



## NINJA HIGH PRESSURE FILL STATION V2 OWNER'S MANUAL

JULY 2019

Part Number: HPFSV2

TECHNICAL SUPPORT VIDEOS AVAILABLE AT OUR YOUTUBE CHANNEL : NINJA PAINTBALL OFFICIAL

### PROUDLY MADE IN THE USA!

Maintenance Kit Included

Patent Pending

### SPECIFICATIONS

MAX INPUT PRESSURE	6000 PSI
MAX RATED OUTPUT PRESSURE	5000 PSI
RANGE OF ADJUSTMENT	0 – 5000 PSI
GAS COMPATIBILITY	NITROGEN or HIGH PRESSURE AIR (HPA)
CGA FITTING	CGA 677 LEFT HANDED THREAD CONNECTION FOR BULK TANK OPPOSITE END FOR FILL STATION ¼" -18 NPT (4501-6000 PSI Nitrogen)
STANDARD GAUGES	BULK TANK 0-6000 PSI 1/8-27 NPT OUTPUT 0-6000 PSI 1/8-27 NPT
FILL ADAPTOR	STAINLESS STEEL FOSTER 5000 PSI RATED "QD" TYPE

#### **NOTE 1:**

- **THE FILL STATION IS INTENDED FOR USE WITH NITROGEN, HPA (HIGH PRESSURE AIR), AND ANY OF THE OTHER COMMONLY AVAILABLE INERT GASES.**
- **UNDER NO CIRCUMSTANCES SHOULD THIS FILL STATION BE USED WITH OXYGEN!!!**
- **THIS UNIT IS ALSO NOT CERTIFIED FOR USE WITH COMBUSTIBLE, CORROSIVE, OR TOXIC GASES.**

#### **NOTE 2:**

- **THE FILL STATION IS DELIVERED WITH A 5000 PSI STAINLESS STEEL "QD" STYLE FILL ADAPTER TO ALLOW THE ATTACHMENT OF THE SYSTEMS TO BE RECHARGED. THIS IS BY FAR THE MOST COMMON ADAPTER, AND IS IN WIDESPREAD SERVICE ON MOST SYSTEMS CURRENTLY ON THE MARKET. THE USER MUST BE AWARE THAT THIS QD IS RATED FOR A 5000 PSI WORKING PRESSURE, AND MUST ONLY BE REPLACED WITH A 5000 PSI RATED QD! CALL 815-477-0007 FOR REPLACEMENT QDS.**

### **WARNING:**

**DO NOT HOOK UP YOUR HIGH PRESSURE FILL STATION UNTIL YOU HAVE READ AND UNDERSTOOD THE SETUP PORTION OF THIS MANUAL. ALWAYS WEAR SAFETY GOGGLES WHEN WORKING WITH HIGH PRESSURE GAS!!**

## SETUP

### 1. **THE FIRST STEP IS TO PROPERLY SECURE THE SUPPLY CYLINDER TO PREVENT TIPPING.**

- This can be accomplished by chaining the cylinder to a wall or post or by securing the tank in a commercially available safety skid.

### 2. **ATTACH THE FILL STATION TO THE BULK TANK YOU ARE USING FOR YOUR GAS SUPPLY.**

- Before attempting to do this, verify that your fill station is equipped with the correct CGA fitting for the type of supply tank you plan on using. (If there is a question regarding the CGA type of a given cylinder, look at the valve on the bulk tank. The CGA number should be stamped into one of the wrenching flats on the valve. EXAMPLE 677)

Once you have confirmed that you have the correct fitting, you can now attach your fill station to the supply cylinder. (It should be noted that some of the CGA thread standards use left handed threads. **THE CGA 677 SUPPLIED WITH YOUR FILL STATION IS LEFT HANDED THREAD TURN COUNTER CLOCKWISE (LEFT) TO INSTALL TO BULK TANK VALVE**) **Do not use excessive torque when tightening the CGA fitting. Tighten the fitting COUNTER CLOCKWISE only enough to eliminate any leaks. Remember; most of the cylinder valves are brass, and can be damaged by excessive torque.**

### 3. **ONCE YOU HAVE YOUR FILL STATION CONNECTED:**

- Make sure the control knob is turned all the way up or counter clockwise and then test the connection by SLOWLY turning on the valve on the supply cylinder.
- You should hear no leaks or flow after the initial hiss.
- If gas starts to flow out of the fill connection, turn the control knob on the Fill Station counter-clockwise until the flow stops.
- This can occur if someone has turned the control knob too far clockwise prior to you connecting the Fill Station to a gas source.

