



### Important Safety Guidelines

#### Rules for safe Marker handling

- Treat every marker as if it were loaded.
- Insert barrel bung when not in use.
- Always remove gas source when not in use.
- NOTE: The Angel™ can hold a small gas charge, typically 2 shots. With the gas source removed, fire to remove this surplus gas.
- Ensure isolator switch is "off" when not in use.
- Only use 0.68" caliber paintballs.
- Never use CO2 as a propellant / gas source.
- Never shoot at velocities in excess of 300 FPS / 91.44 MS.
- Always wear approved eye, face and ear protection designed for paintball use.
- Never discharge the marker at persons not wearing protection.
- Only use the marker on fields approved for paintball games.
- Never put high pressure air directly against your skin.

#### Operating Instructions: Propellant Air/Nitrogen Supply

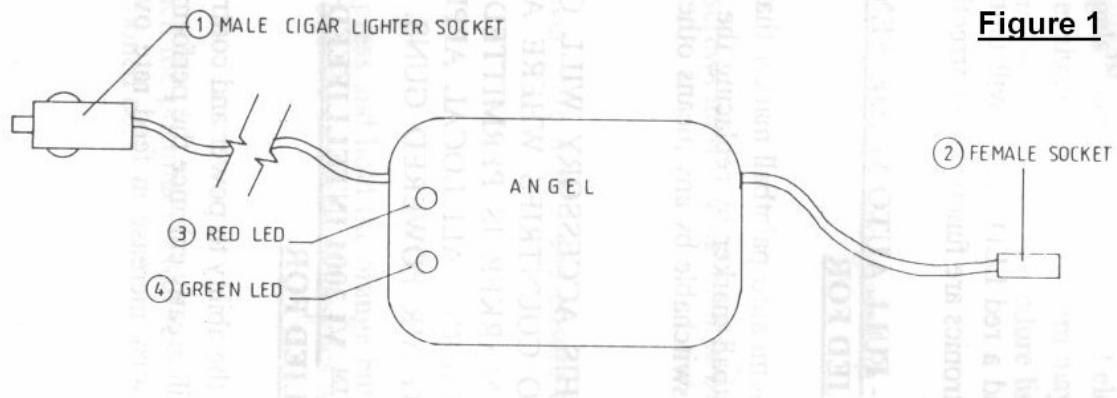
- Ensure the Angel™ is switched off prior to commencing.
- Ensure gas isolator green button "off" is fully depressed.
- Ensure barrel bung is fitted.
- Ensure eye protection is worn.
- Adhere strictly to all warnings.
- Ensure only air / nitrogen is used.
- Ensure suitable regulator is used intended for a paintball marker.

The Angel™ marker is designed to be operated on air or nitrogen only. This needs to be supplied to the Angel™ at a regulated pressure of 800 - 850psi (55-59BAR). This can be achieved by the use of a suitable regulator such as the Govnair™. Connection can be made by connecting the regulator gas outlet to the Angel™ front grip using the connector supplied a suitable 1/8 BSP connector. If using the Micro Line™ as supplied, the fittings may be removed by pulling back the collet to release the hose then shorten the hose to the length required before refitting. Alternatively, the Mamba™ remote hose may be fitted into the collet.

#### General Care & Cleaning

The Angel™ should be cleaned using a damp cloth only. No solvents or abrasive cleaning products should be used. All external moving parts should be lubricated using a light oil. The Angel™ should never be immersed into water, otherwise damage may occur to the electronics. The electronics are moisture / damp proof only. Ensure correct tools are used. All thread are metric except gun accessory mountings onto the grip frame which is industry standard 10/32 UNF at centers 3/4".

## Operating Instructions: Charging



Before initial use of the Angel™, it is necessary to give the power pack a full charging cycle of 14 hours prior to use as this will ensure the longevity of the power pack. Subsequent charges will be in the region of 3 hours for full charge.

### Stage 1

Insert cigar lighter into a 13.8v negative earth socket as found in most motor vehicles (red light on charger will illuminate).

### Stage 2

Ensure isolator switch on the Angel™ is in the forward position towards the barrel. (No charging can occur until this switch is in the forward position).

### Stage 3

Insert remote plug from charger into the socket on the rear of the Angel™ (See Figure 2).

Warning: Care must be shown with the charger to ensure the remote plug is not pulled or twisted by the lead. Shortening this lead can result in damage to your markers electronics.

### Stage 4

The LED on the charger will indicate the status of the charging cycle on the Angel™.

1. NO LED: power at cigar socket not present! Switch ignition on
2. DIM RED LED: isolator switch on Angel™ is on ! Switch isolator off
3. BRIGHT RED LED FLASHING: indicates battery conditioning from totally discharged battery
4. BRIGHT RED LED: indicates rapid charging occurring
5. GREEN LED: indicates trickle charging occurring, battery achieved 30% capacity

