FEATURES

- 225 to 300 psi operating pressure
- Use CO^2 or N^2/compressed air for air source
- Air-ram electronic design
- Cocker compatible barrel thread
- ACS (anti-chop system) Delrin self-lubricating field-strip bolt
- Quick-strip bolt/striker system
- Swift response adjustable trigger system
- LED user interface
- BPS (cap at 20), Sensor, Dbounce and Dwell adjustments
- Bounce-beam sensor system
- Matt finish exterior
- Blade style trigger for lighter pull
- Mid-rise feedneck
- 3-D machined body milling
- Dual regulator system
- ASA (air system adapter) system and operating pressure gauge

INSIDE THE PACKAGE

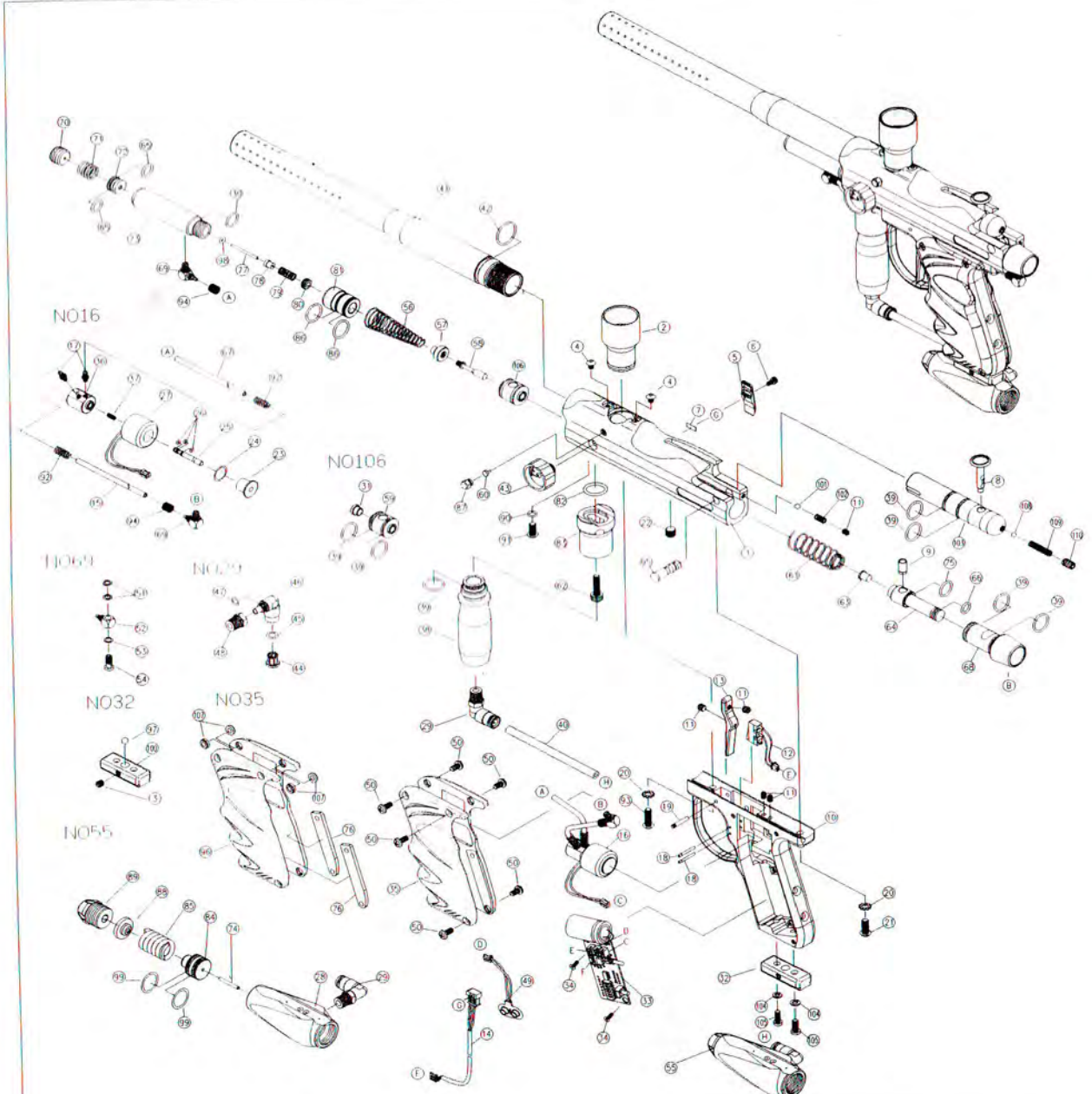
- A AR - 1
- a 12 inches Cocker thread 0.693 barrel,
- an ASA style bottom-line operating pressure regulator (OPR),
- a low pressure regulator (LPR),
- a barrel blocking condom,
- an user manual,
- a warranty card, and
- a tool pack.

