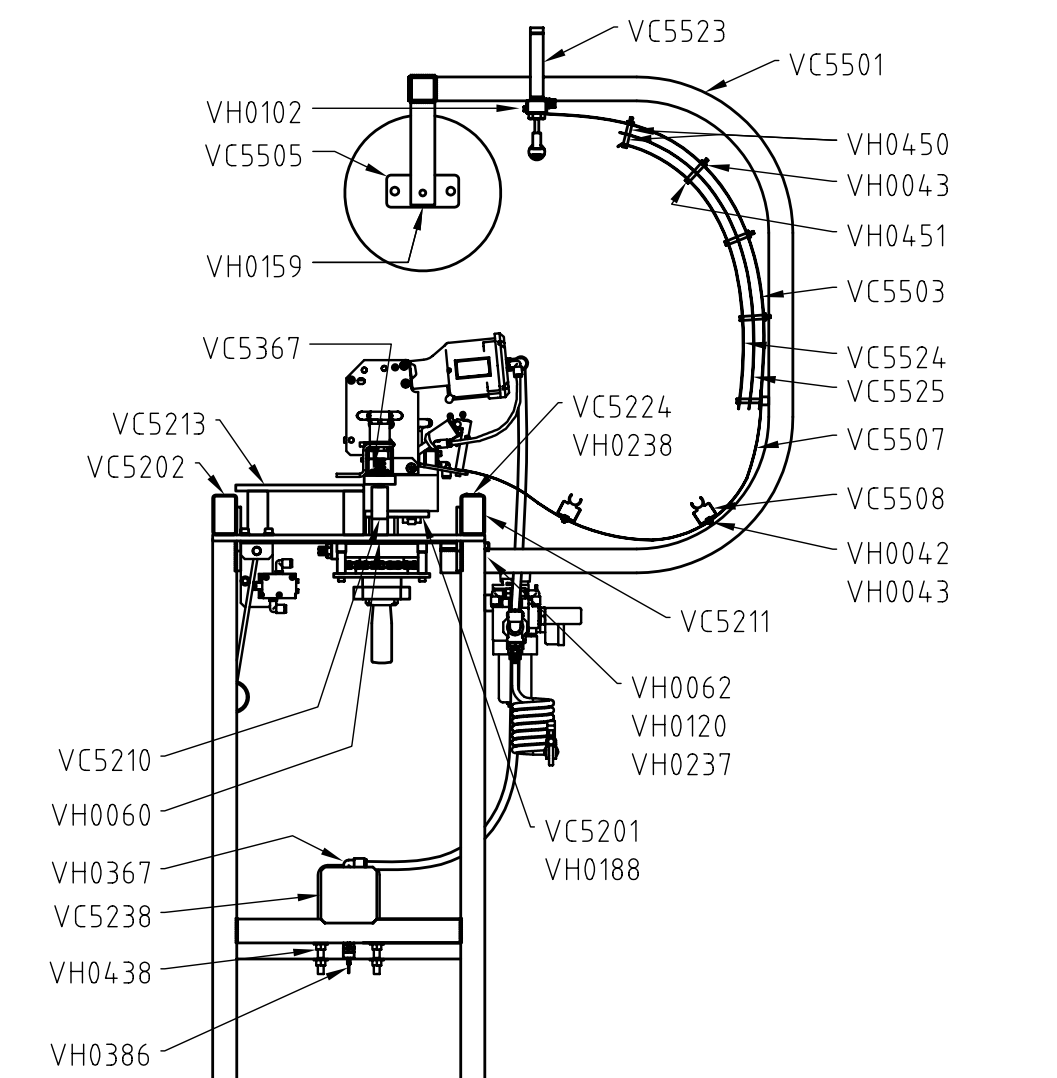
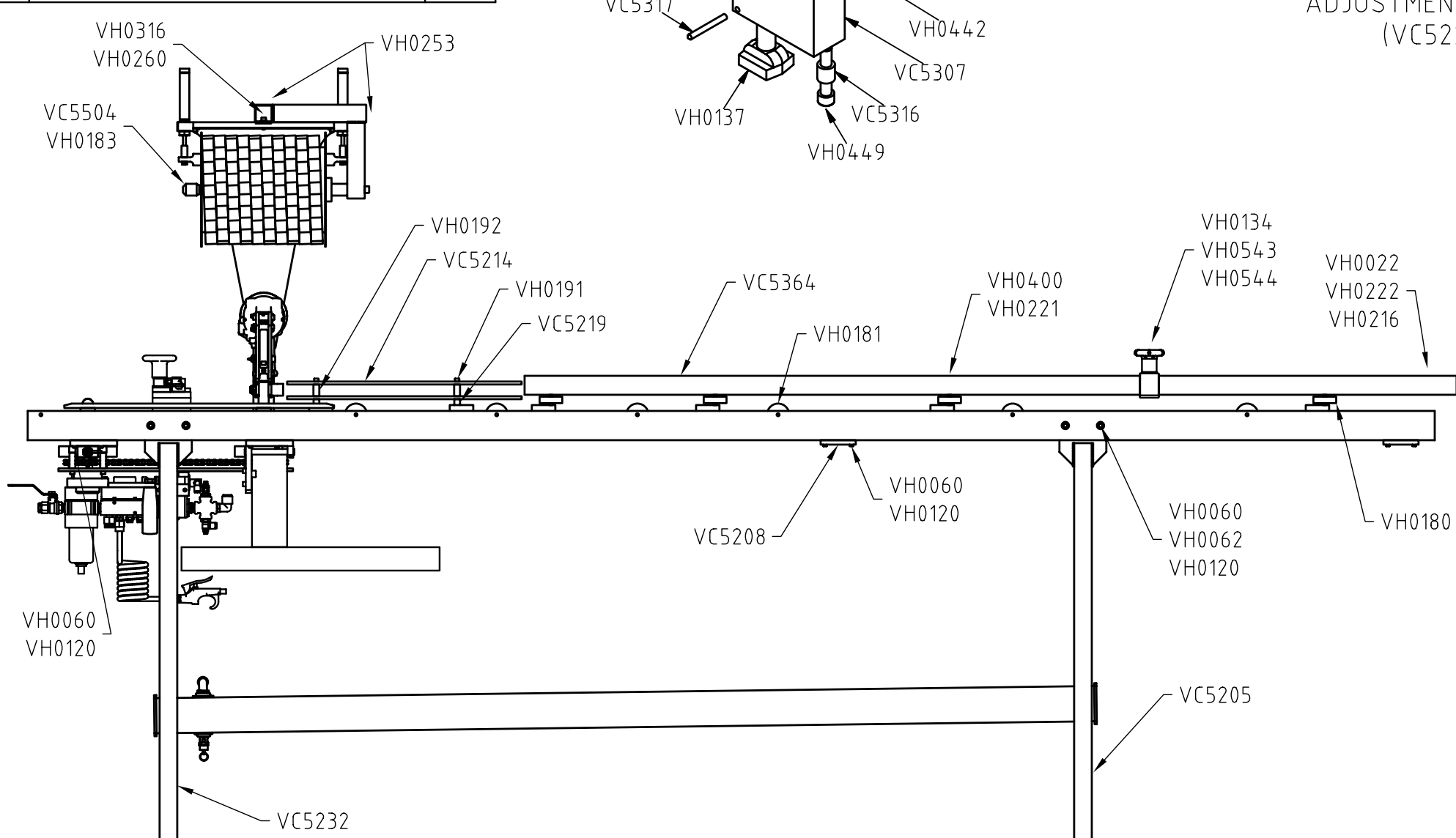
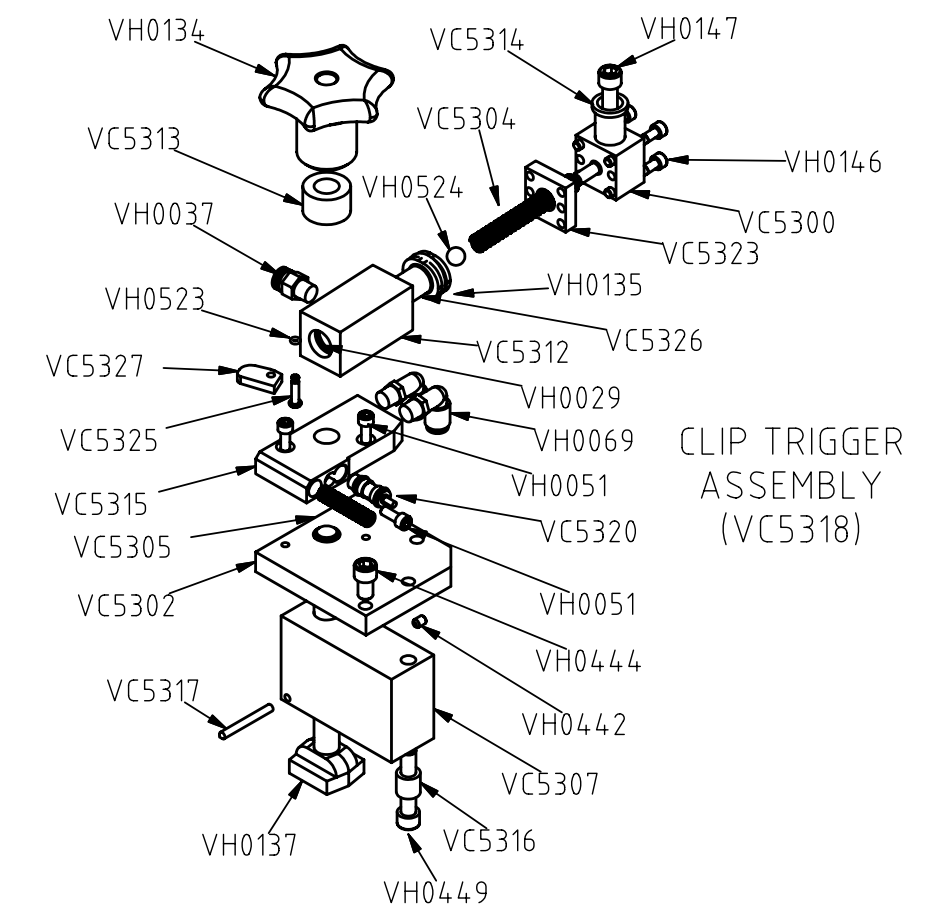
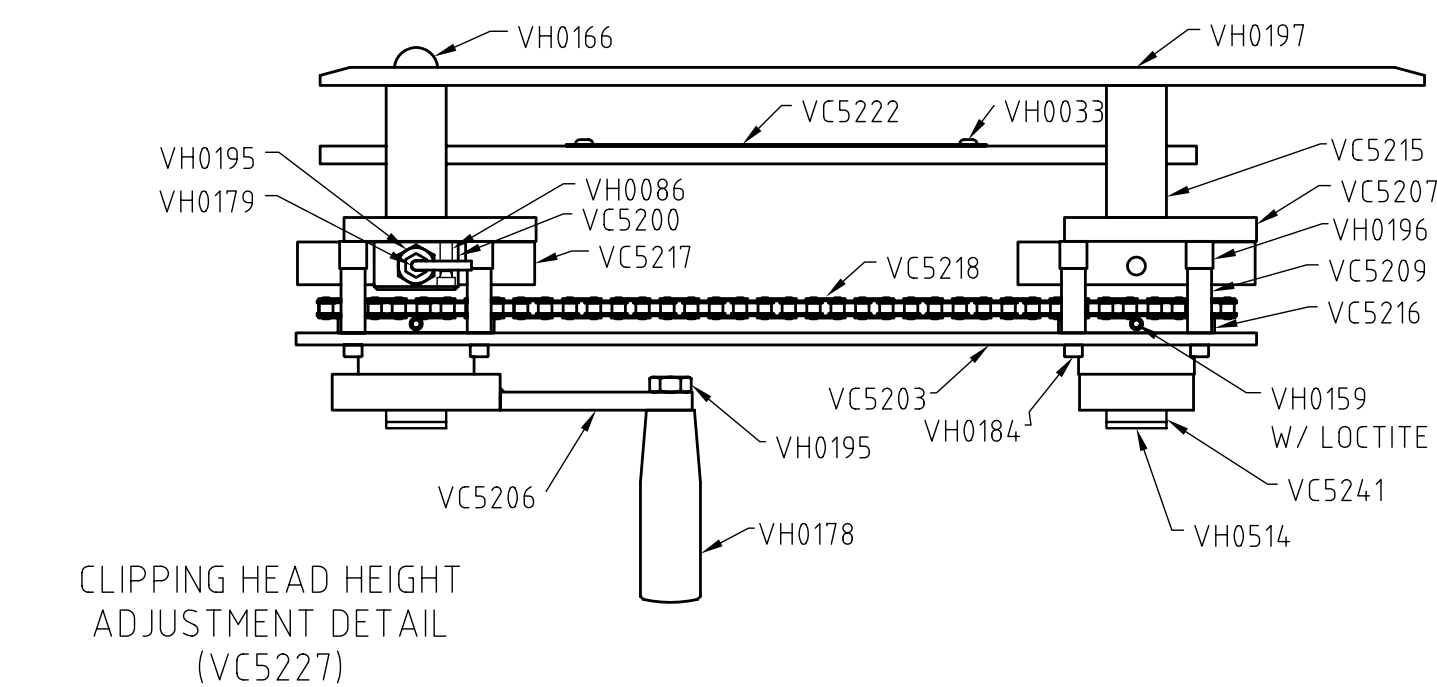
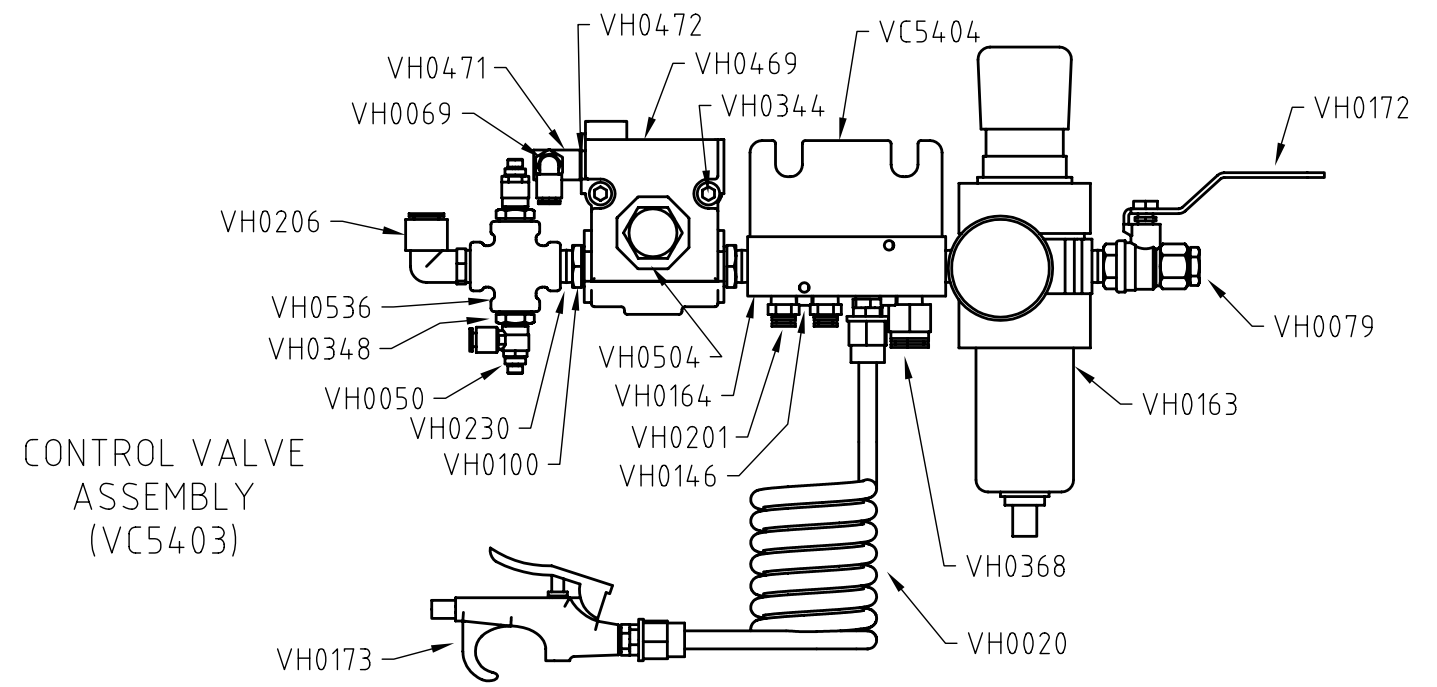


| PART # | DESCRIPTION                       | QTY       |
|--------|-----------------------------------|-----------|
| VC5320 | AIR VALVE CARTRIDGE               | -         |
| VH0020 | RETENTION COIL HOSE, BLUE         | -         |
| VH0079 | HEX BUSHING, 3/8 x 1/4            | -         |
| VH0163 | FILTER/REGULATOR WITH GAGE        | -         |
| VH0171 | CLIP TRIGGER FLOW CONTROL VALVE   | -         |
| VH0172 | VENTED SHUT OFF BALL VALVE        | -         |
| VH0173 | AIRGUN                            | -         |
| VH0246 | TUBING, 1/4 OD POLYETHYLENE, BLK  | TOTAL 100 |
| VH0248 | TUBING, 1/2 OD POLYETHYLENE, BLK  | TOTAL 41  |
| VH0250 | DUAL TUBING, 1/4 OD, BLK & CLEAR  | TOTAL 68  |
| VH0359 | PUSH-IN TUBE FITTING, TEE, 1/4 OD | 1         |
| VH0469 | MAIN ACTUATION VALVE              | -         |
| VH0471 | SHUTTLE VALVE                     | -         |
| VH0504 | MUFFLER, 1/2 NPT                  | -         |

- - - - - SUPPLY LINE  
 ~~~~~ SIGNAL LINE  
 . . . . . DISCHARGE LINE  
 VH#### x ##  
                   ↑  
                   INCHES  
                   ↑  
                   PART NUMBER

| REV | DESCRIPTION    | BY  | APPD | DATE    | MATERIAL:       | © 1999          | VERTEX FASTENERS INC.<br>3714 JARVIS AVENUE<br>SKOKIE, IL 60076 U.S.A.<br><br>PNEUMATICS |
|-----|----------------|-----|------|---------|-----------------|-----------------|------------------------------------------------------------------------------------------|
| B   | 2000 FORMAT    | JMW |      | 4-11-00 | -               | DWN BY JMW      |                                                                                          |
| C   | GENERAL UPDATE | JMW |      | 8-17-00 | HEAT TREATMENT: | APPD DA         |                                                                                          |
