

KH-60 / KH-60-P CRIMPER OPERATORS MANUAL



Kurt Manufacturing Company

AN EMPLOYEE OWNED COMPANY

HYDRAULICS DIVISIONS

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WARNING – SAFETY PRECAUTIONS

- DO NOT OPERATE THIS EQUIPMENT UNTIL YOU READ AND FULLY UNDERSTAND ALL INSTRUCTIONS CONTAINED WITHIN THIS MANUAL.
- ALWAYS WEAR EYE PROTECTION.
- CRIMPER CAN PRODUCE 60 TONS OF FORCE. KEEP HANDS AND FINGERS AWAY FROM MOVING PARTS.
- **WARNING!** REFERENCE KURT HYDRAULICS CRIMP SPECIFICATIONS WHEN USING KURT HYDRAULICS HOSE AND COUPLING COMBINATIONS. DUE TO THE ADJUSTABILITY OF THE CRIMPER, HOSE AND COUPLINGS OF OTHER MANUFACTURERS MAY STILL BE CRIMPED WITH THIS MACHINE. KURT HYDRAULICS RECOMMENDS CONTACTING THE HOSE AND FITTING MANUFACTURER FOR PROPER SPECIFICATIONS IF USING HOSE AND COUPLINGS NOT FROM KURT HYDRAULICS. KURT HYDRAULICS DISCLAIMS ALL LIABILITY FOR ANY HOSE AND COUPLING ASSEMBLY THAT IS NOT MADE ACCORDING TO KURT HYDRAULICS RECOMMENDATIONS. CONSULT YOUR LOCAL KURT HYDRAULICS REPRESENTATIVE OR DISTRIBUTOR IF YOU HAVE ANY QUESTIONS.

SPECIFICATIONS

Physical size:

- KH-60 Dimensions – 25.4” Deep (17.8” base only) x 13.6” Wide x 22.4” High
- KH-60 Weight – Approximately 170 lbs.
- KH-60-P Dimensions – 20.4” Deep x 11.2” Wide x 19.9” High
- KH-60-P Weight – Approximately 110 lbs.

Maximum Cylinder Force:

- 60 Ton

Pump:

- Maximum psi – 10,000
- Reservoir capacity – .6 Gallon
- Oil type – ISO grade 46 anti-wear hydraulic fluid

Electrical Requirements:

- 110 Volt AC Single Phase, 60Hz
- 15 Amp circuit

Lubrication:

- Moly Grade Anti-Seize 3 oz. Tube

Dies:

- Small KHC or NP60 Series

Maximum Hose Diameter:

- 1-1/4” 6 Wire

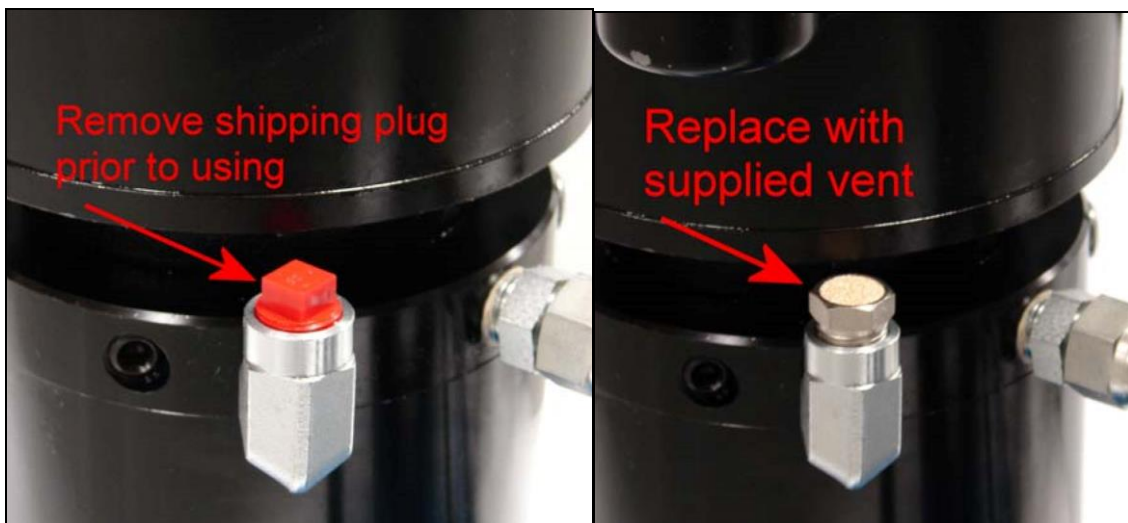
INSTALLATION

Unpack the crimper and verify you have received the following items:

