

## MODELS 3512-WC & 3512-H HYDRAULIC HAND COMPRESSOR

OPERATION



THE NATIONAL TELEPHONE SUPPLY COMPANY

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#### I. SAFETY AND WARNING REMINDERS

**NOTE:** THE *Nicopress*<sup>®</sup> Hydraulic Tool Is Designed To Be Used with *Nicopress*<sup>®</sup> Sleeves. Splicing Any Other items Should Not Be Attempted, As It May Cause Damage to Equipment and/or Injury to Personnel.

- 1. CAREFULLY READ, UNDERSTAND AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL AND ON THE TOOL BEFORE ATTEMPTING TO OPERATE THE EQUIPMENT.
- 2. NEVER OPERATE THE TOOL WITHOUT DIES IN PLACE. FAILURE TO INSERT DIES BEFORE OPERATION WILL CAUSE DAMAGE TO THE "C" FRAME AND TOOL RAM.
- 3. ALWAYS WEAR SAFETY EYE PROTECTION AT ALL TIMES.
- 4. KEEP FINGERS OUT OF PINCH AREAS, DIES, AND RAM DURING OPERATION

#### II. SPECIFICATIONS AND FEATURES

#### HYDRAULIC HAND PUMP MODEL 3512-WC

- 1. Output Force 12 ton
- 2. Ram Stroke 1"
- 3. Weight 13 lbs.
- 4. Hydraulic Oil Enerpac HF-101 or equal.

#### **FEATURES**

- 1. By-Pass Valve Cartridge available for quick in-field repairs.
- 2. Swivel Head pivots 180° for easy access to splicing areas.
- 3. Accepts most existing 12 ton compression dies.
- 4. Equipped with fiberglass handles.
- 5. Two stage pump for rapid crimping cycle.
- 6. Protective Rubber Boot on "C" Head
- 7. Molded Plastic Case with Die Compartment.

#### HYDRAULIC HEAD ONLY MODEL 3512-H

- 1. Output Force 12 ton
- 2. Ram Stroke 1"
- 3. Weight 8-1/4 lbs.
- 4. Hydraulic Oil Enerpac HF-101 or equal.

#### FEATURES

- 1. Accepts most existing 12 ton compression dies.
- 2. Metal Case with Die Compartments.

#### III. OPTIONAL ACCESSORIES

- 1. 3512-TG: Pressure Check Test Gauge and Die Set with Case.
- 2. Model 635/5 ACR-115 Electric Hydraulic Pump for the 3512-H

Electric motor driven hydraulic pump, <sup>1</sup>/<sub>2</sub> horsepower, single phase, 115 volt 60 HZ-AC or DC power with 6 foot electrical pendant cord with a hand operated switch provided for remote operation. The hydraulic output is 20 cu. in. per minute @ 10,000 p.s.i.

- 3. 2954 12 foot hose assembly with couplings.
- 4. 2696 6 foot hose assembly with couplings.

#### **IV. OPERATING INSTRUCTIONS**

- 1. Never operate tools without dies in place. Failure to insert dies before operation will cause damage to the "C" frame and tool ram.
- 2. Never attempt to adjust pump pressure setting without the use of the proper test gauge. Consult factory for proper adjusting procedure.
- 3. Select the appropriate compression die set for the connector and cable being used. All Nicopress 12 Series dies can be used with this tool.
- 4. To insert the dies, press the die release pin on the ram, and slide die into place. Then, depress release pin on "C" head as well and slide other die half in place. Be sure both die halves are secure before operating the tool.

#### <u>3512-WC</u>

- 1. The head of the compressor can be rotated to any desired position to accommodate operator's view of the dies, fitting position and compressing operating. The head will rotate through 180° (cannot be rotated under hydraulic pressure).
- 2. Place the compressor in position on the fitting for the first compression.
- 3. Operate the pump handle until the dies are closed or until the bypass valve, incorporated in the compressor, is heard to operate. This can be detected by a popping sound accompanied by a reduction in the force required to close the pump handle. If the dies are not visibly closed, the pumping should continue until the bypass valve operates. A high pitched squeaking sound is normal when the tool is operating in the high pressure stage. If the dies fail to close, it will be due to:
  - the tool being used for some application for which it was not designed.
  - the pressure not building up to 10,000 p.s.i.
  - the dies being the incorrect size.
- 4. Release pressure by twisting the pump handle clockwise and holding while it is in the open position and bringing to the closed position. In the event the tool will not release due to excess flash, hold release pin down with handle and pry tool jaws apart.
- 5. If tool fails to advance upon receipt or after an extended period of storage, invert tool and tap compression head. The suction valve check ball can become stuck after extended storage or during shipment, not allowing the tool to advance.
- 6. Always clean tool after use to keep ram track clear of dirt and debris.