## **KNOW THE BOTTLE YOU'RE FILLING!**

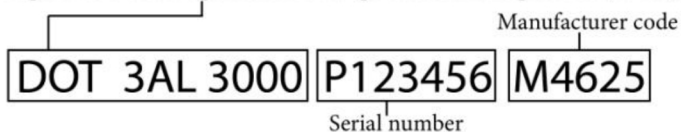
In order to properly fill a high pressure bottle, you need some basic information, all of this information comes right off the label and the stamped markings on the bottle. Because there are Federal Standards involved, this information is found in the form of a standard data line. An example taken from an aluminum bottle is shown below.

## ALUMINUM HPA MANUFACTURERS STAMP



SHOULDER OF ALUMINUM BOTTLE

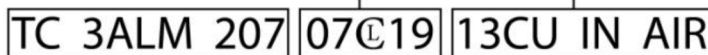
Department of Transportation build specification and pressure (in PSI)



Manufacture Date

Month and Year

Size and gas



Transport Canada build specification and pressure (in BAR)

## CARBON FIBER HPA MANUFACTURERS LABEL

DOT - SP14387 - 4500

Department of Transportation build specification and pressure (in PSI)

TC 3CCM 310

Transport Canada build specification and pressure (in BAR)

W123456

Serial number

M4625 07 19 REE: 20.4

Manufacturer code, Manufacture Month and Year, Hydro test specifications

GC9477SSL - D24450A

Manufacturer lot code information

### The first information you need is the production date on the bottle.

- In the United States, it is Federal Law that any gas storage vessel over two inches in diameter must be periodically re-tested. Depending on the type of bottle, and the manufacturer, the re-test period may be either three or five years. As a fill operator, the very first thing you should check is the date on the bottle. As you can see in our example, our aluminum bottle was born in October of 2017. This particular bottle has a five year re-test interval, so it would be illegal to refill this bottle after October of 2022. (At least until it had been re-tested and re-marked.) **NOTE: SOME OF THE FIBERGLASS AND CARBON FIBER BOTTLES REFERENCE THE DATE WHEN THE BOTTLE IS TO BE RETESTED.**

**The next piece of information you want is the Working Pressure Rating.**

As you can see, this information is also present in the data line on the bottle.

- REFER TO THE LABEL ON THE BOTTLE FOR PRESSURE RATING AND TEST DATES.
- UNDER NO CIRCUMSTANCES SHOULD YOU FILL AN OUT-OF-DATE BOTTLE!
- NEVER EXCEED THE PRESSURE RATING OF THE BOTTLE!!!
- EXAMINE THE BOTTLE FOR DENTS, GOUGES OR OTHER SIGNIFICANT DAMAGE. DO NOT FILL A BOTTLE THAT HAS BEEN ABUSED OR DAMAGED.

For more information, consult the Compressed Gas Association pamphlets C-6, C-6.1, & C-6.2.

These are available online at [WWW.CGANET.COM](http://WWW.CGANET.COM).

**WARNING**

**IF YOU FIND THAT THERE IS NO MARKING ON THE BOTTLE OR THE LABEL HAS BEEN OBSCURED, DO NOT FILL THE BOTTLE!**

**THE OPERATING CONTROLS**

**A DESCRIPTION OF THE OPERATING CONTROLS FOLLOWS. DO NOT HOOK UP YOUR HIGH PRESSURE FILL STATION UNTIL YOU HAVE READ AND UNDERSTOOD THE SETUP PORTION OF THIS MANUAL.**

**THERE ARE TWO USER CONTROLS ON THE FILL STATION.**

- Output Pressure Adjustment
- Control Knob.

**YOUR FILL STATION IS EQUIPPED WITH TWO GAUGES**

- DELIVERY PRESSURE (Labeled "OUTPUT " on the Fill Station body)
- How Much Gas Is Left In Your Supply Cylinder (Labeled "BULK " on the Fill Station body.)

