



KH4-50 CRIMPER OPERATORS MANUAL WITH ACT™ CONTROLLER



SAFETY PRECAUTIONS



READ AND IDENTIFY ALL COMPONENT PARTS BEFORE USING CRIMPER.

CRIMPER CAN PRODUCE 340 TONS OF FORCE. KEEP BOTH HANDS AWAY FROM PINCH POINTS.

CONSULT HOSE AND FITTING MANUFACTURERS SPECIFICATIONS FOR CORRECT MACHINE SETTINGS AND CRIMP MEASUREMENTS.

ALWAYS WEAR EYE PROTECTION.

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OPTIONAL EQUIPMENT

Available Die Sets

.350
.520
.670
.830
1.100
1.320
1.500
1.730
1.920
2.300
2.800

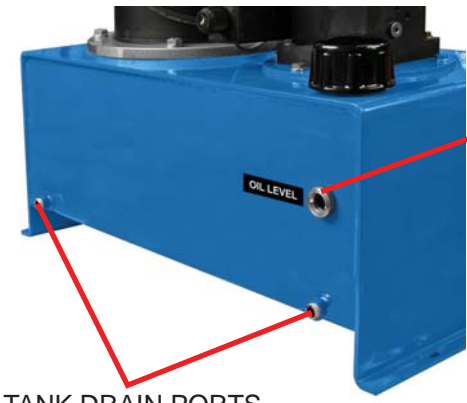
Air Conditioning Die Sets

.580
.850

Hydraulic Die Storage Rack



COMPONENT PARTS IDENTIFICATION



CRIMPER SPECIFICATIONS

SPECIFICATIONS:

MAX HEAD OPENING W/O DIES	168 MM (6.62 IN)
MASTER DIE INSIDE DIAMETER	130 MM (5.11 IN)
MAXIMUM DIE OPENING	DIE CLOSED DIAMETER + 38 MM
CRIMPER SIZE	29 IN LONG X 20 IN DEEP X 32 IN HIGH
WEIGHT	573 LB (269 KG)
ELECTRICAL REQUIREMENTS	220 VOLT 3 PHASE (STANDARD) 440 VOLT 3 PHASE (OPTIONAL)
MOTOR	7.5 HP
RESERVOIR CAPACITY	8 US GAL
OIL TYPE	ISO 46 HYDRAULIC OIL
MASTER DIES	145MM I.D. MASTER DIE STANDARD
INTERMEDIATE DIES	99 MM I.D. INTERMEDIATE DIES INCLUDED
HOSE CAPACITY	2 INCH 6 SPIRAL

INITIAL SET-UP

Do not lift the machine by the crimper head. Lift with a forklift under the tank. Mount the crimper on a sturdy surface.

Electrical Requirements (as marked on the plug):

220 Volt 3 Phase Current (Standard)

440 Volt 3 Phase Current (Optional)

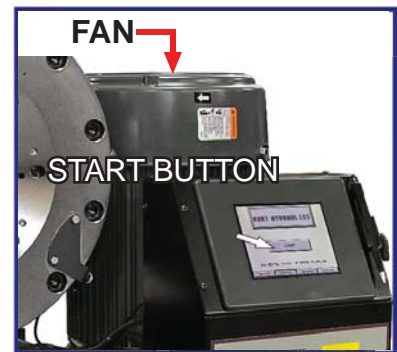
Plug the cord directly into the appropriate wall outlet.

Check the oil level in the sight glass on the rear of the crimper. 8 U.S. gallons of ISO 46 hydraulic oil are required to completely refill the tank.

Oil can be drained from either of the two ports at the bottom of the tank.

Turn the machine on, using the red master power switch on the front panel. The ACT™ Controller screen will light with a “Start Motor” message. Tap this button on the screen to activate the motor.

Check to be certain that the motor rotates in the direction of the arrow shown on the motor housing. A fan can be seen by looking into the grid on the top of the motor housing. It should be rotating clockwise. If not, turn off the motor, unplug the machine, and reverse any two hot wires in the electrical plug. Start the motor again, and verify proper rotation. Damage to the pump can result if the motor does not rotate in the correct direction.

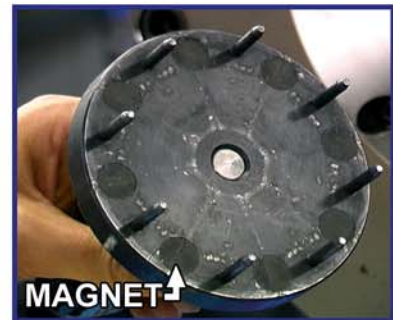


HYDRAULIC DIE INSTALLATION

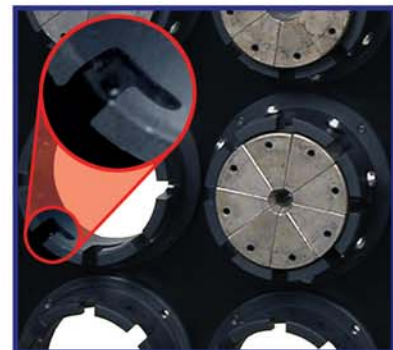
Once the motor is running, this screen will appear on the ACT™ Controller. Since you're installing dies, tap the **CHANGE DIES** button in the lower left corner of the screen; it will start to flash. This button allows you to "jog" the dies in and out during die installation using the green **CLOSE** and **OPEN** button below the screen on the front of the ACT™ Controller. The **CHANGE DIES** button is available on many subsequent screens, making it possible to change dies at various stages in process.



The "quick-change tool" has a flat head containing pins and magnets. The pins fit into the corresponding holes in the backs of the die fingers. powerful magnets hold the die fingers in place on the tool, to facilitate installation and storage.



Here is a close-up view of some optional hydraulic dies stored in the optional die rack. The stud on each of the die fingers fits into an "L"-shaped slot (detail) in the die storage collar. For the sake of illustration, die set .670 will be used. To remove the die set, insert the pins of the quick-change tool into the holes of the die set. When the magnets take hold, twist the tool clockwise, then pull it out of the rack.



If you are not using the optional die rack, make sure the die size stamped on the face of the die is facing you when you pick up the die set with the quick-change tool.

The KH4-50 Crimper comes with standard intermediate dies installed. These dies allow the crimper to be used for hydraulic crimp applications. Other than routine maintenance covered later in this manual, you should not have to deal with the intermediate dies. If a problem occurs, contact Customer Service for additional assistance.



To insert the die, first jog the intermediate die teeth open or closed (using the appropriate green button mentioned above) until the intermediate die fingers are wide enough to allow the die set to fit in the center, with just a little extra room for "play".

HYDRAULIC DIE INSTALLATION (Continued)

Next, align the studs of the hydraulic dies with the holes in the intermediate dies, and **SLOWLY** jog the crimper head closed onto the die set. During this process, manipulate the handle of the quick-change tool, making small adjustments to ensure that all the studs are correctly entering their respective holes in the intermediate dies.



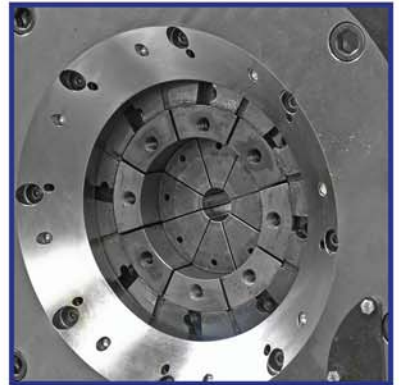
Bring the crimper head to a fully closed position, and remove the quick-change tool. You must exert enough force to overcome the strong pull of the eight magnets in the head of the tool.