#### <u> 3512-н</u>

- 1. Before connecting the tool head, make sure the pump and hose being used is working properly, and adjusted to and rated at 10,000 psi. The use of a pump or hose not rated at 10,000 psi working pressure may cause severe damage and result in personal injury.
- 2. Connect the 3512-H to the hose and pump, making sure all coupler connections are secure. It is important that all connections are tight for tool to function properly.
- 3. Fully insert cable into the connector and operate the pump until the connector is fully crimped.
- 4. Always clean tool after use to keep ram track clear of dirt and debris and be sure to keep couplers clean and caps in place when the tool is not being used.

#### REPLENISHING OF OIL

- 1. Release pressure.
- 2. Slip the handle extension insulation downward from the body insulation.
- 3. Remove the M4 set screw and the body handle assembly.
- 4. Place the tool head downward and hold in an upright position.
- 5. Pump the handle several times and release pressure. Repeat this procedure several times. This will purge air bubbles trapped in the hydraulic system.
- 6. Holding the pump handle in the closed position, remove the reservoir cap with care as air bubbles may remain in the end of the oil reservoir.
- 7. Replenish oil (Enerpac HF-101 or equal) and reset the cap.
- 8. Check the oil reservoir for pin holes by squeezing reservoir with fingers. If any leaks are detected, replace with a new reservoir.



#### V. PROPER CRIMPING

#### **USE OF CRIMP GAUGE**

When using the gauge, it should be held so that it contacts the compressed portion of the sleeve at right angles to the fins (flash). The compressed portion of the splice should enter the gauge easily.



#### WIRE ROPE SPLICING

Because of the many variations in wire and fiber rope design and construction, it is recommended that all wire rope assemblies be pull tested prior to use.

It has been determined through pull testing that an eye splice using *NICOPRESS*<sup>®</sup> copper, copper plated and stainless steel oval sleeves will hold military specification aircraft cable to its breaking strength, when the cable is made to military specifications MIL-DTW-83420M, dated 02/17/2009 for cable constructions 3x7, 7x7, 7x19 and Federal Specification RR-W-410F dated 12-06-2007 for cable construction 6x19 IWRC. These test results were achieved using *NICOPRESS*<sup>®</sup> sleeves crimped with *NICOPRESS*<sup>®</sup> tools.

Splices in wire rope are made by compressing two wires together inside a sleeve. To compress the sleeve properly, position the sleeve between the crimping dies with the long axis of the sleeve aligned with the crimping action of the dies.



#### LAP SPLICES

When the ends of two pieces of wire rope or both ends of the same rope are spliced together, this splice is called a lap splice. Usually two sleeves are needed to develop a splice equal to the breaking of the wire.

To make a proper lap splice, pull the ends of the rope through both sleeves. Be sure to leave a space between the sleeves to allow for extrusion of the sleeves during crimping and approximately 1/16" to 1/8" space between sleeves after crimping. The sleeve length, after crimping, can be found in *NICOPRESS*<sup>®</sup> Catalog No. 4 for Oval Sleeves. The ends of the wire should extend approximately 1/16" beyond the edge of the crimped sleeves.



#### EYE SPLICES

Eye splices are formed by pulling one end of the wire or fiber rope through the oval sleeve and looping it back to form an eye (Figure 1). Line up the sleeve between the crimping dies with the long axis perpendicular to the crimping action of the dies. The splice is made by the two wires being compressed together inside the sleeve.



Figure 1

Because of the many different types of wire rope, there can be no formula governing the exact size of loop to use. It is suggested that the length of the loop be approximately twice the width (Figure 2).