**OUTPUT PRESSURE ADJUSTMENT:**

- The Output Pressure Adjustment allows the operator to set the pressure that will be dispensed.
- It is located on the top of the Fill Station, next to the control knob, and is set with a 1/8 inch Allen key.

**THE CONTROL KNOB:**

- The Control Knob is a single control that manages both the gas delivery to the system to be filled, and the purging of the fill line to allow disconnection.

**NOTE: DO NOT OVER-RANGE THE CONTROL KNOB! DAMAGE TO THE CONTROL VALVE CAN RESULT!**

**THE MAXIMUM PRESSURE DELIVERED BY THE FILL STATION IS ALWAYS DETERMINED BY THE PRESSURE IN THE BULK TANK. THE BULK TANK PRESSURE MUST BE GREATER THAN THE OUTPUT SETTING ON THE FILL STATION.**

**ONCE YOUR FILL STATION HAS BEEN CONNECTED TO THE BULK TANK AND PRESSURIZED, YOU CAN NOW SET THE DELIVERY PRESSURE.**

- Using a 1/8 Allen key, slowly turn the Delivery Pressure Adjustment clockwise until the output gauge shows the desired fill pressure. **DO NOT EXCEED THE PRESSURE RATING ON THE BOTTLE YOU ARE FILLING**

- Do not over-adjust, as this will cause damage to internal regulator system resulting in leaks.
- Remember: You cannot dispense more pressure than the "Bulk Tank" gauge indicates!
- Once the pressure is set to the output pressure you desire TURN THE CONTROL KNOB CLOCKWISE to release a small amount of air. This will cause the output pressure gauge to move.
- Reset the output pressure and repeat the release of air until the output pressure gauge adjusts to the pressure set after the air is released.
- If the unit is to be used for long term regulation check the unit regularly as the pressure can creep up or change due to wear and contamination.

#### **IF YOU NEED TO REDUCE THE OUTPUT PRESSURE,**

- Turn the Delivery Pressure Adjustment counter-clockwise.
- **WHEN REDUCING PRESSURE, THE OUTPUT GAUGE WILL NOT SHOW THE TRUE LOWER PRESSURE READING UNTIL YOU HAVE ALLOWED THE GAS FROM THE PREVIOUS SETTING TO VENT BY USING THE CONTROL KNOB!**

**PRIOR TO HOOKING UP A SYSTEM TO BE RECHARGED, IT IS GOOD POLICY TO VERIFY THE RATING ON THE BURST DISK, AND TO CONFIRM THAT THE VENT HOLES LOCATED ON THE SIDE OF THE BURST DISC IS UNOBSTRUCTED.**

## **BURST DISK REPLACEMENT**

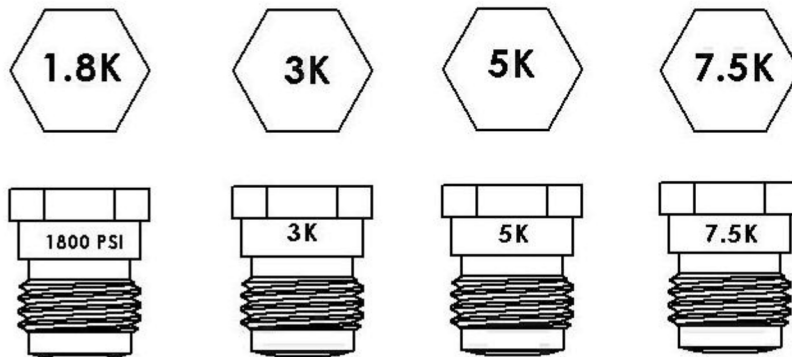
ASTM compliant Unified Burst Disks are used on paintball / PCP regulators and CO2 valves for both the D.O.T. (Department Of Transportation) required bottle protection and downstream over-pressure protection.

**THE 3000 PSI (3k) BURST DISC IS FOR CO2 BOTTLES ONLY!!!**

#### **Four (4) most common burst disc.**

- 1) **1800 PSI.** used for downstream over-pressure safeties on regulators.
- 2) **3000 PSI.** used for the D.O.T. required safety on CO2 storage bottles.
- 3) **5000 PSI.** used for the D.O.T. required safety on 3000 PSI N2/HPA storage bottles.
- 4)
- 5) **7500 PSI.** These are used for the D.O.T. required safety on 4500 PSI rated N2/HPA storage bottles.