POWER SOURCE

- AR - 1 uses a single 9V battery for its power source.
- Remove the battery from Type-R after each use.
- Use of a long life alkaline 9V battery is recommended.

1. Remove the 3 screws located on the left side of grip using a Phillips screwdriver and lift the grip up.
2. Find the battery terminal and install the battery inside the grip frame.

	LPR pressure is too low	Adjust LPR pressure without paintball present
AR - 1 will not fire with sensor system on	*No paintball present*	Turn on the loader
	Sensor system is unclean	See "Sensor System Maintenance"
	Sensor system cable is jammed	Life up the sensor system cover and reposition the wires
	Ball detent is damaged	Call the authorized dealers for replacement
	Paintball broke inside	See "Bolt Maintenance"
Air leak from barrel area	*Lack of lubrication*	Drop some oil into the valve area
	Cup seal or valve o-ring is worn	Replace them
Air leak from hose fittings	*The hose fittings are not secured*	Tighten them properly
AR - 1 will not cycle completely	*Air pressure is too low*	Adjust the operating pressure to 225 to 300 psi
	Low battery power	Change battery
	O-ring of striker is worn	Lubrication or replacement may require
	Striker is worn	Call the authorized dealers for replacement
Breaking paintball when shooting out of the barrel	*Operating pressure is too high*	Adjust the operating pressure to 225 to 300 psi
	Barrel size does not match paintball's	The stock barrel size is 0693, change it if necessary
Chopping paintball internally	*Ball detent is worn*	Call the authorized dealers for replacement
	Sensor system is not on,	Switch it to ON
	Low battery power	Change battery