The die fingers may also be inserted manually with the crimper head in the fully open position.



This is a view of the die fully installed with the quick-change tool removed, and the die still fully closed. The machine is now ready to crimp. Return to the ACT™ Controller screen and tap the flashing **CHANGE DIES** button to toggle it back to “off”.

To remove a hydraulic die, simply reverse the process. Tap the **CHANGE DIES** button on the ACT™ Controller, bring the crimper head to the fully closed position, install the quick-change tool into the die fingers, and open the crimper head, thereby releasing the die fingers from their spring retention holes.



HOSE PREPARATION

1. Select your hose and coupling to be assembled. The examples in this Manual use MX06 hose and HY06/06 MP couplings.

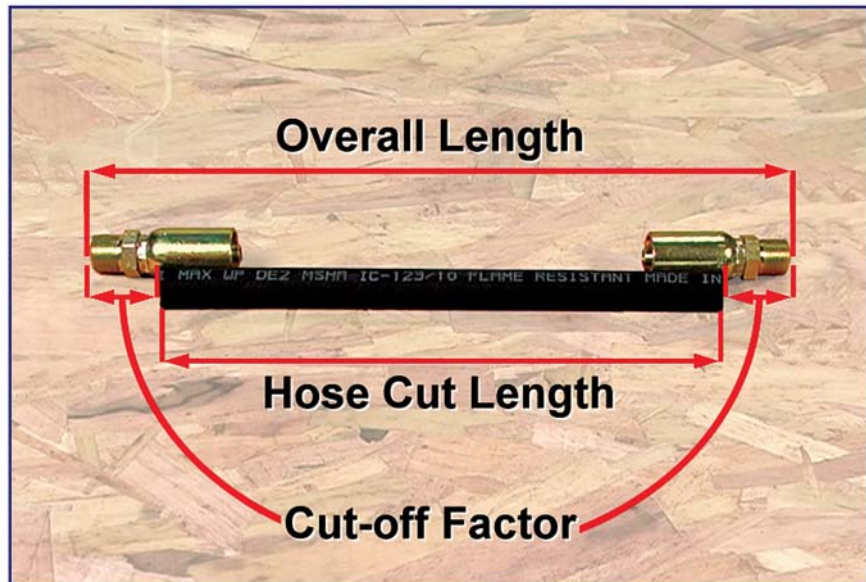
2. Determine the correct crimp setting from the manufacturer's specifications.

3. Determine the hose cut length by subtracting the cut-off factor from the overall length of the assembly.

4. Using a suitable saw, cut the hose square and to the proper length.

5. Coat the coupling with appropriate hose assembly lubricant to ease hose insertion. Insert the hose until it "bottoms out" in the coupling shell.

6. To insure that the hose is "bottomed out" in the coupling, mark the insertion depth on the hose before inserting it into the coupling (see figure below).



7. The most effective method for insertion is to use a clockwise, twisting motion, or if tolerances are tight, grasping the coupling hex in a vise while twisting the hose.

AccuCrimp ACT™ CONTROL PANEL

AccuCrimp ACT™ CONTROL PANEL

Patent No: 7,383,709



MANUAL MODE FUNCTION: CLOSE DIES
AUTO MODE FUNCTION: CYCLE START

MANUAL MODE FUNCTION: OPEN DIES
AUTO MODE FUNCTION: CYCLE STOP

NOTE:

IF THE CRIMPER IS IN **MANUAL MODE**, THE GREEN OPEN/CLOSE BUTTONS WILL OPEN AND CLOSE THE CRIMPER HEAD.

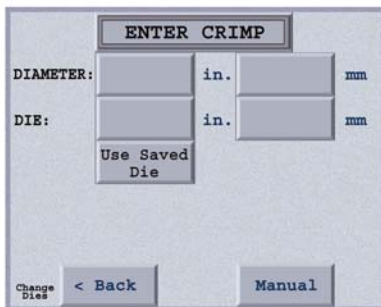
IF THE CRIMPER IS IN **AUTO MODE**, THE BUTTONS FUNCTION AS CYCLE START AND CYCLE STOP BUTTONS.

IF THE CRIMPER IS IN **SEMI-AUTO MODE**, PRESSING THE FOOT SWITCH OR THE CLOSE BUTTON WILL CLOSE THE CRIMPER HEAD AND RELEASING WILL HALT THE CLOSING ACTION.

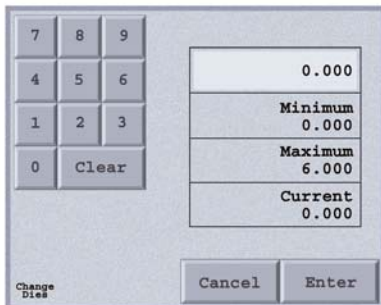
ACT™ CONTROLLER OVERVIEW



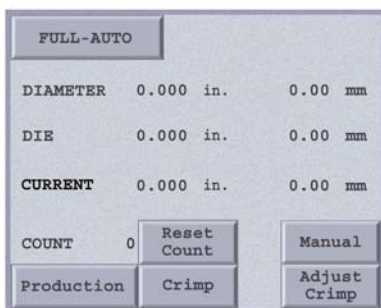
(1) A typical "Instructions Screen"



(2) A typical "Settings Screen"



(3) The numeric "Keypad Screen"



(4) A typical "Production Screen"



The ACT™ Controller will present you with one of four basic types of screens:

- (1) An **"Instructions Screen"**, where you are asked to make a choice, or take an action. The screen will usually contain some directions, such as "Select Option to Begin".
- (2) A **"Settings Screen"**, where you enter specific settings that tell the machine what you are doing and/or how to operate. Often, these settings can be saved.
- (3) **"Keypad Screens"**--one with numbers only (numeric) and one with both numbers and letters (alpha-numeric)--where you can enter numbers and/or letters, usually for settings.
- (4) A **"Production Screen"**, which is used to tell the machine to make a crimp, and usually displays the settings for that crimp.

The ACT™ Controller screen is a "touch" screen, so all entries are made by tapping the appropriate "live" area on the screen. These "live" areas appear either as a raised, embossed button with a label describing its function, or as a raised, embossed empty window into which you need to enter data.

When entering data into any screen, it is important to notice other buttons that need to be tapped before continuing. These buttons may be marked "Save", "Enter", "OK", etc. Often when entering data, a "Save" button must be tapped, then an "Enter" button before leaving the screen. Some screens contain a "Clear" button, which allows you to erase what you have entered on the screen and start over, or to delete a previous entry. As you become more familiar with the program, the buttons will seem self-explanatory and intuitive.

ACT™ CONTROLLER: MANUAL MODE



While the ACT™ crimper has the ability to perform a number of fully automatic functions, manual operation is also possible.

To make a manual crimp, two numbers are needed:

The closed diameter of the die

The finished crimp diameter

That's all you need to know. ACT™ does the rest.

Make sure the "Initial Set-up" procedures have been followed, as found on Page 5 in this Manual.



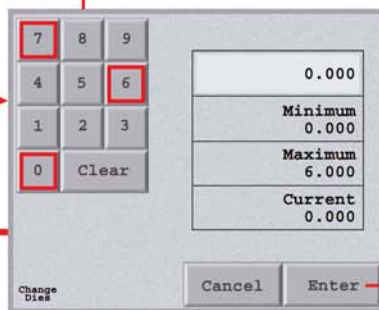
When this screen appears, select **CRIMP TO DIAMETER**.



