



# VFF30 LOCKOFF/FILTER

## REPAIR KIT INSTRUCTIONS

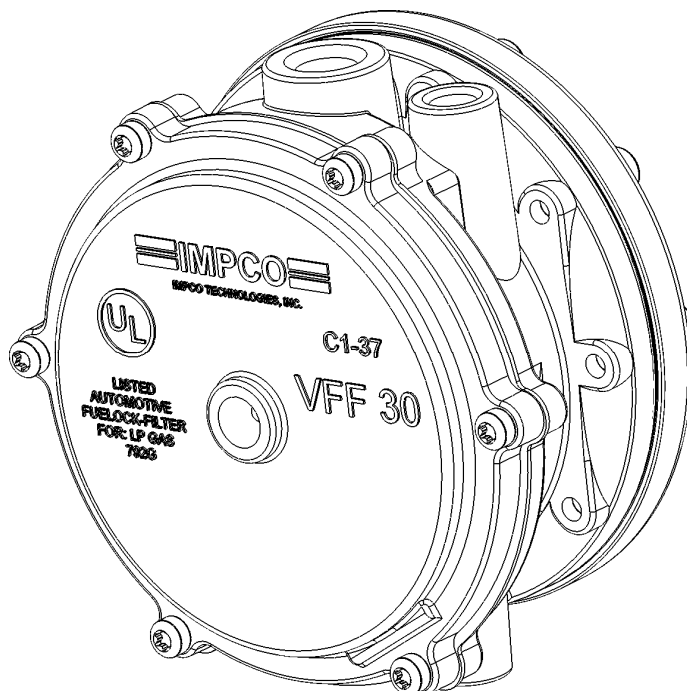
**Important:** Any maintenance, service or repair should be performed by trained and experienced service technicians. Proper tools and equipment should be used to prevent injury to the servicing technician, property or system components. Service repairs should always be performed in a safe environment and the technician should always wear protective clothing to prevent injury.

The IMPCO PPI-4-116 repair kit instructions will provide the technician information to successfully repair the VFF30 Lockoff. Always inspect the major casting pieces for damage, corrosion or cracks before attempting a service repair. Be sure the repair kit part number you are using is correct for the Lockoff being serviced. Diaphragms are color coded and have different performance characteristics:

**BLACK:** Hydrin diaphragm material is the standard material and is well suited for the most common applications.

**YELLOW:** Silicone diaphragm material is the optional upgrade material that provides excellent flexibility in cold weather climates and is more resistant to chemical contamination.

**BLUE:** Fluorosilicone diaphragm material provides excellent high and low temperature durability with increased chemical resistance. This material is recommended for turbo applications.



### WARNING

Do not use Teflon tape to seal any fuel fittings. Failure to follow this warning may cause internal leaks resulting in serious injury and/or property damage.

### REPAIR KIT PART NUMBERS

Part #	Description
RK-VFF30	Repair Kit, VFF30 (Standard Hydrin Diaphragm)
RK-VFF30-2	Repair Kit, VFF30 (Silicone Diaphragm)
RK-VFF30-3	Repair Kit, VFF30 (Fluorosilicone Diaphragm)
RK-VFF30-958	Repair Kit, VFF30 (Fluorosilicone Diaphragm)
AF1-10	Repair Kit, VFF30 (Gasket and Filter Only)
AF1-10-001	Repair Kit, VFF30 (Gasket and Filter Only)