110	20-W10130-000+PTS1	55	20-A60130-301-PXMTOA
109	20-G10200-000-PXMTOA	54	20-H03100-000-PT0201
108	20-W01030-000-PDM1	53	20-E10081-000-PDM1
107	20-D25060-000-PXMTOA	52	20-D15290-104-PXMTOA
106	20-A34123-000-PXMTOA	51	20-E10101-000-PDM1
105	20-W10420-000-PT00	50	20-W10070-000-PB01
104	20-W20080-000-PT00	49	20-W23020-000-PB01
103	20-E20070-000-PXMTOA	48	20-D15142-104-PT00
102	20-G10010-000-PTS1	47	20-F01350-000-PT00
101	W50090-E17C	46	20-D15232-104-PT00
100	20-B30324-301-PXMTOA	45	20-F01340-000-PT00
99	20-F01420-000-PXMTOA	44	20-D15020-104-PT00
98	20-F01410-000-PXMTOA	43	20-W30030-000-PDM1
97	20-W01050-000-PXMTOA	42	20-F01330-000-PT00
96	20-E05090-000-PXMTOA	41	20-B15702-301-PXMTOA
95	20-H05050-000-PTS1	40	20-E02212-000-PXMTOA
94	20-D20030-000-PDM1	39	20-F01050-000-PB01
93	20-W10770-000-PXMTOA	38	20-B15644-301-PXMTOA
92	20-G10140-000-PXMTOA	37	20-G10110-000-PXMTOA
91	20-W10112-000-PT00	36	20-D10052-102-PXMTOA
90	20-F01270-000-PTS1	35	20-A13390-000-PXMTOA
89	20-B20180-301-PXMTOA	34	20-W10120-000-PB01
88	20-D25070-104-PXMTOA	33	20-W23490-000-PXMTOA
87	20-D05170-104-PXMTOA	32	20-A60100-301-PXMTOA
86	20-F01360-000-PXMTOA	31	20-E01090-000-PXMTOA
85	20-G10152-000-PXMTOA	30	20-F01430-000-PXMTOA
84	20-D05190-104-PXMTOA	29	20-A01130-104-PT00
83	20-B25282-301-PXMTOA	28	20-B25364-301-PXMTOA
82	20-F01110-000-PDM1	27	20-A06070-000-PXMTOA
81	20-B25272-301-PXMTOA	26	20-F01400-000-PXMTOA
80	20-W10640-000-P031	25	20-H05310-000-PXMTOA
79	20-G10100-000-P031	24	20-E10140-000-PXMTOA
78	20-D25050-000-P031	23	20-C20010-103-PXMTOA
77	20-H05300-000-P031	22	20-W10740-000-PXMTOA
76	20-C10020-000-PXMTOA	21	20-W10100-000-PB01
75	20-F01290-000-PXMTOA	20	20-W20020-000-PB01
74	20-H05340-000-PXMTOA	19	20-H05040-000-PB01
73	20-B20162-301-PXMTOA	18	20-H05260-000-P031
72	20-D05160-104-P031	17	20-D15282-104-PXMTOA
71	20-G01212-000-PXMTOA	16	20-A06080-000-PXMTOA
70	20-W10800-000-P031	15	20-E02202-000-PXMTOA
69	20-A01190-104-PXMTOA	14	20-W23110-000-PTS1
68	20-B15622-301-PXMTOA	13	20-B30304-201-PXMTOA
67	20-E02172-000-PXMTOA	12	20-W23480-000-PXMTOA
66	20-F01280-000-PTA1	11	20-W10090-000-PB01
65	20-F01060-000-PDM1	10	20-B05145-201-PXMTOA
64	20-D01060-104-PXMTOA	9	20-H30040-000-PXMTOA
63	20-E01080-000-PXMTOA	8	20-H05380-000-PXMTOA
62	20-W10680-000-PXMTOA	7	20-E10061-000-PTS1
61	20-G10130-000-PXMTOA	6	20-W10260-000-PTS1
60	20-F10050-000-PXMTOA	5	20-E10130-000-PTS1
59	20-H10020-000-PTS1	4	20-W10160-000-PTS1
58	20-H05110-000-PDM1	3	20-W10600-000-P031
57	20-E10090-000-PTS1	2	20-B25323-301-PXMTOA
56	20-G10120-000-PXMTOA	1	20-B01134-301-PXMTOA

3. Replace the 3 screws to reinstall the grip.
   - ✓ Make sure there are no wires been pinched when putting the grip back.
   - ✓ Do not force the wire into places and ensure they are seated easily.

AIR SOURCE

- AR - 1 will work with CO^2, N^2 and compressed air.
- Before attaching the air system onto AR - 1 ensure the barrel blocking device is in place.
- Always use the bottom-line OPR system for ensuring the operating pressure is at 225 to 300 psi.
- Before attaching the air system, put lubrication on the o-ring of the air system valve and the thread of ASA style OPR.
- If there is an on/off switch presented on the air system, shut the air system off before connecting it onto AR - 1
- It is recommended to maintain factory stock dual regulator system for optimum performance of AR - 1
- The N^2, compressed air or CO^2 air system can be extremely dangerous if not handle properly or misused. Only use properly certified cylinders.
- Do not throw the air system into flame or get close to it.

N^2 AND COMPRESSED AIR

- N^2 and compressed air are recommended for best result with AR - 1
- The bottom-line OPR system could be used to utilize the pressure.
- Pin valve type air system must be use with the bottom-line OPR.

