



## MODEL 3700 PORTABLE BUBBLE STYLE HOSE CRIMPER



### FEATURES

- ❑ Engineered and designed specifically for use with ATCO beadlock fittings
- ❑ Portable, hand operation
- ❑ OE style triple bubble crimp
- ❑ Heavy duty construction for use with air impact wrench
- ❑ Color coded, urethane encased dies
- ❑ Easy changeover from size to size
- ❑ Crimps 2-braid dimension barrier or reduced barrier hose
- ❑ Four standard die sizes - #6, #8, #10 and #12 included in kit
- ❑ Four reduced die sizes available for reduced barrier hose
- ❑ Capable of crimping under-hood applications
- ❑ Light weight for easy handling (less than 6 lbs.)
- ❑ Removable die holder accommodates complicated shapes
- ❑ Unit can be bench mounted
- ❑ Shipped in a custom carrying case with instructions
- ❑ No electrical requirements
- ❑ U.S. Patent no. 5,257,525
- ❑ Made in U.S.A.

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# MODEL 3700 BUBBLE STYLE HOSE CRIMPER

## DISCLAIMER

**WARNING!** Keep hands clear of the crimp jaws. This machine develops up to 7000 pounds of force and can inflict serious personal injury if not used properly.

**WARNING!** Always wear eye protection when operating this crimper.

ATCO Products, Inc. shall not be held liable for any injuries incurred when using this equipment. ATCO Products, Inc. shall not be held responsible for any loss of materials or property due to misapplication or misuse of this equipment.

## WARRANTY

ATCO Products, Inc. shall warrant this crimper to the original user against defects in materials or workmanship under normal use for a period of one (1) year after date of delivery. Any part, which is determined to be defective in material or workmanship, will be repaired or replaced at ATCO's option, as the sole remedy.

**EXCEPT AS PROVIDED ABOVE, NO WARRANTY, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS MADE OR AUTHORIZED BY ATCO Products, Inc.**

## GENERAL

The Model 3700 Crimper is a hand operated hose end-crimping unit specifically designed for use with ATCO **Beadlock** fittings. It is intended for use with SAE J51 A2, two-braid dimension rubber and nylon barrier hose using the standard crimp dies provided in the kit. These hoses are typically used in R-12 (SAE J51) and R134a (SAE J2064) refrigerant systems. Other sizes of hose can be crimped using special size dies that are available upon request. Consult the factory for the specific application.

The longer ATCO ferrule and triple bubble crimp of the Model 3700 insures a superior interface between the hose and the end fittings. In addition, the removable die holder allows for easy access in confined under-hood areas as well as for complicated end shapes.

**CAUTION:** To insure high quality crimped hoses, use only genuine ATCO **Beadlock** fittings with this crimper.

The standard dies will crimp 5/16, 13/32, 1/2 and 5/8 ID SAE J51 A2, two braid dimension air conditioning hose. There is no adjustment necessary. Other dies are available for tighter crimps (J series) and reduced barrier hose (SR series).

The dies are housed in replaceable, flexible, color coded polyurethane carriers (see crimp die set parts list for part numbers) for easy identification of crimp sizes:

## DESCRIPTION OF TERMS

The crimper can be operated with a 1/2" drive air impact wrench, ratchet or breaker bar. It takes approximately 100 foot pounds of torque to fully close the jaws and achieve a satisfactory crimp. The crimper can be bench mounted using the flange and pipe nipple provided or it can be mounted in a bench vise to stabilize the unit. If the unit is used on the vehicle, it will be necessary to use a 12" minimum long extension to the pipe nipple to counteract the torque while closing the dies. This extension is not provided in the kit.

**1. BENCH MOUNT:** Bolt the flange to a bench top. Screw the pipe nipple and crimper to the flange plate.

**2. IMPACT WRENCH- (1/2" DRIVE @ 100 PSIG MAX.):** Use a 1" impact socket to drive the movable die holder.

**CAUTION:** Do not exceed 100 PSIG air pressure on the impact wrench as damage to the wrench and the crimper may result.