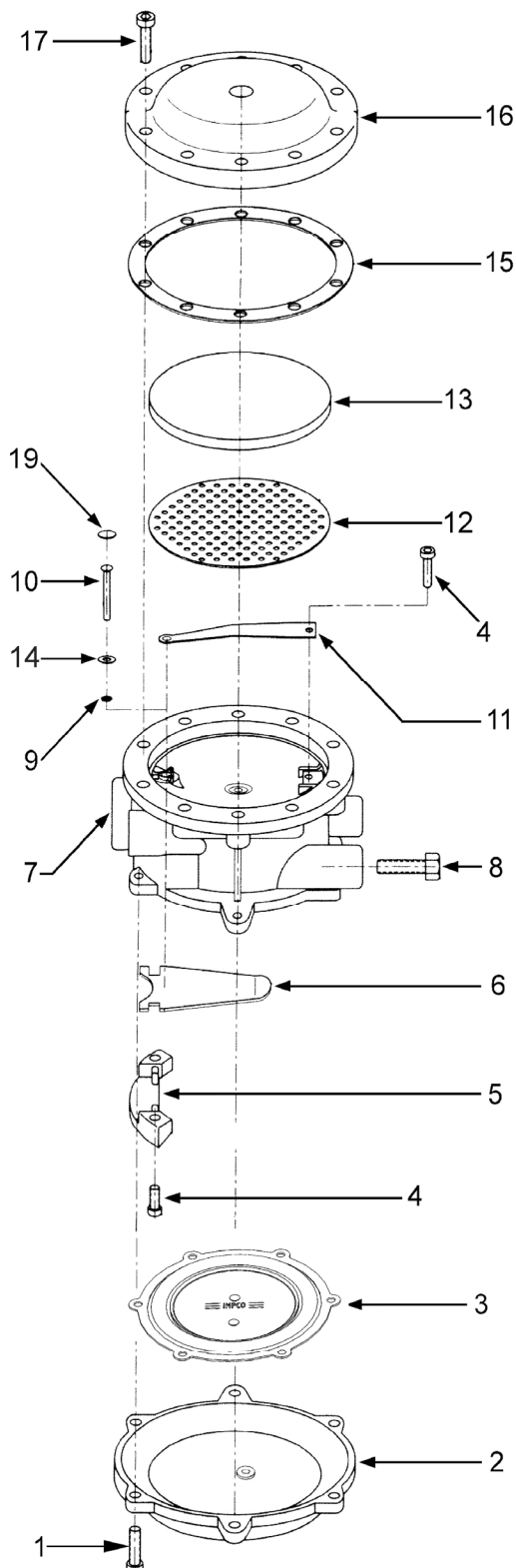
## VFF30 LOCKOFF/FILTER COMPONENTS

ITEM#	PART#	DESCRIPTION
1*	S1-15265-001	Screw, 8-32 Taptite (6)
	S1-59	Screw 8-32 x 5/8" LTD FLT (6)
2	C1-37	Diaphragm cover
		Diaphragm Assy (Standard)
	BD1-26	(RK-VFF30)
3*		Diaphragm Assy, Silicone
	BD1-27	(RK-VFF30-2)
		Diaphragm Assy, Fluorosilicone
	BD1-27-5	(RK-VFF30-3)
4*	S1-15265-002	Screw, 8-32 Taptite (3)
5	F3-2	Fulcrum
6	L1-39	Valve operating lever
7	AB1-30149	Body ass'y
8	S1-5	Screw, 1/4-20 x 5/8" SEMS (2)
9*	S3-116	Seal, Lip Pin
10*	P1-15	Valve, operating pin
11	S2-40	Valve, spring
12*	S7-3	Screen, back-up filter
13**	F1-10	Filter
14*	W1-42	Washer, Seal Retaining
15**	G1-89	Filter cover gasket
16	C1-38	Filter cover
17	S1-15266-001	Screw, 12-24 Taptite (10)
	S1-100	Screw, 12-24 x 5/8" (10)
18	AF4-66	Fitting, ball check, assy (not shown VFF30-2-4 only)
19*	S4-18	Seat, VFF30

### NSS = Not Serviced Separately

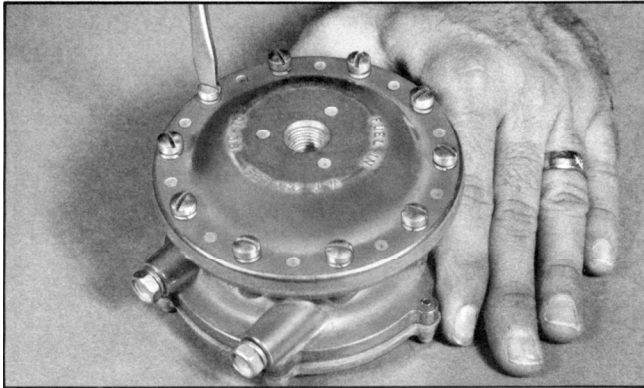
\*Repair Kit Components. Note that extra screws (both slotted and torx) are included in the repair kits to replace any that may be damaged. When replacing screws, be sure to properly match thread type (self-tapping or machined) as the two types are not interchangeable.

\*\*Included in all repair kits and the only two parts included in AF1-10.

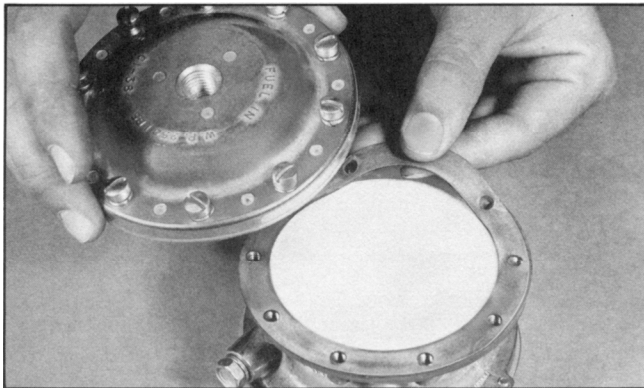


## REBUILD INSTRUCTIONS

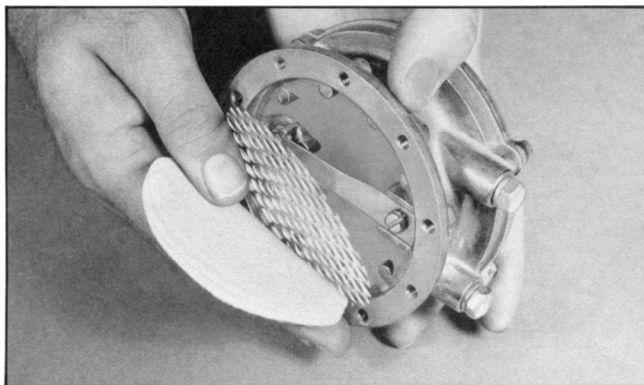
### Disassembly



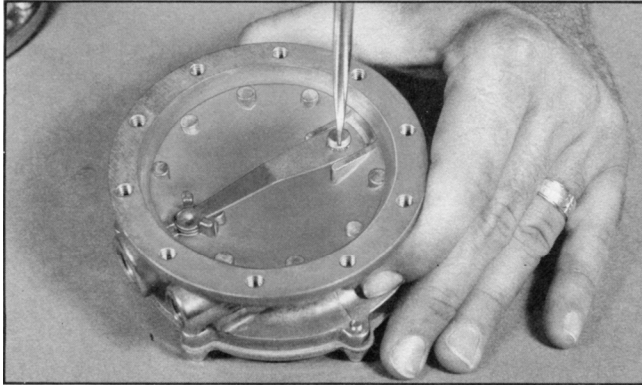
1. Remove 10 Screws (17) from "Fuel In" cover.