CO^2

- The tank must have an anti-siphon tub installed correctly. Liquid CO^2 should not be use.
- Please have a certified airsmith to install the anti-siphon system especially designed for AR - 1.
- CO^2 in liquid form may damage the internal of the components of AR - 1
- DAMAGE CAUSED BY LIQUID CO^2 WILL NOT BE COVERED UNDER THE WARRANTY.

DISCONNECTING AIR SYSTEM

Because there might be air left inside of AR - 1 after using, follow the instructions below to release the pressure within.

1. Disconnect the loader and ensure there is no paintball inside of AR - 1
2. If there is an on/off switch presented on the air system, shut the air system off.
3. Turn off the sensor system.
4. The adjusting nut of bottom-line OPR should be almost screwed out at counter-clockwise direction ↺ using the supplied HEX tool.
   - Turn until the adjusting nut is almost coming off, and then turn clockwise ↻ 3 to 5 complete circles.
5. The low pressure regulator should be almost screwed out at counter-clockwise direction ↺ using the supplied HEX tool.
6. Dry fire AR - 1 until there is no air left inside of it.
7. Disconnect the air system.

PRESSURE ADJUSTMENT

- ALWAYS WEAR EYE PROTECTING DESIGNED FOR PAINTBALL USE WHEN FIRING THE MARKER.
- Before attaching the air system onto AR - 1 ensure the barrel blocking device is in place.
- The adjusting nut of bottom-line OPR should be almost screwed out at counter-clockwise direction ↺ using the supplied HEX tool.
- The low pressure regulator should be almost screwed out at counter-clockwise direction ↺ using the supplied HEX tool.
- The initial adjustment should be made with no paintball inside of AR - 1 and the sensor system set to off.
- When adjusting the operating or low pressure, always recheck the velocity using chronograph devices.
- Bottom-line OPR controls the pressure supplied to AR - 1 through the air system.
- LPR controls the pressure supplied to the solenoid when AR - 1 is fired.
- LPR will influence how hard the striker moves forward when firing; higher the pressure, harder and faster the striker will move.
- Velocity is the balance of operating pressure and LPR pressure.
- Internal damage may occur to the components or the regulator systems and the warranty may have been voided.

OPR ADJUSTMENT

- Operating pressure can be adjusted by using the ASA style bottom-line regulator.
- DO NOT ADJUST YOUR OPERATING PRESSURE OVER 450 PSI, INTERNAL DAMAGE MAY OCCUR TO THE REGULATOR SYSTEM AND THE MARKER ITSELF.

- The suggested operating pressure is between 225 to 325 psi.
- To Increase the pressure
  - ✓ Use the supplied HEX tool to screw the adjusting nut in at clockwise direction ↻.
- To decrease the pressure
  - ✓ Screw the adjusting nut in at counter-clockwise direction ↺, if viewing from the front.
  - ✓ AR - 1 must be fired for the reading on the pressure gauge to drop when decreasing the pressure.