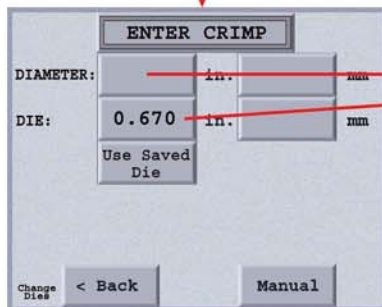
When the **ENTER CRIMP** screen appears, tap the empty **DIE (in.) WINDOW**.

The **NUMERIC KEYPAD** screen will appear. Enter the closed diameter of the die you'll be using. In this case, you have already loaded the .670 die.

Tap the **ENTER** button.

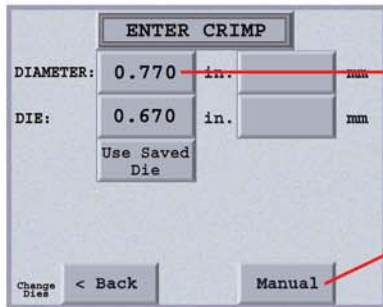


The die setting you just entered now appears in the **DIE (in.) WINDOW**.



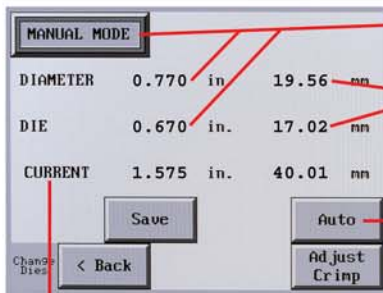
Next, to set the crimp diameter you'll be using, tap the empty **DIAMETER WINDOW**. This will bring up the **NUMERIC KEYPAD** screen again. As before, tap in the crimp diameter. For illustration, we will be crimping a HY06/06 MP coupling onto an MX06 hose, so the crimp diameter will be .770. Tap **ENTER**.

ACT™ CONTROLLER: MANUAL MODE (Continued)



The crimp diameter you just entered now appears in the **DIAMETER (in.) WINDOW**.

Now that the crimp diameter and die setting have been entered, tap the **MANUAL** button to put the crimper into the Manual Mode.



Confirm that **MANUAL MODE** is displayed, and that the crimp diameter and die setting are correct.

Note that even though you input the settings in “inches” only, the ACT™ Controller also displays the settings in “millimeters”. This is done only as a courtesy.

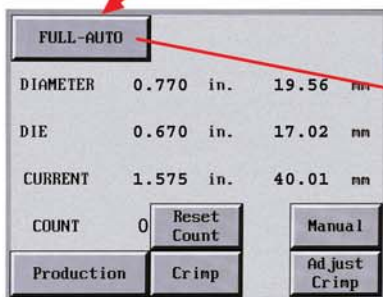
The **CURRENT** setting displays in “real time” the current diameter of the die fingers. This setting will change during crimping as the fingers close and open.



Your hose and coupling should be ready to crimp, following the directions for **HOSE PREPARATION** found elsewhere in this Manual.

The optimum position for inserting the hose into the front of the machine so that the coupling is visible exiting the die at the rear, is to stand to the side of the machine. so that both the front and back are visible. From this position, the **FOOT PEDAL** must be used to jog the die fingers to grasp the coupling.

Toggles **SEMI-AUTO**



To activate the **FOOT PEDAL**, tap the **AUTO** button on the **MANUAL MODE** screen. This brings up the **FULL AUTO** mode screen.

Tap the **FULL AUTO** button, and it will toggle to the **SEMI AUTO** mode. The **FOOT PEDAL** will now work.

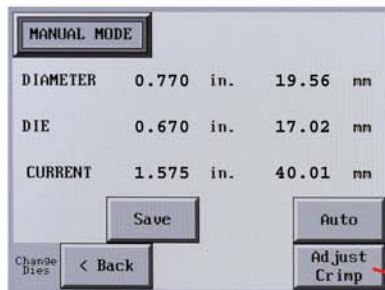
Insert the hose into the die so that the coupling extends past the ends of the die fingers (in the back) just to the center of the knurl. Jog the **FOOT PEDAL** until it firmly grasps the coupling, then depress and hold it until the crimper stops closing. Press the green **OPEN** button on the front of the Controller to open the die fingers, and remove the finished crimped hose and coupling.

Measure the crimp diameter with calipers on four of the flat sides of the crimp. Verify that the crimp is within the manufacturer’s specifications. If minor correction is necessary, see **HOW TO MAKE MINOR CORRECTIONS** on the next page.



ACT™ CONTROLLER OPERATION

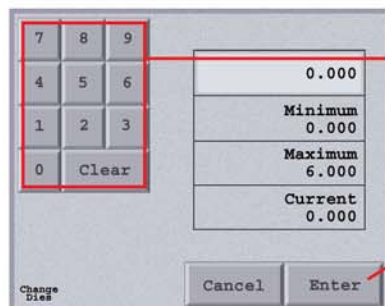
HOW TO MAKE MINOR CORRECTIONS



- Due to variations in hose and fitting tolerances a minor crimp adjustment may be required if the measured diameter of the final crimp is not within the hose and fitting manufacturer's specifications. ACT™ technology makes minor corrections a simple process which requires no addition or subtraction.

If the finished crimp diameter is not within the required specifications:

- Press the **ADJUST CRIMP** button.

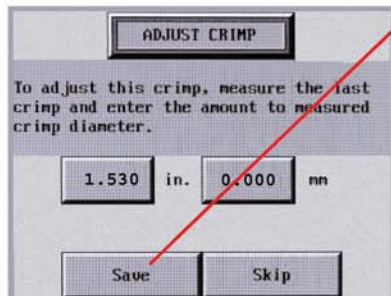


- Key in the measured diameter of the fitting (NOT the amount of correction).

- Tap the **ENTER** key

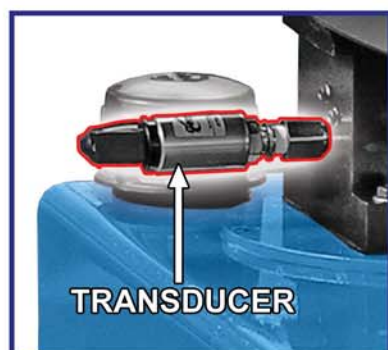
- Tap **SAVE**.

- Make another crimp and verify that the fitting is within specifications.



EXAMPLE: *If the hose and fitting manufacturer specifies that the finished crimp should measure 1.500 to 1.520 and the measured crimp diameter was 1.530, simply enter the measured diameter (1.530) and press **SAVE**. The finished crimp diameter can be entered and ACT™ will make the conversion.*

While a single correction will usually bring the hose and fitting into specifications, the process can be repeated as many times as is required.



ACT™ TECHNOLOGY

On crimpers equipped with ACT™ controllers the sensors which sense the position of the dies are supplemented by a pressure transducer which senses the "effort" required to make a crimp and compensates for variations in hose and fitting combinations. This unique feature means that the operator can enter the finished crimp diameter and will seldom, if ever, have to enter an offset to achieve the correct finished crimp diameter.

ACT™ CONTROLLER OPERATION

HOW TO ADD A SAVED DIE

Up to 50 different dies can be saved in the computer memory. Saved dies can be recalled by themselves, or automatically with saved crimp specifications. **DAYCO RECOMMENDS SAVING ALL YOUR DIES.** To enter a saved die:

From the **SELECT OPTION** screen, tap **SETUP MODE**.

From the **MACHINE SETUP** screen, select **SAVED DIES**.

Select your save position from one of five groups of ten (say group "1 - 10" for example), then tap **OK**.

Select your final save position from the ten numbers presented (say number "1" for example), and tap the **EDIT** button.

Using the alpha-numeric **KEYPAD**, enter a die **DESCRIPTION** of up to 12 characters (say "670 DIE" for example).

Make sure the **DIAMETER UNITS** button is toggled to **INCH**.

