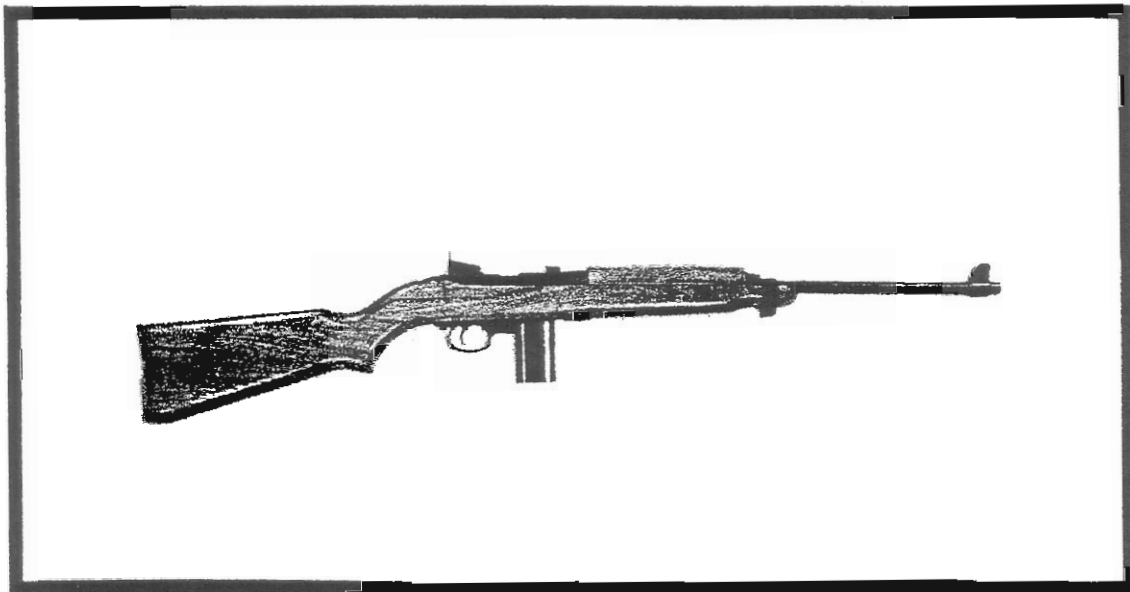




FACTORY SERVICE MANUAL

MODEL

M-1 - Carbine BB Air Rifle
22 Shot Repeater (1967)