LPR ADJUSTMENT

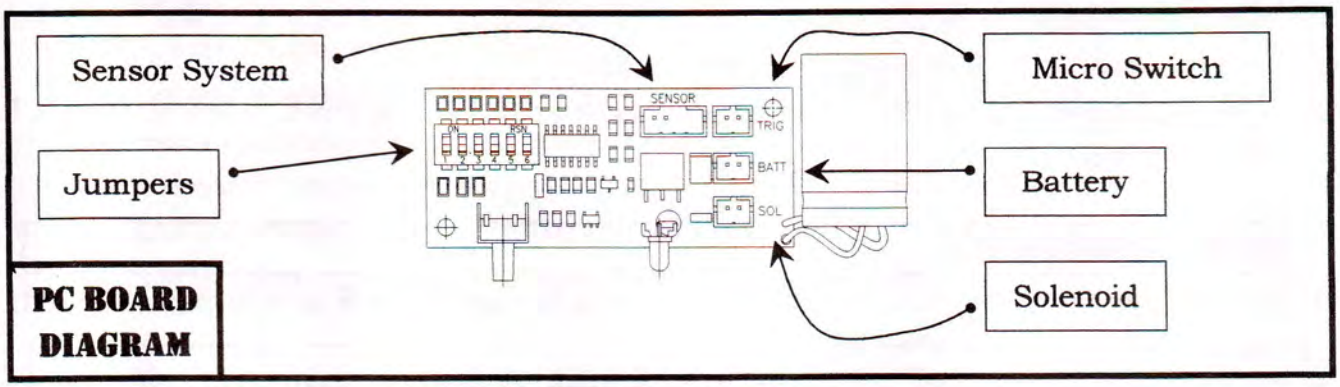
- LPR can be found on the front of AR - 1
- LPR does not use a pressure gauge to monitor its pressure adjustment.
- Adjust the LPR when the operating pressure is set at 275 psi.
- To Increase the pressure
  - ✓ Use the supplied HEX tool to the turn the adjusting nut in or at clockwise direction ↻, if viewing from the front.
- To decrease the pressure
  - ✓ Turn the adjusting nut out or at count-clockwise direction ↺, if viewing from the front.
  - ✓ LPR pressure will not be accurate unless AR - 1 is fired during the adjustment.
- Once the sound of firing seems right, place couple paintballs in AR - 1 to test the velocity using the chronograph devices.
  - ✓ The speed should not excess 300 f/s.
- If the solenoid starts to leak air, immediately decrease the LPR pressure.
  - ✓ After firing, the leakage should stop.
- To reach the proper velocity, increase/decrease the pressure using bottom-line OPR from here.

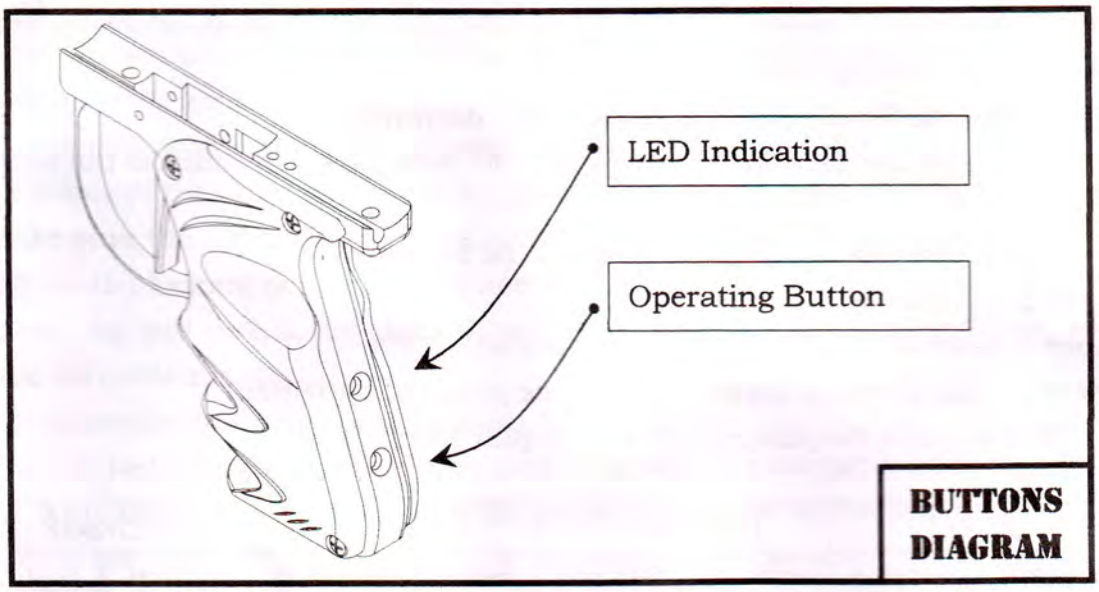
TRIGGER ADJUSTMENT

- There is an adjusting nut located on the trigger, using the supplied HEX tool to tweak.
- Screw in at clockwise direction ↻ will reduce the distance between the trigger and the micro switch.
- Screw out at counter-clockwise direction ↺ will increase the distance between the trigger and the micro switch.

