

# ***PRO-TEAM PRODUCTS***

## ***WARP FEED MANUAL***

### ***VERSION 1.3***

## PRO-TEAM PRODUCTS WARP FEED MOUNTING KIT INSTRUCTIONS

### Overview

The Warp Feed is a 'Force Feed' paintball loading device. It uses a "friction drive" to move balls from the feeder into the gun. Because any portion of the friction drive wheel can grab a paintball, and because the drive wheel slips harmlessly past paintballs when necessary, ball jams and breaks are almost entirely eliminated. How It Works: The Warp Feed incorporates one of several different devices for sensing when the paintball gun has been fired. When a signal that the gun has been fired is received by the Warp Feed, the drive motor is activated, turning the feed wheel, which spins for a preset amount of time, pushing paintballs into the gun's feed tube. When the sensor no longer receives a signal, the feed wheel slips past the balls and then pauses, waiting for the next shot signal. Battery Life: The Warp Feed system uses special MOSFET technology that eliminates the need for an on/off switch. The battery only supplies power to the system when it receives a signal to feed balls. For very long storage disconnect your battery.

### Components

The Pro-Team Warp Feed Mounting Kit is designed to work with a variety of different guns, such as Micromag 2000, E-Mag Micro 2000, STO, f/x STO, Rainmaker, Model 98, Angel, Bushmaster, Defiant, Intimidator, Autococker, Micromag, Shocker, Spyder and Spyder clones and most other guns.

Each kit comes with the following components

- 1 Warp Drive
- 1 Pro-Team Warp Feed Gun adapter
- 1 parabolic plug
- 1 length of Warp hose
- 1 Hose-to-Warp Feed adapter
- 1 Hose-to-Gun adapter
- 1 mounting bracket (two pieces)
- 2 threaded vertical adapters
- 1 roll of teflon tape

### Parts Description

Flexible feed hose: corrugated trimmed gray plastic hose approximately 16" in length

Mounting Bracket Assembly: two-piece bracket with integrated sensor

Parabolic Feed Plug: specially designed feed plug

Hose-to-Warp adapter: tapered adapter for attaching the hose to the Warp Feed (Lower adapter)

Hose-to-Gun Adapter: cylindrical adapter for attaching the hose to the gun or Warp Feed Gun Adapter (Upper adapter)

Warp Feed Gun Adapter (1" ID or 7/8" OD): aluminum 'T' junction adapter that fits into a 1" feed tube or over a 7/8" feed tube

Threaded Vertical Adapter: one or more threaded adapters for replacing the vertical feed on guns such as Angel, Bushmaster or Intimidator.

### Quick Start Installation

Please see the remainder of this manual for detailed instructions. It is strongly recommended that you review the entire manual prior to installation.

1. Determine the required length of hose, cut and trim to the desired length
2. Insert one end of the hose into the Hose-to-Warp adapter
3. Insert the other end of the hose into the Hose-to-Gun adapter
4. Attach the Warp Feed to the mounting bracket
5. Attach the mounting bracket to the grip frame
6. Attach the Hose-to-Warp adapter to the Warp Feed
7. Attach the Warp Feed Gun Adapter to the feed port on the gun. (Some vertical feed guns will require the removal of the existing feed port and replacement with the proper threaded vertical adapter.)

3

8. Attach the Hose-to-Gun adapter to the Warp Feed Gun adapter
9. (For Powerfeed guns): Attach the Hose-to-Gun adapter directly onto the top of the powerfeed.  
Replace the stock feed plug with the Warp Feed Parabolic plug
10. Adjust the hose pathway by rotating the Warp Feed Gun Adapter
11. Tighten the set screw on the Warp Feed Gun Adapter (for adapters which fit over the outside of the feed port)
12. Insert the Parabolic Plug into the Warp Feed Gun Adapter
13. Attach an agitating loader to the Warp Feed
14. Insure that working batteries are loaded into the Warp Feed

