

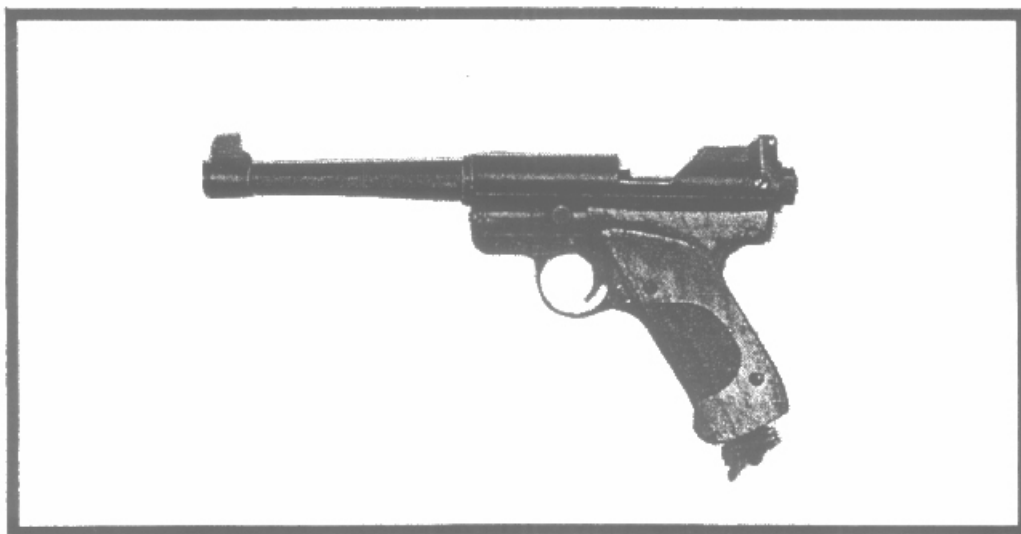


FACTORY SERVICE MANUAL

MODEL

MARK I - Target Pistol - Cal. .22
CO₂ Gas Pellgun - Single Shot (1966)

MARK II - Target Pistol - Cal. .177/BB
CO₂ Gas Pellgun - Single Shot (1966)