| D   | MULTI CHNG     | JMW |      | 8-16-01 | -               | DATE 11-3-99    |                                                                                          |
| E   | TOOL UPDATE    | JMW |      | 4-18-02 | FINISH:         | SCALE NONE      |                                                                                          |
| F   | ECN 393        | JMW | DA   | 7-22-04 | -               | DWG. NO. VC5401 | B                                                                                        |

| PART # | DESCRIPTION                    | QTY | VH0062 | NUT, 5/16 - 18                   | 10 | VH0253 | CAP                             | 2  | VH0472 | NIPPLE 1/8         | 1 | VH0524 | 3/8 CHROME BALL | 1 |
|--------|--------------------------------|-----|--------|----------------------------------|----|--------|---------------------------------|----|--------|--------------------|---|--------|-----------------|---|
| VC5200 | PLUNGER BRACKET                | 1   | VH0069 | PUSH-IN FTG, 90, 1/4 x 1/8 NPT   | 4  | VH0260 | WASHER, LOCK, 1/4               | 1  | VH0504 | MUFFLER            | 1 | VH0536 | CROSS, 3/8      | 1 |
| VC5201 | SUB-PLATE                      | 1   | VH0079 | BUSHING, HEX REDUCER, 3/8 x 1/4  | 1  | VH0316 | SHCS, 1/4 - 20 x 3/4            | 1  | VH0514 | SHCS, 5/8 - 11 x 6 | 2 | VH0543 | Z-BRACKET       | 1 |
| VC5202 | FRONT RAIL                     | 1   | VH0086 | SHCS, 1/4 - 20 x 1 1/4           | 2  | VH0344 | SHCS, 5/16 - 18 x 2             | 2  | VH0523 | O-RING, #004       | 1 | VH0544 | NUT, STUD       | 1 |
| VC5203 | KEEPER PLATE                   | 1   | VH0100 | BUSHING, HEX REDUCER, 1/2 x 3/8  | 2  | VH0348 | BUSHING, HEX REDUCER, 3/8 x 1/8 | 2  |        |                    |   |        |                 |   |
| VC5205 | LEG ASSEMBLY                   | 1   | VH0102 | SHCS, 8 - 32 x 3/8 w/ LKG PATCH  | 3  | VH0367 | PUSH-IN TUBE FTG, 90°           | 1  |        |                    |   |        |                 |   |