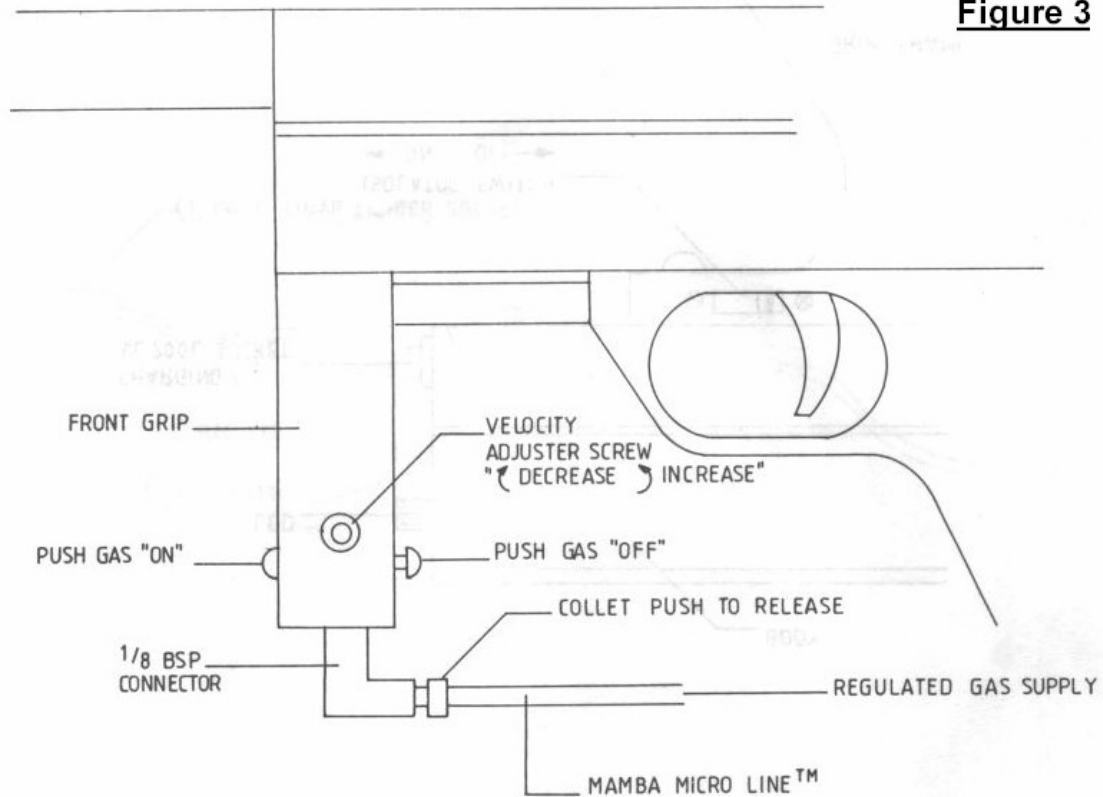
NOTE: The Angel™ may be left charging for prolonged periods without damage occurring to the battery pack.

### Stage 5

Unplug the female socket from the Angel™

## Operating Instructions: Gassing Up the Angel

**Figure 3**



### Stage 1

Ensure the gas isolator green button "off" is pressed fully home.

### Stage 2

Switch on your regulated gas supply

### Stage 3

Press home the gas isolator red button "on".

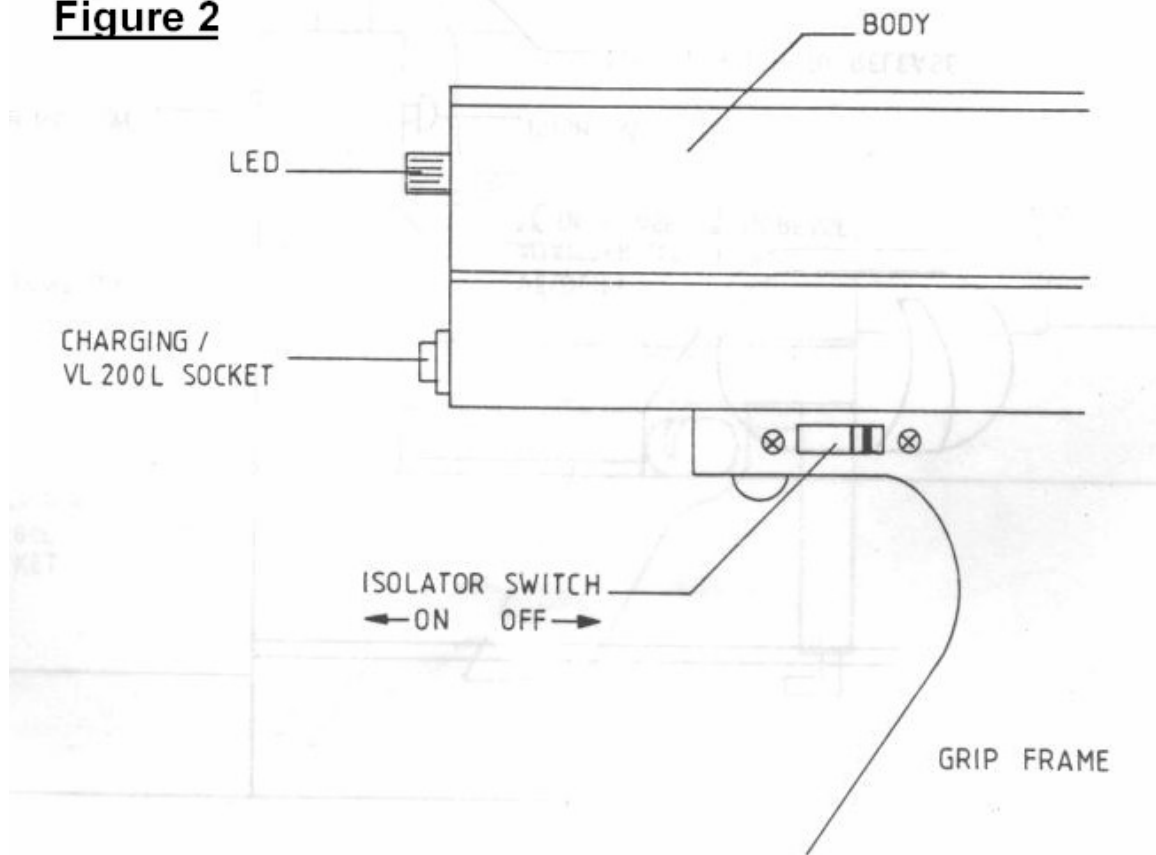
### NOTES

The gas isolator button must always be fully depressed. If pressed half way gas will be emitted around the buttons which may be done to bleed your gas supply system prior to disconnection.