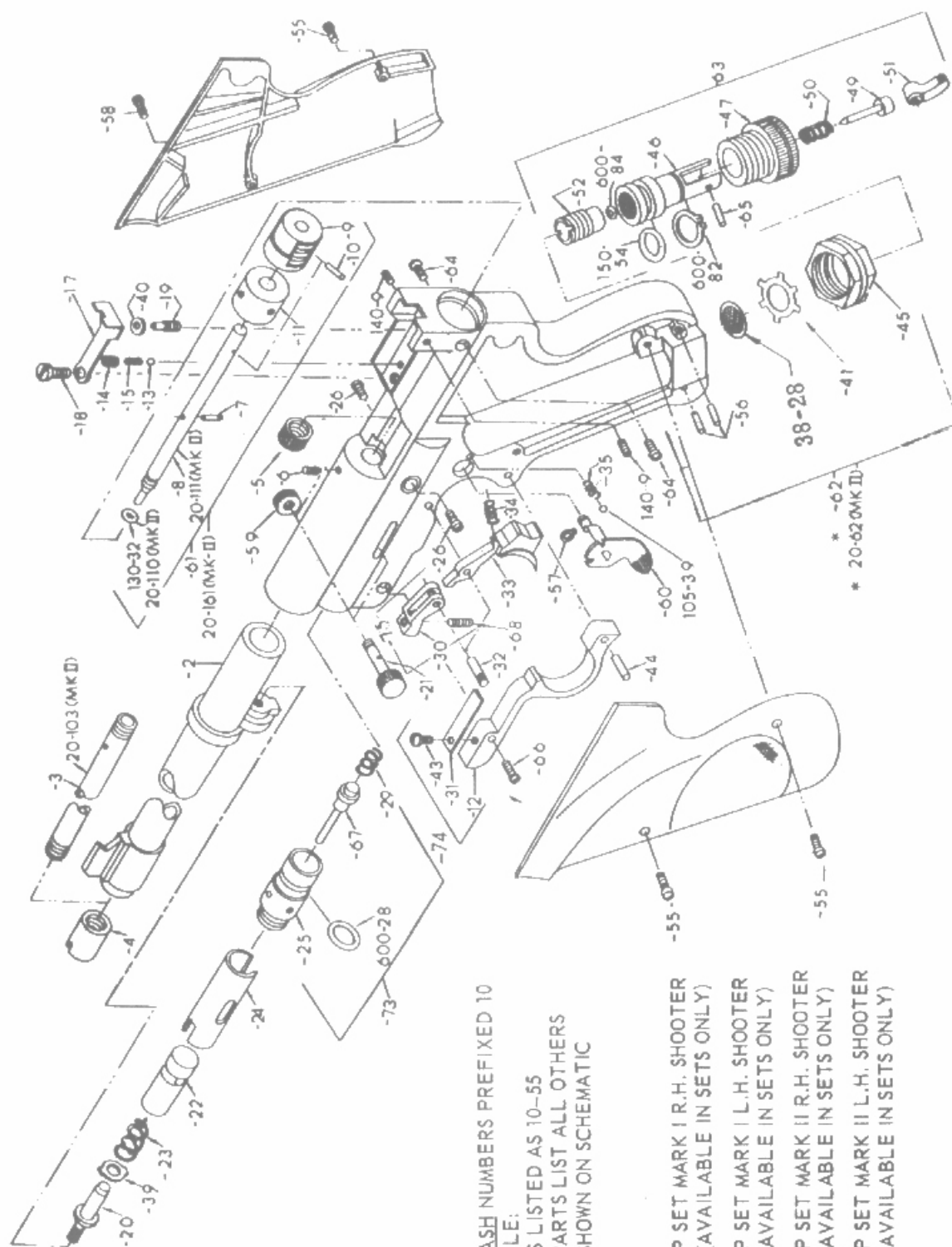
MARK I-II



Crosman Arms Co., Inc., Fairport, N. Y. 14450
Crosman Arms (Canada) Ltd., Dunnville, Ont.

1.

MARK I & II



NOTE
ALL DASH NUMBERS PREFIXED 10
EXAMPLE:
-55 IS LISTED AS 10-55
IN PARTS LIST ALL OTHERS
AS SHOWN ON SCHEMATIC

- 78 GRIP SET MARK I R.H. SHOOTER
(AVAILABLE IN SETS ONLY)
- 79 GRIP SET MARK I L.H. SHOOTER
(AVAILABLE IN SETS ONLY)
- 20-78 GRIP SET MARK II R.H. SHOOTER
(AVAILABLE IN SETS ONLY)
- 20-79 GRIP SET MARK II L.H. SHOOTER
(AVAILABLE IN SETS ONLY)

* Factory Assembly Only - Includes Screen retainer and Piercing body nut group.

PARTS LIST and assemblies for: Mark 1, Mark II (Prices effective: 10/1/68)