**CAUTION:** Do not continue impacting the crimper after the dies are closed. This can cause damage to the crimper.

**CAUTION:** Care should be taken when reversing the impact so that the die holder does not slam into the crimper body (actuator bar, Item 2, Pg. 7). Bumpers are provided to minimize damage.

**3. RATCHET OR BREAKER BAR:** Use a 1" socket to drive the movable die holder. It will take approximately 100 foot pounds of torque to achieve a full crimp.

**4. REMOVABLE DIE HOLDER:** The bottom of the crimper can be removed to accommodate special shapes or under-hood crimping. Push the latch plate (Item 21, Pg. 7) open while holding the removable die holder. Pull the holder off the strain rods.

**5. DIE CHANGE:** With the removable die holder removed, loosen two of the button head screws (Item 12, Pg. 7) on **one** side of the die holder. The die will drop out of the holder. Apply grease (Item B, Pg. 7) to the slide surfaces. Squeeze the outer segments of the die set together and insert the die into the holder **making sure that the woodruff key in the center segment snaps fully into the groove in the holder (Refer to Fig. 1, Pg. 6).** While holding the die securely in the slot, retighten the two button head screws. Check to make sure that the two outer segments on each half are free to move. If they do not move freely, remove and inspect for damaged guide block pad or dirt.

**CAUTION:** Retention of the woodruff key in the slot while tightening the screws is most important. Failure to do so will result in an irregular crimp and damage to the guide blocks and woodruff key (Refer to Fig. 5, Pg. 6).

**CAUTION:** It is not necessary to over-tighten the screws. Always use the short hex key wrench provided in order to avoid damage.

**6. DIE CARRIER:** The die carriers will become worn and produce unacceptable crimps with time. To replace the color coded die carriers, simply push the die segment out of the back of the carrier. Reverse the process to assemble die segments in the new carrier.

**7. WOODRUFF KEY:** The woodruff key is bonded into the slot in the center die segment. It is used to align the dies in the die holders (Refer to Fig. 2, Pg. 6).

**CAUTION:** If the woodruff key is not in the center segment of each half of the die set, an irregular crimp will be formed increasing the probability of leakage.

**CAUTION:** Never use dies without woodruff key engaged in the slot of the segment and holder.

To replace the woodruff key, use a screwdriver and hammer to remove the old key. Replace the key using a drop of adhesive such as Loctite or Super Glue to hold the key securely.

**8. LOCATOR FLAG:** There is a locator flag on the crimper. It is spring loaded and movable to locate the end of the ferrule for proper crimp location. Swivel the flag to a position so that when the fitting is inserted into the crimper, the ferrule will stop in the proper location for crimping.

**9. CRIMP DIAMETER MEASUREMENT:** The crimp diameter can be measured by using a set of point micrometers or calipers with a point accessory kit installed. Standard measuring instruments will not reach to the crimp impression because of the pinch of the crimp. When measuring the crimp diameter, take three measurements around the center crimp ring, add the measurements and divide by three to get the average. The average should be the target crimp diameter (+.015"/-.005"). Example: The #6 size is .660" target crimp diameter. The crimp should measure between .675" and .655" (Refer to Fig 3, Pg. 6).

**10. HOSE WALL THICKNESS:** The hose wall thickness for two braid dimension hose is listed below. It is important to check the hose wall thickness to make sure that the crimp will be leak free.

HOSE SIZE	CRIMP DIAMETER	WALL THICKNESS	TOLERANCE
#6 - 5/16" I.D.	.660"	.214"	+/- .023"
#8 - 13/32" I.D.	.830"	.244"	+/- .025"
#10 - 1/2" I.D.	.897"	.243"	+/- .028"
#12 - 5/8" I.D.	1.015"	.246"	+/- .025"

If the wall thickness falls below the minimum allowable thickness, the crimp should be adjusted by using undersize dies (J series).