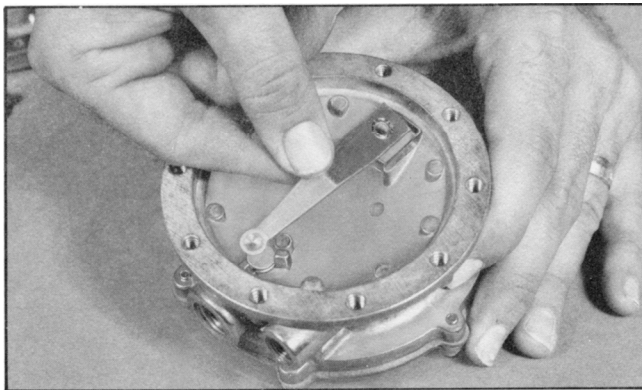
2. Remove Cover (16) and Gasket (15).



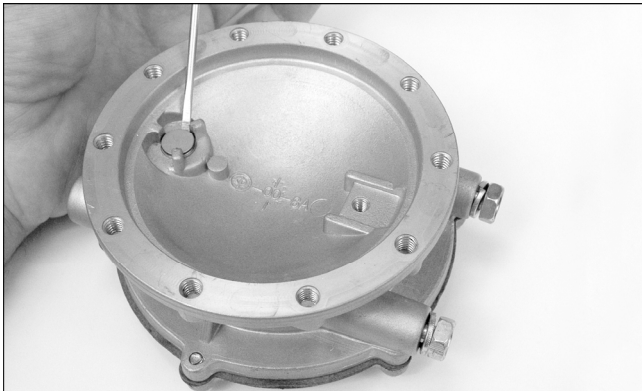
3. Remove Filter (13) and screen (12).



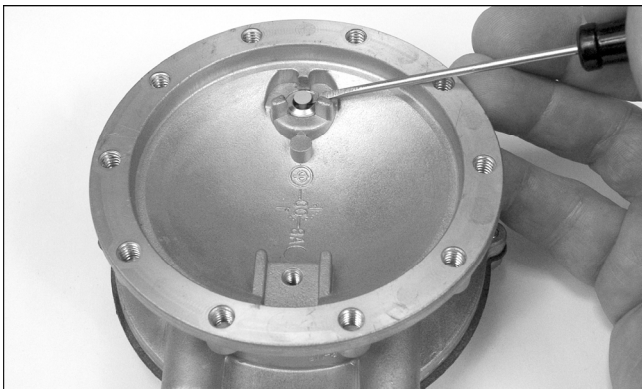
4. Remove Screw (4) retaining Valve Spring (11).