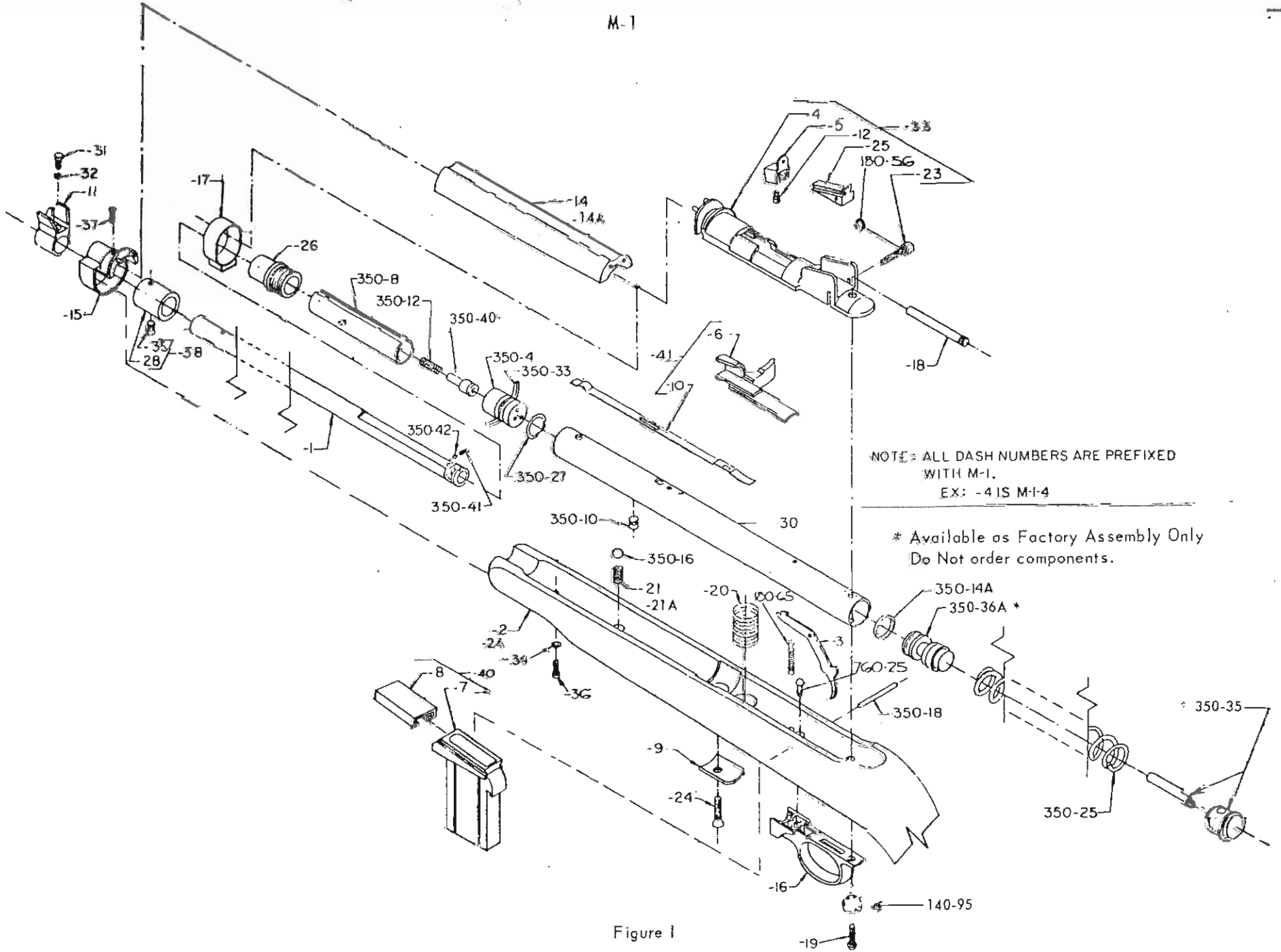
This manual is intended primarily as an informational guide in servicing Crosman products. It is not intended as instructional material and we therefore assume no responsibility for those who use same without proper factory training.



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

M-1

M-1



NOTE: ALL DASH NUMBERS ARE PREFIXED WITH M-1.
EX: -4 IS M-1-4

* Available as Factory Assembly Only
Do Not order components.

Figure 1

FARTS LIST and assemblies for: M-1 (Prices effective: 10/1/68)

PART NO.	DESCRIPTION	LIST PRICE	PART NO.	DESCRIPTION	LIST PRICE
1-1	Barrel	7.30	1-32	Front Sight Washer .....	.10
1-2	Stock-Wood (no longer available) use 1-2A	7.80	1-33	Rear Sight Assy. (complete).....	3.15
1-2A	Stock-Croswood	7.25	1-34	Lock Washer.....	.10
1-3	Trigger.....	.55	1-35	Tube Stud.....	.25
1-4	Receiver Plate and Sight Mount .....	.90	1-36	Tube Support Screw.....	.10
1-5	Rear Peep Sight .....	.55	1-37	Stock Clamp Screw .....	.10
1-6	Operating Slide .....	.60	1-38	Support Ring Assembly	1.40
1-7	Magazine .....	.75	1-40	Magazine Assy.	1.00
1-8	Magazine Cover .....	.15	1-41	Operating Slide Assy. (incl. -6 & -10).....	.95
1-9	Magazine Support Plate .....	.45	140-95	Trigger guard lock washer (added 6/10/68).....	.10
1-10	BB Port Cover.....	.15	180-56	Retainer Ring .....	.10
1-11	Front Sight .....	.40	180-65	Trigger Spring .....	.10
1-12	Peep Sight Spring .....	.10	350-4	Barrel Cap.....	.80
1-14	Hand Guard-Wood (no longer avail.) use 1-14A ...	2.05	350-8	Spacer .....	.50
1-14A	Hand Guard-Croswood	1.30	350-10	Guide Screw.....	.10
1-15	Front Band .....	.45	350-12	Valve Spring .....	.10
1-16	Trigger Guard.....	.75	350-14A	Teflon Ring .....	.45
1-17	Collar.....	.40	350-16	Barrel Lock Ball .....	.10
1-18	Locating Stud.....	.50	350-18	Trigger Pin.....	.10
1-19	Stock Screw .....	.10	350-25	Piston Spring.....	.50
1-20	Magazine Spring.....	.10	350-27	"O" Ring Seal.....	.15
1-21	Barrel Lock Spring .....	.10	350-33	Felt .....	.10
1-21A	Barrel lock spring .....	.10	350-35*	Stop and Plug Assy. ....	.85
1-23	Windage Screw .....	.25	350-36A*	Hammer and Piston Assy.	1.00
1-24	Stock Screw .....	.10	350-40*	Pop Valve Assy. ....	.60
1-25	Sight Elevator .....	.55	350-41	Retainer Spring .....	.10
1-26	Tube Bearing .....	.50	350-42	Retainer Ball (.140").....	.10
1-28	Support Ring .....	.95	400-16	Over size retainer ball (.156").....	.10
1-30	Tube	1.15	760-25	Trigger Guard Screw .....	.10
1-31	Front Sight Screw.....	.10			