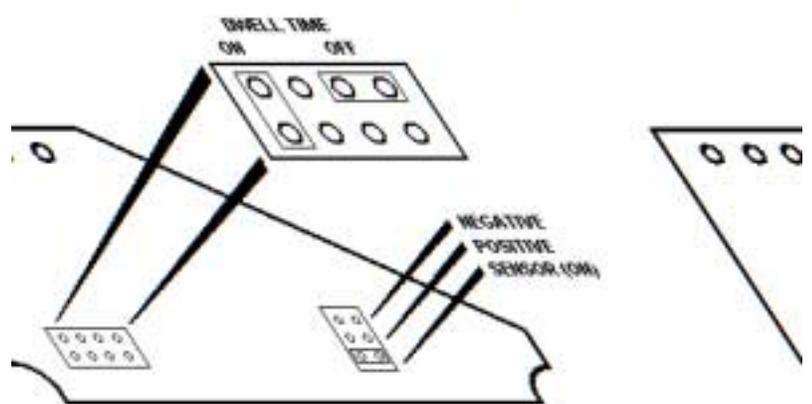
### What you need to make it work

When using the Warp Feed the balls are being PUSHED into the breach. Because of this it becomes very important that you use the specially designed Parabolic Power Feed Plug supplied with your unit if you are mounting it on a Power Feed gun. A standard Power Feed Plug CAN NOT be used with the Warp Feed. It is also important to insure that the gun and/or barrel being used has a good ball detent system or nubbin (anti-doubling device). This can be tested by pushing a ball past the detent with a finger; if there is little or no resistance, the Warp Feed may double feed balls which can lead to ball breakage.

### Jumpers

**It is NOT necessary to adjust the jumpers of your Warp Feed for normal installation and operation.**

There are two sets of jumpers on the circuit board which can be found under the black cover plate located on the side of the unit towards the rear. (The cover plate is roughly triangular in shape and is retained with three screws.) **Sensor Jumper:** The first jumper is used to select the firing signal sensor type being used. This jumper has three positions labeled '-', '+', and 'sens.' The 'sens' position activates the built in sensor that reacts to the gun's vibration when fired and requires no further interface. **PTP Universal Warp Feed kits are factory preset for the 'SENS' setting.** This works best on guns with blowback and may have problems with guns that don't have enough vibration. (Other sensor types and settings may be available in the future.) **Dwell Time Jumper:** The second jumper is used to control the Feed Wheel's dwell or 'spin' time. This jumper has four positions. When shipped, the jumpers are arranged in a non-functional position. These jumpers control the length of time the feed wheel spins after it receives a signal from the gun. Adding jumpers DECREASES the amount of time the wheel spins. The position of any jumpers added does not matter – each jumper decreases spin time an equal amount. **Setting Dwell Time:** The feed wheel should spin continuously when the gun is being fired at the shooter's maximum rate of fire. To get reliable feeding with maxim battery life, set the feed wheel to spin at its shortest possible rate. Store the jumpers in a safe place when they are not in use. Note that it is generally not necessary to change or adjust the Dwell jumpers in most applications.



### Vibration Sensor

The Warp Feed comes equipped with a vibration sensor integrated into the mounting bracket. This sensor allows the Warp Feed to be used with non-electronic paintball guns. The sensor picks up the vibrations caused by the cycling of the gun and causes the feed wheel to rotate. Because different guns have differing amounts of vibration, a sensitivity adjustment has been built into the circuit board. **Setting the Sensitivity:** To adjust the sensitivity, remove the protective plug located on the cover plate. Insert a small,

flathead screwdriver through the hole and turn the adjustment screw. To INCREASE sensitivity, (for guns which have only a small amount of vibration) turn the adjustment screw clockwise until the motor spins, then slowly turn it counter-clockwise until it stops. This setting may result in the feed wheel spinning unnecessarily. To perform fine adjustment, fire the gun and continue to rotate the adjustment screw counterclockwise until the Warp starts missing shots. The most efficient setting will be about half way between the 'most sensitive' setting and the 'missing shots' setting.

### **Run In**

The Warp Feed's electric motor has carbon brushes that spark when new. This sparking creates electrical noise that can activate the firing sensor. When using the sensor system on a brand new Warp which is adjusted to maximum sensitivity, the motor may run continuously. After a short run in period this will stop.

The quickest way to break in the brushes is to turn the sensitivity adjustment clockwise until the motor spins, then back off slightly by turning counterclockwise. Let the motor spin until it stops (this should last several minutes). Repeat this procedure several times to 'break-in' the brushes.

### **Maintenance**

The Warp Feed requires little or no maintenance beyond a few simple precautionary measures. Doing the following on a routine basis will insure a long operating life:

Lubricate the feed wheel, shaft and gears with any good quality grease. (Remove the cover plate to perform this procedure.)