5. Remove Valve Spring (11).

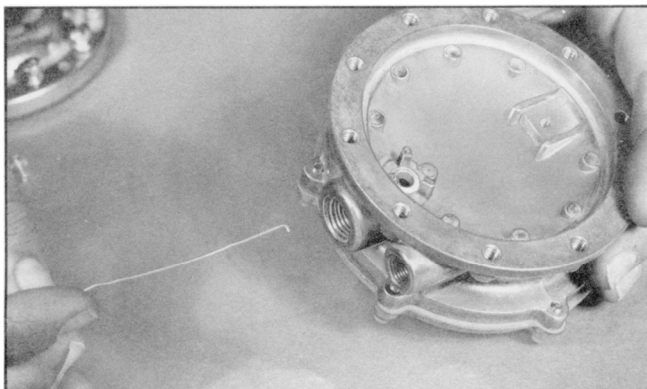


6. Using a small flat head screwdriver, remove Valve Seat (19).

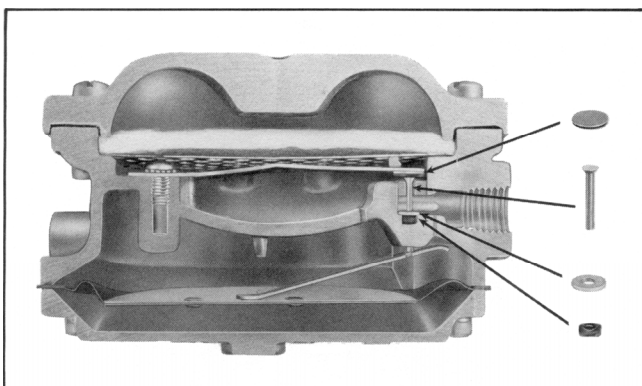


7. Gently lift up and remove the Valve Operating Pin (10).

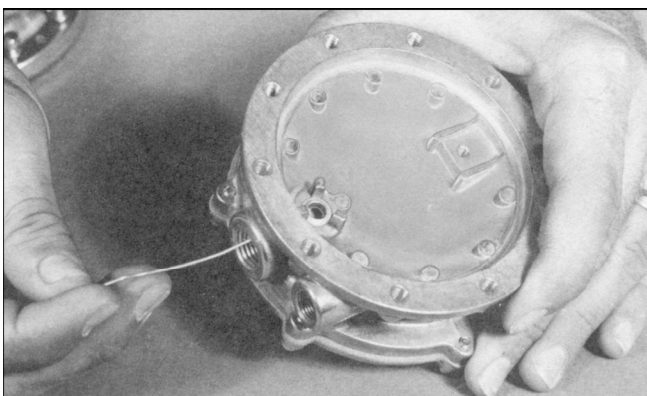




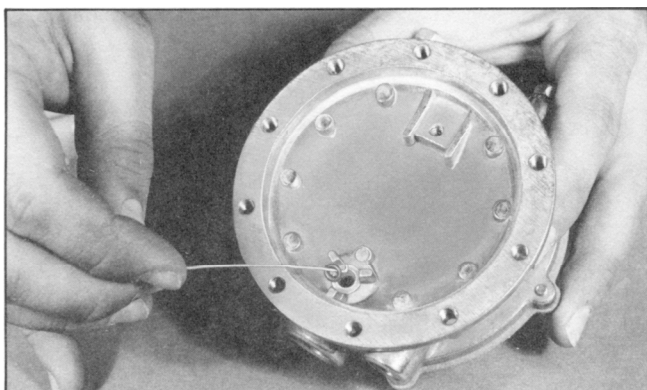
8. With paper clip or wire, fashion a hook as shown.



9. Cutaway shows assembly of Valve Spring (11), Valve Seat (19), Valve Operating Pin (10), Seal Retaining Washer (14) and Pin Lip Seal (9). Note that removal of Valve Pin allows retaining Washer to be removed through the 1/4" NPT opening labeled "Out."



10. Insert paper-clip hook in center hole of Seal Retaining Washer (14) and remove.



11. Using the same hook, remove the Pin Seal (9) through valve jet.



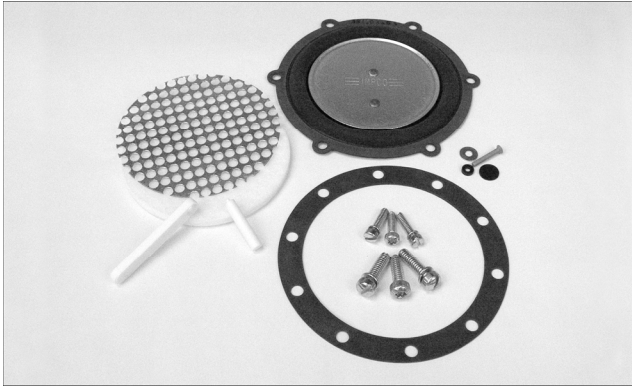
12. Remove 6 Screws (1) on diaphragm cover side.



13. Remove Cover (2) and diaphragm (3). Clean covers, body and metal parts as necessary with a safety solvent and dry prior to reassembly.

Do not use harsh solvents such as brake or carburetor cleaner on any of the non-metallic components as they will damage the material.

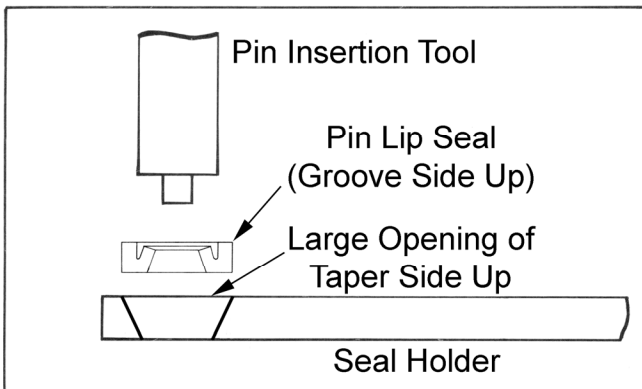
## Reassembly



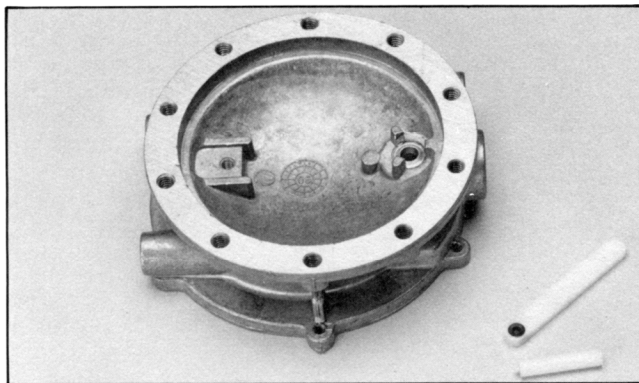
### 14. RK-VFF30 Kit Includes:

1	GI-89	Gasket (15)
1	F1-10	Filter (13)
1	S7-3	Screen (12)
1	BD1-26*	Diaphragm Assy (3)
2	S1-59	Screw, 8-32 x 5/8" (1)
2	S1-100	Screw, 12-24 x 5/8" (17)
1	S4-18	Seat (Viton/Aluminum)(19)
1	S3-116	Seal, Lip Pin (9)
1	PI-15	Pin, Valve Operating (10)
1	W1-42	Washer, Seal Retaining (14)
1	H1-14236	Seal Holder Insertion Tool
1	P1-14235	Pin Insertion Tool
1	PPI-128	Instructions
2	S1-15265-001	Screw, 8-32 17/32" Taptite Torx (1)
2	S1-15266-001	Screw, 12-24 x 11/16" Torxfil (17)
1	S1-15265-002	Screw, 8-32 3/8" Taptite Torx (4)

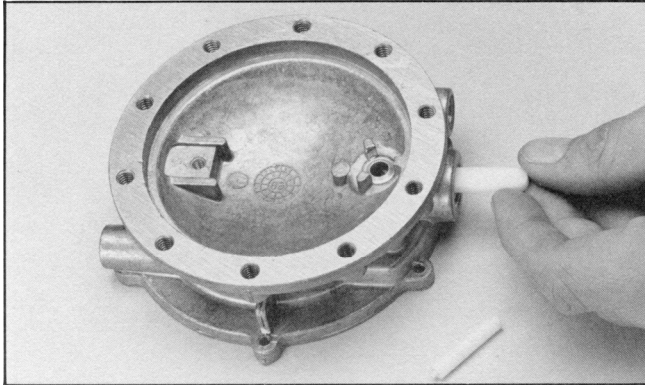
\*Standard diaphragm. See table on page 2 for optional diaphragms.



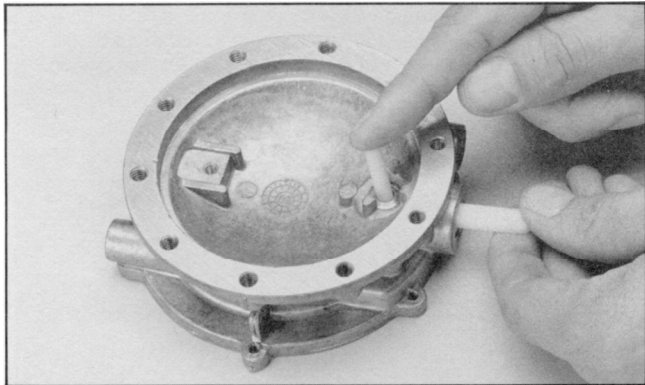
15. Lubricate the Lip Pin Seal (9) with petroleum jelly or Vaseline and place in the Seal Holder Insertion Tool groove side up, as shown in the illustration. Note that the Seal Holder passage is tapered and the wide opening of the seal holder should be facing up.



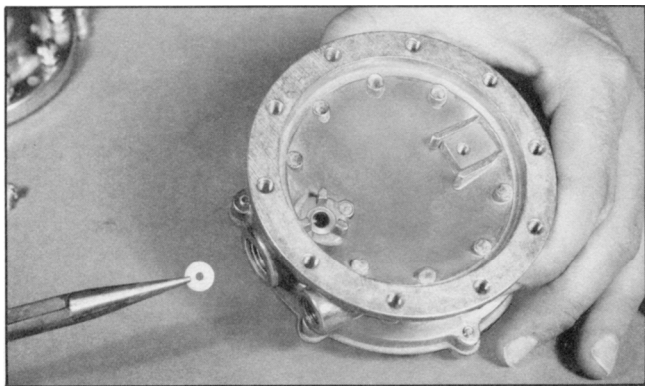
16. Place the VFF30 Body (7) with the filter side up, as shown in the photo, on a flat surface. Ensure that the groove in the Seal (9) is visible from the top of the taper of the Seal Holder Insertion Tool.



17. Place the holder in the up position and slide the Holder and the Seal (9) into the Body (7) of the VFF30. Looking through the fuel port, position the Seal above the cavity of the seal recess.

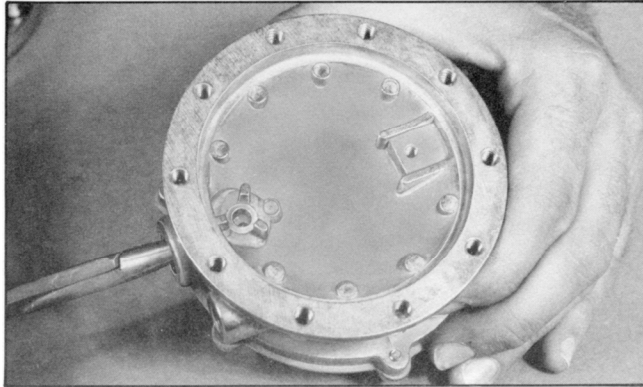


18. Coat the Pin Insertion Tool with petroleum jelly and push the Seal (9) through the Holder and into the Seal recess of the VFF30 Body (7). Look through the fuel port to ensure the Seal is seated in the seal recess and that the groove in the seal is visible.