Enter the closed diameter of the die.

Tap **SAVE** and then **EXIT**.

The saved die will now appear on the **SELECTED DIE** screen. From this screen, individual dies can be cleared or edited.

HOW TO RECALL A SAVED DIE

From the **SELECT OPTION** screen, tap **CRIMP TO DIAMETER**.

On the **ENTER CRIMP** screen, select **USE SAVED DIE**.

From the five groups of ten, select the group in which the die has been saved.

The group will open with the name(s) of all previously saved dies. Tap the **NUMBER BUTTON** of the die you wish to recall.

Select **LOAD** and then **OK**.

From the **ENTER CRIMP** screen, tap the **MANUAL** button.

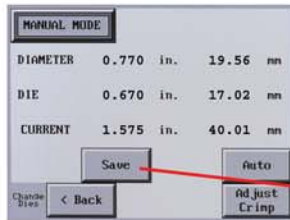
The recalled die will now be shown on the **MANUAL MODE** screen.

The screenshots illustrate the following steps:

- SELECT OPTION TO BEGIN:** Shows options: Crimp to Diameter, Use Saved Crimp, Setup Mode.
- MACHINE SETUP:** Shows '3. Saved Dies' selected.
- SELECTED DIE:** Shows a grid of die groups (1-10, 11-20, 21-30, 31-40, 41-50) with '1' selected.
- ENTER DIE TO SAVE:** Shows 'Description: 670 DIE', 'Diameter Units: inch', 'Closed Diameter: 0.670'. Buttons: SAVE, EXIT.
- ENTER CRIMP:** Shows 'DIE: 0.000 in. 0.00 mm' and 'Use Saved Die' button.
- SELECTED DIE:** Shows '1 670 DIE' selected.
- ENTER CRIMP:** Shows 'DIE: 0.670 in. 17.02 mm' and 'Manual' button.
- MANUAL MODE:** Shows 'DIE: 0.670 in. 17.02 mm' and 'CURRENT: 1.575 in. 40.01 mm'.

ACT™ CONTROLLER OPERATION

HOW TO ADD A SAVED CRIMP



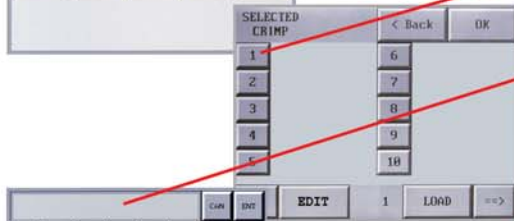
Adjust the die diameter and crimp diameter as required and place the crimper in **MANUAL** mode.

Press **SAVE**



Select your save location from one of ten groups of ten (say "1 - 10"), and tap **OK**.

Select a final save location from the ten available numbers (say "1").

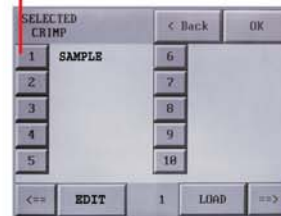


Using the alphanumeric **KEYPAD**, enter a description of your saved crimp--we'll use "SAMPLE".

Tap **SAVE**, then **EXIT**.



The die and crimp setting can now be recalled from the saved location as required (1 on the example screen shown).



TO RECALL SAVED CRIMP



Select **USE SAVED CRIMP** from the option screen

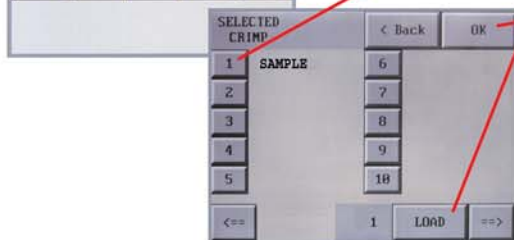
Select a previously saved crimp from location 1-100.

Tap **LOAD**.

Tap **OK**.



The saved crimp will appear on the **MANUAL MODE** screen.



ACT™ CONTROLLER OPERATION

FULL AUTO MODE

With the crimper in **FULL AUTO** mode additional functions are available:

The crimper will cycle automatically from the **CRIMP** button on the touch screen, the green **CYCLE START** button on the panel, or the foot switch.

- To set the position to which the dies will retract, close the crimper to the desired retract position prior to pressing the **FULL AUTO** button.

Note: The retraction position must be set a minimum amount above the finished crimp diameter or the crimper will not retract. The minimum retraction diameter is "crimp diameter plus 3/32 of an inch"

The **FULL AUTO** mode is accessed from the **MANUAL MODE** screen, discussed earlier. The (CRIMP) **DIAMETER** and **DIE** settings can be set either on the **MANUAL MODE** screen or on this **FULL AUTO** screen. The procedure is the same on both screens.

Pressing the **FULL AUTO** button will toggle the crimper into **SEMI-AUTO** mode. In **SEMI-AUTO** mode, pressing the **FOOT SWITCH** or the **CLOSE** button will close the crimper head and releasing it will cause the head to stop closing. This mode allows the crimper to be jogged into position allowing more precise positioning of a fitting in the dies. Pressing the **SEMI AUTO** button will toggle the crimper back to **FULL AUTO** mode

In **FULL AUTO** mode pressing the foot switch will start the crimp cycle and the dies will stop closing when the crimp cycle is complete

- The **COUNT** function is activated to allow you to monitor the number of crimps made.
- A measurement can be required after a preset number of crimps. See **SET REQUIRED MEASUREMENT**

SET REQUIRED MEASUREMENT

Press the **PRODUCTION** button.

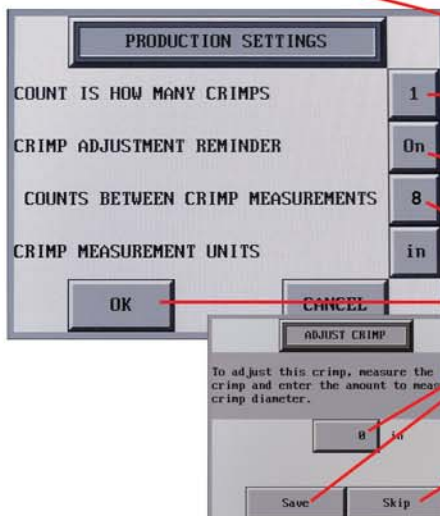
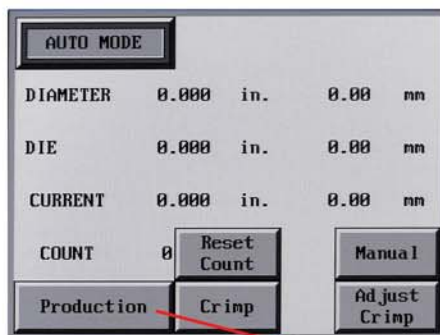
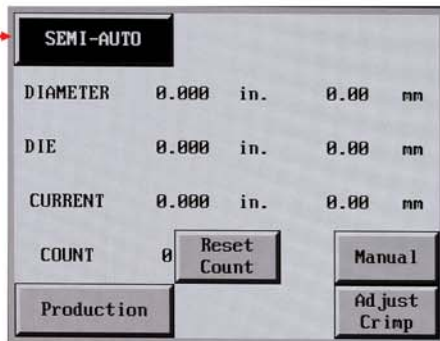
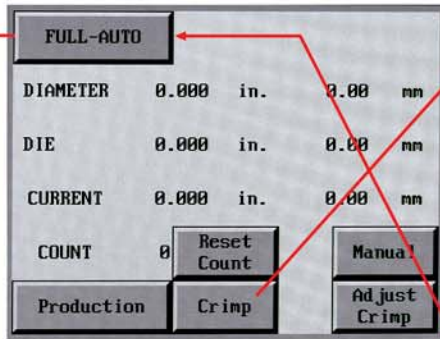
Toggle this button to determine if 1 or 2 crimps will count as a "crimp".