PART NO.	DESCRIPTION	LIST PRICE	PART NO.	DESCRIPTION	LIST PRICE	PART NO.	DESCRIPTION	LIST PRICE
10-1	Frame - Stripped (not avail. order -62)		10-30	Sear	1.60	10-63	Piercing Assy.	5.30
10-2	Barrel Housing (stripped)	1.10	10-31	Sear Spring	.10	10-64	Bolt Guide Screw	.10
10-3	Barrel	2.80	10-32	Trigger Pin	.10	10-65	Piercing Lever Pin	.10
10-4	Barrel Nut (front)	.20	10-33	Trigger	.60	10-66	Trigger Guard Screw	.10
10-5	Barrel Nut (rear)	.20	10-34	Trigger Spring	.10	10-67	Valve Stem Assy.	1.25
10-6	Set Screw (barrel)	.20	10-35	Safety Spring	.10	10-68	Sear Set Screw	.30
10-7	Bolt Pin	.15	10-39	Hammer Spring Washer	.10	10-73	Valve Assy. (complete)	2.50
10-8	Bolt	.45	10-40	Elevation Washer	.10	10-74	Trigger Guard Assy.	1.65
10-9	Bolt Knob	.70	10-41	Screen Retainer	.10	10-75	Sear Assy.	2.00
10-10	Knob Pin	.10	10-43	Sear Spring Screw	.10	10-78	Grip Set RH (MK-I)	1.00
10-11	Bolt Guide	.90	10-44	Trigger Guard Pin	.10	10-79	Grip Set LH (MK-I)	1.00
10-12	Trigger Guard	1.20	10-45	Piercing Body Nut	.40	20-62	*Frame Sub-Assy. (MK-II)	8.42
10-13	Detent Ball	.10	10-46	Piercing Body	1.20	20-78	Grip Set RH (MK-II)	1.00
10-14	Detent Screw	.20	10-47	Piercing Knob	1.20	20-79	Grip Set LH (MK-II)	1.00
10-15	Detent Spring	.10	10-49	Piercing Pin	.45	20-103	Barrel (MK-II)	2.80
10-17	Sight Blade	.15	10-50	Piercing Spring	.10	20-110	Bolt Seal (MK-II)	.15
10-18	Sight Screw	.15	10-51	Piercing Lever	.45	20-111	Bolt & Magnet Assy. (MK-II)	1.65
10-19	Elevation Screw	.15	10-52	Piercing Guide Nut	.40	20-161	Bolt Assy. (MK-II)	3.80
10-20	Power Adj. Screw	.35	10-55	Grip Screw (long)	.10	38-28	Screen	.30
10-21	Knob and Shank	.30	10-56	Piercing Nut Pin	.10	105-39	Detent Ball (Safety)	.10
10-22	Hammer	.60	10-57	Safety Retainer Ring	.10	130-32	Bolt Seal (MK-I)	.15
10-23	Hammer Spring	.10	10-58	Grip Screw (short)	.10	140-9	Windage Screw	.10
10-24	Hammer Sleeve	.50	10-59	Cocking Knob End	.20	150-54	Piercing Body Seal	.40
10-25	Valve Body	2.10	10-60	Safety Assy.	.95	600-28	Valve Body Seal	.20
10-26	Valve Screw	.10	10-61	Bolt Assy. (complete)	3.70	600-82	Piercing Retaining Ring	.10
10-29	Valve Spring	.25	10-62	*Frame Sub-Assy. (MK-I)	8.42	600-84	Piercing Pin Seal	.40

* Factory Assy. only - Includes Screen, retainer, nut, and pins.

KEEP PRICE LIST CURRENT - make corrections to this list (over)

CORRECTIONS and ADDITIONS:

3/1/70-500

I. GENERAL INFORMATION:

- A. General operating instructions for this model are contained in the "Owner's Manual" which is attached to each product (read it carefully). It is advisable that you maintain some on hand for your use and when "store stocking" repaired product for distributors and dealers.
- B. Study the drawing carefully as you read disassembly and assembly procedures and prior to disassembling your first gun.
- C. Assembly is in reverse of disassembly but, careful note must be made of "CAUTION" procedures throughout this section in order that you do not encounter problems after complete reassembly.
- D. Instructions are defined in assembly groups such as Bolt Assembly Group, Barrel Housing Group etc. There are many short cuts for repairs and it is not necessary that the entire pistol be disassembled every time.
- E. Trouble shooting:

Leaks

- 1. Metal chips in valve stem face (-67).
- 2. Damage valve stem face (-67).
- 3. Damaged brass valve seat inside valve body (-25).
- 4. Damaged or dry static seal (600-28) sealing valve body (-25) to inside of frame (-62 or 20-62 MK-II). This can only happen in reassembly or when stored for long periods without lubrication.
- 5. Damaged of dry seals (150-54) and (600-84) in Piercing Assembly (-63). Proper installation and lubrication will prevent this.
- 6. Damage to frame that may result in cracks or porosity through the metal. Check safety detent spring hole on left of casting and all external areas around gas chamber.

Low Power

- 7. Valve stem (-67) sticking at valve body (-25) front. This can be caused by improper countersinking of valve hole (for stem) and hammer blows (-22) causing a pinning affect gradually closing the hole around the stem.
 - 8. Valve stem (-67) nut dragging inside valve body (-25).
 - 9. Hammer (-22) dragging inside sleeve (-24) or heavy oil or dirt interfering.
 - 10. Cocking knob shank (-21) dragging on frame body or sleeve (-24). Early cocking knobs were straight shank and gave this trouble. Replace with new (-21) which has a step shank relieved at 2 points to prevent drag.
- F. All lubrication should be with Crosman Pellgunoil only. Regular gun oils or any oil containing detergents is harmful to seals.
- G. All part numbers referenced and preceded with a dash (-) are Mark I numbers. Any reference to Mark II Pistol is preceded by 20 then followed by dash (-) and numerical designation.