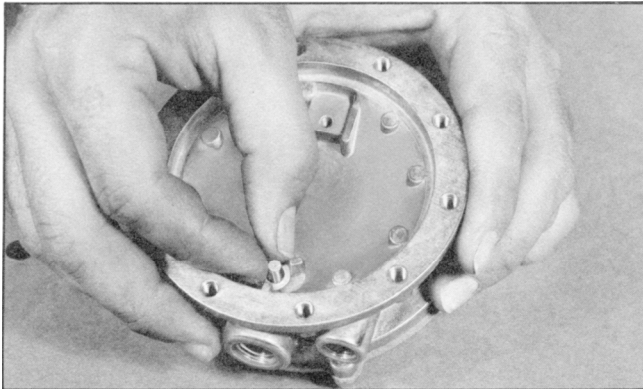


19. Use needle nose pliers to hold the Seal Retainer Washer (14).

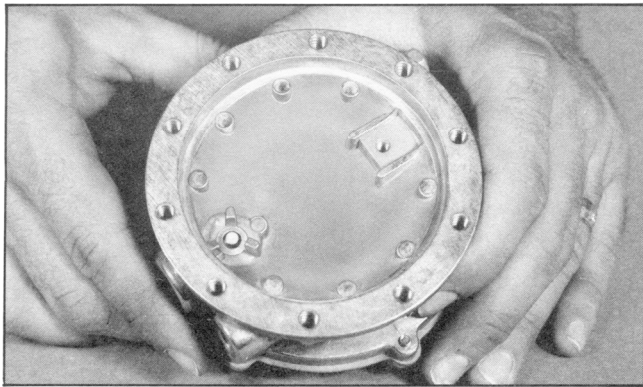




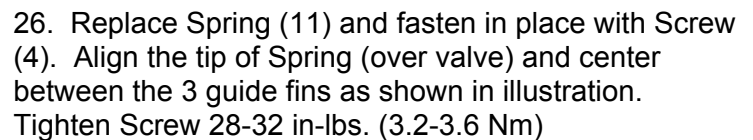
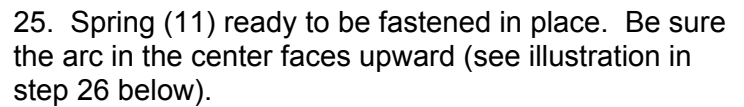
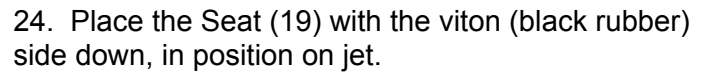
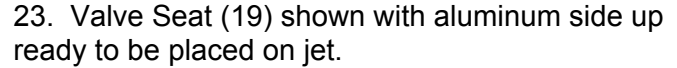
20. Insert Seal Retainer Washer (14) in slot to hold the Lip Pin Seal (9) in place.

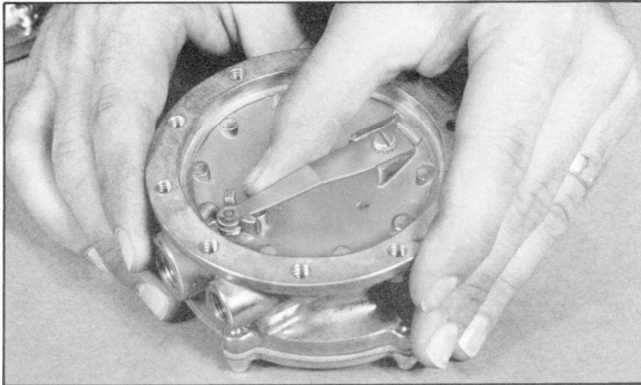


21. Lubricate the Pin Valve (10) with petroleum jelly and insert through hole in the Washer Retainer Seal (14) and Lip Pin Seal (9). Rotate head of Pin gently in a circular motion to ease Pin into place through the Washer, Lip Pin Seal and Body (7) housing.

