



# Model 300a Series Carburetors Operation & Repair Kit Instructions

## Operation Instructions

<b>Fuel Injection:</b>	<b>Carburetion:</b>
<p><b><i>To change from propane to gasoline at highway speeds:</i></b></p> <p>Remove foot from accelerator pedal and allow engine speed to idle down. Move fuel selector switch from propane to gasoline side. Keep foot off accelerator pedal. <b>AVOID DEPRESSING ACCELERATOR PEDAL ALL THE WAY TO THE FLOOR.</b> There could be a slight hesitation or stumble of the engine as one fuel is shut off and the other fuel is allowed to flow. This is normal.</p> <p><b><i>To change from gasoline to propane at highway speeds:</i></b></p> <p>Remove foot from accelerator pedal and allow engine speed to idle down. Move fuel selector switch from gasoline to propane side of switch. Keep foot off accelerator pedal. <b>AVOID DEPRESSING ACCELERATOR PEDAL ALL THE WAY TO THE FLOOR.</b></p> <p>There could be a slight hesitation or stumble of the engine as one fuel is shut off and the other fuel is allowed to flow. This is normal.</p> <p><b><i>To change from gasoline to propane when the transmission is in neutral:</i></b></p> <p>Increase engine idle speed slightly. <b>DO NOT DEPRESS ACCELERATOR PEDAL TO THE FLOOR.</b> Move fuel selector switch from gasoline to propane. There could be a slight hesitation or stumble of the engine as one fuel is shut off and the fuel is allowed to flow.</p> <p><b><i>To change from propane to gasoline when transmission is in neutral:</i></b></p> <p>Increase engine idle speed slightly. <b>DO NOT DEPRESS ACCELERATOR PEDAL TO THE FLOOR.</b> Move fuel selector switch from propane to gasoline. There could be a slight hesitation or stumble of the engine as one fuel is shut off and the other fuel is allowed to flow.</p>	<p><b><i>To change from propane to gasoline at high speeds:</i></b></p> <p>When cruising 40 mph or faster, pull Boden wire control out to positive stop, position three-way toggle switch to "Gasoline On." Let up on accelerator pedal slightly, until gasoline carburetor bowl fills and power returns.</p> <p><b><i>To change from propane to gasoline with transmission in neutral:</i></b></p> <p>Depress accelerator pedal to give a fast idle. Pull Boden wire control out to positive stop, position three-way toggle switch to "Gasoline On." If engine slows, return control to "Propane On" position (pushed in) momentarily to pick up engine speed. Repeat this sequent until gasoline carburetor bowl fills and engine runs on gasoline.</p> <p><b><i>To change from gasoline to propane operation:</i></b></p> <p>Position the three-way toggle switch in the center position. This will shut off both fuels. Continue to run the engine until it falters, then promptly move toggle switch to "Propane On" position while pushing Boden wire control all the way in. Engine will then run on propane.</p> <p><b>Note:</b> IMPCO recommends running the vehicle on gasoline of a few minutes once or twice a week to ensure the correct operation of the gasoline carburetor or fuel injection system. This will prevent gasket, diaphragms or seats from drying out and shrinking.</p>



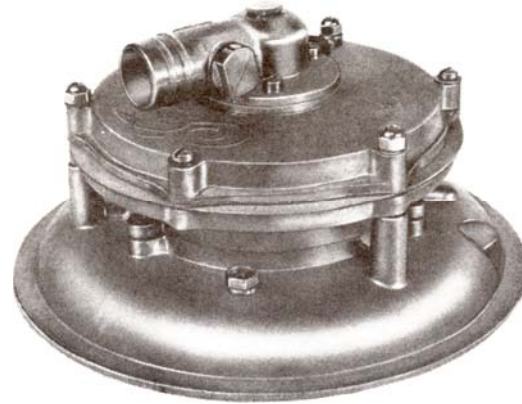
## Repair Kit Instructions

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-13 repair kit instructions will provide the technician information to successfully repair the Model 300A Carburetor. 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 carburetor 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.