**WARNING** - The Angel™ will hold sufficient gas for 2 shots after isolation.

Operating Instructions: Switching the Angel – On

**Figure 2**

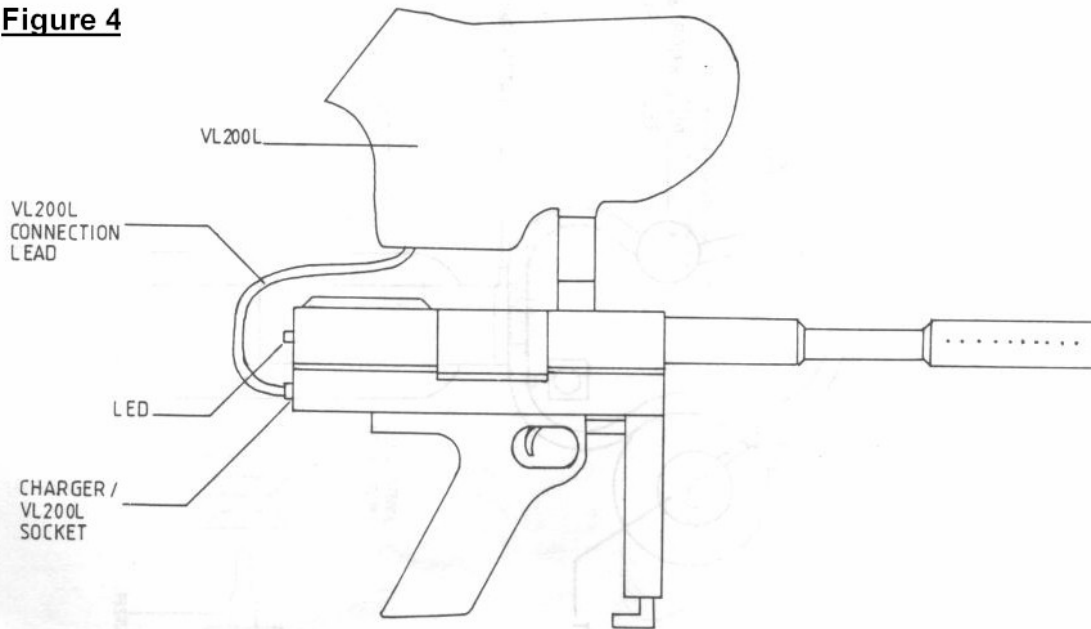


The electrical isolator/safety switch may now be switched "on" toward the rear of the marker. A green LED will illuminate on the rear of marker.

**WARNING** - Adhere strictly to all safety warnings the Angel™ is now in an armed state.

Fitting the Hopper VL2001 Intelifeed™ Optional Extra Patents Applied for

**Figure 4**



The Angel™ has the ability to power the VL2001 Viewloader™ with the agitation and electrical supply coming from the Angel™ direct. This Intelifeed™ system monitors your fire rate and switches on the agitator as necessary. This hopper will feed 40% faster than a standard shredder hopper.

**Stage 1**

Fit elbow as supplied to the Angel™.

**Stage 2**

Fit Viewloader VL2001 to the elbow as supplied.

**Stage 3**

Plug the female socket into the rear of the Angel™ plug.

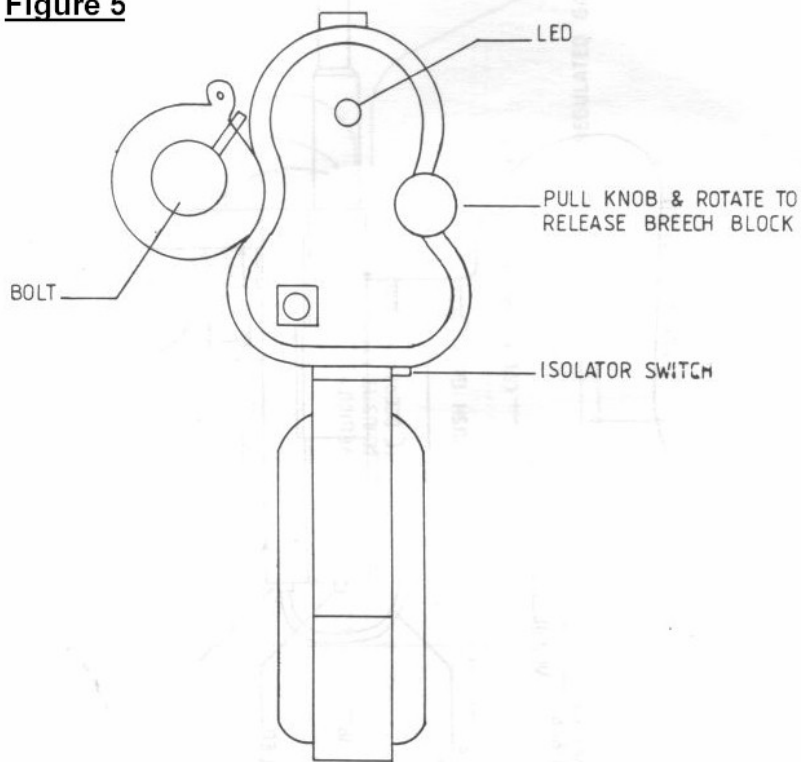
**Stage 4**

Switch electrical isolator "on". The agitator will agitate for 2 seconds, then stop.

NOTE: On single shots less than 1 shot per second, the VL2001 will not agitate. On shots greater than 2 shots per second, the VL2001 will agitate for 2 seconds. This cycle will repeat as the trigger is pulled.

## Bolt Removal Rotabreech™

**Figure 5**



### Stage 1

Ensure the electrical isolator switch is off. The LED on the rear of the Angel™ will not be illuminated.

### Stage 2

Pull the "pull knob" and rotate 90 degrees so that the knob remains in the unlocked position.

### Stage 3

Swing the breech block so that the bolt is exposed.

### Stage 4

Retract the bolt.

### Stage 5

Replace the bolt follow stages in reverse order.