# <u>All wire rope assemblies should be pull tested prior to use to assure proper tensile</u> <u>strength</u>.

#### **COMPRESSION DIE CHART FOR WIRE ROPE SPLICING**

Cable Size	Oval Sleeve Stock #	Compression Die/# of Presses Required	Cable Size	Oval Sleeve Stock #	Compression Die/# of Presses Required
3/64	18-11-B4 28-11-B4 428-1.5-VB4 168-1.5-VB4 188-1.5-VB4	12-OVAL-B4 (1) 12-OVAL-B4 (1) 12-OVAL-B4 (1) 12-OVAL-B4 (1) 12-OVAL-B4 (1)	7/32	18-8-F2 28-8-F2 428-7-F2	12-OVAL-F2 (2) 12-OVAL-F2 (2) 12-OVAL-F2 (2)
1/16	18-1-C 28-1-C 428-2-VC 168-2-VB4 188-2-VC 1700-C	12-OVAL-C (1) 12-OVAL-C (1) 12-OVAL-C (1) 12-OVAL-B4 (1) 12-OVAL-C (1) 12-OVAL-C (1)	1/4	18-10-F6 28-10-F6 428-8-VF6 168-8-VF2 188-8-VF6 1700-X	12-OVAL-F6 (2) 12-OVAL-F6 (2) 12-OVAL-F6 (2) 12-OVAL-F2 (2 ovlp) 12-188-VF6 (2) 12-1700-X (2)
3/32	18-2-G 28-2-G 428-3-VG 168-3-VC 188-3-VG	12-OVAL-G (1) 12-OVAL-G (1) 12-OVAL-G (1) 12-OVAL-C (1) 12-188-VG (1)	5/16	18-13-G9 28-13-G9 428-10-VG9 188-10-VG92 1700-G3	12-OVAL-G9 (3) 12-OVAL-G9 (3) 12-OVAL-G9 (3) 12-VG92 (4) 12-1700-G3 (4 ovlp)
1/ 8	18-3-M 28-3-M 428-4-M 168-4-VG 188-4-VM 1700-M	12-OVAL-M (1) 12-OVAL-M (1) 12-OVAL-M (1) 12-OVAL-G (1) 12-188-VM (1) 12-1700-M (1)	3/ 8	18-23-H5 28-23-H5 428-12-VH5 188-12-VH5 1700-H5	12-OVAL-H5 (4) 12-OVAL-H5 (4) 12-OVAL-H5 (4) 12-OVAL-H5 (5) 12-1700-H5 (4)
5/32	18-4-P 28-4-P 428-5-VP 168-5-VM 188-5-VP	12-OVAL-P (2) 12-OVAL-P (2) 12-OVAL-P (2) 12-OVAL-M (1) 12-188-VP (2)	7/16	18-24-J8 28-24-J8 428-14-VJ8 188-14-VK8	12-OVAL-J8 (5) 12-OVAL-J8 (5) 12-OVAL-J8 (5) 12-OVAL-K8 (6)
3/16	18-6-X 28-6-X 428-6-VX 168-6-VP 188-6-VX 1582-P	12-OVAL-X (2) 12-OVAL-X (2) 12-OVAL-X (2) 12-OVAL-P (3) 12-188-VX (2) 12-1582-P (1)	1/2	18-25-K8 28-25-K8 428-16-VK8 188-16-VM1 1700-J8	12-OVAL-K8 (6) 12-OVAL-K8 (6) 12-OVAL-K8 (6) 12-188-VM1 (4) 12-1700-J8 (6)

#### **Oval Sleeves**

### **Stop Sleeves**

Cable Size	Stop Sleeve Stock #	Compression Die/# of Presses Required	
3/64	871-12-B4	12-OVAL-B4 (1)	
1/16	871-1-C 878-2-VC 871-1-Q*	12-OVAL-C (1) 12-OVAL-C (1) 12-1-Q (1)	
3/32	871-17-J 871-3-Q* 878-3-J	12-J (1) 12-1-Q (1) 12-J (1)	
1/8	871-18-J 878-4-J	12-J (1) 12-J (1)	
5/32	871-19-M 878-5-M	12-1M (1) 12-1M (1)	
3/16	871-20-M 878-6-M	12-1M (1) 12-1M (1)	
7/32	871-22-M	12-1M (1)	
1/4	871-23-F6 878-8-VF6	12-OVAL-F6 (2) 12-OVAL-F6 (2)	
5/16	871-26-F6 878-10-VF6	12-OVAL-F6 (2) 12-OVAL-F6 (2)	
3/ 8	871-27-F6	12-OVAL-F6 (2)	

#### ELECTRICAL SPLICING

Before making a splice, BE SURE TO CLEAN THE WIRE. Both new as well as old wire should be thoroughly cleaned to assure good electrical conductivity. Abrasive paper or cloth does a good cleaning job. When using aluminum wire, it is preferable to use a wire brush.

To splice wires, first push wires into each side until they strike the center stop. If they cannot be inserted to the center stop, remove the wire. DO NOT TWIST TO INSERT. Straighten wire and clear the burrs from the cut end. Then push straight into the sleeve.

Always make the presses on each side of the center stop first to insure that the wire is kept in position during the entire crimping operation (Figure #1). Continue pressing sleeve, working out towards the end, until entire sleeve is pressed, including the tapered portion, if any. There should be <u>no more</u> than 1/8" space between presses. The finished splice should have 1/16" to 1/8" of unpressed sleeve at each end. Do not make a press over the center stop. When compressing sleeve with several presses, rotate sleeve  $180^\circ$  between presses to reduce sleeve bowing.



#### **Tool Die** Compression **Tool Die** Compression **Tool Die** Compression Tool Die Compression Die Stock No. Die Stock No. Die Stock No. Die Stock No. Groove Groove Groove Groove 12-Orange-S 12-J H5 12-H5 E82 12-E82 Orange-S \* J Μ 12-M J2 12-J2 F62 12-F62 Orange 12-Orange 12-J8 12-F92 Plum 12-Plum Ρ 12-P J8 F92 Peach/Plum-S \* 12-Peach/Plum-S Х 12-X M12 12-M12 74A 12-74A Т 12-T J82 12-J82 75A 12-75A 12-Peach Peach 12-76A S 12-S 76A 12-74S E8 12-E8 74S W 12-W F6 12-F6 77A 12-77A 75S 12-75S F92 12-F92 76S 12-76S G3 12-G3 G9 12-G9 G92 12-G92

#### **COMPRESSION DIE CHART FOR ELECTRICAL SPLICING**

\* For Unit Core Sleeves

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