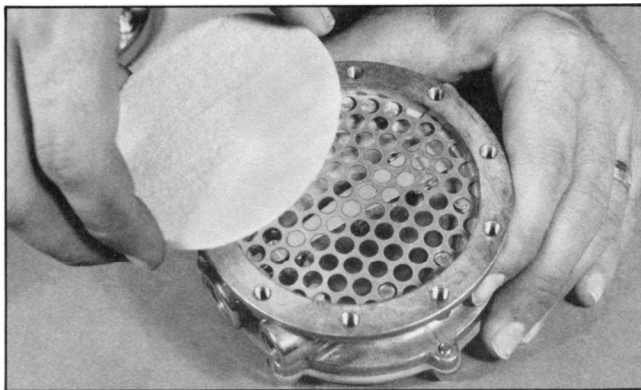


22. Pin (10) properly placed in valve jet.

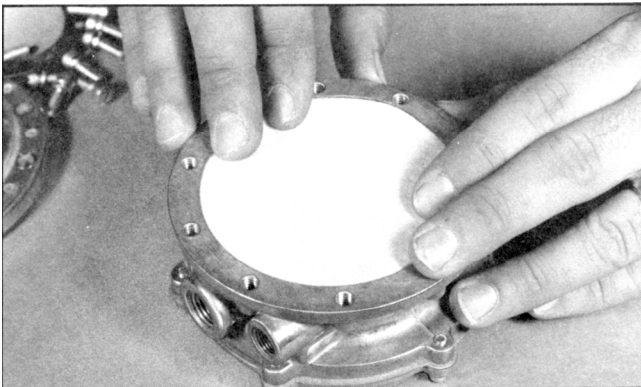




27. When Spring (11) is in place, lift it slightly to ensure it can move freely.



28. Insert Screen (12) and Filter (13) into recess.

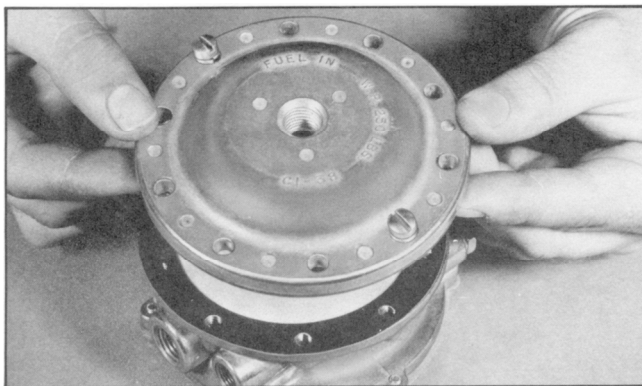


29. Press Filter (13) so that's properly seated in recess.





30. Place Gasket (15) in place and align with screw holes.

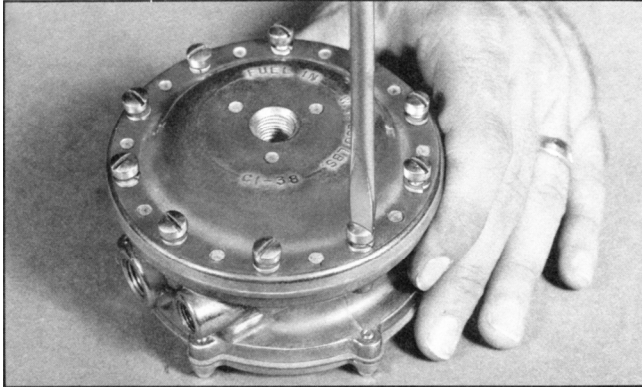


31. Insert two Screws (17) opposite each other in the "Fuel In" cover and place on Gasket (15). Thread the two Screws (17) through the gasket and into the Body (9).

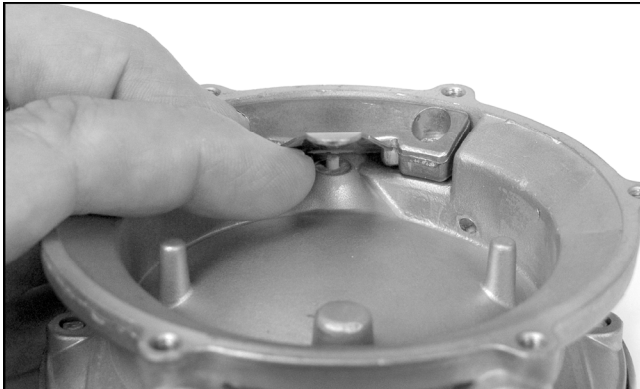


32. Insert remaining 8 Screws (17) in their openings.

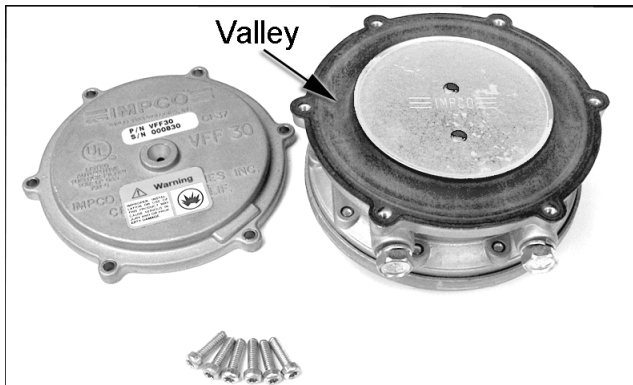




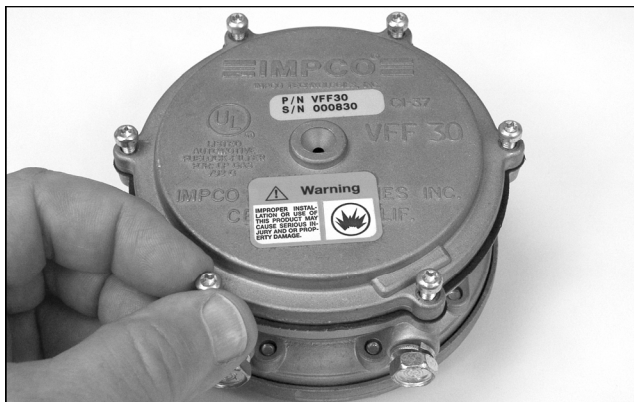
33. Tighten Screws (17), alternating from side to side on opposite sides of the cover until all screws are solidly set. Torque to 60-70 in-lbs. (6.8-7.9 Nm).



