

# OmniCrimp<sup>®</sup> 21

## Safety & Operating Manual



# WARNING!

An incorrect hose assembly can rupture or blow apart in use, resulting in serious injury, death, or property damage.

**REMEMBER:** Others depend on you to make correct assemblies.

## FOR SAFETY'S SAKE

### USE THIS MACHINE ONLY IF YOU:

1. Receive hands-on **TRAINING** with this Gates crimper and assemblies.
2. Follow current **GATES OPERATING MANUAL** and **CRIMP DATA** for the OMNICRIMP® 21 crimper.
3. Use only **NEW (UNUSED GATES)** hose and fittings.
4. Wear **SAFETY GLASSES**.
5. Keep hands clear of moving parts.

#### **NOTE:**

Gates recommends only those hose and coupling combinations specified in the Gates Hydraulic Product catalogs. Gates disclaims any liability for any hose assemblies which have not been produced in conformance with Gates assembly recommendations.



Serial No. \_\_\_\_\_  
(Located on right side of shroud, upper rear corner.)

Date of Purchase \_\_\_\_\_

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# Specifications

## OmniCrimp® 21 Crimper

|                                 |                                |           |       |
|---------------------------------|--------------------------------|-----------|-------|
| Product No.:                    | 7480-2100                      | Part No.: | 78265 |
| Power Source:                   | 220V, 1PH, 60 HZ, 20 Amp.      |           |       |
| Dimensions:                     | 26" Wide x 26" Deep x 21" High |           |       |
| Approx. Weight:                 | 500 lbs.                       |           |       |
| Maximum Rated Working Pressure: | 10,000 psi                     |           |       |

### OmniCrimp Die Sets Available

| Description | Product Number | Part Number | Notes                                      |
|-------------|----------------|-------------|--|
| OM31BK      | 7482-0730      | 78294       |  |
| OM32BK      | 7482-0731      | 78295       |  |
| OM33BK      | 7482-0732      | 78296       |  |
| OM34        | 7482-0672      | 78276       |  |
| OM35        | 7482-0673      | 78277       |  |
| OM36        | 7482-0674      | 78278       |  |
| OM37        | 7482-0716      | 78279       |  |
| OM38        | 7482-0675      | 78280       |  |
| OM39        | 7482-0717      | 78281       |  |
| OM310L      | 7482-1156      | 78298       |  |
| OM311       | 7482-0721      | 78284       |  |
| OM312       | 7482-0677      | 78285       |  |
| OM313       | 7482-0722      | 78286       |  |
| OM314       | 7482-0723      | 78287       |  |
| OM6AC       | 7482-0726      | 78288       | For Crimping 6ACA                          |
| OM8AC       | 7482-0727      | 78289       | For Crimping 8ACA                          |
| OM10AC      | 7482-0728      | 78290       | For Crimping 10ACA                         |
| OM12AC      | 7482-0729      | 78291       | For Crimping 12ACA                         |
| OM24C4      | 7482-0724      | 78292       | For Crimping 24C4                          |
| OM32C4      | 7482-0725      | 78293       | For Crimping 32C4                          |
| OM301       | 7482-0718      | 78282       | For Crimping Grease Fittings               |
| OM331       | 7482-0733      | 78297       | For Crimping Clamp Collars (5/8" and 3/4") |
| OM81        | 7482-1241      | 78585       | For Crimping -12 Global Return             |
| OM82        | 7482-1242      | 78586       | For Crimping -16 Global Return             |
| OM83        | 7482-1243      | 78587       | For Crimping -20 Global Return             |
| OM84        | 7482-1244      | 78588       | For Crimping -24 Global Return             |
| OM85        | 7482-1245      | 78589       | For Crimping -32 Global Return             |

# Setup

**1.** Remove the crimper from the shipping container by removing the bolts that are connected through the pallet. Using the four lifting hooks attached to the sides, raise the crimper from the pallet and out of the box. An engine hoist and lifting straps work well for this. If using chains, protect the shroud or damage may occur.

Also included with the crimper is a jar of Molykote "G" grease with brush, speed loader, four 1/2-13UNC button-head cap screws, crimp data book and operating manual.