Toggle the **CRIMP ADJUSTMENT REMINDER** to **ON**.

Set the **COUNTS BETWEEN CRIMP MEASUREMENTS** to the desired number and press **OK**.

At the set interval, the **ADJUST CRIMP** screen will come up and you will be asked to measure the last crimp and enter a correction if required, then tap **SAVE**.

If no correction is necessary, just tap **SKIP**.



ACT™ CONTROLLER OPERATION

ACT™ ADDITIONAL FEATURES



• Additional features and functions of the ACT™ controller can be accessed by pressing the **MORE** button on the **MACHINE SET UP** screen.

• When “Allow Crimp to Diameter” is set to “**YES**”, all of the adjustment functions of the crimper are available. When “Allow Crimp to Diameter” is set to “**NO**” only the settings entered as a saved crimp can be used.



• English or Spanish language options are available.

• The “Use Pressure Compensation” is set to “**YES**” for all crimpers equipped with a pressure transducer. A security code is required to turn this function on or off.

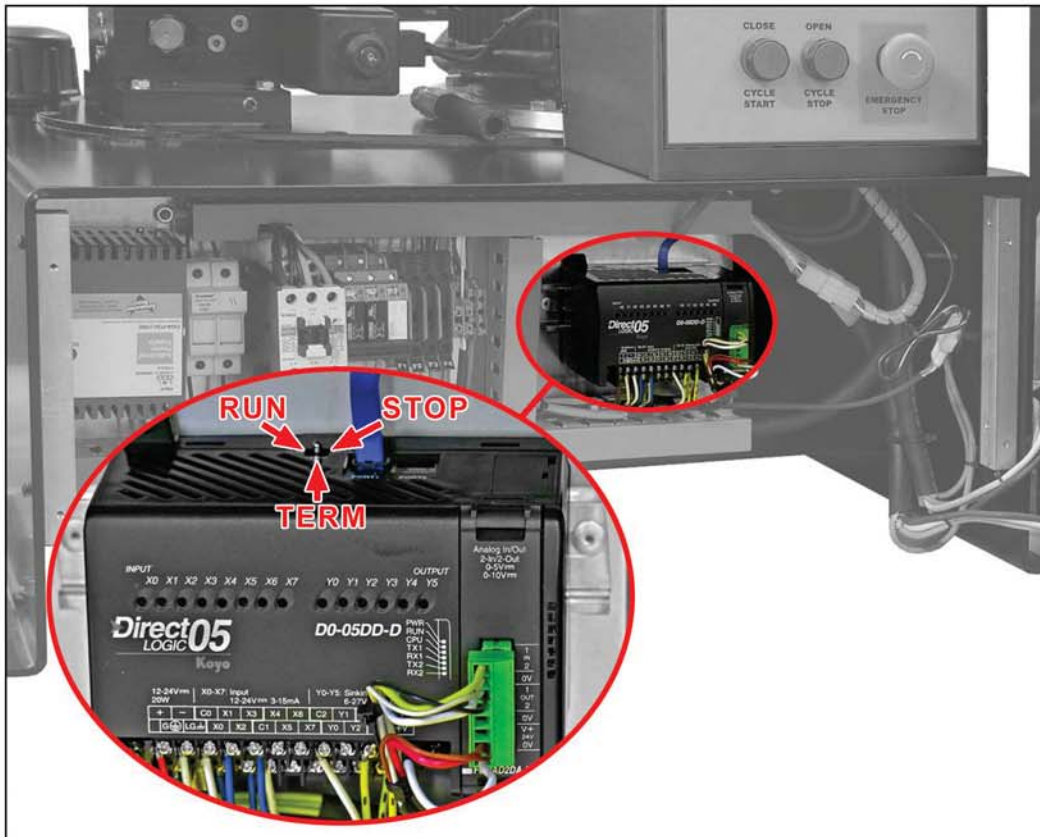


• If an operation is attempted which is outside of the range of the die set selected or which could result in a bad crimp, a series of warning screens will appear to help diagnose the problem.



ACT™ CONTROLLER MEMORY RESET

The ACT™ Controller's memory function resides in the "Programmable Logic Controller" (PLC). The PLC needs a relatively constant source of electrical power. Power surges, outages, or drops in power can cause the PLC to lose its settings. This may result in missing or misplaced information on the Controller's screen, requiring a manual reset of the PLC.



Resetting the PLC to its original settings is a simple procedure.

- Turn the main power switch to OFF.
- Remove the 4 screws holding the front panel in place and set the panel aside without disconnecting any wires.
- Power up the crimper from the main power switch. The crimper must be powered on during the PLC reset procedure.
- Move the three position toggle switch on top of the PLC right to the STOP position and then left to the RUN position.
- Return the toggle switch to the center TERM position.
- Turn the main power switch to OFF and replace the front panel.
- The PLC and the crimper should now operate normally.

AccuStop™ COUPLING STOP (OPTIONAL)

The optional AccuStop™ coupling stop eliminates guesswork allowing the operator to visually observe exactly where the crimp will be positioned on the fitting without the need for trial and error and product scrap due to poor crimp positioning.

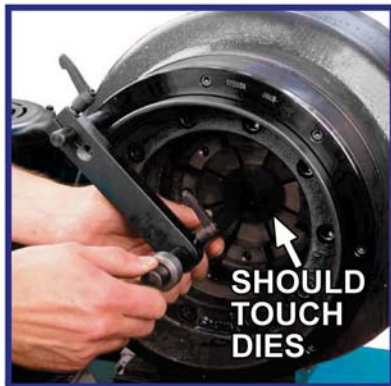
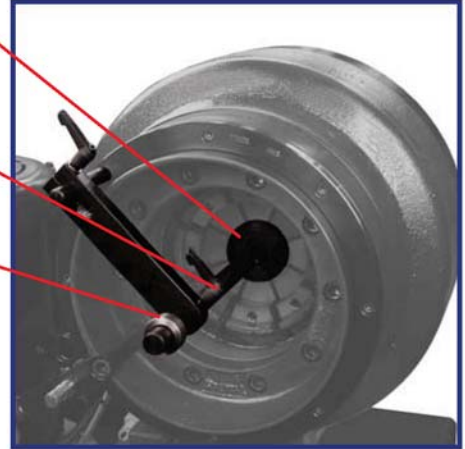
With the Coupling Stop retracted, load the appropriate set of dies and set crimp diameters as required.

With the crimper in the **MANUAL** mode, bring the dies to a fully closed position

Coupling Stop

Coupling Stop Clamp

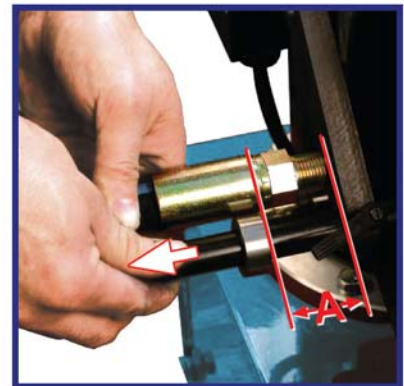
Coupling Stop Guide



Loosen the Coupling Stop Clamp and position the Coupling Stop against the back face of the dies.



Slide the Coupling Stop Guide against the Coupling Stop Arm.



Hold the fitting against the Coupling Stop Arm withdraw the Coupling Stop Rod such that the Guide is aligned with the desired crimp position. Lock the Coupling Stop Clamp.