II. DISASSEMBLY AND ASSEMBLY:

A. GENERAL

- 1. Exhaust all CO₂ gas by methods explained in "Owner's Manual". Do not attempt to remove or disassemble Piercing Assembly -63 while pistol has any residual gas pressure.
- 2. Unscrew and remove Piercing Assembly -63 at the bottom of the grip frame.
- 3. Remove grips.
SPECIAL NOTE: Upper grip screw on right side (-58) of pistol is shorter than the three -55.
- 4. See Owner's Manual for Power Adjustment procedure.

B. BOLT ASSEMBLY AND REAR SIGHT GROUP:

- 1. Loosen both windage sight screws 140-9.
- 2. Remove -18 Sight Base Screw and -17 Sight Blade.

II. DISASSEMBLY AND ASSEMBLY: (cont'd)

3. Remove Elevation Washer -40 and Screw -19.
4. Unscrew (use 1/16" Allen wrench) Detent Screw -14, (CAUTION: Be careful not to lose Detent Spring -15 and Ball -13 located under screw) and remove all parts.
5. Unscrew Bolt Guide Screws (2) -64 and remove.
6. Slide out Bolt Assembly Group (MK-I 10-61, MK-II 20-161)
7. **SPECIAL NOTES FOR ASSEMBLY:**
 - a. When reassembling Rear Sight, do not turn Elevation Screw -19 all the way down as it will interfere with Bolt Assembly.
 - b. When replacing Bolt Assembly -61 or 20-161, locate Bolt Lock Pin -7 in guide slot (inside casting on left side), then slide assembly forward and assure that center threaded hole on Bolt Guide -11 is facing to the top for alignment with Sight Elevation Screw Hole.
 - c. If Bolt Lock Pin -7 is broken or bent, punch out and replace.
 - d. Bolt Assembly can be disassembled by punching out Knob Pin -10 on Knob -9 and Lock Pin -7. Mark I uses Bolt Seal 20-110 and Mark II uses 130-32. Mark I Bolt is -8 and Mark II (with factory installed magnet) is 20-111.
8. Detent Spring -15, Detent Ball -13 are inserted in center casting hole, ball first and then spring.

C. BARREL HOUSING GROUP:

1. See "Owner's Manual" for power adjustment. (It is advisable to adjust at halfway point unless customer indicates different).
2. Unscrew Barrel Nut -4 and remove Barrel Housing -2.
3. Turn out Power Adjusting Screw -20 all the way from Barrel Housing, but do not remove.
4. Remove Hammer Spring Washer -39 from Power Adjusting Screw (only when necessary to replace).
5. **SPECIAL NOTES FOR ASSEMBLY:**
 - a. Squeeze trigger to allow hammer to be in full rear position (or fired position) to reduce tension against barrel housing.
 - b. Place Hammer Spring Washer -39 with slots matching Hammer Sleeve -24. This will allow the barrel housing to fall into place and prevents damage to Hammer Sleeve and Spring Washer.
 - c. Slide Barrel Housing into place, replace Barrel Nut -4 and tighten.

D. BARREL GROUP:

1. Remove Barrel Set Screw -6 (3/32" Allen wrench), hold rear Barrel Nut -5 and unscrew Barrel -3 (20-103 MK-II).
2. **SPECIAL NOTES FOR ASSEMBLY:**
 - a. Place rear Barrel Nut -5 into slot in breech section of the frame with tapered side of nut against frame barrel hole.
 - b. Insert Barrel with exhaust hole to rear of frame and thread onto Nut -5. When barrel has two holes, line one hole with hole in casting for the -6 Set Screw. When barrel has one hole and a detent spot, turn exhaust hole down and align with detent spot with -6 Set Screw hole.
 - c. Replace Set Screw -6 and tighten.

CAUTION: It is extremely important that lower exhaust hole aligns perfectly with valve exhaust hole inside casting. A drive pin through trigger and valve section up into barrel will assure this alignment. Improper alignment will result in low velocity.

E. HAMMER AND SLEEVE GROUP:

NOTE: Barrel Group instruction must be completed before attempting to remove this Group.

1. Remove Hammer Spring -23 first.
2. With pliers, unscrew Cocking Knob End -59 by placing another pair of pliers on Knob -21. Remove Knob and Shank -21.