**2.** Place the crimper on a bench capable of supporting over 500 pounds. The proper bench height is approximately 32". Keep the back of the crimper at least 6" away from any wall to insure proper ventilation. After the crimper is placed on the bench, the lifting hooks can be replaced with the button-head cap screws.

**NOTE:**

A stand (Product Number 7480-2099, Part Number 78272) can be purchased for the crimper.

**3.** The crimper is shipped fully assembled and filled with hydraulic oil. Connect the power cord plug, NEMA L6-20, to a 20 amp rated electrical circuit. Be sure circuit is grounded and complies with all local electrical codes.

The crimper is shipped wired for a 208V power source. If the power source is 208V, the crimper can be plugged in and will be ready to operate. If the power source is in the range of 220 to 240V, the wire lug on the back of the control panel needs to be moved from the 208V position to the 220V position (positions are labeled). This will increase the life of the light bulb, cooling fan and electronic circuitry.

**4.** Turn POWER switch on. Set RETRACT digital readout setting to 0.050 and crimp digital readout setting to 1.250. Cycle crimper by pushing crimp button. Cycle crimper 5 times to lubricate head assembly parts. Turn POWER switch off.

# Hose Preparation

## CAUTION:

A new hose and end fittings (stem/ferrule) must be used when building a hose assembly. Re-using any component will seriously affect performance and could result in serious injury or property damage.

### Power Crimp® Two-Piece Couplings

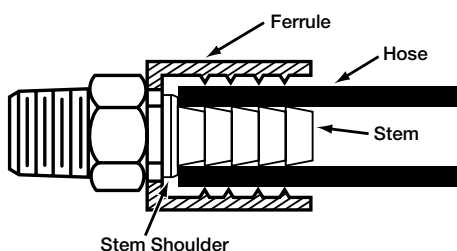
1. Cut hose to desired length.
2. Using Gates Crimp Data Manual #35052-A (Ind.), 428-7323 (Auto.), select the correct stem and ferrule.
3. Place ferrule over end of hose. If skiving is required, see instructions in Gates Hand Skiver Manual, #35019-W.



4. Lubricate the first two or three serrations on stem with lightweight oil (SAE 10W).
5. Clamp stem in vise on hex portion, and push hose onto stem. Hose should be flush against stem shoulder (see cutaway drawing).



6. Hose and coupling are now ready for crimping.



### MegaCrimp® Pre-Assembled Couplings

1. Cut hose to desired length.
2. Using Gates Crimp Data Manual #35052-A (Ind.), 428-7323 (Auto.), select the correct MegaCrimp coupling.



3. Place a visible mark on hose cover at the insertion length shown in the crimp data manual.



4. Insert coupling into the hose until the mark lines up with the end of the coupling ferrule.

5. Hose and coupling are now ready for crimping.

## NOTE:

See Hose Assembly Guide, Pages 9-12, of the Gates Crimp Data Manual, #35052-A (Ind.) and 428-7323 (Auto.), for more details.

# Operation

**1.** Turn POWER switch on. The cooling fan and light will come on and dashed lines will appear on the two digital readouts. Turn the JOG switch to REVERSE momentarily to begin the automatic calibration sequence. The pump will start, RETRACT the ram completely and shut off. The digital readouts should show .750 in the RETRACT readout and 1.250 in the crimp readout. These two settings indicate the calibration sequence is completed. If your machine displays a different reading, refer to the troubleshooting section on page 11.

## CAUTION:

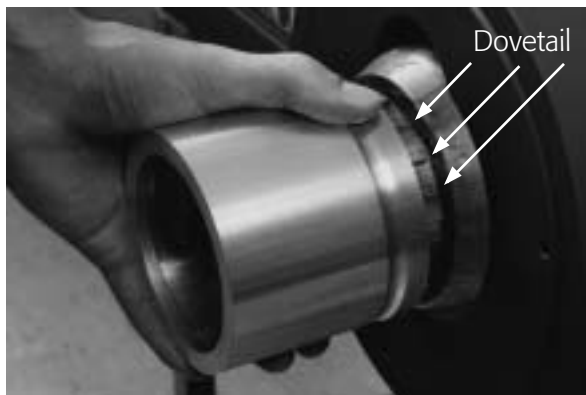
If the pump does not start, the emergency stop button may be pushed in. Pull button out and turn JOG switch.