NOTES: * Available factory assembly only. Do Not Order Components.

"CROSWOOD" is Crosman Brand Name for Plastic Stock and Handguard.

Parts 1-2, 1-14 and 1-21 are Mating Parts-Wood.

Parts 1-2A, 1-14A and 1-21A are Mating Parts-Croswood.

KEEP PRICE LIST CURRENT - make Additions and Corrections on Reverse Side.

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).
- B. Study the drawing carefully as you read disassembly and assembly procedures and prior to disassembling your first gun. The basic action of the M-1 Carbine and many of the parts are similar to the V350 and interchangeable.
- 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 Stock Group, Trigger Group etc. There are many short cuts for repairs and it is not necessary that the entire gun be disassembled every time.

E. TROUBLE SHOOTING:

1. JAMMING:

- Defective BB's, inferior quality, i.e., flat spots, oversize, out of round, burrs or flakes and reused.
- Defective or weak piston spring, teflon ring (on piston) or pop valve dragging.
- Over-filling internal magazine and forcing BB's causes a drag on barrel and difficulty in cocking.
- Defective barrel flat slot (magazine area) or defective spacer (350-8) causing BB's to jam forward of the spacer slot. (see Par. 3c)

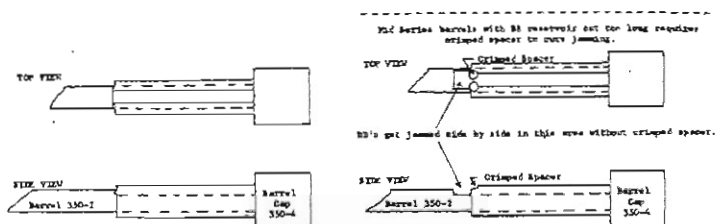
2. The simplest and fastest way to clear a jammed barrel is as follows:

a. Using a long ramrod (5/32" cold roll rod), gently tap lodged BB's from muzzle end until the first BB becomes visible through the BB indicating hole at the rear of the handguard. Back off ramrod about 1/16" and hold rod in position. Use an air hose with an air nozzle and blow into the indicating hole; the air blast causes the first BB to pop up, through the magazine and out of the loading port. **NOTE:** If you do not have compressed air, you may use a Crosman #197 10 oz. CO₂ cylinder for air pressure. Another method is to turn the gun upside down and sometimes the BB will fall out of the chamber. With practice, this system will greatly speed up the repairs of the M-1 (or the V-350). If BB is lodged tight, the final recourse is to remove the barrel. Always attach the troublemaker (the lodged BB) to the gun for the customer's own inspection.