## OPERATION

**WARNING!** Always wear eye protection when operating this crimper.

1. Mount the crimper as described previously unless it is necessary to crimp on the vehicle.
2. Select the proper size dies. Check all segments to make sure that all of the segments have the same numbers on the back. Each segment will be marked identifying the hose size and crimp diameter. Example: 5/16 ID hose with a .660 diameter crimp will be marked "6-660" (Refer to Fig. 2, Pg. 6).
3. Lubricate the slides of the crimper die holders (Items 5 and 17, Pg. 7) and the screw thread (Item 1, Pg. 7) with the Teflon grease or equivalent.
4. Refer to die change outlined above for proper assembly of the dies into the crimper.
5. Position the flag (Item 8, Pg. 7) so the ferrule of the fitting bumps it when inserted into the crimper.

**CAUTION:** Do not locate from the bead on the fitting. This will result in the wrong crimp location.

6. Insert the hose into the fitting making sure that the hose appears in the small inspection hole on the side or end of the ferrule.

**CAUTION:** If the hose does not appear in the inspection hole, a poor crimp may result.

**WARNING!** Keep hands clear of the crimp jaws. This machine develops up to 7000 pounds of force and can inflict serious personal injury if not used properly.

7. Place the assembly into the crimper and hold it against the flag locator. **Only the ferrule should touch the flag.** Operate the screw (Item 1, Pg. 7) to close the dies to the full closed position. This will provide the proper compression to achieve a leak free crimp. When the crimp dies are bottomed out, there will be a slight gap between the two die holders (Items 5 & 17, Pg. 7). This insures that the dies are fully closed before the holders bottom out (Refer to Fig. 4, Pg. 6).
8. Reverse the screw (Item 1, Pg. 7) to release the crimper from the hose assembly. Take care not to drive the die holder (Item 5, Pg. 7) against the actuator bar (Item 2, Pg. 7) as damage to the crimper may result. The bumpers (Item 3, Pg. 7) are provided as a cushion to help prevent this from occurring.
9. If the crimp is performed under-hood or the fitting is a complicated shape that requires disassembly of the crimper, open the latch plate (Item 21, Pg. 7) and remove the die holder (Item 25, Pg. 7).
10. Inspect the first crimp to make sure that the correct dies were used, the crimp location is correct, the crimp is uniform and there is no internal deformation of the fitting.

**NOTE:** Some hose materials trap air in the hose layers during manufacture.

When leak testing a newly pressurized hose using soap bubbles or water submersion, the air in the hose will bleed out at the fitting and hose interface indicating a false leaking condition. Leave the hose pressurized for one hour and retest. The residual air should completely bleed out and no leak will be visible.

### CRIMPER MAINTENANCE

1. Clean and lubricate all moving parts. Use Teflon grease (Item B, Pg. 7) or equivalent as needed when lubricating.
2. Inspect the strain rods and latch plate for wear around the contact points.
3. Make sure that Actuator Screw turns freely. Lubricate as noted above.
4. Check for worn or torn die carriers. Replace when crimp appears to go out of round.
5. Inspect Woodruff Keys. Replace if they are damaged or missing to insure good crimps.