### NOTES

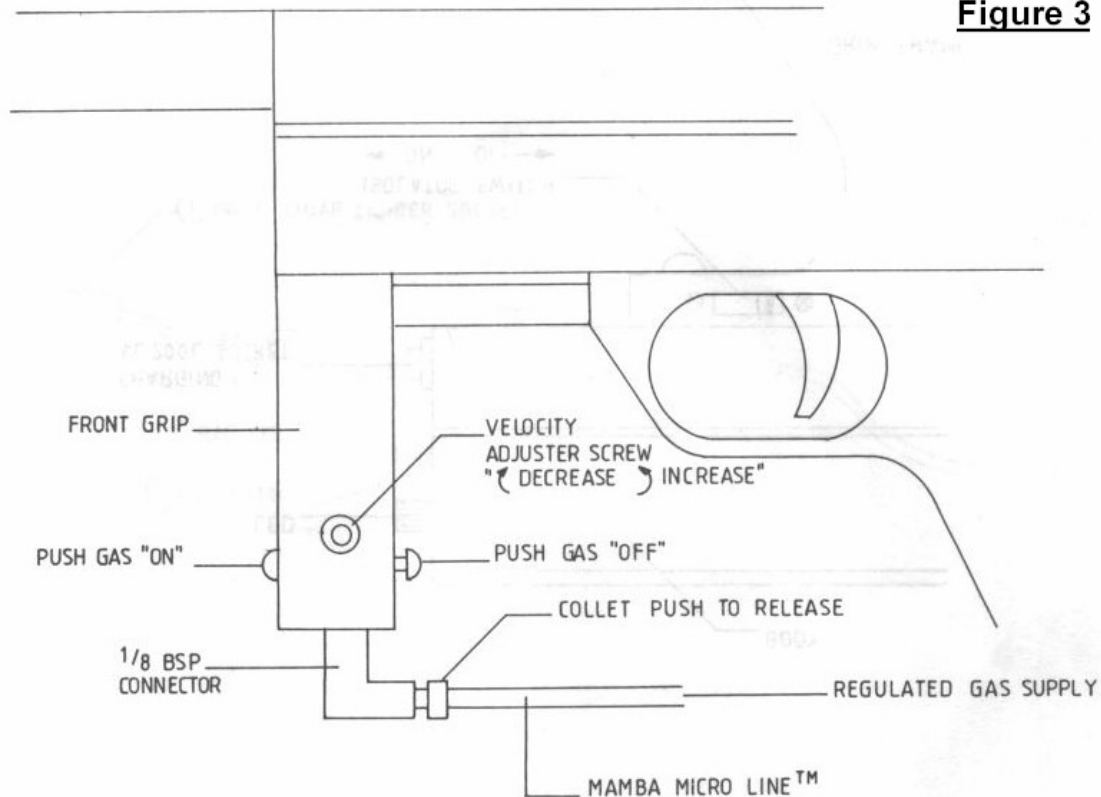
Caution, do not fire the Angel™ with the breech open or without the bolt in the breech.

Caution, do not fire the Angel™ with the pull knob in the unlocked position.

The breech will not open if the bolt is in the forward position, ensure it is retracted by either: momentarily gassing the Angel™ or pushing the bolt back with a squeegee.

## Velocity Adjustments

**Figure 3**



Velocity adjustment need to be carried out using a suitable chronograph, the maximum velocity to be set is 300 FPS.

The velocity adjusting screw is located on the front grip. Use a 3 mm A/F allen key to adjust.

### Stage 1 - Decrease Velocity

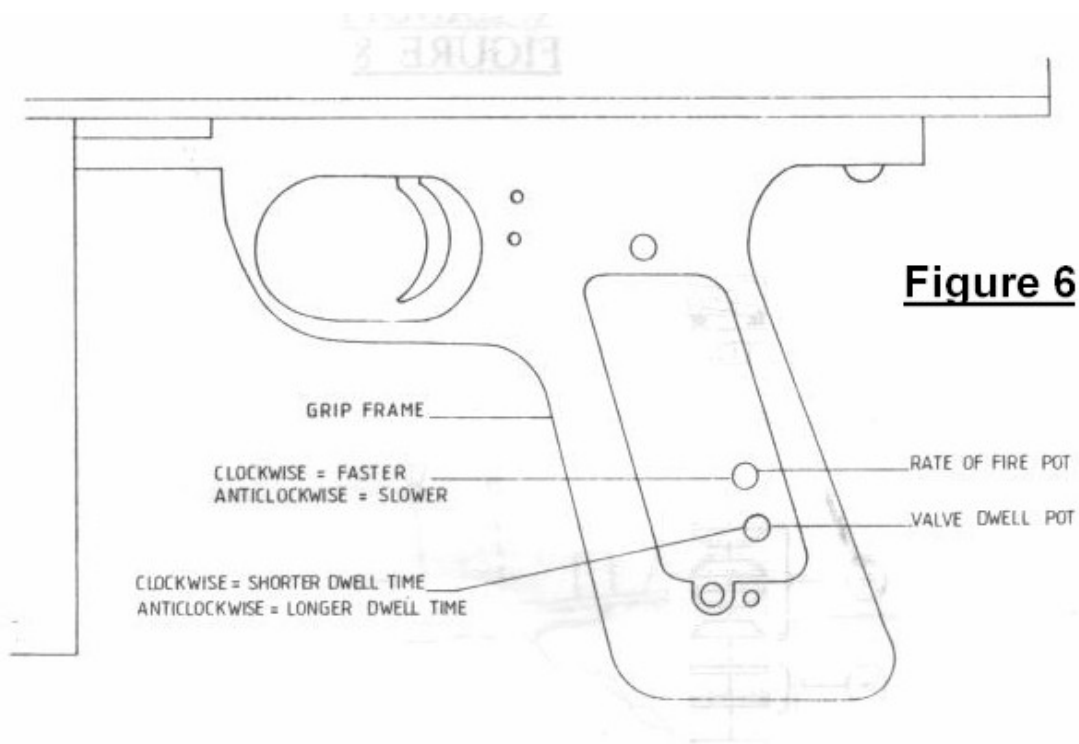
To Decrease velocity, insert the allen key and rotate CLOCKWISE.