**▲ WARNING SERIOUS PERSONAL INJURY OR DEATH FROM IMPROPER DISC**



**REPLACEMENT IT IS ABSOLUTELY ESSENTIAL THAT YOU ONLY REPLACE FAILED UNITS WITH EXACT REPLACEMENTS!!! ASTM UNIFIED BURST DISC HAVE THE PRESSURE**

**IDENTIFICATION STAMPED ON THE HEAD OF THE DISC. SOME DISC MAY HAVE THE PRESSURE IDENTIFIER ON THE SIDE OF THE DISC. SEE ILLUSTRATION above. If you are unsure do not guess see a qualified airsmith or call 815-477-0007 for assistance.**

- **To replace a Unified Burst Disk Assembly**
- Unscrew the failed unit, and discard it. **BURST DISC'S ARE NOT SERVICEABLE.**
- Visually inspect the port for damage or debris and blow out if necessary. **IF THE PORT IS DAMAGED, DO NOT REPLACE THE DISC. CONSULT AN AIRSMITH OR CALL 815-477-0007 FOR ASSISTANCE.**
- Screw in the new replacement unit and torque to a minimum 55 inch-pounds and maximum 95 inch-pounds. **UNIFIED BURST DISC MUST BE ASSEMBLED WITH AN INCH POUND TORQUE WRENCH!**

**If the Burst Disk Assembly does not seal at 95 inch-pounds, the valve should be inspected by an airsmith or call 815-477-0007 for assistance**

### **CONNECT THE BOTTLE TO BE RECHARGED**

- Connect the bottle to the QD, and make sure that the QD has properly locked on the fill nipple.
- Turn AND HOLD the Control Knob clockwise until you hear the flow of gas start.
- Turn AND HOLD the Control Knob approximately ¼ turn further, and wait for the sound of the gas flow to stop.
- Once you hear the flow cease, turn the Control Knob counter-clockwise until you hear the connection vent down.
- Once the venting has ceased, you will be able to disconnect the system from the fill station.

### **WARNING:**

- **IF YOU ARE NOT ABLE TO EASILY UNLOCK THE QD, IT IS AN INDICATION THAT PRESSURE MAY STILL BE PRESENT.**
- **TURN THE CONTROL KNOB COUNTER-CLOCKWISE ALL THE WAY UP TO ALLOW COMPLETE VENTING OF THE FILL STATION.**
- THE FILL STATION'S INTERNAL REGULATOR CONTROLS THE PRESSURE BEING DELIVERED TO THE SYSTEM, SO THERE IS LESS OF A POSSIBILITY OF AN ACCIDENTAL OVERFILLS.
- EVEN THOUGH THE CONTROL KNOB CONTROLS THE GAS FLOW DURING FILL OPERATIONS, IT IS GOOD PRACTICE TO TURN THE CYLINDER VALVE OFF IF THE FILL STATION IS GOING TO BE LEFT UNATTENDED, OR IF YOU HAVE FINISHED OPERATIONS FOR THE DAY.

## **TROUBLESHOOTING**

**TECHNICAL SUPPORT VIDEOS AVAILABLE AT OUR YOUTUBE CHANNEL : NINJA PAINTBALL OFFICIAL**

### **PLEASE REFER THE BILL OF MATERIALS (BOM)**

Maintenance kit included

**THE FILL STATION INCORPORATES (3) 1/8-27 NPT PLUG PORTS, ITEM #1 ON THE BOM. THE (3) PORTS ARE LABELED "DO NOT REMOVE" PLEASE DO NOT REMOVE THE PLUGS**

#### **Fill Station Leaks from the FOSTER QD # 8 while filling –#34 Included in PMKIT**

- QD oring needs replacement the #34 O10 oring is located behind the ball bearings in the female quick disconnect.
- Remove the old oring with a pick and then squeeze the new #34 oring into the groove.
- Starting with one end of the oring in the groove and then using a blunt object to push the other side in will usually get it in place.
- 

#### **Leaks from the FOSTER QD #8 all the time –**

- FILL STATION leaks whenever the air is on from the female qd the valve seat needs to be serviced and please send it in for a rebuild.