- KH-60 Crimper
- Reservoir Vent
- Ram Pusher
- Bent Tube Pusher Donut
- Operators Manual
- Moly Grade Anti-Seize 3 oz. Tube

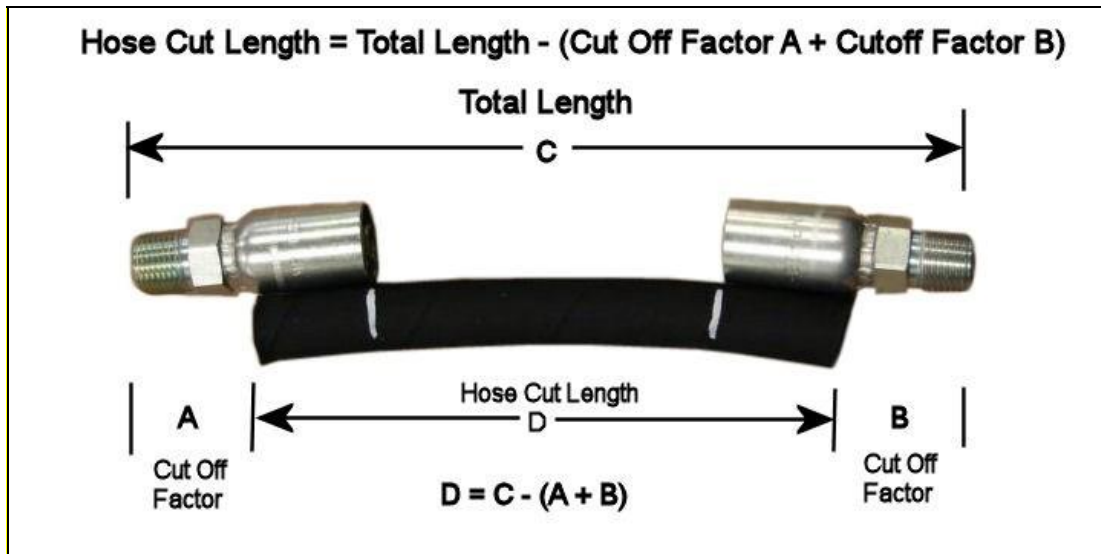
Follow these steps before using the crimper for the first time:

1. Locate a sturdy bench or worktable at a suitable height for your needs that's in a well-lighted area and within 7 feet of a 110 Volt AC outlet.
2. Lift the crimper onto the located worktable. Due to the weight of the crimper, Kurt Hydraulics recommends lifting the crimper by mechanical means at the top of the single handle. When lifted by this handle, the crimper will be balanced. Place the front edge of the sheet metal crimper base flush to the front of the worktable. The crimper is balanced in this position but Kurt Hydraulics recommends using the four (4) mounting holes provide in the crimper base to securely fasten to the worktable.
3. Plug-in power cord to a grounded 110 Volt AC outlet. The use of extension cords is not recommended.
4. Remove the threaded shipping plug and replaced with the supplied vent.



HOSE PREPARATION

1. Kurt Hydraulics recommends that all KH60 crimper users familiarize themselves with all warning statements, SAE J1273 standards, the technical guide in the Kurt Hydraulics Catalog, and this Operator's Manual.
2. Select the hose and coupling assembly.
3. Reference the latest Kurt Hydraulics crimp specification which can be found at www.kurthydraulics.com, by contacting technical support at 1-866-257-7995, or sending a request to hydraulictech@kurt.com.
4. Determine hose cut length by subtracting the cut-off factor for each coupling from the overall length of the assembly. For these cut-off factors, reference the Kurt Hydraulics Catalog.