Note: when reducing velocity, allow 4 shots for the complete system to be at the new regulated pressure.

### Stage 2 - Increase Velocity

To Increase velocity, insert the allen key and rotate ANTI-CLOCKWISE

## Electronic Rate of Fire Adjustment



The Angels™ rate of fire is adjustable so that it may be set up to suit your style of play. It is factory set at approximately 10-12 shots per second.

### Stage 1

Remove grip cover screws to expose circuit board.

### Stage 2 - Decrease rate of fire

Rotate the top pot on the circuit board anticlockwise to reduce the rate of fire. Minimum setting achievable is 6 shots per second.

### Stage 3 - Increase rate of fire

Rotate the top pot on the circuit board clockwise to increase the rate of fire, maximum achievable is 15 shots per second. (The best results are achieved when using the Viewloader™ VL2001 Intellifeed™)

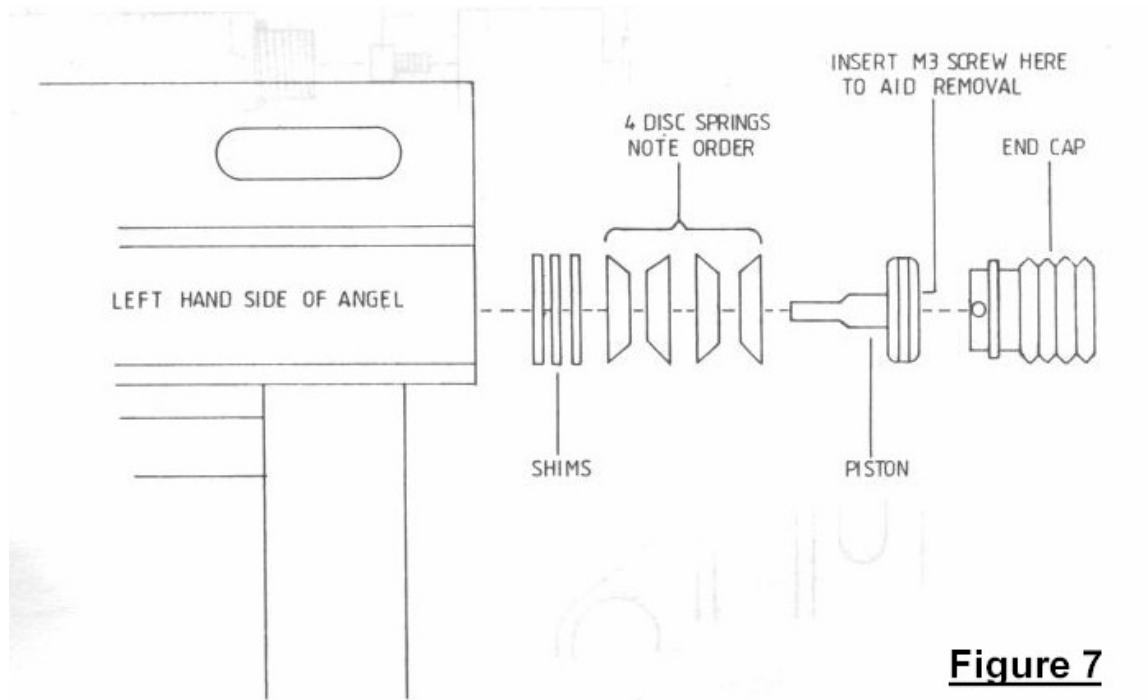
### NOTE

If you set the rate of fire in excess of what the hopper can feed, you will experience ball chopping, therefore it is advisable to ensure that you adjust the pot in small movements.

The adjustment part should be rotated carefully to ensure damage does not occur to the part.



## Low Pressure Regulator (LPR) Adjustment



**Figure 7**

The low pressure regulator controls the pneumatics cycle of the Angel™ and is located in the left hand chamber in the front of the Angel's™ body. The pressure needs to be at 80-90psi (5.5 - 6.0 BAR) and adjustment is achieved by the addition or removal of shims, each shim equals approximately 3.5psi (0.2 BAR).

Stage 1 - Ensure the Angel™ is degassed and the isolator switch is "off".

Stage 2 - Remove the end cap. NOTE: This end is a different design to the battery end cap.

Stage 3 - Insert M3 screw into the brass piston and withdraw slowly.

CAUTION: ensure the springs or shims are not lost.

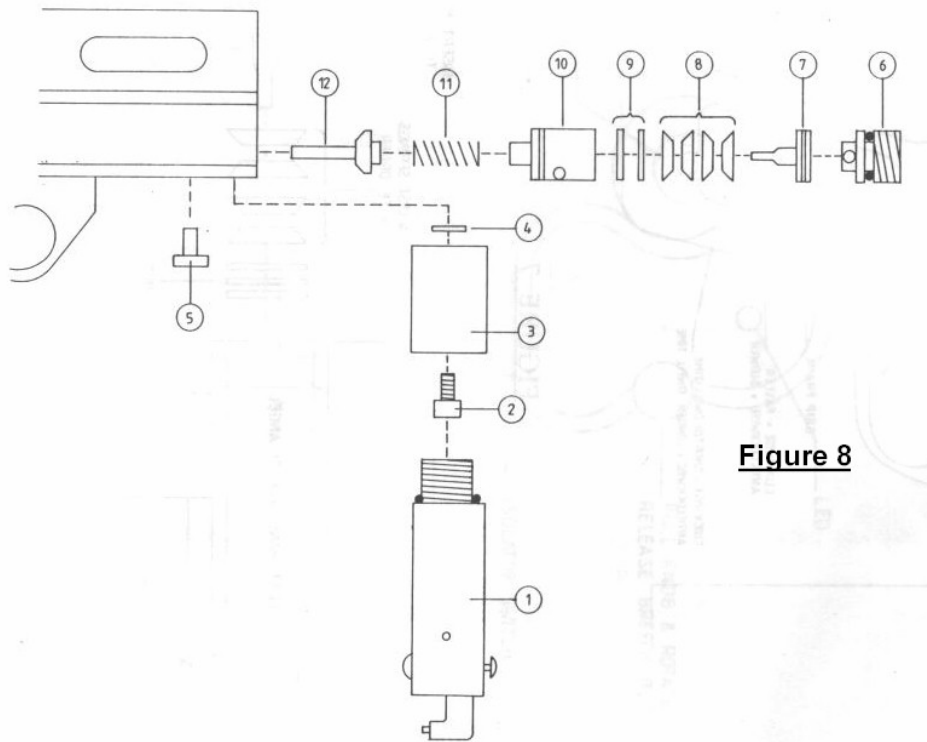
Stage 4 - Insert / remove shims as necessary each shim equals approximately 3.5psi (0.2 BAR).