The dimension from the face of the fitting to the crimp position will now be the dimension established in the previous step.



Position the fitting against the Coupling Stop and actuate the crimper in the normal manner.



An electronic Coupling Stop is available. Set up is identical, but when the fitting touches the Coupling Stop, the crimp cycle will start automatically.

CAUTION: When using an electronic Coupling Stop, disconnect it from the controller prior to setup. Failure to do so will cause the crimper to actuate during the set up process.

LUBRICATION & MAINTENANCE

Proper lubrication is essential to prevent damage to the machine and to assure accurate crimping.

Lubricate the crimping head after each 100 crimping cycles or at the start of each shift if the crimper is used in a production setting.

Bring the intermediate dies to the fully closed position and lubricate the die fingers through the 8 lubrication fittings in the front flange face. Use only a high quality moly-disulfide grease. Failure to do so may result in damage to the wearing surfaces.

Grease Fittings

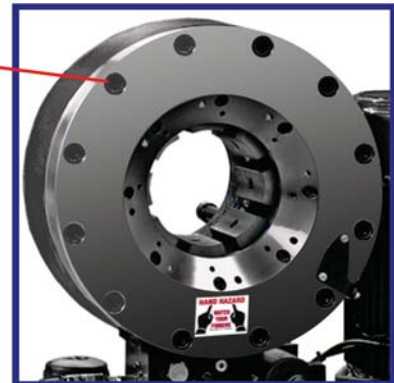


This specific style of grease gun fitting must be used to lubricate the KH4-50.



Front Flange Bolts

Front Flange Bolts: Periodically, every 6-12 months depending upon usage, the front flange bolt torque should be checked. The correct torque is 332NM (245 Ft Lbs).



TROUBLESHOOTING

PROBLEM: CRIMPER WILL NOT RUN AT ALL

- Check the E-Stop switch to be certain that it is not depressed. A slight twist is required to release switch after it has been depressed.
- PLC (Programmable Logic Control) must be reset.

PROBLEM: CRIMPER RUNS BUT IS SLOW OR NON-FUNCTIONAL

- Check supply voltage to see that it matches the voltage specified on the tag attached to the crimper.
- Check motor rotation and be certain that the motor rotates in the direction of the arrow on the motor housing. For three phase units rotation can be reversed by switching any two wires in the plug.

PROBLEM: CRIMPER WILL CLOSE ON FITTING BUT DOES NOT DEVELOP POWER TO COMPLETE THE CRIMP

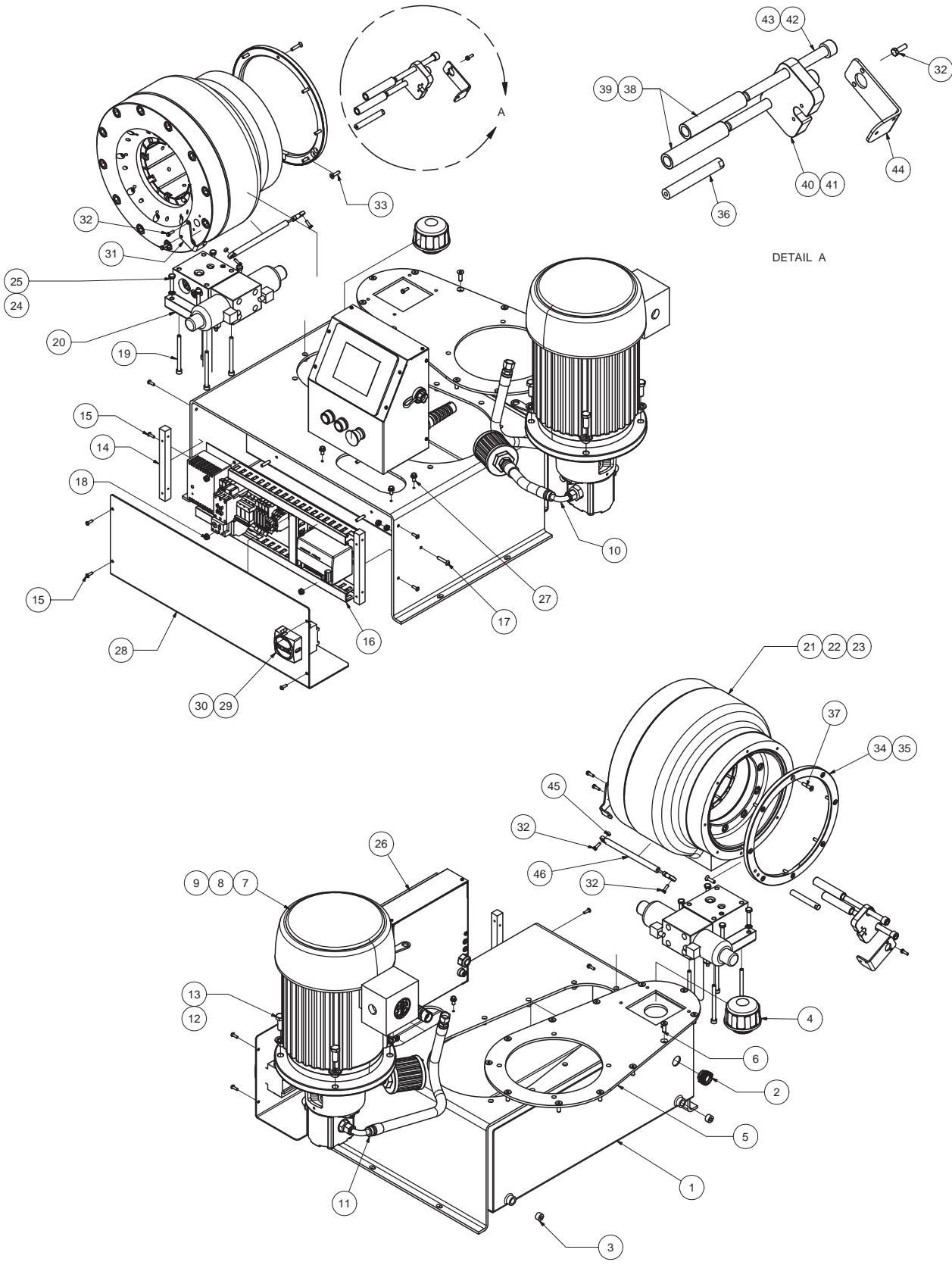
- Fitting is too large for selected crimp die. Select a crimp die that is closer to final crimp diameter. Machine has built-in safety by-pass to protect internal components from damage due to incorrect die selection.
- Check oil level. Position dies to the fully open position and check oil sight gage in rear of machine. Be sure the oil level is in the middle of the sight glass. Use ISO 32 or 46 weight hydraulic oil.

PROBLEM: CRIMPER WILL NOT OPEN TO RETRACT POSITION IN AUTO MODE

- Retract position must be at least 3/32" larger than the final crimp diameter.