### TROUBLE SHOOTING

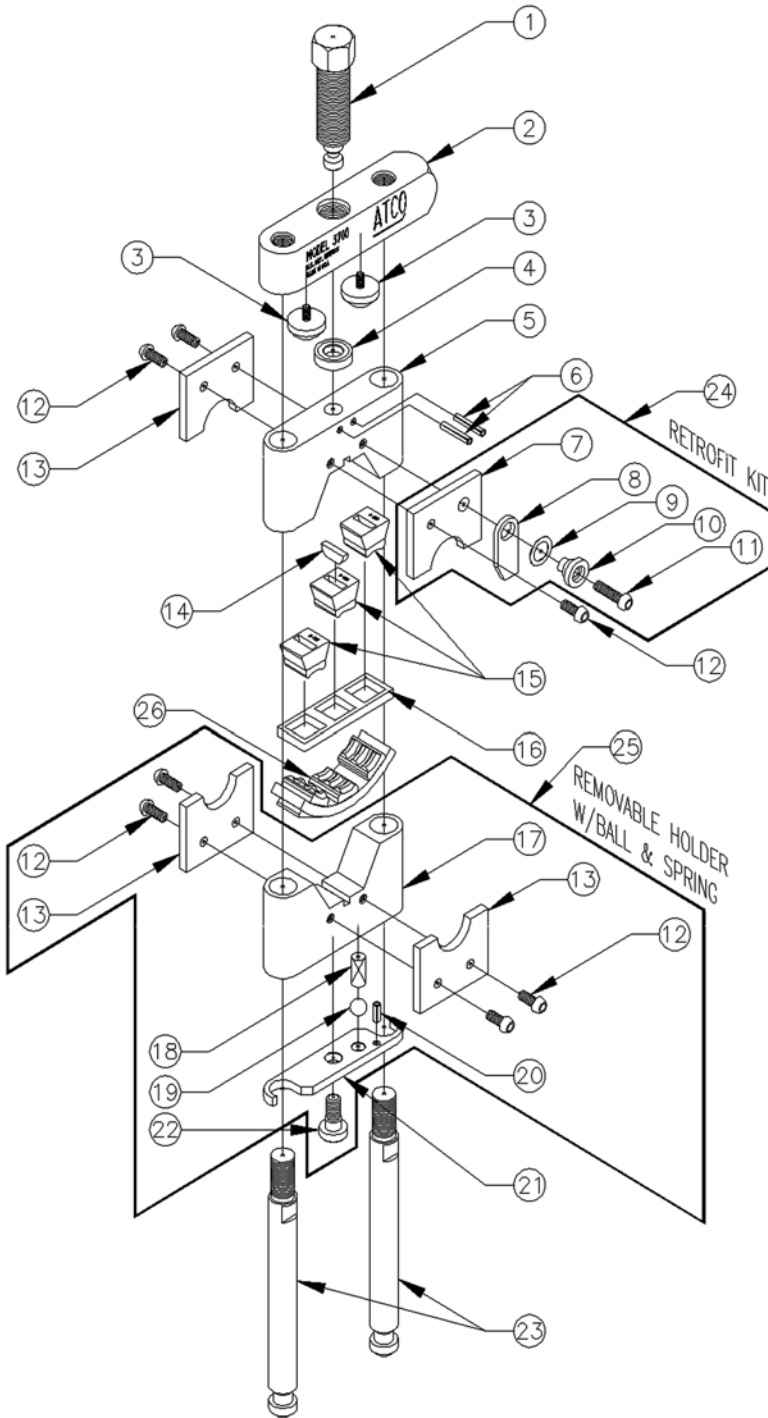
PROBLEM	CAUSE	ACTION
1. Oblong or irregular crimp	<ul style="list-style-type: none"> <li>* Worn carriers</li> <li>* One die segment in the set is the wrong size</li> <li>* Woodruff key missing</li> <li>* Guide blocks installed backwards</li> </ul>	<ul style="list-style-type: none"> <li>* Replace carriers</li> <li>* Check all segments for correct size on back of die</li> <li>* Replace key</li> <li>* Turn guide blocks around so raised pad clamps on die</li> </ul>
2. Crimp diameter too large	<ul style="list-style-type: none"> <li>* Crimper not fully closed-refer to instructions</li> <li>* Incorrect size dies</li> </ul>	<ul style="list-style-type: none"> <li>* Re-crimp until dies fully close</li> <li>* Replace with correct size</li> </ul>
3. Crimp diameter too small	<ul style="list-style-type: none"> <li>* Incorrect size dies</li> </ul>	<ul style="list-style-type: none"> <li>* Replace with correct size</li> </ul>
4. Crimp location too close to closed end of ferrule	<ul style="list-style-type: none"> <li>* Ferrule not inserted far enough into crimper</li> </ul>	<ul style="list-style-type: none"> <li>* Use locator flag to properly locate ferrule position</li> </ul>
5. Crimp location too close to hose	<ul style="list-style-type: none"> <li>* Ferrule inserted too far into crimper (past locator flag)</li> </ul>	<ul style="list-style-type: none"> <li>* Use locator flag to properly locate ferrule position</li> </ul>
6. Crimped fitting leaks when tested with soap bubbles	<ul style="list-style-type: none"> <li>* Air trapped in the hose during manufacture</li> <li>* Insufficient crimp</li> <li>* Hose wall thickness is undersize (see chart)</li> <li>* Fitting is defective</li> </ul>	<ul style="list-style-type: none"> <li>Recheck after system has been charged for one hour - air will bleed out of the hose</li> <li>* Check crimp diameter</li> <li>* Re-crimp with .020 undersize dies (-J series)</li> <li>* Replace fitting/re-crimp</li> </ul>
7. Crimped fitting leaks when tested with electronic leak detector	<ul style="list-style-type: none"> <li>* Insufficient crimp</li> <li>* Hose wall thickness is undersize (see chart)</li> <li>* Fitting defective</li> </ul>	<ul style="list-style-type: none"> <li>* Check crimp diameter</li> <li>* Re-crimp with .020 undersize dies (-J series)</li> <li>* Replace fitting/re-crimp</li> </ul>