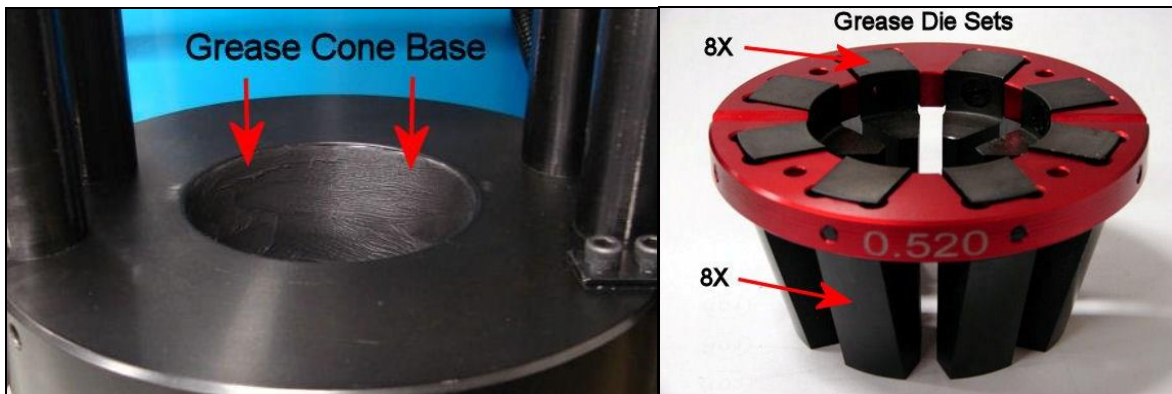
5. Cut the hose square and to the proper length with a suitable piece of equipment.
6. Mark insertion length on hose (reference figure above). Insert hose until it bottoms in coupling.

CRIMPING

Once the hose and coupling are prepared, you are ready to crimp with the KH60 crimper.

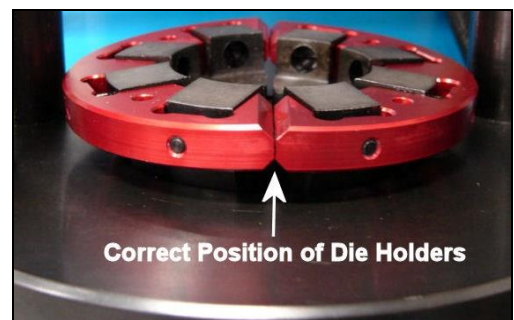
Insure that you have the following:

- Verify all components are available.
 - Properly prepared the hose and coupling.
 - Insure the interior of the hose is free of cuttings, dirt or other debris.
 - Obtain the Kurt Hydraulics crimp specifications.
1. Consult the Kurt Hydraulics crimp specification for the KH60 to determine the proper die set for the chosen hose and coupling combination.
 2. Lubricate the cone base and segments for the die set with the supplied anti-seize or equivalent high pressure molybdenum grease. Re-apply grease regularly, especially when wearing surfaces on cone base and fingers appear shiny. Kurt Hydraulics recommends applying more grease at least every 10 crimps, or after periods of non-use.



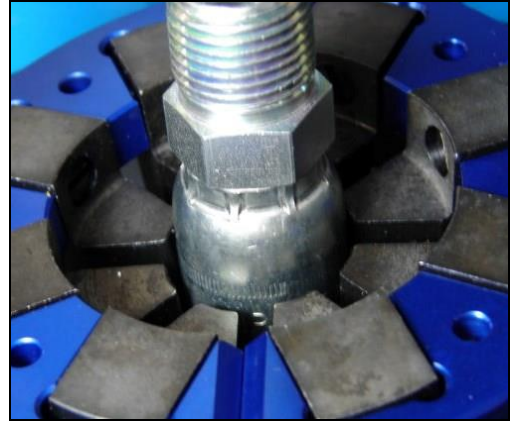
CAUTION: Failure to lubricate die sets and the cone base regularly will cause damage to the die set and could permanently damage the crimper.

3. Place the die set in the cone base. Verify that the dies are properly aligned and that the die holders do not overlap. Kurt Hydraulics recommends placing the seam between the two die holders in front of the crimper in view of the operator.