If problem(s) persist contact Customer Service for additional troubleshooting assistance

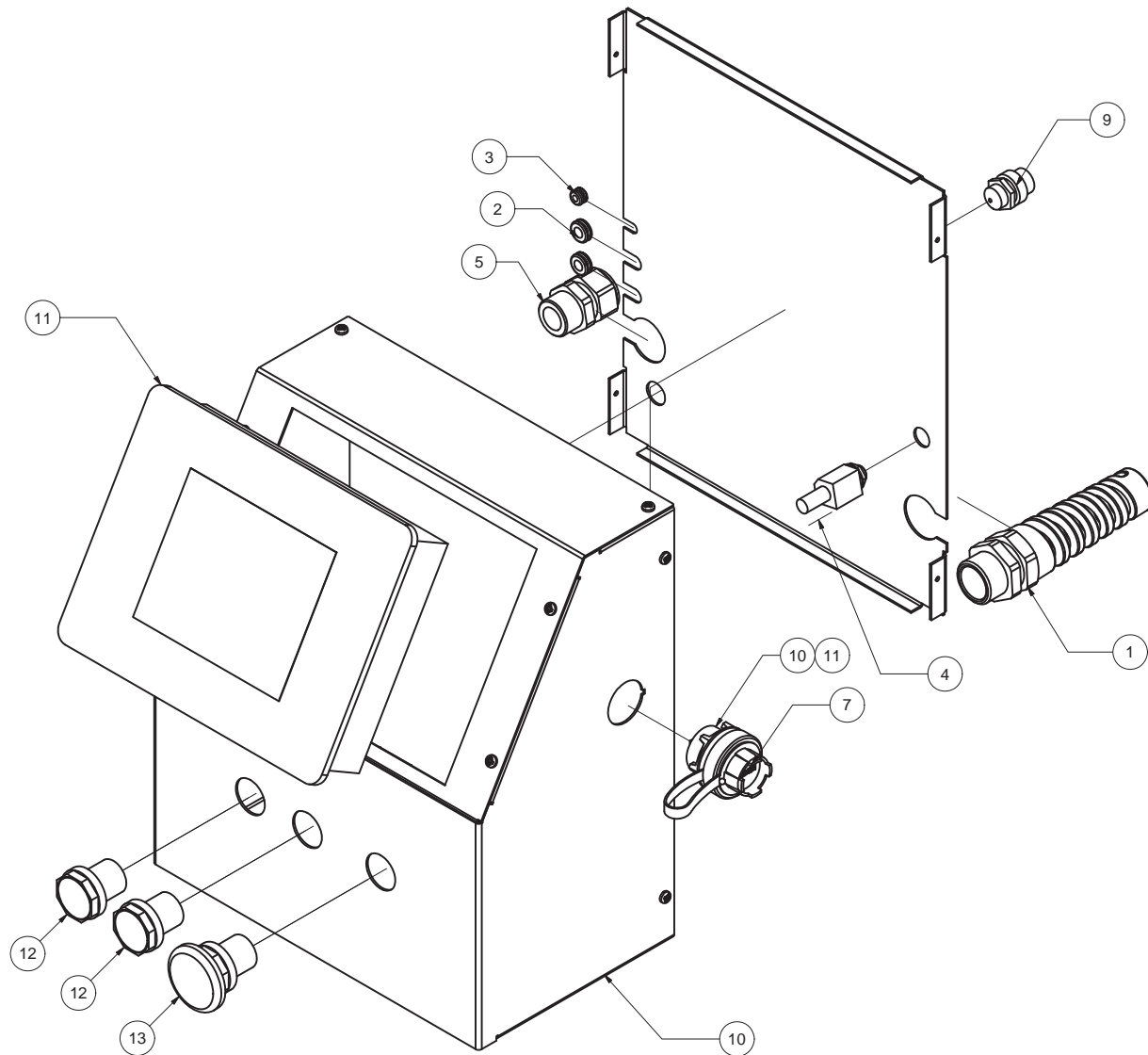
COMPONENT PARTS BREAKDOWN



COMPONENT PARTS BREAKDOWN

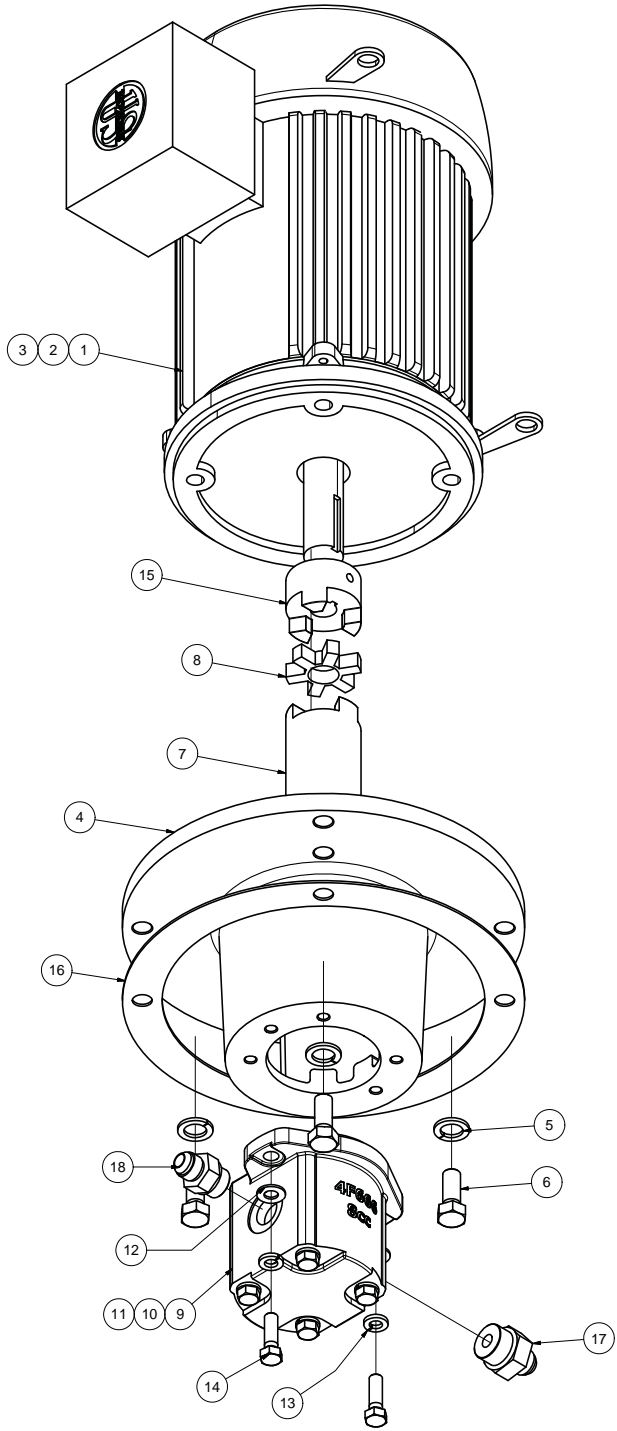
Crimper Assembly - CC38 (101547) / CC4-50 (101832) / CC60 (101551)			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	102618-WELD	CC Crimper Reservoir	1
2	103049	Sight Glass	1
3	4534K43	3/8-18 NPTF Hex Socket Pipe Plug	2
4	103048	Venter Filler Cap	1
5	102618-03	CC Reservoir Top Plate	1
6	91253A583	5/16-18 x 1 FHCS	12
7	101714-7.5-11	7.5 HP/3 Ph/11cc Motor and Pump Assembly	1
8	101714-5-8	5HP Motor/8cc Pump Assembly	1
9	101714-10-14	10HP Motor/14cc Pump Assembly	1
10	101733	Suction Strainer Hose Assembly	1
11	101734	Output Hose Assembly	1
12	91101A033	1/2 Lock Washer	4
13	92865A714	1/2-13 x 1 1/4" Hex Bolt	4
14	102303	Front Electrical Panel Bracket	2
15	91255A244	#10-24 x 5/8 BHCS	8
16	*Sub-Assembly	Assembled Electrical Board	1
17	91255A544	1/4-20 x 1 1/4 BHCS	1
18	90675A029	1/4-20 Nut with Tooth Washer	6
19	91290A468	M8 x 100mm SHCS	4
20	102523	Assembled Manifold Block	1
21	102800	CC-60 Head Assembly	1
22	102513	CC-450 Head Assembly	1
23	102594	CC-38 Head Assembly	1
24	91106A131	M8 Internal Tooth Lock Washer	4
25	91310A542	M8 x 40mm Hex Bolt	4
26	102633	CC Tower w/ Touch Panel	1
27	92323A512	1/4-20 x 1/2 SHFCS	4
28	102302	Front Electrical Cover Panel	1
29	103050	50 Amp Disconnect Switch	1
30	103051	63 Amp Disconnect Switch	1
31	101687	Potentiometer Mounting Plate	1
32	91280A226	M5 x 16mm Hex Bolt	6
33	91253A542	1/4-20 x 1 FHCS	1
34	102500	CC-60/450 Rear Face Ring	1
35	102471	CC-38 Rear Face Ring	1
36	101689	Anti-Rotation Guide Pin	1
37	6DU67	M6 x 30mm FHCS	1
38	101688_04	CC-60/450 Potentiometer Bracket Standoff	2
39	101790_02	CC-38 Potentiometer Bracket Standoff	2
40	102980	CC-60/450 Potentiometer Bracket Base	1
41	102982	CC-38 Potentiometer Bracket Base	1
42	91290A649	M12 x 130mm SHCS (CC-60/450)	2
43	6DE37	M10 x 120mm SHCS (CC-38)	1
44	102981	CC-60/450/38 Potentiometer Bracket Flange	1
45	102817	CC-60 Potentiometer Stand Off	1
46	101719	Potentiometer	1