34. Lift Lever (6) to ensure it moves properly and verify that the Valve Pin (10) follows lever travel.



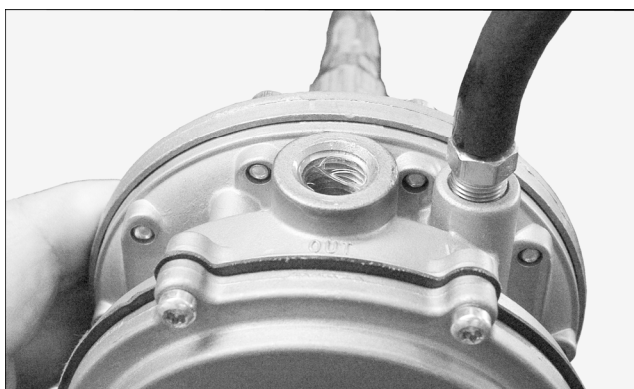
35. Turn Diaphragm (3) so the gasket side is down (see illustration on page 2) place on the Body (7) and rotate to position so the screw hole pattern aligns with the holes in the Body (there is only one position in which the holes will line up).



36. Place Cover (2) in correct position and insert Screws (1).



37. Tighten Screws (1) alternatively from side to side across cover until all are solidly fastened. Torque to 28-32 in-lbs. (3.2-3.6 Nm)



38. Pressurize the "Fuel In" opening with approximately 100 psi of air pressure. Draw a soap bubble across the Lockoff outlet and vacuum port (labeled "VAC") to verify that no air is flowing through either opening. If air escapes, the rebuild has failed and the Lockoff must be replaced. Apply a small amount of vacuum to the port labeled "VAC" to verify the air flows freely through the outlet. Use soap and/or a commercial leak detector solution to inspect the gasket seals around the perimeter of the Lockoff for leaks. If leaks are found, the Lockoff must be replaced. If no leaks are found, the Lockoff can be reinstalled and returned to service.



## **WARNING:**

### **IMPROPER INSTALLATION OR USE OF THIS PRODUCT MAY CAUSE SERIOUS INJURY, DEATH AND/OR PROPERTY DAMAGE**

**SERVICE TECHNICIANS AND USERS** SHOULD CAREFULLY READ AND ABIDE BY THE PROVISIONS SET FORTH IN NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET #37 FOR STATIONARY ENGINES, #52 FOR CNG VEHICULAR FUEL SYSTEMS OR #58 FOR LPG SYSTEMS.

**INSTALLERS** LPG INSTALLATIONS IN THE UNITED STATES MUST BE DONE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL LAWS AND NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET #58, STANDARD FOR STORAGE AND HANDLING OF LIQUEFIED PETROLEUM GASES, TO THE EXTENT THESE STANDARDS ARE NOT IN VIOLATION OF FEDERAL, STATE OR LOCAL LAW.

**COUNTRIES OUTSIDE OF USA** REFER TO THE GOVERNING AGENCIES OVERSEEING CNG AND PROPANE APPLICATIONS.

**CNG INSTALLATIONS IN THE UNITED STATES** MUST BE DONE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL LAW AND NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET #52, COMPRESSED NATURAL GAS (CNG) VEHICULAR FUEL SYSTEMS, TO THE EXTENT THESE STANDARDS ARE NOT IN VIOLATION OF FEDERAL, STATE OR LOCAL LAW.

**LPG AND/OR NATURAL GAS INSTALLATIONS ON STATIONARY ENGINES** MUST BE DONE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL LAW AND NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET #37, STATIONARY COMBUSTION ENGINES AND GAS TURBINE ENGINES, TO THE EXTENT THESE STANDARDS ARE NOT IN VIOLATION WITH FEDERAL, STATE OR LOCAL LAW. FAILURE TO ABIDE BY THE ABOVE WILL VOID ANY IMPCO WARRANTY ON THE PRODUCTS AND MAY CAUSE SERIOUS INJURY OR PROPERTY DAMAGE.

**SERVICE TECHNICIANS** DUE TO THE INHERENT DANGER OF GASEOUS FUELS, IMPCO PRODUCTS SHOULD NOT BE INSTALLED OR USED BY PERSONS NOT KNOWLEDGEABLE OF THE HAZARDS ASSOCIATED WITH THE USE OF GASEOUS FUELS. ANY MAINTENANCE, SERVICE OR REPAIR SHOULD BE PERFORMED BY TRAINED AND EXPERIENCED SERVICE TECHNICIANS.

**PROPER TOOLS AND EQUIPMENT** PROPER TOOLS AND EQUIPMENT SHOULD BE USED TO PREVENT INJURY TO THE SERVICING TECHNICIAN, PROPERTY OR SYSTEM COMPONENTS. SERVICE REPAIRS SHOULD ALWAYS BE PERFORMED IN A SAFE ENVIRONMENT AND THE TECHNICIAN SHOULD ALWAYS WEAR PROTECTIVE CLOTHING TO PREVENT INJURY.

**INSPECT BEFORE USE** ALWAYS INSPECT THE MAJOR CASTING PIECES FOR DAMAGE, CORROSION OR CRACKS BEFORE ATTEMPTING A SERVICE REPAIR. BE SURE THE REPAIR KIT PART NUMBER YOU ARE USING IS CORRECT FOR THE COMPONENT(S) BEING SERVICED.

**NO TEFLON TAPE** DO NOT USE TEFLON TAPE TO SEAL ANY FUEL FITTINGS. FAILURE TO FOLLOW THIS WARNING MAY CAUSE THE REGULATOR TO LEAK INTERNALLY, POSSIBLY RESULTING IN SERIOUS INJURY, DEATH AND/OR PROPERTY DAMAGE AND MAY VOID ANY WARRANTY COVERAGE.