Replace the o-ring drive belt once or twice a year to maintain reliable operation. (Remove the cover plate to perform this procedure: the drive pulley can be lifted out of the Warp Feed to remove/replace the o-ring.)

Occasionally clean the inside of the case to prevent build up of grime that may interfere with the gearing. (Remove the main body screws to gain access to the interior of the Warp Feed.)

### **Batteries**

The Warp Feed offers several options for battery power. A single 9-volt battery is recommended. Some Warp Feeds may be shipped with a battery clip for four AA batteries. These batteries provide six volts to the Warp Feed and should provide sufficient power to operate the Warp Feed with most standard guns and are the best battery value. Higher voltages will spin the feed wheel faster allowing for very fast firing rates, and may be necessary with some 'high-tech' electronic paintball guns. The battery clip can be replaced with a nine-volt alkaline battery which will keep up with feed rates of well over 10 BPS. It is suggested that a 9-volt battery be stored in the compartment next to the batteries being used so that the batteries can be replaced quickly when on the field. An optional rechargeable battery pack (10-volt output) is also available, see a dealer for availability. Warning: At no time should more than 12-volts be supplied to the circuit board. Voltages in excess of 12-volts will cause damage to the circuit board. Increasing Battery Life: There is no on/off switch because the components are all voltage controlled and use very little current. Leaving the battery connected to the circuit will result in a drain of about 4 volts per month. Remember to disconnect the battery prior to long term storage.

### **Integrated Sensor Mounting Bracket**

The Warp Feed kit comes supplied with a two-piece articulated mounting bracket, which allows the Warp Feed to be attached to the grip frame of the gun in a variety of configurations. Additionally, the mounting bracket is designed so that it can be attached directly to the grip frame, with or without either a bottomline or mounting rail.

The portion of the Warp Feed bracket which attaches to the grip frame is designed for STANDARD grip frames; some grip frames (such as the Spyder) may require a 'bottom-line' adapter in order to attach the bracket to the frame.

### Adjusting The Warp Feed Mounting Bracket

To adjust the Warp Feed Bracket (both the length of the bracket and the angle), loosen the two set screws which connect the two bracket halves, adjust the bracket to the desired configuration and then re-tighten the screws.

### Additional Adjustments

A 'tighter' fit of the Warp Feed (moving it closer to the gun) can be achieved on some guns (Angel) by removing one of the adjusting screws which connects the two halves of the mounting bracket. This allows the Warp Feed and loader to be moved closer to the gun. It is recommended that the adjusting screw which is closest to the gun be removed. Later versions of the bracket have an additional screw hole provided for this 'tighter' configuration.

### **Feed Hose**

A section of feed hose and two adapters have been provided to attach the Warp Feed to the feed port of the gun. Because this adapter kit is designed to fit a variety of different guns, the hose will need to be cut to length. The proper length of hose will depend on the manner in which the Warp Feed is attached to the gun and on the type of gun and feed port that is being used. It is strongly suggested that the hose be 'test fit' before cutting it to length and to cut the hose longer than desired the first time it is cut.

Please note that there are many different ways in which the feed hose, adapters and Warp Feed can be arranged on any gun. To test fit the feed hose, arrange the Warp Feed and the adapters which will be used in the desired manner. Then test fit the hose for length.

There are also two adapters provided with the hose. The Hose-to-Warp (Lower) adapter is used to attach the feed hose to the Warp Feed. The Hose-to-Gun (Upper) adapter is used to attach the hose to either Pro-Team Products' Warp Feed Gun Adapter or directly to the gun's feed port.

To install the hose: **[Please note:** There are now NEW style hose adapters and new hose being supplied with Universal Warp Feed Kits. Old style hose (black and gray) will NOT fit in NEW adapters without kinking and preventing balls from feeding properly. While all new kits are being shipped with new stule adapters and new style hose, some customers may obtain parts separately. Please check which style hose you are currently using and use the proper adapters.] Cut the hose at least one inch longer than needed. To cut the hose, use a sharp razor blade or utility knife. Note that some hoses come with a reinforcing wire and may require the use of wire cutters.