4. Insert the hose and coupling into the die set as illustrated. Position the coupling to the proper depth according to the following guideline:

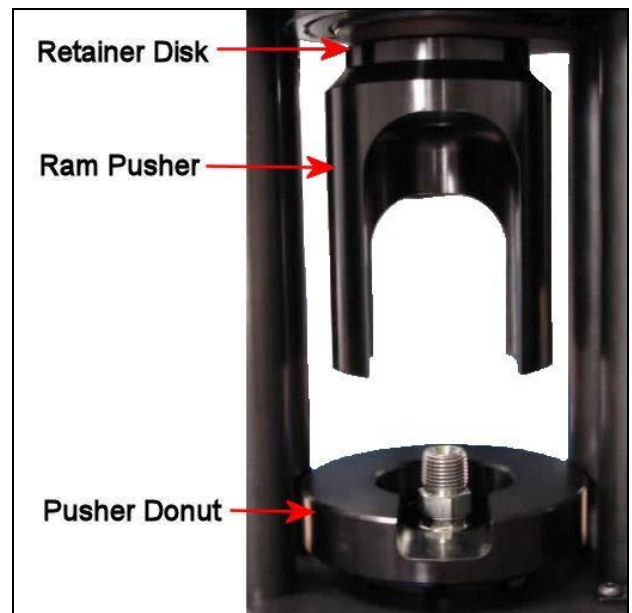
Coupling with crimp location markings: Several Kurt Hydraulics couplings are manufactured with a knurl mark on the circumference of the ferrule. Looking down from the die set, line up the middle of the knurl with the top edge of the die set.



Coupling without crimp location markings:

Refer to the Kurt Hydraulics crimp specification for die position.

5. Manually place the pusher donut on top of the die set with the clearance slot facing forward to the operator. Be sure the top rings of the die set are evenly contained inside the bottom of the pusher donut.
6. Seat the die set in the cone base by firmly pushing down on the pusher donut. Check the alignment of the die set to make sure the die holders are level and are not overlapping.
7. Slide the ram pusher onto the retainer disk at the end of the ram.
8. Select the proper micrometer setting from the Kurt Hydraulics crimp specification and twist the top of the micrometer until that number appears on the micrometer barrel.

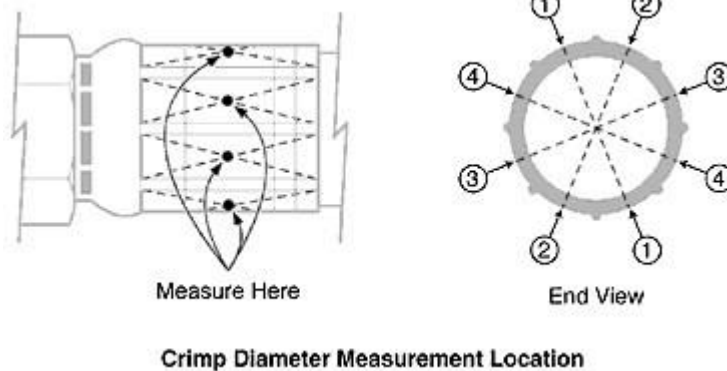


9. Depress and hold the foot switch.
10. Ram pusher will travel downward and engage pusher donut until the micrometer foot contacts the limit switch.
11. Release the foot switch once the micrometer contacted the limit switch and the pump has shut off.

12. Ram pusher returns to its fully retracted up position. If multiple crimps are being made with the same fitting, the retraction stop can be released and tightened again while ram is extended. This will limit the amount of retraction and advancement time of the ram for the next crimp.



13. When the crimp cycle is finished and the ram pusher has retracted, manually remove the pusher donut and pull the coupling out of the die set. The ram pusher can also be removed as necessary depending on the size of the fitting being crimped. Using dial calipers or a micrometer, measure the crimp diameter on the mid-point of the flat surface and of the crimped coupling where die faces have met the coupling. Take four (4) measurements around the coupling and average the measurements. Refer to the Kurt Hydraulics crimp specification to confirm crimp diameter is in tolerance.



