



1 October 2001

**IMPORTANT INFORMATION****PLEASE READ THIS THROUGH BEFORE USING THE MARKER****Sovereign Information Sheet****This marker has been factory set to be used on Regulated Air (or Nitrogen, USA)****with an INPUT PRESSURE of 450/500 p.s.i.**

**A)** It is recommended that a reliable Inline Regulator is used on this Marker, set with an output Pressure of 450/500 p.s.i. ( The AIR SYSTEM should have an output Pressure of 700/750 p.s.i.)

**B)** If using an Air System only, set with an output Pressure of 450/500 p.s.i. from the Air System Regulator. Note that as your tank pressure falls , the pressure coming from the Regulator will rise slightly and could affect the velocity from the marker. (An Inline regulator will help ensure the 450/500 p.s.i. is kept going into the marker !!)

If you are going to use CO<sub>2</sub> then please observe the following: -

**C) USE VAPOUR ONLY: -**

Due to the nature of CO<sub>2</sub> it is very difficult to achieve vapour throughout extreme temperature conditions. So if you choose vapour CO<sub>2</sub> as your power source, then a reliable **Inline Regulator** that allows CO<sub>2</sub> vapour **Must Be Used**. In addition you will need a bottle that has an anti-siphon tube fitted, this will help prevent liquid CO<sub>2</sub> from being drawn into the regulator.

REMOTE SET UP. This configuration takes the bottle off the Marker and will allow gas vapour to be drawn from the top of the bottle. Used in conjunction with a remote expansion system, this should ensure that no liquid would be drawn into the Marker. Note NO anti siphon tube is required on the bottles.

**When using CO<sub>2</sub> the Inline Regulator should be set with an output Pressure of 450/500 p.s.i.**

**IMPORTANT NOTE WHEN USING CO<sub>2</sub>**

In countries where extreme heat is encountered it is advisable to **turn off** the source of CO<sub>2</sub>. This will make sure that the pressure inside the markers valve chamber is not allowed to rise to a high pressure (Sometimes CO<sub>2</sub> can reach as high as 1800 psi !!) which would damage the exhaust valve, and cause firing and velocity problems.

Once you have made sure the gas supply is fitted and working correctly you should be ready to actuate the Marker.



1 October 2001

## IMPORTANT INFORMATION

PLEASE READ THIS THROUGH BEFORE USING THE MARKER

### SAFETY WARNING

**From here on any reference to adjustment of the marker either when in a gassed or ungassed condition should be done with the safety In Mind, of yourself and any one around you. Observe all of the Paintball safety guidelines !!**

**ALWAYS:** Use A Barrel Plug (Use one that actually fits tightly in the Barrel)

**ALWAYS:** Check before Dry firing, you have not got a ball loaded in the barrel. This marker uses a closed bolt system (meaning a ball is loaded into the Barrel after one has been fired) **DO NOT LOOK DOWN THE BARREL** if you are not sure remove the Barrel and **CHECK !!**

#### Setting the Cocking /Firing Action: -

At the front of the marker under the Barrel is the **Cocking Regulator**, this allows regulated pressure to the **3 Way Valve** which distributes the gas to the front/rear of the **Ram Bolt** to move it back and forwards.

At the rear of the **Ram Bolt** is a removable **Cocking Pin**, this connects to the **Cocking Sleeve** on the **Cocking Rod**.

The **Cocking Rod** is connected to the **Hammer**, which is released when you pull the **Trigger** and finally gives the burst of gas to fire the ball.

Setting: - Make sure With gas on and no paintballs loaded to the marker (**SEE SAFETY WARNING**), pull **Trigger** at this point nothing should happen. Turn the knob on the **Cocking Regulator** clockwise, viewed from the front of the Marker till the **Ram Bolt** moves backwards, at this point cycle the **Trigger** so that the **Ram Bolt** moves backwards and forwards. At the same time continue to turn the knob until the marker "cocks and fires" consistently, give the knob a quarter to half a turn more this is all that the **Cocking mechanism** will need.

Any more than this could over Regulate and could damage internal 'O' rings and 'Bump' stops.

If the action is "sticky" remove the **Ram Bolt** and lubricate. (**See Ram Bolt Removal**)

It should not be necessary to Readjust periodically, may I suggest that after a days play you turn the **Cocking Regulator** off so that when you next play You get into the habit of checking and setting this first.

#### **Cocking mechanism Notes :**

(a) *To increase* cocking pressure turn clockwise, viewed from the front of the Marker

(b) *To decrease* cocking pressure turn anticlockwise, viewed from the front of the Marker. You will need to cycle the Marker a few times to settle the regulator

(c) *To turn Off completely* you will have to cycle the **Cocking mechanism** and turn the knob anticlockwise until it is completely degassed.

#### Ram Bolt Removal: -

To remove the Ram Bolt you must first degas the **Cocking mechanism**, you do this by either turning off the Cocking Regulator (see **Cocking mechanism Notes (c)**) or completely degassing the Marker.