3. FAILURE TO COCK:

- When rifle fails to cock, this indicates that trigger may be worn (or broken) and should be replaced.
- Hammer Stop has fallen out of tube plug and must be replaced. Remove Stock Group and Rear Sight Mount Action Lever Group to repair or replace Tube Plug-Stop Ass'y 350-35.
- The BB storage area (barrel flat cut) on one production run of V-350 and M-1 BB Guns was cut too long causing the BB's to occasionally jam side-by-side during the cocking process and thus making it impossible to fully cock the gun.

During the repair of all M-1 and V-350 BB guns with this defect the part 350-8 (spacer) should be replaced with 350-8 crimped spacer. (Figure II)



(Figure II)

4. BB's roll out of barrel:

- Retainer spring #350-41 and Ball #350-42 not working properly. Check for overly compressed spring or rough ball.
- Dirt or metal chips in BB retainer hole.

I. GENERAL INFORMATION: (cont'd)

c. Oversize retainer ball or undersize retainer ball hole.

5. LOW POWER:

a. Weakened Piston Spring, Weakened Pop Valve Spring, worn or damaged Pop Valve, seals dry (not oiled), rust, Pop Valve sticking, or Barrel Cap (350-4) Loose.

6. When BB's fail to drop all the way down into barrel, one or both of the following may be the cause:

a. Pop valve V350-40 is staying forward caused by burrs on pop valve or weak or defective pop valve spring V350-12 and should be disassembled to correct.

b. Oversize retainer ball hole, which in turn will allow V350-42 retainer ball to come through inside of barrel and hold BB from dropping all the way down in barrel. NOTE: If this happens 400-16 oversize ball should be used.

CAUTION: When using the oversized ball 400-16, it should be tested to see if it will hold BB from rolling out of barrel. With barrel cap V350-4, assembly should be turned on barrel and tightened. Then place ball 400-16 in retainer hole with retainer spring V350-41. Now slide spacer V350-8 over spring and ball with slot in spacer over flat areas of barrel. TEST for BB rolling out of barrel by placing a BB in the spacer slot and allowing it to roll and drop into barrel. Then hold barrel with muzzle end down. If BB does not roll out of barrel and drops all the way down in front of pop valve this will indicate that retainer ball is in proper working order.

7. UNNECESSARY TRIGGER WEAR:

a. PROBABLE CAUSE: Stock screws have become loose causing a misalignment of trigger and hammer. Lock Washer -34 should be used with front Stock Screw and 140-95 with rear screw to help prevent future problems in this area.

II. DISASSEMBLY AND ASSEMBLY:

A. STOCK GROUP:

1. The M1 Rifle is now being produced with Plastic (Croswood) Stock and Hand Guard.

SPECIAL NOTE: Barrel Lock Spring 1-21A must be used with the new Plastic Stock.

2. In order to remove hand guard -14, (or 14A) remove front clamp screw -37 and slide Front Band -15 forward.

3. With gun upside down, remove stock screws -19, -24, and -36.

CAUTION: Maintain grip on stock and breech while turning gun right-side up. Now separate (lift off) action and barrel assembly carefully so parts inside stock do not dislodge.

4. Remove #350-16 Lock Ball, -21 (or -21A) Barrel Lock Spring and -20 Magazine Spring.

SPECIAL NOTE for reassembly:

5. Hold stock in vise or hand in upright position and insert -20 Magazine Spring in slotted hole.

6. Place #350-16 Lock Ball on top of -21 (or 21A) Barrel Lock Spring.

7. Replace action and barrel assembly carefully not to dislocate Lock Ball and Spring.

B. TRIGGER GROUP AND TRIGGER GUARD: (Stock Group must be removed first).

1. Place Stock -2 in vise. (Vise jaws should be guarded to prevent damage to stock finish).

2. Punch out Trigger Pin #350-18 with 1/8" Punch, remove Trigger -3 and Trigger Spring #180-65.

3. Remove trigger guard Screw 760-25 located inside stock and pull Trigger Guard -16 down.

4. REASSEMBLE IN REVERSE ORDER.

C. REAR SIGHT AND OPERATING SLIDE GROUP: Slide Group must be removed first, except for adjustable sight components).

II. DISASSEMBLY AND ASSEMBLY: (cont'd)

1. To disassemble adjustable sights; remove Retainer Ring Washer #180-56 from windage screw (remove by prying washer out with small screwdriver), turn windage screw -23 counterclockwise and remove.