## NOTE:

Turn POWER switch off when not in use to extend life of light, cooling fan and other electrical parts.

**2.** Select proper die set for hose and coupling by referring to Gates Crimp Data Manual, #35052-A (Ind.) and 428-7323 (Auto.).

**3.** To load the die set, turn JOG switch to FORWARD. Hold the switch until the pump shuts off. The crimper is now in the load position.



**4.** Hold the proper die set in front of the crimping cone and line up the dovetails on the die fingers with the grooves in the die shoes. Push the die fingers into the shoes until the die can rest against the die shoes.



**5.** Using the speed loader, push the fingers completely into the die shoes. The front edge of the die fingers should line up with the front edge of the die shoes. Return the die can and loader to their holders.

**6.** The crimp data manual gives approximate digital readout settings for specific hose/coupling combinations. Enter this setting into the CRIMP readout. Press the increase or decrease button beneath the readout to obtain the setting.

**7.** How far the die fingers open for inserting the coupling can be controlled by the RETRACT setting. The default setting of .750 can be used or a new setting can be determined. To set the RETRACT position, hold the hose assembly in front of the die fingers. Turn the JOG switch to REVERSE and hold until the coupling can be inserted into the die fingers. Release the JOG switch. This RETRACT position is now automatically set. This position can be changed by pressing the increase or decrease button beneath the readout. This feature is helpful when a large number of assemblies are to be crimped. When the POWER switch is turned off, this RETRACT position will be lost.



## Operation (continued)

### NOTE:

A depth stop (Product Number 7482-0792, Part Number 78268) and foot switch (Product Number 7482-0680, Part Number 78271) are available to assist when crimping large numbers of assemblies.

- 8.** After the RETRACT position has been determined, insert the hose assembly into the die fingers. Locate the front end of the ferrule approximately 1/16" into die fingers.



- 9.** To start the crimp cycle, press and release the START CRIMP switch. As soon as the die fingers contact the ferrule, pull slightly on the hose assembly. This will ensure that the ferrule locking collar is properly located over the stem locking groove. The crimper will extend to the displayed CRIMP position and return to the RETRACT position.



### CAUTION:

Keep away from all moving parts! If bodily contact with a moving part occurs, immediately press the EMERGENCY STOP button. Pull button out to resume operation.

- 10.** Check the crimp data manual for the correct crimp diameter and measure. (See page 8 for Measuring Crimp Diameter.)

### WARNING:

Protect the safety of people using your assemblies! Your measured crimp diameter MUST be in tolerance range as listed in the Crimp Data manual.

- 11.** To insert bent tube or block-style couplings, it may be necessary to line up the coupling with the notches in the front and rear cone.





## Operation (continued)

**12.** To unload the die set, fully RETRACT the ram.



**A.** For dies larger than number 37, insert speed loader through the front of the crimper and beyond the die fingers. Jog the ram to the LOAD/UNLOAD position. Be careful not to crush loader head or handle by keeping handle centered in die.



**B.** For dies 37 and smaller, insert the speed loader into the crimper through the opening in the main tube and position the loader handle out through the die fingers. Jog the ram to the LOAD/UNLOAD position. Be careful not to crush the loader head or handle by keeping handle centered in die.



**C.** Pull the die fingers out of the die shoes approximately 1/2", then position the die can over the end of the die fingers and pull them into the die can.

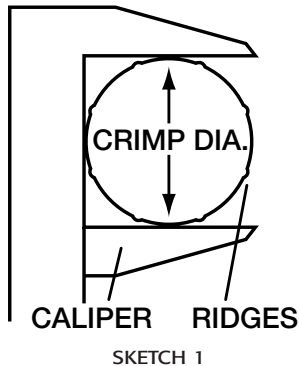
### NOTE:

If die fingers are difficult to get into and out of die can, crimper may need to be calibrated manually. See Calibration Procedure on Page 10.