LED INTERFACE OPERATION

- Before operating the PC board of AR - 1 ensure the barrel blocking device is in place.
- There are 1 operating button and 1 LED induction light; both located on the back on the grip frame of AR - 1





ACTIVATION

- Press and hold down the operating button for 3 second.
- The LED light will then turn green and AR - 1 is now activated.
- When the LED light is red, AR - 1 is in SAFE mode.
- Press the operating button once, the LED light will now turn green; AR - 1 is now LIVE.
- If the power of the battery is low, the LED light will start to blink.
- The factory setting is to have the sensor system set to on, so AR - 1 will not fire until the paintball is loaded in AR - 1 or the sensor system is set to off.

DEACTIVATION

- Hold down the operating button for 3 seconds.
- LED light will now turn off and the AR - 1 is now deactivated.

SAFETY

1. Press the operating button when AR - 1 is activated, and the LED light will turn from red to green; AR - 1 is now under SAFE mode.
2. Press the operating button again, the LED light will turn from green to red, and AR - 1 is now LIVE.

BOARD ADJUSTMENT

- Remove the 3 screws located on the left side of grip when AR - 1 is pointing to the left; using a Phillips screw driver and lift it up.
- The 6 adjusting jumpers are located on the bottom of the PC board.
- Jumper 1 and 2 are used for adjusting the DWELL of the AR - 1 which controls the solenoid valve opening time.
  - ✓ Higher the Dwell, more of the pressure been released.
- Jumper 3 and 4 are used for adjusting the DBOUNCE, which controls the trigger sensitivity.
  - ✓ Higher the Dbounce, more sensitive the trigger is.
- Jumper 5 controls BPS setting.
- Jumper 6 controls the SENSOR system on/off.
- Below is a table showing the meaning of the jumper adjustment.
  - ✓ ⬆ is to push the jumper up; ⬇ is to pull down.

DWELL		DBOUNCE		BPS		SENSOR	
switch	setting	switch	Setting	switch	setting	switch	Setting
⬇⬇	6 ms	⬇⬇	8 ms	⬆	20 BPS	⬆	ON
⬆⬇	8 ms	⬆⬇	16 ms				
⬇⬆	10 ms	⬇⬆	21 ms	⬇	15 BPS	⬇	OFF
⬆⬆	12 ms	⬆⬆	28 ms				

- After the adjustment is finished, replace the grip and 3 screws back.

EXTERNAL MAINTENANCE

1. Most contaminates found on external surface could often easily remove by using water alcohol mix and a dry clean dump cloth.

2. This is recommended to keep a clean rag, Q-tips and a small amount of the water alcohol mix with the tools.

SENSOR SYSTEM MAINTENANCE

The sensor system must be kept clean for optimal performance, please follow the below instructions for cleaning and maintenance"

1. Remove the screw on the sensor system cover with supplied HEX tool.
2. Remove the sensor system and its cover.
3. Clean the area thoroughly with cotton swab and rubbing alcohol.
4. Replace the sensor system and the cover back.
5. Replace the screw back to the sensor system cover.

BOLT MAINTENANCE

AR - 1 is equipped with a Delrin fieldstrip bolt for durability and reducing friction.

- The bolt must be kept clean for optimal performance.
- The Delrin bolt does not require lubrication.
- If the surface of the bolt become sticky, please use the following cleaning instructions:
  1. Make sure the air system is not attached to AR - 1 and there is no paintball inside.
  2. Lift up the locking pin on the left and remove the bolt from the rear.
  3. Clean the bolt with a dry clean dump cloth; soap and warm water may be used to remove contaminates.
  4. Lubricate the bolt and the o-rings on it very lightly.
  5. The pin locking system should be oiled to ensure the correct function.
     - ✓ Do the oiling very genteelly and minimize the oil use on the bolt itself.
  6. Clean the bore of AR - 1 with a squeegee and ensure no contaminates are presented.
  7. Replace the bolt back to AR - 1 and check for movement; it should now move freely in the bore.