CALIBRATION CHECK

1. Brand new crimpers are shipped calibrated, but a calibration check is recommended prior to using the crimper for the first time.
2. Lubricate all contact surfaces, place any die set, and the pusher donut in the crimper. No hose and fitting are required for an initial calibration check.

CAUTION: Failure to lubricate die sets and the cone base regularly will cause damage to the die set and could permanently damage the crimper.

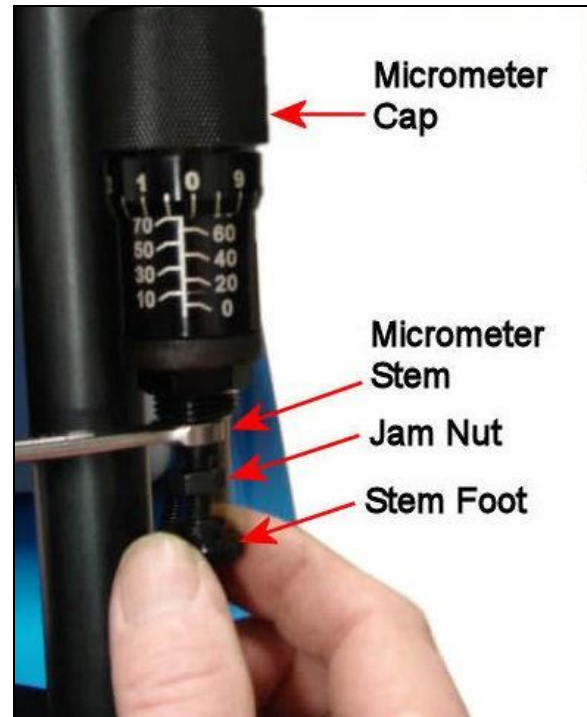
3. Slide the Pusher onto the retaining disc on the hydraulic ram.
4. Set the micrometer at “95”.
5. Press and hold down the foot pedal. For the portable unit operate the power unit according to manufacturer’s instructions.
6. When the ram extends it should engage the pusher donut causing the dies to completely close and the pump to start building pressure for approximately 1 second before shutting off, the crimper is correctly calibrated.
7. If the time to shut off is not approximately 1 second after the die completely closes or the die does not completely close, the micrometer must be adjusted.
8. For the KH-60-P Series: If the line is just visible as shown in the illustration after the dies are completely closed and pressure has built up in the hydraulic cylinder the crimper is correctly calibrated.

The KH60 crimper is factory calibrated prior to shipment. However, due to machining tolerance on metal surfaces of the die sets and cone base, as well as normal wear, recalibration should be performed when the crimper consistently crimps hose and coupling assemblies outside of the Kurt Hydraulics crimp diameter tolerance.



MICROMETER ADJUSTMENT

1. Loosen the jam nut with a 7/16" open end wrench.
2. Hold the flats on the micrometer stem with a 5/16" open end wrench while twisting the stem foot on the bottom of the micrometer.
 - Twist the stem foot to the right (up into the micrometer) if the machine is under-crimping.
 - Twist to the left (out of the micrometer) if the machine is over-crimping.



NOTE: Each complete rotation of the stem foot is approximately .027" change in crimp diameter. For example: If the Kurt Hydraulics crimp specification is .885" and the observed crimp diameter is .872", the stem foot needs to be turned approximately one half turn to the left (out of the micrometer) for a looser crimp.

3. Re-tighten the jam nut to secure the position of the stem foot.
4. Make another crimp to measure and verify that the average crimp diameter is within the Kurt Hydraulics crimp specification. If it is, the crimper is calibrated. If not, repeat steps 1-5 until a crimp within tolerance is obtained.
5. Contact Kurt Hydraulics for further assistance, if necessary.

IMPORTANT NOTICE CONCERNING MICROMETER GAUGE ADJUSTMENTS:

Due to the same reasons as described above, finished crimp diameters may not match Kurt Hydraulics recommended gauge settings. Published micrometer gauge settings are provided only as guidelines. To correct for slight variances, the micrometer gauge setting may be adjusted only for individual hose and coupling combinations when all other hose and coupling combinations crimp within allowed tolerance from the Kurt Hydraulics specification. If all hose and coupling combinations crimp out of specification, then the crimper must be recalibrated by using steps 1-5 mentioned above.