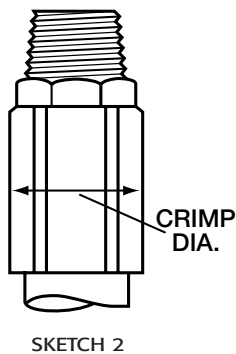
# Measuring Crimp Diameter

## To properly measure a crimp diameter:

**1.** Measure halfway between ridges (Sketch 1). When using calipers, be sure caliper fingers do not touch ridges or part number stamps.



**2.** Measure halfway down the crimped portion of the ferrule (Sketch 2).



### NOTE:

DO NOT measure on top of part number stamps.

**3.** When measuring small crimp diameters (1/4" and 3/8") use Gates dial calipers (Product Number 7369-0320, Part Number 78215) which are notched to clear ridges. (See Photo 3.)

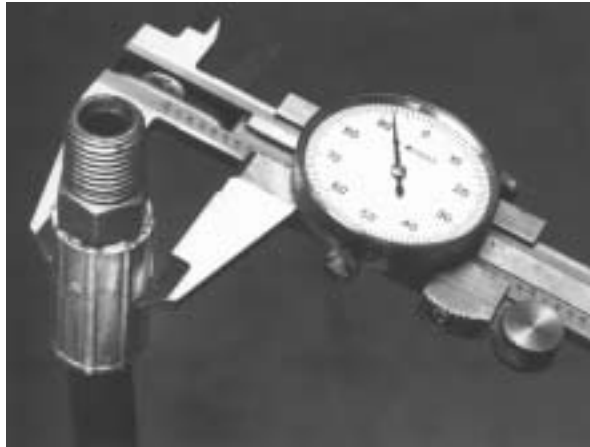


PHOTO 3

### WARNING:

Your measured crimp diameter **MUST** be in tolerance range as listed in the Crimp Data Manual.

**4.** Should actual crimp diameter not be within specified crimp tolerance, the assembly **MUST** be discarded. If a series of crimps was made, check other ferrules to determine if other assemblies are outside the specified tolerance. Discard those outside the specified tolerance. An adjustment to the crimp digital readout setting needs to be made.

**5.** To obtain a smaller crimp diameter, change crimp digital readout setting to a larger number. To get a larger crimp diameter, change digital readout setting to a smaller number. Changing digital readout number by .001 will change crimp diameter .001". Record new setting in your crimp data manual for future reference.

# Maintenance

## WARNING:

**Avoid electrical shock or hydraulic-related injury!** Before removing shroud, control panel, or back cover, disconnect crimper from power source. The control panel is always powered when the crimper is plugged in, even if the POWER switch is turned off.

**1.** Lubricate the sliding surfaces of the die cones whenever they become shiny or approximately every 250 crimp cycles.

A. Fully RETRACT the ram.

B. Shut the POWER off.



C. Using a small brush, apply a light coat of Molykote "G" grease to the sliding surfaces of both front and rear cones. Be sure to brush lube between the die shoes, but do not get lube on the shoes themselves. Rotate the die shoes by hand to spread the lube under them.

## CAUTION:

Die cones with severe scratched or gouged surfaces should be replaced to insure acceptable crimps.

**2.** Check the hydraulic oil level in the pump reservoir after every 10 hours of use. Remove the pipe plug from the fill elbow located in the back of the crimper. Hydraulic oil should be visible in the elbow. If not, add oil. Under normal room temperature conditions (60° F and above), use ISO68 or SAE 20W hydraulic oil.

**3.** It is recommended that the hydraulic oil be changed every 30 days if more than 500 crimps are made per day. If less crimps are done, change oil every three months. There is an oil drain located in the back of the crimper. Fill with approximately 4-1/2 gallons of ISO68 or SAE 20W hydraulic oil under normal room temperature conditions. Fill reservoir until oil can be seen in fill elbow.

**4.** To change light bulb, remove the cover by gently pulling it out. Push, turn and pull bulb from socket to remove. Replace with a 12V GE89 or equivalent light bulb. Replace cover by flexing to fit in socket groove.