1 October 2001

## IMPORTANT INFORMATION

**PLEASE READ THIS THROUGH BEFORE USING THE MARKER**

Once you have done this undo the **Ram Valve Screw** at the top of the Marker, this screw locates into the groove in the **Ram Valve** on the **Ram Bolt**. Then pull the **Cocking Pin** at the rear of the **Bolt**.

The **Bolt** will now slide out, as you remove the **Bolt** take a look at the **Ram Valve** on the **Bolt**. This is the Stainless Steel ring that slides up and down the **Bolt** shaft, it has 2 'O' rings on it with a groove between them. This is the groove that the **Ram Valve Screw** locates into when it's in the Marker.

To refit the **Bolt** and locate it correctly align the slot with the hole in the top and then replace the **Ram Valve Screw** and refit the **Cocking Pin**. Also make sure that the gas transfer port in the **Bolt** is facing down otherwise you won't get velocity!!

### Velocity Adjustment: -

At the rear of the Marker is the **Anti-Tamper Block**, which is now one piece and does not move as with the earlier version.

To the left of this block is situated the **Velocity Adjustment Screw** (a 2mm Allen key fits this (supplied) )

To Raise Velocity, turn screw clockwise (inwards).

To Decrease Velocity, turn screw anti-clockwise (outwards).

### NOTE

Due to the angle of the screw in the block there is only a certain amount of adjustment before the screw runs into the **Cocking Rod**, this will lock the action of the **Cocking Rod**. ( This is about 7 complete turns )

If this happens then simply back off a complete turn, which will allow the action to resume.

If the velocity is not enough after doing this, change the main spring to a harder one than the one you are using. This will allow for more adjustment at the screw.

### TIP

Before actually changing the spring, it would be advisable to check the following in this order :-

- 1) That your tank is full (Air Or CO<sub>2</sub>)
- 2) And the AIR System Regulator attached is set with an output pressure of 700/750 p.s.i
- 3) Output from inline Regulator is 450/500 p.s.i
- 4) That the Barrel / Paint Combination is correct; if paint is small it will need more of a gas burst .If the ball rolls out of the end of the barrel this is a good indication that the paint is small.

This marker is fitted with a **Breach Adapter** (the silver bit between the body of the marker and the Barrel). If the paint falls through this standard barrel set-up you will need to try a smaller size.

### **Three sizes are supplied (The barrel now has a Spyder thread)**

1 Small 2 Medium 3 Large and are marked progressively as follows:

1 = No ring next to thread

2 = one ring next to thread

3 = two rings next to thread

### Hammer Removal: -

To change the **Main Spring** , you will need to remove the **Hammer Assembly** .

*(This consists of Hammer, set screw, cocking rod > bumper > and knob, main spring, cocking slider, anti-tamper block, cocking rod retaining screw ,velocity adjuster inner and velocity adjusting screw Undo the back and the front strip screw.)*

The **Hammer Assembly** can now be removed from the back of the Marker.



1 October 2001

## IMPORTANT INFORMATION

**PLEASE READ THIS THROUGH BEFORE USING THE MARKER**

To separate the **Cocking Rod** from the **Hammer** you will need to use a 2mm allen key to undo the **Cocking rod Retaining Grub Screw**, this is the smaller of the two screws in the **Hammer**. Once you have removed this grub screw the **Cocking Rod** will now pull out.

You can now swap the Main Spring to the one you require.

### *Notes on reassembly*

**Make sure** the cocking slider “long end “ is towards the back of the Marker.

The cocking rod pushes in to the Hammer and is held in place by a grub screw that locks into a groove in the cocking rod.

**Make sure** that groove is aligned with the grub screw hole in the Hammer before you tighten down the grub screw.

### **‘Q’ Nector: -**

This allows quick and easy disassembly of the marker

**The Hardline** (the tube that runs from the cocking regulator to the **3 way valve**) simply slides out of the **Q** nector.

Inside the **Q nector** is an o- ring (006) which is held in place by the o- ring retainer.

This can be removed using a 4mm allen key.

**NOTE:** When replacing the o- ring, screw the o- ring retainer in until the face is flush of the **Q Nector**.

There are two **Q Nectors**, one on the cocking regulator and one **3-way valve**, each held in place by a **bungey screw**. The **bungey screw** has an o-ring at the screw slot end (bungey O ring 3x1) this passes through the **Q Nector**. Between the flat side of the **Q Nector** and the **regulator /3way** goes a 006 o-ring.

**WARNING:** Do not over tighten.

All that is required to create a seal here is for the o- ring to be slightly squashed.

If you have a leak here is a simple checklist.

- 1) Nip up screw whilst gassed up.
- 2) De gas **regulators** (**See cocking mechanism notes (c)**) **unscrew Q Nector** and check o- ring for damage. Change if necessary. Refit again checking that the o- ring is just slightly squashed.
- 3) Re gas regulator. To Set Up The Cocking/ Firing Action.