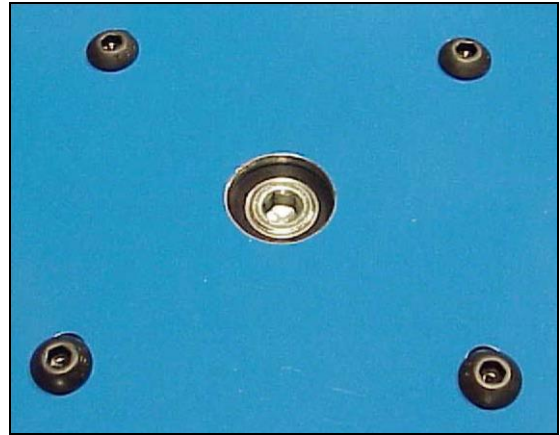
- Each number on the micrometer gauge translates to approximately .005” change in final crimp diameter. For very fine-tuning, the micrometer is infinitely adjustable and may be set between whole gauge numbers for more precise crimping.
- Higher gauge settings will produce a tighter, or smaller crimp diameter.
- Lower gauge settings will produce a looser, or larger crimp diameter.
- Be certain to record any micrometer gauge adjustments for future reference.



SERVICE AND MAINTENANCE

Regular maintenance and performance evaluation is required for the KH60 crimper:

1. Lubricate the die sets and cone base regularly and as needed.
2. The hydraulic system of the KH60 crimper is closed; so fluid addition should not be necessary on a regular basis. However, it's good practice to change the hydraulic fluid on an annual basis or after extended periods of heavy use. A drain plug has been provided under the base of the crimper. Remove the drain plug with a 5/16" Allen wrench and drain all the fluid. Remove any loose sealant from 3/8" NPT plug and re-apply new Teflon pipe sealant (Tape not recommended as it may obstruct precision fit parts within the pump). Re-install 3/8" NPT plug. Remove vent and fill with approximately .6 gallons of ISO grade 46 anti-wear hydraulic fluid. Replace vent after filling.
3. Kurt Hydraulics recommends checking crimper calibration often and regularly using a dial caliper or micrometer. If the machine consistently crimps out of specification, see the "CALIBRATION CHECK" section in this manual.
4. If repair of the KH60 crimper is needed, contact Kurt Hydraulics at 1-866-257-7995



WARRANTY INFORMATION

KH60 is warranted to be free from defects in material and workmanship under normal operating conditions and recommended usage for a period of 1 year from date of delivery. Any product which is shown to be defective shall be replaced or repaired free of charge or extended a credit refund of the original acquisition cost to the purchaser. This limited warranty is contingent upon the conditions that prompt receipt of notice of any defect, that purchaser establish the product has been properly installed, maintained, and operated within the limits of related and normal usage specified, and that upon request purchaser will return the defective product.

ACCESSORIES

Part Number	Description
KHC-0350	0.350 Die Set (orange)
KHC-0450	0.450 Die Set (orange)
KHC-0520	0.520 Die Set (red)
KHC-0670	0.670 Die Set (yellow)
KHC-0830	0.830 Die Set (blue)
KHC-1100	1.100 Die Set (green)
KHC-1320	1.320 Die Set (black)
KHC-1500	1.500 Die Set (brown)
KHC-1730	1.730 Die Set (silver)
KHC-1920	1.920 Die Set (purple)
KHC-0580BL	0.580 3 Indent Die Set for BH Hose
KHC-0850BL	0.850 3 Indent Die Set for BH Hose
31074-0830-301	Die Screws
LC-022D-01M	Die Springs
31074-00-103P	Bent Tube Pusher Donut
31074-00-106	6 Die Small Die Stand
KH-60P-20-406HP	Hand Hydraulic Pump
KH-60P-20-405AP	Air Hydraulic Pump
31074-00-409	Moly Grade Anti-Seize 3 oz. Tube
31074-08-105	Seal Kit for KH-60 / KH-60-P
31074-08-100	Return Spring Assembly





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