**5.** If it is difficult to get the die fingers into and out of die cone while loading and unloading the die set, crimper may need to be manually calibrated. Although the crimper calibrates each time the POWER switch is turned on, it may be necessary to do a manual calibration because of die shoe and die cone wear. (See page 10 for Calibration Procedures.)

**6.** If necessary, the control panel can be removed. Unplug the crimper from power source. Remove the eight button-head cap screws and carefully lift the panel out. Unplug all the white plastic connectors. Unscrew the four wires from the solid state relays. Connect the numbered connectors and wires to the matching numbered terminal when reassembling.

## WARNING:

Control panel is always powered when crimper is connected to power source. To avoid electrical shock always disconnect crimper before removing the control panel.

## Maintenance (continued)

**7.** The die finger is held in the die shoe with a ball détente (Product Number 7482-0647, Part Number 78223). Over time these détentes may need to be replaced. Remove the large set screw located in the bottom of the main tube at the 6 o'clock position. Center a die shoe over the set screw hole and remove the détente with a standard screwdriver. Replace with a new détente and adjust to retain die finger. Repeat for remaining die shoes.

**8.** If the die fingers become separated from their can, replace them by pushing them individually into die shoes clockwise in an alphabetical order with the letters facing the back of the crimper.

## Calibration Procedure

**1.** Load 34 die set, crimp approximate setting of 1.250 and crimp a -12PC1FS ferrule (Product Number 7266-0712, Part Number 80487).

**2.** The crimp diameter must measure 1.330" +/- .007". If the crimp diameter is acceptable, no adjustment is necessary. If crimp diameter is not acceptable, proceed as follows:

**A.** Fully RETRACT ram, turn crimper POWER switch off and unplug from power source.

**B.** Remove the back cover by removing six screws. As the cover is removed, unplug the cooling fan.

**C.** Loosen the back plate locking set screw on the right side of the cylinder. It is located at the 3 o'clock position at the back of the cylinder.

**D.** Loosen the four bolts in the back plate of the cylinder.

**E.** Using the bolts as handles, rotate the back plate clockwise to decrease crimp diameter and counter-clockwise to increase crimp diameter. A 1/8 turn of back plate results in approximately a .007" change in the crimp diameter. **The back plate must be rotated in 1/8 increments.**

**F.** Tighten the four bolts in the back plate securely.



**G.** Crimp a -12PC1FS ferrule to check adjustment. If crimp diameter is not acceptable, repeat adjustment steps. If crimp diameter is acceptable, plug in cooling fan and replace back cover.

### CAUTION:

Any time the back plate is adjusted, the crimper **MUST** be turned off with the POWER switch. This is necessary to reset the memory of the control panel computer chip.

## Identification Inserts

One die finger in each set has a small hole in the crimping face. This hole is for an identification insert with your personal mark on it. When a ferrule is crimped, this mark will be permanently embedded into it. Contact your local Gates representative for information regarding the availability of inserts.

When an identification insert is not used, there is a small round convex area on the ferrule. This will not affect the quality of the assembly.