| VC5206 | HANDLE EXTENSION               | 1   | VH0120 | LOCK WASHER, 5/16                | 24 | VH0368 | PUSH-IN FTG, STR, 1/2 x 1/4 NPT | 1  |        |                    |   |        |                 |   |
| VC5207 | FIXED PLATE                    | 2   | VH0134 | KNOB                             | 2  | VH0386 | SAFETY VALVE                    | 1  |        |                    |   |        |                 |   |
| VC5208 | STRUT                          | 2   | VH0135 | O-RING, PISTON                   | -  | VH0400 | SHCS, 1/4 - 20 x 1 1/2          | 4  |        |                    |   |        |                 |   |
| VC5209 | SPACER                         | 8   | VH0137 | 1/2 - 13 x 5 1/2 T-BOLT          | 1  | VH0438 | U-BOLT                          | 2  |        |                    |   |        |                 |   |
| VC5210 | CENTER RAIL                    | 1   | VH0146 | 10 - 32 x 1 1/2 SHCS             | 6  | VH0442 | SET SCREW, 10 - 32 x 1/4        | 1  |        |                    |   |        |                 |   |
| VC5211 | REAR RAIL                      | 1   | VH0147 | 5/16 - 24 x 1 1/4 SHCS           | 1  | VH0444 | SHCS 5/16 - 24 x 1/2            | 1  |        |                    |   |        |                 |   |
| VC5213 | BASE PLATE                     | 1   | VH0159 | SET SCREW, 5/16 - 18 x 1/2       | 3  | VH0449 | 5/16 - 24 x 3 SHCS              | 1  |        |                    |   |        |                 |   |
| VC5214 | ENTRY GUIDE RAIL               | 2   | VH0163 | FILTER/REGULATOR W/ GAUGE        | 1  | VH0450 | SPACER                          | 20 |        |                    |   |        |                 |   |
| VC5215 | SPACER                         | 4   | VH0164 | MANIFOLD                         | 1  | VH0451 | SHCS, 8 - 32 x 1 3/4            | 10 |        |                    |   |        |                 |   |