2. Remove Sight Elevator -25 then remove Peep -5 (watch for Peep Spring -12) by sliding forward.

SPECIAL NOTE: Some Sight Elevators (early production) have been "peened" to prevent peep from sliding off during sight adjustments. Remove by filing if necessary and re-peen or replace Elevator when reassembling.

3. REASSEMBLE IN REVERSE ORDER.

4. To remove Receiver and Sight Mount Plate -4, place action and barrel Assy. right side up in vise. (Have tube extend 7" to 8" out of vise).

5. Using tool T1-18 (Stud remover), place small tip of tool into threaded end of Locating Stud -18 (from bottom of tube, going upward), drive Stud -18 up with tool and leave tool in place to hold Stop and Plug 350-35 from flying out (under spring tension).

6. When Locating Stud -18 is removed, lift Plate -4 and slide forward on tube (together with Operating Slide -6 and Collar -17).

7. Place palm of hand firmly against Stop Plug 350-35, press Tool T1-18 down and out slowly. Now release palm pressure on Stop Plug slowly until all spring pressure ceases. Remove Stop Plug, however Piston Spring 350-25 does not require removal at this point.

8. Remove Plate -4 complete with Operating Slide Assy. -41 and Collar -17 by moving to the rear and off.

9. Move Operation Slide -6 back and carefully turn to one side to remove from assembly -33.

10. BB Port Cover -10 strap may be pryed off with a screwdriver if replacement is necessary.

11. REASSEMBLE IN REVERSE ORDER except as follows:

SPECIAL NOTE: Reassemble Plate -4 with Operating Slide -6, BB Port Cover -10 and Collar -17 and as an assembly, slip in place on action tube (collar first) so that entire assembly is forward of the Locating Stud -18 hole. Place Tube Plug on protruding Piston Spring, push Plug forward with palm of hand, turning plug as necessary to align stud holes. Place Tool T1-18 with tapered end down, push in from top of stud hole leaving 1/4" of the tool showing on top. Return Sight Plate assembly back over stud tool and locate properly. Take Locating Stud part -18 with threaded end down, place over small tip of tool, tap stud with mallet driving tool out the bottom.

D. POWER PISTON AND SPRING GROUP: (complete process A, B and C Groups first).

1. With action bottom side up, remove Piston Spring 350-25 from rear with Piston 350-36A.

NOTE: If Piston does not come out with Spring, slide Barrel -1 back which will push Piston back to slot in the tube. Then place a screwdriver or small punch through slot in tube and slide Piston out through rear of tube.

2. Inspect Piston Assy. 350-36A for damage to Teflon Ring 350-14A (deep lines, scratches or other damage) which can cause low velocity.

CAUTION: Do not remove Piston Assy. 350-36A through front end of tube as this will damage the Teflon Ring 350-14A.

a. When necessary, Teflon Ring 350-14A should be removed and replaced on Piston.

3. REASSEMBLE IN REVERSE ORDER with caution as follows:

4. Be sure to insert Piston Assy. from rear of tube, Teflon end first, pushing in as far as it will go and using a dowel.

a. When a new Teflon Ring 350-14A has been installed, it may be difficult to insert the Piston Assy. **DO NOT** force it! Forcing will damage the Teflon and result in a low power gun. There are two recommended ways in which to insert the Piston Assy.:

II. DISASSEMBLY AND ASSEMBLY: (cont'd)

1. Bevel the inner lip of the tube (#-30) leaving no sharp edges that may cut the Ring.

2. (The recommended way) Place a 1" strip of .003" shim stock inside the tube (curved to the tube), place piston assembly at an angle starting the Teflon Ring in opposite the shim stock side, then gradually pressing and righting the piston assembly until the Teflon Ring is inside the tube. Remove shim and proceed inserting the Piston Assembly as previously recommended.

E. TUBE AND BARREL GROUP:

1. Place Barrel -1 in vise sight down, turn Tube Bearing -26 out of tube and slide forward.

2. Remove Guide Screw 350-10 from tube group with 3/32" Allen Wrench.

3. Now, firmly place hands around Tube -30, twist slightly while pulling tube off barrel assembly.

CAUTION: As you pull on the tube, take precaution to prevent Sleeve 350-8 from moving or turning. This will prevent BB Retainer Ball 350-42 and Spring 350-41 from being lost. They are held in place by the Sleeve 350-8.