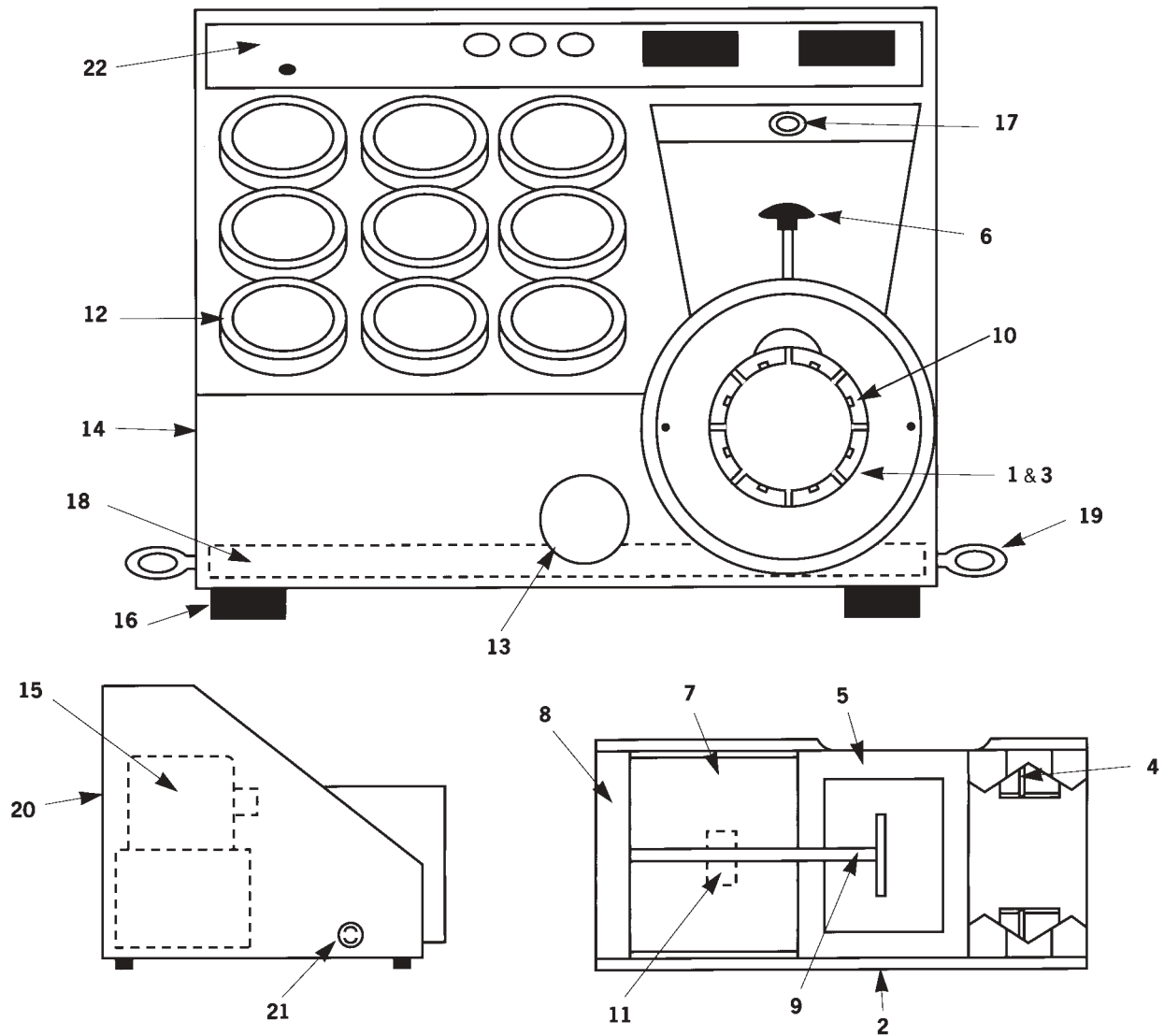
## Trouble Shooting Guide

All equipment is tested for proper performance before it is shipped from the factory. However, if you experience any difficulties, we recommend you check the guide below to

help restore equipment to proper operating standards before contacting Gates customer service.

| Problem  | Solution  |
|--|---|
| Readouts do not light up when POWER is turned on.                            | Check power source and fuse on control panel.                             |
| Cannot clear dash lines from readouts when crimper is turned on.             | Emergency stop button has been pushed in. Pull out and hit JOG REVERSE.   |
| Readouts lights up, but pump doesn't run when START CRIMP button is pressed. | EMERGENCY STOP button has been pushed in. Pull out and press START CRIMP. |
| Pump keeps running when POWER switch is off.                                 | Faulty pump relay. Replace relay.   |
| Digital readout will not increase or decrease.                               | CRIMP readout must be set higher than RETRACT readout.                    |
| Pump runs but ram doesn't move.  | See pump repair manual.   |