| VC5216 | SPROCKET                       | 2   | VH0166 | ACORN NUT, 5/8 - 11              | 1  | VH0469 | VALVE                           | 1  |        |                    |   |        |                 |   |
| VC5217 | ELEVATOR NUT                   | 2   | VH0172 | VALVE, VENTED SHUT-OFF BALL      | 1  | VH0471 | SHUTTLE VALVE                   | 1  |        |                    |   |        |                 |   |
| VC5218 | CHAIN                          | 1   | VH0173 | AIR GUN                          | 1  |        |                                 |    |        |                    |   |        |                 |   |
| VC5219 | ENTRY GUIDE RAIL STUD          | 2   | VH0178 | HANDLE                           | 1  |        |                                 |    |        |                    |   |        |                 |   |
| VC5222 | SCALE, ENGLISH                 | 1   | VH0179 | PLUNGER                          | 1  |        |                                 |    |        |                    |   |        |                 |   |
| VC5224 | VC NAMEPLATE                   | 1   | VH0180 | SKATE WHEEL                      | 4  |        |                                 |    |        |                    |   |        |                 |   |
| VC5232 | LEG ASSY W/ WELDED MNTG BRKT   | 1   | VH0181 | ROLLER                           | 6  |        |                                 |    |        |                    |   |        |                 |   |
| VC5238 | TANK ASSEMBLY                  | 1   | VH0183 | SHCS, 3/8 - 16 x 3/4             | 1  |        |                                 |    |        |                    |   |        |                 |   |
| VC5241 | ACME ROD                       | 2   | VH0184 | SHCS, 1/4 - 20 x 2 1/2           | 8  |        |                                 |    |        |                    |   |        |                 |   |