#### **Leaks from the Valve Actuator #23 while filling –**

- Fill Station leaks from the Valve Actuator #23 while filling.
- Replace 004 oring #20
- Unscrew the top of the – actuator plug assembly – from the body. A wrench may be needed to get the assembly started unscrewing but take care not to damage the body or the assembly.
- Unscrew the housing nut by using a 3/4" thin wall socket. Counter clockwise will remove the nut and remove fully. No ratchet or tool is needed as the nut is only installed by hand and will turn and remove easily.
- Remove the actuator shaft and return spring from the unit. Clean and inspect the shaft, replacing the shaft is usually not needed unless the shaft is bent.
- Using a 3/16" allen wrench remove the oring jam nut

- The # 20 004 oring is located in the pocket and a pick will remove the oring but take care not to damage or scratch the internals during removal.
- Make sure the unit is clean
- Reassembly is the reverse, install the #20 004 and push the oring into place with a blunt object.
- Screw the oring jam nut into place – snug and do not over tighten or torque it in.
- Place the return spring in the unit and lube the bottom 1/3rd of the shaft, then insert the shaft into the unit.
- Install the retaining nut into place. You may need to push down on the nut with an allen wrench through the drive hole of the socket to get the nut to start catching the threads. Do not overtighten.
- Install the top unit in place.

**Fill Station does not hold output pressure and creeps up –**

- The PB-HP seat #6 needs to be replaced, Included in PMKIT

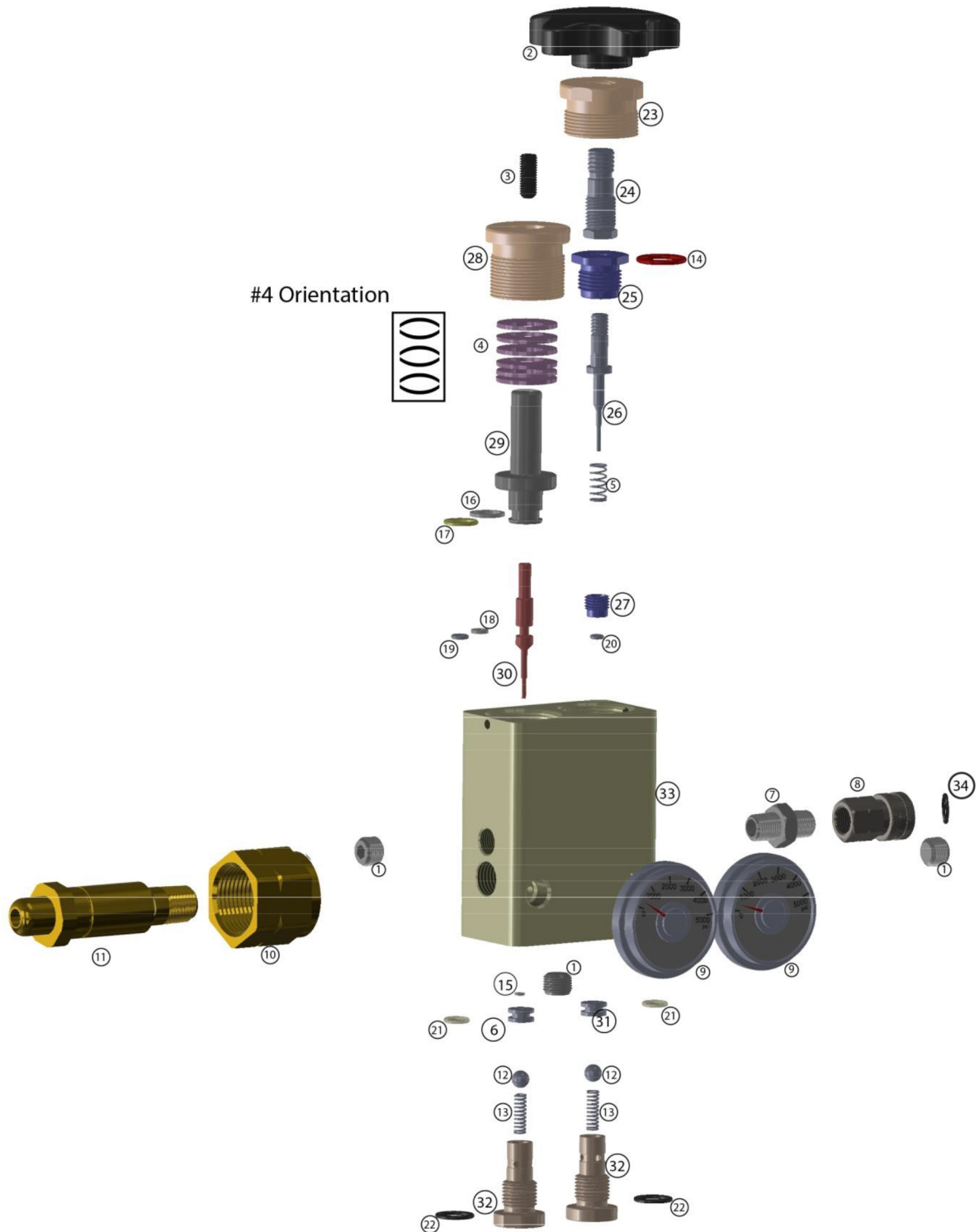
**Fill Station does not vent when control knob is turned all the way up –**