Insert one end of the Feed Hose into the Hose-to-Warp adapter. This should be twisted in as far as it will go, but should not be crushed or kinked inside the adapter. To insure a proper fit: if the hose is loose in the adapter, remove the hose from the adapter. For gray and black hose, wrap the end of the hose in electrical tape and then re-insert it. Repeat this procedure until there is a snug fit between the adapter and the hose. For all gray hose, place two layers of teflon tape around either end of the hose (wrap the teflon tape completely around the hose twice.) Next, inspect the end of the hose by looking through the adapter.

The portion of the hose inside the adapter should not be compressed or crushed. If it appears to be compressed or crushed, rotate the hose inside the adapter clockwise until there is a smooth path inside the hose. The hose should also be free from flash or obstructions. If a piece of hose is blocking the adapter, remove the hose and trim it smooth with a razor blade or utility knife. Press the other end of the hose into the larger diameter end of the Hose-to-Gun adapter. Inspect the end of the hose inside the second adapter for fit and wrap with electrical tape as necessary. Inspect the hose fit to the adapter as well for compression or crushing and for flash and obstructions.

To fully test the flow of paintballs through the feed hose and adapters, drop paintballs through the adapter (do this for both ends of the hose) into the hose. When the adapters are fitted properly to the hose, the paintballs should drop straight through the adapter, into the hose and out the other adapter without hesitation.

The Hose-to-Warp adapter is then inserted into the receptacle in the top of the Warp Feed farthest away from the battery compartment. Note that attaching this adapter to the Warp Feed may require loosening the two body retaining bolts closest to the adapter receptacle.

The Hose-to-Gun adapter may be attached in one of several different configurations, which are determined by model of gun, the type of feed on the gun and user preference.

## **Straight Feed and Power-Feed Style Guns**

There are two basic set-ups for straight feed - such as the Autococker - and power-feed style guns – such as the Spyder – the low-profile set-up and the standard set-up.

### Direct Set-Up

Note that this set-up may not work with all guns.

Attach the Hose-to-Gun adapter directly to the top of the powerfeed tube or straight feed tube.

(For powerfeed guns) Remove the powerfeed plug from the powerfeed and replace it with the Parabolic plug.

### Low Profile Set-Up (Recommended)

Attach the Warp Feed Gun adapter to the feed tube on the gun. Hand tighten this into position using the set screw located on the side of the Warp Feed Gun adapter.

Attach the Hose-to-Gun adapter to the Warp Feed Gun adapter.

Attach the Hose-to-Gun adapter to the feed port on the gun.

Adjust the hose pathway by loosening the set screw on the Warp Feed Gun adapter and rotating it. Once the hose is lined up so that there is a smooth, un-kinked pathway between the Warp Feed and the feed port, tighten down the set screw.

Note that when using the Warp Feed Gun adapter on guns equipped with powerfeeds, it will be necessary to replace the powerfeed plug with an additional Parabolic plug. Additional plugs can be obtained from Pro-Team Products.

## **Vertical Feed Style Guns**

### Low-Profile Set-Up (recommended)

Some vertical feed guns have non-removable feed tubes. For these guns, follow the procedure below:

Mate the Warp Feed Gun Adapter to the vertical adapter: for vertical adapters which have a 7/8" OUTER diameter, place the Warp Feed to Gun Adapter over the vertical adapter. Tighten down the Warp Feed Gun Adapter by using the set screw provided.

For vertical adapters which have a 1" INNER diameter – remove the set screw from the Warp Feed Gun Adapter and place the Warp Feed Gun Adapter inside the vertical adapter. Mate the Warp Feed Gun Adapter to the desired position.

Attach the Hose-to-Gun adapter onto the Warp Feed Gun adapter.

Some vertical feed guns, such as the Angel or Bushmaster have a removable feed tube. For this kind of gun, use the following procedure:

Remove the feed tube by unscrewing it from the gun. (Note that you can damage the gun or the feed tube if this is not done properly. The feed tube may have to be heated prior to removal: please see a qualified airsmith to perform this operation.)

Screw the Threaded Vertical adapter into the gun. A drop of BLUE loctite is recommended to keep the adapter in place.

Place the Warp Feed Gun Adapter over the Threaded Vertical adapter. Rotate the Warp Feed Gun Adapter to the desired position. Tighten down the Warp Feed Gun Adapter by using the set screw provided.

Attach the Hose-to-Gun adapter onto the Warp Feed Gun adapter.