II. DISASSEMBLY AND ASSEMBLY: (cont'd)

3. Squeeze trigger and both Hammer -22 and Hammer Sleeve -24 will slide out by holding frame downward.

NOTE: Do not attempt to force valve components out until Trigger and Trigger Guard Group have been removed.

4. SPECIAL NOTES FOR ASSEMBLY:

a. Holding frame pointed upward, place Hammer Sleeve -24 with long slot (1 1/8") down to slide over sear -30. The slot on the forward end of the sleeve that matches the Hammer Spring Washer -39 faces the muzzle.

b. Squeeze trigger and drop Hammer with hollow section to the muzzle.

CAUTION: It is important that hammer position relative to the Cocking Knobs and slots in casting be free of any drag on the casting frame.

Reversing the hammer position (or turning 180 degrees) on its axis will position it correctly. Any drag of the Cocking Knob Shank on the Sleeve or Frame will result in low power when gun is fired. Cleanliness in the Hammer area is also extremely important to prevent drag. Light oiling is recommended.

c. Drop Hammer Spring -23 with 1/4" tip into Hammer hole, (Note that small hole in hollow section of hammer protruding into Hammer cross hole for Cocking Knob Shank).

d. The Cocking Knob Shank has a small cross hole. The 1/4" tip on Spring -23 locates in this hole. This prevents Cocking Knobs from rotating when shooter cocks the gun.

F. TRIGGER AND SAFETY GROUP:

1. Remove Trigger Guard Screw -66 from left side of frame and punch out rear Trigger Guard Pin -44 with 3/32" punch. (Trigger can be moved forward to clear the Safety Lever -60 from Pin -44 area).

CAUTION: As trigger swings forward after Trigger Guard is removed, be careful not to lose Trigger Spring -34.

a. Sear Spring -31 can be removed from Trigger Guard by removing Sear Spring Screw -43.

2. Remove Trigger Spring -34. Punch out Trigger Pivot Pin -32 from left side of casting. Trigger -33 and Sear -30 will drop out. Sear Adjusting Screw -68 does not have to be removed unless replacement is absolutely necessary. (See special Sear Adjustment instructions under this section). See 4 below for Safety Group.

3. SPECIAL NOTES FOR ASSEMBLY:

a. Take Trigger -33 and Sear -30 and hold between thumb and forefinger with Allen Head Screw -68 against trigger, locate in casting with drive pin punch, replace Pivot Pin -32 from right side of casting.

b. Turn frame upside down and allow trigger to fall forward, locate Trigger Spring -34 in slot inside frame and put trigger back over spring.

c. Replace Trigger Guard Assembly. (NOTE: Hold trigger back to prevent dislodging trigger spring.)

CAUTION: If Valve Group has been removed, it must be installed before trigger group is reassembled.

4. Lift out Safety Retainer Ring -57 from right side of frame, turn gun over and pull out Safety Assembly -60 from left side of frame. CAUTION: Detent Ball 105-39 and Detent Spring -35 are located under Safety Lever and may be lost if not careful.

5. EXTERNAL TRIGGER SEAR ADJUSTMENTS:

a. An adjustable Sear permits adjustment from conventional Trigger pull and engagement to extra fine crisp let-off. The Trigger adjustment has been set at the factory for conventional use. When very fine engagement of the Sear is required, extreme care should be exercised and customer informed that under no conditions should a fine adjustment be maintained for plinking of field shooting except under range controlled conditions and where fine trigger adjustment is necessary for precision target shooting. CAUTION: Pistol should never be charged with CO₂, loaded with Pellet or BB when adjusting the trigger.

b. Use a 1/16" Allen Wrench for adjustment. Turn pistol upside down, muzzle pointed away from you. Cock pistol with Cocking Knobs. Place Allen Wrench in set screw visible inside the frame and forward of the Trigger. For finer adjustment, turn (or tighten) clockwise 1/4" turn at a time. Squeeze trigger and recock each time to test for desired adjustment. Repeat as necessary until desired adjustment is reached.

II. DISASSEMBLY AND ASSEMBLY: (cont'd)

When limit of engagement has been reached, you will note that full cocking of the Knobs cannot be attained. Reverse the procedure (counterclockwise) $\frac{1}{4}$ turn at a time until the pistol can be cocked. Continue this procedure to return to a conventional Sear engagement.

c. To test for a safe engagement, cock pistol and push Cocking Knobs to the rear. If the engagement disconnects without the use of the Trigger, the gun is not safe to use. Turn another $\frac{1}{4}$ " in counterclockwise direction and repeat test again.