| VC5300 | CYLINDER END CAP               | 1   | VH0188 | FHCS, 3/8 - 16 x 7/8             | 1  |        |                                 |    |        |                    |   |        |                 |   |
| VC5302 | MOUNTING PLATE                 | 1   | VH0191 | SHCS, 1/4 - 20 x 2 1/4           | 2  |        |                                 |    |        |                    |   |        |                 |   |
| VC5304 | SPRING                         | 1   | VH0192 | STANDOFF, 1/4 ID, 1/2 OD, 1 LONG | 2  |        |                                 |    |        |                    |   |        |                 |   |
| VC5305 | SPRING                         | 1   | VH0195 | JAM NUT, 1/2 - 13                | 2  |        |                                 |    |        |                    |   |        |                 |   |
| VC5307 | RISER                          | 1   | VH0196 | BEARING, CAM ROLLER              | 8  |        |                                 |    |        |                    |   |        |                 |   |
| VC5312 | CYLINDER BODY                  | 1   | VH0197 | FHMS, 5/16 - 18 x 3 1/2          | 4  |        |                                 |    |        |                    |   |        |                 |   |
| VC5313 | SPACER                         | 1   | VH0201 | PUSH-IN FTG, STR, 1/4 x 1/4 NPT  | 2  |        |                                 |    |        |                    |   |        |                 |   |
| VC5314 | BUSHING                        | 1   | VH0206 | PUSH-IN FTG, 90, 1/2 x 3/8 NPT   | 1  |        |                                 |    |        |                    |   |        |                 |   |
| VC5315 | MANIFOLD HOUSING               | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5316 | SPACER                         | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5317 | POINTER                        | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5320 | AIR VALVE, CARTRIDGE           | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5323 | CYLINDER SPACER                | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5325 | PIN                            | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5326 | TRIGGER PISTON                 | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5327 | FLAG                           | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5364 | UNI-STRUT RAIL                 | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5367 | MEASURING TAPE, ENGLISH        | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5404 | CLIP TRIGGER BRACKET           | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5501 | DISPENSER FRAME                | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5503 | CLIP CHUTE                     | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5504 | SPOOL ROD                      | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5505 | MAGNETIC BRAKE BLOCK           | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5507 | TRACK                          | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5508 | TRACK GUIDE                    | 2   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5523 | CLIP LIFTER                    | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5524 | INSIDE CLIP CHUTE              | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VC5525 | STRIP GUIDE FOR CHUTE          | 2   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0020 | RETRACTABLE HOSE               | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0022 | BHCS, 10 - 32 x 1/2            | 2   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0029 | O-RING                         | -   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0033 | BHCS, 10 - 32 x 1/4            | 2   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0037 | PUSH-IN FTG, 1/4 x 1/8 NPT     | 1   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0042 | SHCS, 8 - 32 x 1/4             | 4   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0043 | LOCK NUT, 8 - 32 (THIN HEIGHT) | 12  |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0050 | FLOW CONTROL                   | 2   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0051 | 10 - 32 x 1/2 SHCS             | 3   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0060 | SHCS, 5/16 - 18 x 3/4          | 25  |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0216 | FLEX NUT, 10 - 32              | 2   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0221 | WASHER, 1/4 SAE                | 4   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0222 | WASHER, 3/4 OD 3/16 ID         | 2   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0230 | NIPPLE, 3/8 NPT                | 4   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0237 | SHCS, 5/16 - 18 x 1 1/2        | 2   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |
| VH0238 | DRIVE SCREW, #4 x 5/16         | 4   |        |                                  |    |        |                                 |    |        |                    |   |        |                 |   |



| REV | DESCRIPTION | BY  | APPD | DATE    | MATERIAL:       | © 2000          | VERTEX FASTENERS INC.   |
|-----|-------------|-----|------|---------|-----------------|-----------------|-------------------------|
| A   |             | JMW |      | 8-20-01 | -               | DWN BY          | 3714 JARVIS AVENUE      |
| B   | TOOL UPDATE | JMW |      | 4-18-02 | HEAT TREATMENT: | APPD DA         | SKOKIE, IL 60076 U.S.A. |
| C   | ECN 393     | JMW | DA   | 8-13-04 | -               | DATE 8-20-01    | VersaClipper 2000       |
|     |             |     |      |         | FINISH:         | SCALE NONE      | Quick Reference         |
|     |             |     |      |         | -               | DWG. NO. VC5005 | C                       |