COMPONENT PARTS BREAKDOWN



Touch Panel Housing Assembly (102633)			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	69915K65	3/4" NPT Straight Flex Cord Grip	1
2	9600K24	Grommet - 1/4"	2
3	9600K11	Grommet - 1/8"	1
4	103874	Foot Pedal Jack W/Nut	1
5	69915K57	1/2" NPT Cord Grip	1
6	90935A240	#10 Sheet Metal Screw	10
7	103792	USB Connector	1
8	4974T7	USB Cable	1
9	6897K38	Receptacle	1
10	102508-BT	Touch Panel Housing Assembly	1
11	EA7-S6M-R	6" Touch Screen Text Panel	1
12	101545-GREEN	Green Push Button	2
13	101545-RED	Emergency Stop Button	1

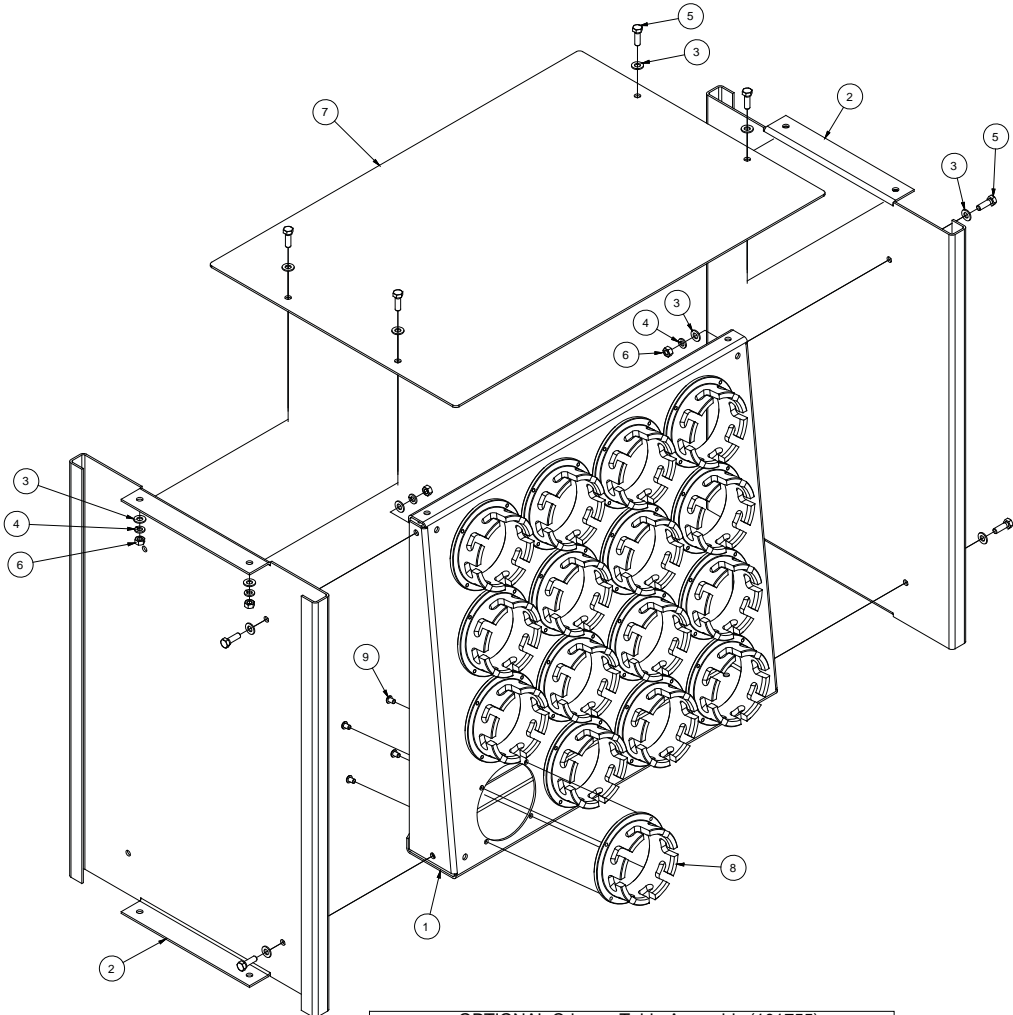
COMPONENT PARTS BREAKDOWN



CC Motor and Pump Assembly (101714)			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	101541	5 HP 1800 RPM Motor	1
2	101540	7.5 HP 1800 RPM Motor	1
3	102994	10 HP 1800 RPM Motor	1
4	101539	Motor Mounting Flange	1
5	91101A033	1/2 Lock Washer	4
6	92865A714	1/2-13 x 1 1/4" Bolt	4
7	101543-01	Motor Coupling	1
8	101543-03	Coupling Spider Insert	1
9	101713	8cc Gear Pump	1
10	101542	11cc Gear Pump	1
11	102992	14cc Gear Pump	1
12	98023A31	3/8 Washer	2
13	91102A031	3/8 Lock Washer	2
14	92865A626	3/8-16 x 1 1/4" Bolt	2
15	101543-02	3/4" Shaft Coupling	1
16	101539-01	Flange Gasket	1
17	6400-8-12	8 JIC 37 M to 12 SAE Adapter	1
18	6400-8-10	8 JIC 37 M to 10 SAE Adapter	1

FINAL ASSEMBLY PART NUMBER CREATION:
 101714-"MOTOR HP"- "PUMP SIZE"- "PHASE (IF REQ'D)"
 EX. 7.5 HP MOTOR WITH 11cc PUMP: 101714-7.5-11
 EX. 5 HP MOTOR WITH 8cc PUMP, SINGLE PHASE: 101714-5-8-1

COMPONENT PARTS BREAKDOWN



OPTIONAL Crimper Table Assembly (101755)

Item	Part Number	Description	Qty
1	101244	Die Panel	1
2	101246	End Panel	2
3	90108A030	5/16 Flat Washer	16
4	91102A030	5/16 Lock Washer	8
5	92865A581	5/16-18 X 1 Hex Bolt	8
6	95462A030	5/16-18 Hex Nut	8
7	101754	Crimper Table Top	1
8	101242	99MM Die Holder	16
8	101243	84MM Die Holder	16
9	91255A535	1/4-20 X 3/8 BHCS	64