Stage 5 - Replace springs in correct order onto the piston.

Stage 6 - Re-insert the piston ensuring that it is located correctly and replace end-cap.

Stage 7 - Gas up the Angel™ and check pressure.

## Exhaust Valve Removal



Stage 1 - Remove high pressure regulated gas supply.

Stage 2 - Remove component in number order as per figure 8.

Item 1 - Unscrew mini reg.

Item 2 - Use metric allen key to remove screw.

Item 3 - Slide flash tank forward.

Item 4 - Remove "O" ring.

Item 5 - Pull pin out.

Item 6, 7, 8, 9 - Remove as per low pressure regulator (LPR) adjustment instructions.

Item 10 - Using a suitable pick, slowly retract LPR. Care must be taken so that the bore or seals are not damaged.

Item 11 - Remove valve spring.

Item 12 - Remove exhaust valve.

Stage 3 - Re-assembly of components - important notes.

Item 12 - Ensure exhaust valve is located in exhaust body within the Angel™.

Item 11 - Ensure the spring is located on to item 12.

Item 10 - Ensure the hole for item 5 is in the correct orientation prior to refitting

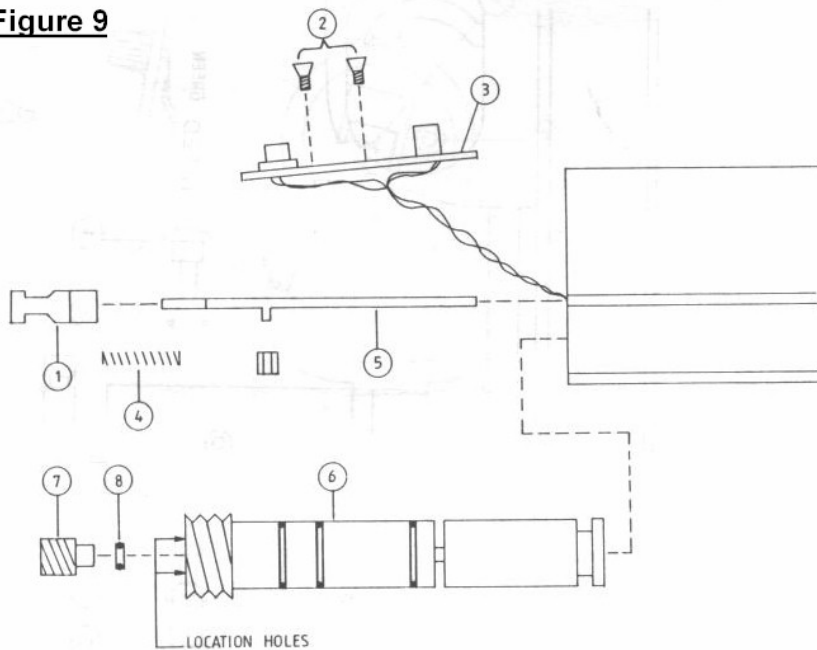
Item 8 - Ensure the springs are in the right order.

Item 5 - Ensure the pin locates into the hole in item 10.

Item 5 - Ensure O ring is present when item 3 is replaced.

## RAM Stroke Adjustment Patents Applied For

**Figure 9**



Stage 1 See Figure 2 and Figure 3

- Ensure the gas supply is isolated.
- Ensure the electrical isolator switch is off.
- Ensure bolt is fully retracted.

Stage 2 - Remove components 1-5.

Item 1 - Remove by gently pulling and unscrewing anti-clockwise.

Item 2 - Remove screws using suitable metric allen key.

Item 3 - Carefully lift item 3 as wires are attached. Care must be taken so that they are not pulled or trapped during maintenance.

Item 4/5 - Retract lock pin and spring.

Stage 3 - Using circlip pliers rotate ram / hammer item 6 clockwise until slight resistance is felt in opening the breech / bolt. If rotated too far the breech will not open so rotate anti-clockwise and repeat operation. Note the ram is always set by rotating item 6 clockwise.

Stage 4 - Replace components in order 5 - 1.

- Ensure that no wires become trapped.
- Ensure that item 1 is screwed on so that when the pull knob is in the open position, the breech can open.

## RAM Snap Ring Adjustment / Replacement Patents Applied For

(See Figure 9)

### Stage 1

Follow ram stroke adjustment procedure for disassembly and access.

### Stage 2

#### Item 7

Remove snap ring nut using suitable metric allen key. Ensure that item 6 does not move by holding in place with circlip pliers.

#### Item 8

Remove with suitable pick, replace if worn or damaged.

### Stage 3

Replace item 5, locking the breech/bolt in place.

### Stage 4

Replace item 7 ensuring the ram/hammer assembly item 6 does not rotate (secure using circlip pliers) until slight resistance is felt.