NOTE: If you find it is difficult to pull Tube -30 off, place screwdriver or small rod in Locating Stud Hole for easier pulling.

4. Now turn barrel in vise counterclockwise 1/4 turn so that Ball 350-42 and Spring 350-41 are in a face-up position. Placing a finger partly over Barrel Cap 350-4 and partly over Sleeve 350-8, slide Sleeve slowly forward until you can see the retainer Ball and spring appear. Loosen vise, turn barrel, allowing ball and spring to drop in your hand.

5. To remove Barrel Cap and Pop Valve Groups, retighten vise with Tube Bearing and Sleeve moved forward.

6. Use 1/2" open-end wrench, place over flat of barrel (to prevent barrel from turning in vise), use vise grips on Barrel Cap 350-4 placing them forward of the Felt 350-33 (Oil Retainer).

7. Turn Barrel Cap 350-4 counterclockwise and remove. Follow by removing Pop Valve 350-40 and Spring 350-12.

8. Slide Sleeve 350-8 off barrel, followed by Tube Bearing -26.

a. Support Ring Assy. -38 and Front Sight is easily removed and self-explanatory. Should it be necessary to replace these parts or a barrel, all reclaimable parts should be reused.

SPECIAL NOTE: REASSEMBLE IN REVERSE ORDER with special emphasis as follows:

9. Inspect all parts, replacing as necessary. Wash each part in trichlorethylene to remove all oil, dirt etc. Use Crosman Silicone Pellgunoil on all moving parts and particularly on Teflon Ring 350-14A, Felt 350-33, Pop Valve 350-40 and "O" Ring 350-27.

CAUTION: DO NOT USE REGULAR GUN OILS, SOLVENT PENETRATING OR DETERGENT TYPE OILS as they are harmful to seals.

10. Slide Sleeve 350-8 with hole-end toward muzzle.

11. Drop Pop Valve 350-40 into Barrel Cap 350-4 Teflon end first, then followed by Spring 350-12.

12. Use Loctite (Type E) on Barrel Cap threads, otherwise cap will loosen during cocking action with customer.

13. Test Pop Valve as follows: Use drill blank or wire rod through one of three holes on barrel cap and move Pop Valve back and forth to determine if it's free or dragging.

14. When installing Retainer Ball and Spring, (Retainer hole up), hold spring down with screwdriver and insert Sleeve 350-8 so that slot of sleeve is over flat of barrel, being careful not to damage Retainer Spring. Bring Tube Bearing -26 back and against Sleeve to hold in place.

15. **CAUTION:** Barrel must be turned so that hole in sleeve and threaded hole in barrel are aligned and facing up.

II. DISASSEMBLY AND ASSEMBLY: (cont'd)

16. Hold Tube Bearing firmly against sleeve with one hand and place tube (threaded end first), long slot on tube facing up, over Barrel Cap. Now tap tube with rubber mallet until tube is against Tube Bearing BUT, do not turn tube bearing now!

17. Tighten Guide Screw 350-10, making sure that it is free from oil (put Loctite Type E on threads)

18. Now tighten Tube bearing -26.

III. COMMENTS:

A. The experience at the factory with this type of action reveals the major breakdown is jammed barrels. Recent analysis reveals that the average Air Rifle Shot on the market ranges in size up to .182". BB Rifles are really "Air Rifles and designed for Air Rifle Shot. Air Rifle Shot size is truly .175". Crosman Super BB's are produced (and rigidly controlled) at .1735" "plus or minus .0015". Crosman precision BB Gun barrels are rigidly controlled at .176" minus "zero", plus .002" for better accuracy.

B. It stands to reason that any BB (or Air Rifle shot) over .178" will jam. It is our experience that most BB packages on the market contain several oversize, flaking, out of round BB's and BB's with flat spots. The factory recommends the use of Crosman Super BB's exclusively. All Crosman BB's are micrometer machine tested prior to packaging.

IV. ADDITIONAL COMMENTS:

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