- You are unable to release the female qd due to pressure left in the Fill Station
- Control assembly needs to be reset and the 004 #20 replaced.
- Follow the rebuild procedures to reset the control assembly and change the valve oring #20.

**Fill Station is holding the air and the Fill Station has to be removed from the bulk filling tank.**

- Turn off the bulk tank and when the cga nut is broken loose from the bulk tank the fill station will de- gas allowing you to remove the cylinder being filled and rebuild the unit.





1	1/8" NPT PLUG	3	5406-FLP-2EF
2	KNOB	1	6214k39
3	1/4-28 X 0.75 SET SCREW	1	1/4-28x3/4
4	BELLEVILLE WASHERS	6	9712K437
5	RETURN SPRING	1	LC-026C-10M
6	HPFSV2-700-02CC	1	SAME
7	1/8" NPT MALE TO MALE	1	5404-2
8	QUICK DISCONNECT	1	12FSSHP
9	0-6000PSI GUAGE 1/8"NPT	2	HPFGAUGEPSIBAR
10	CGA 677 NUT	1	N-80BRASS
11	CGA 677 NIPPLE	1	NP-247
12	0.25" BALL	2	9528K15
13	HP RETURN SPRING	2	LC-026B11M
14	15-90 URETHANE O-RING	1	015-90U
15	006-TFSS	1	SAME
16	012 TEFLON SPLIT RING	1	BW-012-ST
17	012-90 URETHANE	1	012-90U
18	006 TEFLON SPLIT RING	1	BW-006-ST
19	006-90 URETHANE	1	006-90U
20	004-90 URETHANE O-RING	1	004-90U
21	010-70 BUNA O-RING	2	010-70B
22	013-70 BUNA O-RING	2	013-70B
23	HPFSv2 ACTUATOR PLUG	1	FVFS300BLK
24	HPFSv2 ACTUATOR SCREW	1	FVFS200BLK
25	PUSH BUTTON HOUSING NUT	1	FP600-01
26	PUSH BUTTON ACTUATOR SHAFT	1	FP300-01
27	O-RING JAM NUT	1	FP400-01
28	HPFSv2 REGULATOR CAP	1	HPFSV2CAPBLK
29	HPFSv2 REGULATOR PISTON	1	HPFSV2PISTON
30	HPFSv2 ADJUSTMENT PISTON	1	HPFSV2REGPIN
31	PB-HP SEAT	1	FP700-01
32	FP500-01	2	FP500-01
33	HPFSv2 BODYBLK	1	HPFILLBODYV2BLK
34	QD O-RING	1	010-70B

<b>HPFS V2 PM KIT</b>	
<b>BOM NUMBER</b>	<b>QTY</b>
BRASS SEAT REMOVAL TOOL	1
#6 With #15 and #21 pre-installed	1
#16	1
#17	1
#18	1
#19	1
#20	1
#31 with #21 pre-installed	1
#34 QD Body O-Ring	1