### Stage 5

Gas up the Angel™ and switch the electrical isolator switch on (See Figure 2 and Figure 3).

### Stage 6

**WARNING!** - Adhere strictly to all safety instructions

Fire the Angel™ while rotating item 7 clockwise until the Angel™ ceases to fire, now rotate item 7 anticlockwise 1/4 of a turn and check the Angel™ to ensure it fires.

### Stage 7

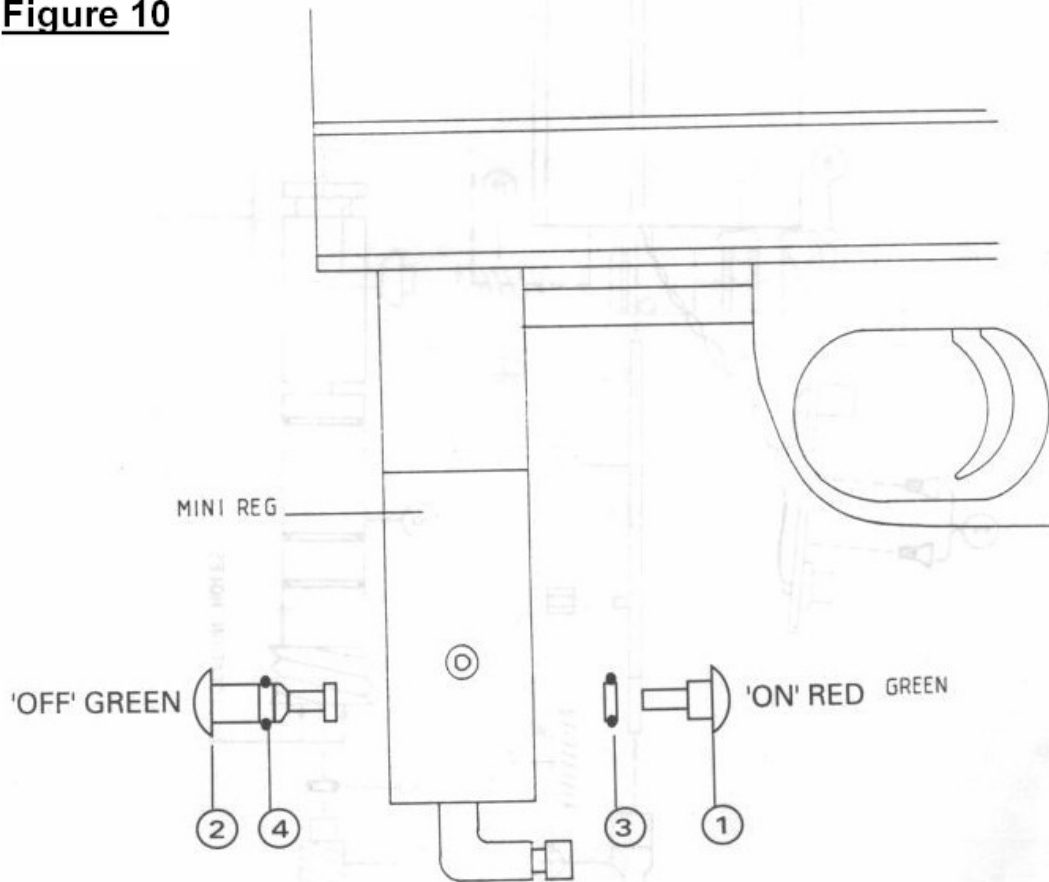
Replace the remaining parts as per ram stroke adjustment.

### NOTE:

Ensure no wire becomes trapped.