STRIKER MAINTENANCE

Follow the below instructions to remove the striker assembly carefully for cleaning and maintenance:

1. Disconnect the air system and loader and ensure there is no paintball inside of AR - 1
2. Use a slotted screwdriver to unscrew rear hose connector from the ram cap.
3. Remove the striker/bolt horizontally locking pin in the rear of the body.

4. Remove the striker/bolt system in one piece form the rear of AR - 1
5. Place each component carefully and pay attention to their settings.
6. Pull the striker out from ram cap and there is a smaller o-ring located on the rear end of the striker, which will require some gel type lubricant.
   - Replace the o-ring if the wear is excessive.
7. Clean the bore of AR - 1 with a squeegee and ensure no contaminates are presented.
8. Reassemble the components and slip them back to the respective chambers from rear of AR - 1 the way they were taken out.
9. Screw the hose connector back to ram cap and reinstall the striker/bolt horizontally locking pin in the rear of the body.

FIRING VALVE MAINTENANCE

Follow the below instructions to remove the firing valve assembly carefully for cleaning and maintenance:

1. Follow the step 1 to 5 in the "STRICKER MAINTENANCE."
2. After taking out the striker/bolt system, also take out the spring.
3. Use a slotted screwdriver to unscrew the rear hose connector from the LPR.
4. Using the supplied HEX tool to remove the 2 screws, which attach the grip frame to the body.
5. The grip frame will now come off free, and unscrew the carrier screw, which is located under the body, with the supplied HEX tool.
   - Use couple drops of gel type lubrication on the carrier screw.
6. Using the supplied HEX tool to remove the screw, which attaches the LPR to the body and detach the LPR.
   - Use couple drops of gel type lubrication on the screw.
7. Remove the firing valve guide which can be seen after detach the LPR.
8. Use a long and narrow object, such as the back of the pen, to push out the firing valve.
9. Paintball specific oil lubrication should be used on the firing valve and its o-rings.
   - Replace o-rings if they are worn.
10. Clean both chambers with a squeegee and ensure no contaminates are presented.
11. Place the firing valve back using a long and narrow object and reinstall the carrier screw.
12. Replace the firing valve guide and LPR, and reinstall the screw, which attaches the LPR to the body.
13. Reinstall the carrier screw under the body to position the firing valve.
14. Carefully place the pressure hoses in the 2 hose slots on top of the grip frame and reinstall the 2 screws, which attached the grip frame to the body..

- Ensure the hoses and the sensor system cable are not pinched.

15. Replace the spring and striker/bolt system, and reinstall the front and rear hose connectors.
16. Follow the step 8 and 9 in the "STRICKER MAINTENANCE."

STORAGE AND TRANSPORTATION

- Clean and deactivate AR - 1 as well detach the air system when it is not in use.
- Make sure the barrel blocking device is in place when AR - 1 is not in use.
- Keep Type-R away from any unauthorized users.
- During transportation, AR - 1 must be free of any air source to and from the playing fields.
- Do not carry AR - 1 uncased when not on a playing field, because non-playing public and law enforcement personal may not be able to recognize between a paintball marker and firearm.
- Always carry AR - 1 in its factory case or a suitable marker case.
- Never transport charged N^2/compressed air or CO^2 air system.

TROUBLESHOOTING

PROBLEM	POSSIBLE CASUE	SOLUTION
Pressure gauge will not move	*The pressure used was too high for the gauge to handle*	Replace the gauge
AR - 1 will not turn on	*Not activated*	Press and hold down operating button for more than 4 seconds
	Low battery power	Change battery
	Battery is connected incorrectly to the PC board	Check to see if the battery cable were connected correctly to the terminal
AR - 1 will not fire	*Low battery power*	Change battery
	Solenoid may be out of place	Open grip and press solenoid forward
	Low air	Refill the air system
	Air system is not screwed in	Screw in the air system