**Figure 1**  
**Measuring the crimp with a micrometer.**



## 3700 CRIMPER PARTS LIST



### Parts List

Item	Part #	Description	Qty.
1	75013	Actuator Screw	1
2	75001	Actuator Bar	1
3	75012	Rubber Bumper	2
4	75149	Thrust Bushing	1
5	75005	Movable Die Holder	1
6	75010	3/16 x 1 Roll Pin	2
7	75099	Die Guide Block (Locator) *	1
8	75086	Locator Flag *	1
9	75088	Curved Disc Spring *	1
10	75087	Locator Bushing *	1
11	75113	1/4-20 x 1 Button Head Screw *	1
12	75003	1/4-20 x 5/8 Button Head Screw**(4)	7
13	75002	Die Guide Block **(2)	3
14			
15		See Crimp Die Parts List	
16			
17	75075	Removable Die Holder **	1
18	75076	Spring-Compression **	1
19	75077	7/16 Dia. Ball **	1
20	75009	3/16 X 1/2 Roll Pin **	1
21	75074	Latch Plate **	1
22	75008	Lock Screw **	1
23	75020	Strain Rod	2
24	75116	Retrofit Kit for Flag	1
25	75081	Removeable Holder W/Ball & Spring	1

### Items Not Shown

A	71731	5/32 Short Arm Hex Key	1
B	75015	Teflon Grease (.75 oz. tube)	1
C	75016	3/8 x 4 Pipe Nipple	1
D	90607	3/8 Floor Flange	1
E	75017	Carrying Case	1
F	3700-1	Crimper Only (No Dies)	1

\* Included in item 24 (Not assembled)

\*\*Included in item 25 (Assembled)

### Crimp Die Parts List

#### 2 Braid Dimension Hose - "BL" & "SB" Fittings

Item	Description	Qty.	6	8	10	12
-	Die Marking		6-660	8-830	10-897	12-1015
26	Crimp Die No.	1 set	3606	3608	3610-BL	3612-BL
-	Color	-	Black	Blue	Green	Clear
16	Die Carrier	2	71688	71689	71690	71691
15	Die Segment	6	71733	71734	71744	75124
14	Woodruff Key	2	71671	71671	71671	71671

#### Reduced Diameter Nylon Barrier Hose - "SR" & "RB" Fittings

Item	Description	Qty.	6R	8R	10R	12R
-	Die Marking		556	640	742	897
26	Crimp Die No.	1 set	3606-SR	3808-SR	3610-SR	3610-BL
-	Color	-	Brown	Purple	Almond	Green
16	Die Carrier	2	75134	75135	75136	75137
15	Die Segment	6	71741	75119	71743	71744
14	Woodruff Key	2	71671	71671	71671	71690

Miscellaneous sizes are intended for tighter crimps on 2 braid dimension hose using BL and SB fittings

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