G. VALVE GROUP:

1. Can only be removed after Barrel Housing, Hammer and Trigger Groups are removed.
2. Remove two -26 Valve Screws.
3. Turn frame upside down, muzzle pointing forward, place any round rod directly across the frame as an anchor pivot point, then place a small screwdriver into exposed Valve Assembly -73 groove and pry valve forward and out.
4. Remove Valve Spring -29 and Valve Stem -67 from Valve Body -25. "O" Ring 600-28 does not have to be removed unless it is damaged.

5. SPECIAL NOTES FOR ASSEMBLY:

- a. Inspect inside Valve Body Seat for dents or chips. Inspect Valve Stem face Seal 150-7 for small metal chips, dents or cracks.
- b. For Valve Body Seat dents, use a soft round rubber abrasive grinding stick, placing it in a drill press chuck and the Valve Body on flat drill plate with seat facing up. Bring grinding stick down with very little pressure to reface valve seat.
- c. Visible dents on the face Seal of Stem Assembly -67 can be repaired. Place long stem rod in drill chuck leaving $\frac{1}{4}$ " clearance between seal face and chuck jaws. Fold a strip of Emery #280 paper and use folded edge to resurface seal face.
- d. Press Spring -29 back on Stem Assembly. Place Stem Assembly back into Valve Body.
(CAUTION: Do not strike brass valve body seat with steel stem as this creates dents and results in future leaks). Re-install "O" Ring 600-28 if it had been removed and lubricate with Pellgunoil.
- e. Place Valve Assembly back into frame with exhaust hole facing up. Slide Valve Assembly in place with $\frac{1}{2}$ " tube stock or wood dowl. Replace Valve Screws -26.

H. SCREEN RETAINER AND PIERCING BODY NUT GROUP:

1. After Piercing Assy. -63 has been removed, the Brass Screen 38-28 and Retainer -41 is visible inside the Powerlet cavity of the frame -62 (20-62 MK-II).
2. A small improvised hook tool may be used to remove the Retainer -41 and Screen 38-28 will drop out.
3. SPECIAL NOTES FOR ASSEMBLY:
 - a. Drop Screen inside Powerlet cavity in proper location.
 - b. Drop Retainer over Screen and press down in proper location with $\frac{1}{2}$ " punch or dowl.
4. To remove piercing body Nut -45, use small punch and drive out two Pins -56.

I. PIERCING ASSEMBLY GROUP:

1. Remove Retaining Ring 600-82 with Snap-Ring Pliers and -47 Piercing Knob.
2. Punch out Lever Pin -65 and remove Lever -51.
3. Unscrew Guide Nut -52 and force out Piercing Pin -49 and Spring -50 using a pencil with eraser to prevent damage of pin point.
4. Remove "O" Ring Seal 600-84 from Piercing Body -46 with a pointed tool and by circling around the outside of "O" Ring to raise it out.
5. Remove "O" Ring Seal 150-54.
6. SPECIAL NOTES FOR ASSEMBLY:
 - a. Insert lubricated "O" Ring 600-84 in place and press in with flat $\frac{1}{4}$ " punch.

II. DISASSEMBLY AND ASSEMBLY: (cont'd)

- b. Turn Guide Nut -52 in to hold "O" Ring 600-84 in place.
- c. Place Spring -50 over Piercing Pin -49. Lubricate Pin and "O" Ring with Pellgunoil to prevent damage of seal when replacing the Piercing Pin in body.
- d. Insert preassembled Pin and Spring into bottom end of Piercing Body -46 and press through "O" Ring 600-84 and Guide Nut -52. Lubricate and replace "O" Ring 150-54 on Piercing Body -46.
- e. Replace Lever -51 with Pin -65 on Piercing Body. Slide Piercing Knob -47 over Piercing Body.
- f. Install a new Retainer Ring 600-82. (IMPORTANT: Caution should be exercised that this snap ring is firmly in place to prevent accidental discharge of Piercing Body when a Powerlet is pierced).

III. ADDITIONAL COMMENTS:

(Use the following space for additional notes, pen and ink changes and other factory revisions)

9.

MARK I & II

III. ADDITIONAL COMMENTS: (cont'd)

(Use the following space for additional notes, pen and ink changes and other factory revisions)