## Mini Reg On / Off Seal Replacement

**Figure 10**

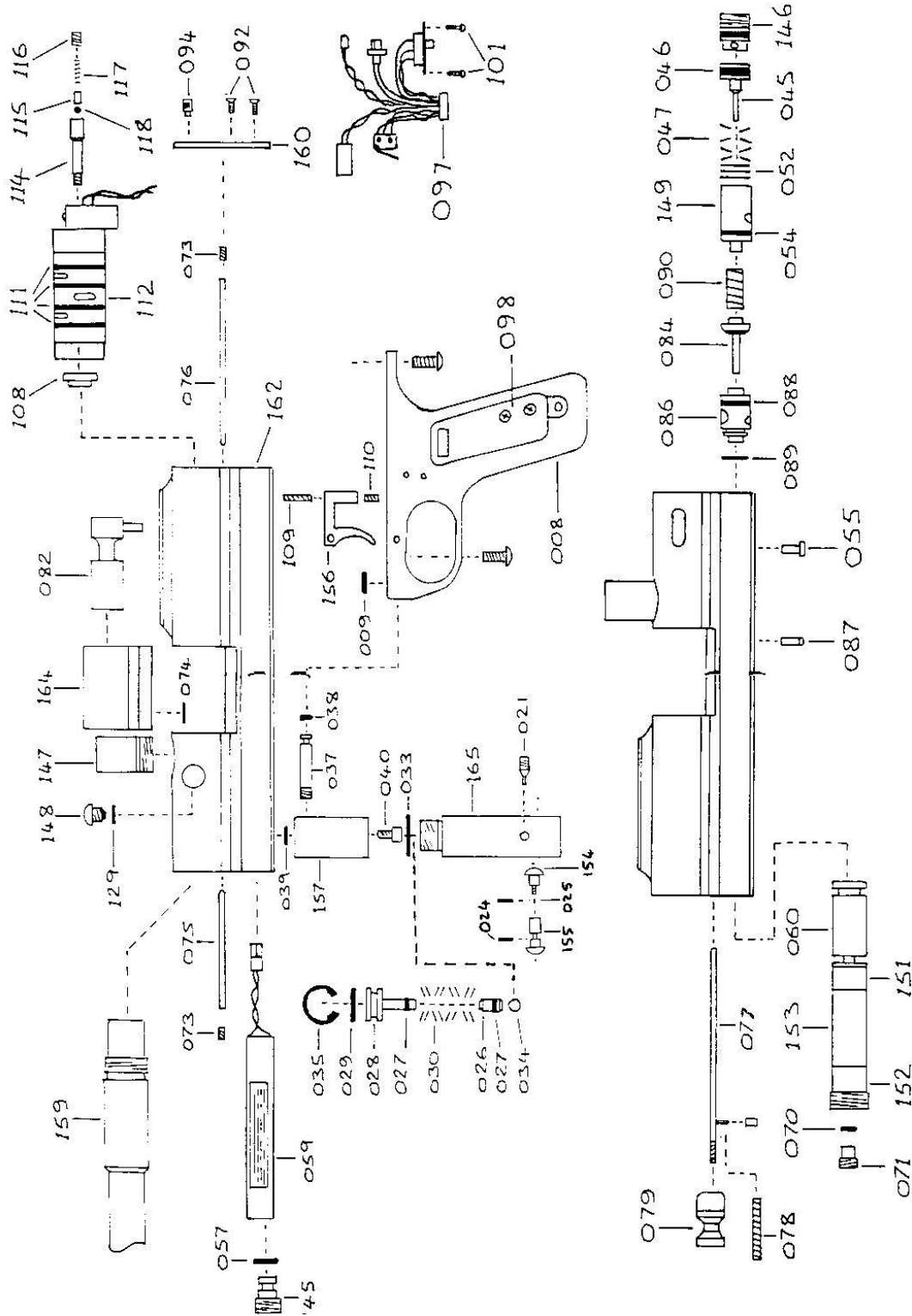


- Stage 1 - Ensure the gas supply is isolated at its source.
- Stage 2 - Unscrew item 1 from item 2 and retract the parts.
- Stage 3 - Replace any worn seals on items 3 and 4.

Note: item 3 is a hard seal / item 4 is a soft seal

- Stage 4 - Replace items 4 - 1.
- Stage 5 - Re-gas system, check for leaks.

Angel™ Parts Diagram



AL008	Grip Frame Anodized	1	AL113	14 Way Piston	1
AL009	Grip Frame Seal	1	AL114	14 Way Safety Vent Body	1
AL021	Mini Reg Velocity Adj Screw	1	AL115	14 Way Safety Vent Piston	1
AL024	Mini Reg Dump Seal Front 70 S	1	AL116	14 Way Safety Vent Nut	1
AL025	Mini Reg Seal Rear 90 S	1	AL117	14 Way Safety Vent Spring	1
AL026	Mini Reg Adjust Piston	1	AL118	14 Way Safety Vent Ball Seal	1
AL027	Mini Reg Adjust Piston Seal	1	AL129	Anti-Double Ball Seal	1
AL028	Mini Reg Piston	1	AL145	Battery Cap Anodized	1
AL029	Mini Reg Large Piston Seal	1	AL146	LPR Chamber Plug Anodized	1
AL030	Mini Reg Spring Stack	10	AL147	Feed Tube Anodized	1
AL033	Mini Reg to Flash Tank Seal	1	AL148	Anti Double Ball Anodized	1
AL034	Mini Reg Ball Bearing	1	AL149	LPR Body Anodized	1
AL035	Mini Reg Circlip	1	AL150	LPR Adjuster Anodized	1
AL037	Flash Tank Feed Pipe Anodized	1	AL151	RAM Cap Anodized	1
AL038	Flash Tank Feed Pipe Seal	1	AL152	RAM Cap Anodized	1
AL039	Flash Tank Fixing Screw	1	AL153	RAM Body Anodized	1
AL040	LPR Chamber Plug Seal	1	AL154	Mini-Reg On Pin Anodized	1
AL043	LPR Piston	1	AL155	Mini-Reg Off Pin Anodized	1
AL045	LPR Piston Seal	1	AL156	Trigger Anodized	1
AL046	LPR Spring Stack	1	AL157	Flash Tank Anodized	1
AL047	LPR Shims	variable	AL159	Barrel Anodized	1
AL052	LPR External Seals	2	AL160	Back Plate Anodized	1
AL054	Battery Chamber Plug	1	AL164	Breech Block Anodized	1
AL057	Battery Bumper	2	AL165	Mini-Reg Anodized	1
AL058	Battery Pack	1			
AL059	Hammer	1			
AL060	Ram Body Seals	3			
AL061	Ram Snap Ring 90 Shore	1			
AL070	Ram Snap Ring Screw	1			
AL071	Breech Block Pivot Screws 4BA	2			
AL073	Breech Block Pivot Pin (FRONT)	1			
AL074	Breech Block Pivot Pin (REAR)	1			
AL075	Breech Block Lock Pin	1			
AL076	Breech Block Lock Pin Spring	1			
AL077	Breech Block Release Knob	1			
AL078	Bolt	1			
AL079	Breech Block Release Knob	1			
AL082	Bolt	1			
AL084	Exhaust Valve	1			
AL086	Exhaust Main Body	1			
AL087	Exhaust Body Lock Pin	1			
AL088	Exhaust Body Seal (REAR)	1			
AL089	Exhaust Body Seal (FRONT)	1			
AL090	Exhaust Valve Spring	1			
AL092	Back Plate Fixing Screws	2			
AL094	LED Lens	1			
AL097	Wiring Loom	1			
AL098	Circuit Board	1			
AL099	Charger	1			
AL100	Circuit Board Fixing Screw	1			
AL101	Isolator Switch Fixing Screw	2			
AL016	Grip Frame Fixing Screws	2			
AL108	14 Way Valve Cover	1			
AL109	Trigger Spring	1			
AL110	Trigger Tensioning Screw	1			
AL111	14 Way Seals	4			
AL112	14 Way Body Anodized	1			



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We carry a complete line of factory replacement parts to keep your LED in new condition.

<http://www.TheAngelGuy.com>