#### Direct Set-Up

Remove the feed tube by unscrewing it from the gun. (Note that you can damage the gun or the feed tube if this is not done properly. The feed tube may have to be heated prior to removal: please see a qualified armsmith to perform this operation.)

Attach the Hose-to-Gun adapter directly to the Threaded Vertical adapter.

Loosen the set screw on the Warp Feed Gun adapter and rotate it so that the hose has a smooth pathway from the Warp Feed into the adapter.

Tighten the Warp Feed Gun adapter set screw.

#### 1" ID Feed Ports

Use the following procedure for guns with feed tubes that have a 1" INNER diameter.

Remove the set screw from the Warp Feed Gun Adapter.

Place the Warp Feed Gun adapter inside the vertical feed tube. An o-ring spacer has been placed on the outside of the neck of the Warp Feed Gun adapter to insure a tight fit between the adapter and the feed tube. Attaching the tube may require that it be 'twisted' into place.

Attach the Hose-to-Gun adapter onto the Warp Feed Gun adapter.

Rotate the Warp Feed Gun adapter until the hose runs from the Warp Feed to the gun in a smooth pathway.

Note: The feed hose is very flexible. To insure that it works properly, the hose must have a path from the Warp Feed to the feed port adapter which is free from sharp bends or kinks. The Feed Hose should also be attached in such a manner that the position of the Warp Feed can be adjusted as needed.

**WARNING:** When trimming the feed hose for the first time, it is best to leave at least an extra inch of length and to test fit the hose BEFORE cutting.

#### **Parabolic Plug Adjustment**

The parabolic plug is provided with two screws for adjusting its depth. It may be necessary to adjust the plug in order to insure that balls will flow smoothly into the gun.

In order to adjust the fit of the parabolic plug, it will be necessary to fire the gun and observe the operation of the Warp Feed.

If paintballs appear to hang or hesitate, pull the plug out slightly by turning the adjustment screws clockwise.

### Hopper

Only agitating loaders - such as the Viewloader series – are recommended. Non-agitating loaders are incapable of supplying the high feed rates required by most guns. Attaching the Loader: The Loader is attached to the Warp Feed by sliding the loader neck into the hole located in the top of the Warp Feed which is closest to the battery compartment. If the loader neck fits loosely, it is recommended that the loader spreader be used. To install the Loader Spreader, remove the loader from the Warp Feed, insert the Loader-Spreader inside the neck of the loader and then re-attach the loader to the Warp Feed. Note: The Loader-Spreader has two different outer diameters (small and large). If the loader remains loose after installing the spreader, remove the spreader and insert the opposite end into the loader.

### Automag Bodies

Contact your dealer, AirGun Designs Inc., or Pro-Team Products for kits designed specifically for the Automag family of guns.

### Operation

Insure that there are charged batteries in the battery compartment (either four AA or one 9-volt)

Attach the sensor lead to the Warp Feed by plugging it into the socket in the bottom of the Warp Feed electronics compartment.

Insure that there are batteries in the loader and that it is operating properly. Place paintballs into the loader. Turn the loader on.

Pre-load the Warp Feed by pressing the loading switch on the bottom of the Warp Feed.

Insure that there is a complete line of balls from the Warp Feed into the breech of the gun.

The Warp Feed is now ready to rock.

### TROUBLE SHOOTING GUIDE

Symptom	Solution
Warp Feed wheel does not rotate when empty	Check the batteries and replace where necessary
Warp Feed wheel does not rotate when loaded	Check the batteries and replace where necessary Check the sensor connection and insure that the sensor plug is attached firmly Adjust the sensitivity of the sensor Check the feed hose and adapters for kinks, sharp bends or obstruction
The Warp Feed spins but balls do not load into the gun	Adjust the depth of the parabolic plug Check the hose for kinks Check the hose for obstructions Check for out-of-round paintballs
The Warp Feed spins but balls are not loading into it from the hopper	Check the hopper batteries, replace where necessary Insure that the hopper is loaded Insure that the agitator is working properly

### Additional Information

Pro-Team Products has established a Warp Drive Section on its web-site at [www.proteamdirect.com](http://www.proteamdirect.com). Illustrations of Warp Drive assembly, alternate configurations and new Warp Drive products can be found there.

9

For assistance or repairs, please call Pro-Team Products at (904) 437-3375.