# Schematic and Replacement Parts List



| Item No. | Product No. | Part No. | Description        | Quantity | Item No. | Product No. | Part No. | Description                             | Quantity |
|----------|-------------|----------|--------------------|----------|----------|-------------|----------|---|----------|
| 1        | 7482-0694   | 78218    | Front end assembly | 1        | 14       | 7482-0681   | 78233    | Shroud                                  | 1        |
| 2        | 7482-0645   | 78221    | Main tube          | 1        | 15       | 7482-0682   | 78234    | Hydraulic power unit                    | 1        |
| 3        | 7482-0695   | 78219    | Loading tool       | 1        | 16       | 7482-0685   | 78235    | Rubber bumper                           | 4        |
| 4        | 7482-0647   | 78223    | Die shoe détente   | 8        | 17       | --          | --       | Light bulb, GE 89                       | 1        |
| 5        | 7482-0649   | 78225    | Ram pusher         | 1        | 18       | 7482-0690   | 78236    | Crimper base                            | 1        |
| 6        | --          | --       | Plastic knob       | 1        | 19       | --          | --       | Lifting hook 1/2-13 UNC x 1-1/2         | 4        |
| 7        | 7482-0654   | 78226    | Hydraulic ram      | 1        | 20       | 7482-0748   | 78237    | Rear cover                              | 1        |
| 8        | 7482-0655   | 78227    | Back plate         | 1        | 21       | --          | --       | Foot switch receptacle, Hubbel No. 7468 |          |
| 9        | 7482-0662   | 78228    | Depth stop         | 1        | 22       | 7482-0660   | 78239    | Control panel                           | 1        |
| 10       | 7482-0666   | 78229    | Die spring         | 16       | --       | 7482-2395   | 78270    | Vinyl cover                             | 1        |
| 11       | 7482-0643   | 78230    | Optical encoder    | 1        | --       | 7482-0680   | 78271    | Foot switch (optional)                  | 1        |
| 12       | 7482-0678   | 78231    | Die can            | 1        | --       | 7480-2099   | 78272    | Steel stand (optional)                  | 1        |
| 13       | 7482-0679   | 78232    | Speed loader       | 1        | --       | 7482-0792   | 78268    | Depth stop (optional)                   | 1        |



# One-Year Limited Warranty on Equipment

For one year from the date of shipment of the equipment to the original user, The Gates Rubber Company will, at its option, replace or repair any unit which proves to be defective in material or workmanship, or both, at no cost to the original user of the equipment. Warranty claims require proof of purchase. This is the exclusive remedy. **THERE IS NO OTHER EXPRESS OR IMPLIED WARRANTY. ALL INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO TWO YEARS FROM DATE OF SHIPMENT OF THE EQUIPMENT TO THE ORIGINAL USER. LIABILITY FOR CONSEQUENTIAL AND INCIDENTAL DAMAGES UNDER ANY AND ALL WARRANTIES IS EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW.** Some states do not allow the exclusion of incidental or consequential damages, and some states do not allow limitations on how long an implied warranty lasts, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. For warranty service, contact Service Department, The Gates Rubber Company, 990 S. Broadway, P.O. Box 5887, Denver, Colorado 80217.

## IMPORTANT:

Be sure to fill out the crimper registration card included with your equipment. Also include the serial number located on right upper rear corner of shroud. Completing the registration card will assure that you receive crimp data updates and full warranty coverage.

## HOW TO ORDER REPAIR PARTS

All parts for the OmniCrimp® 21 machine listed in current replacement parts price sheets can be ordered directly from your local Gates Hydraulic Distributor.

When ordering, be sure to include the following information:

- (1) Name of unit shown on front cover.
- (2) Product or part number of parts needed.
- (3) Description of parts needed.
- (4) Serial number of machine.

For selling prices on inventoried parts, refer to Hydraulic Power Crimp Equipment and Parts List Price Schedule. Selling prices for parts not shown in these lists will be furnished upon request, or parts will be shipped at prevailing prices and you will be billed accordingly. For information regarding prices, contact your local Gates representative or The Gates Rubber Company, 990 South Broadway, P.O. Box 5887, Denver, Colorado 80217-5887.

When returning inoperable equipment, contact your local Gates representative for information on where to ship the unit(s).







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