**Model 300A Carburetor (without air cleaner)**

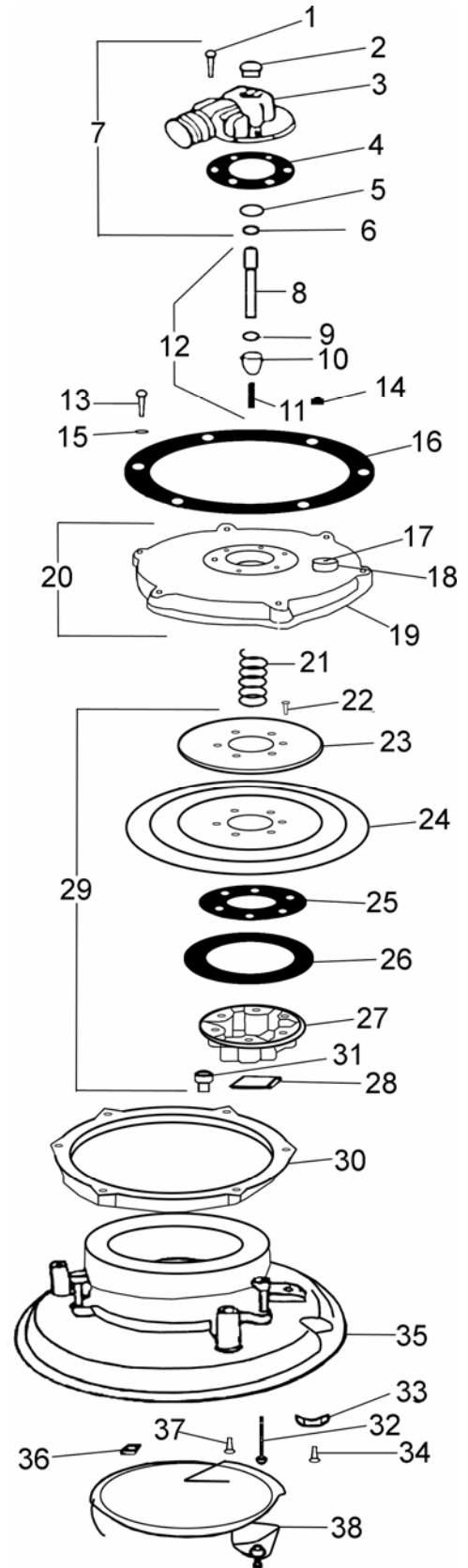


### WARNING

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.

PART #	DESCRIPTION
RK300MA-1/20	Major Repair Kit for Standard or -20 models with Hydrin Diaphragm
RK300MA-1/20-2	Major Repair Kit for Standard or -20 models with Silicone Diaphragm
RK300MA-50/70-2	Major Repair Kit for -50 or -70 models with Silicone Diaphragm
RK300MI-1/20-2	Minor Repair Kit for Standard or -20 models with Silicone Diaphragm
RK300MI-50/70-2	Minor Repair Kit for -50 or -70 models with Silicone Diaphragm

ITEM	PART #	DESCRIPTION
1	S1-3	† Screw, 10-24 x 5/8" SEMS (3)
2	P3-2	Plug, idle adjustment
3	BE1-4	Elbow with Power Adjustment
4	G1-2	*† Gasket, Gas Elbow
5	R1-9	*† Ring, Seal Retainer
6	S3-3	*† Seal, idle screw
7	BE1-4-1	Elbow Assy
8	S1-15	Screw, idle adjustment
9	S4-2	* Seat, Gas Valve (RK300MI-1/20-2 only)
	S4-20	* Seat, Gas Valve (RK300MI-50/70-2 only)
10	V2-11	CA300A-M, CA300A-M-3, CA300A-20M, CA300A-A-2)
	V2-39	Valve Gas Mixer (CA300A-50/70 Only)
	V2-39-2	Valve Gas Mixer, Lean Bias (CA300A-M Only)
	V2-49	Valve Gas Mixer (FB300A-M Only)
11	V2-50	Valve Gas Mixer (FB300AM-50 Only)
	S2-3	Spring, gas valve
12	AV2-11	† Gas Valve Assy, (RK300MA-1/20-2 & RK300MA-1/20)
	AV2-39	† Gas Valve Assy (RK300MA-50/70-2)
13	AV2-39-2	Gas Valve Assy, Lean Bias
	AV2-49	Gas Valve Assy
	AV2-50	Gas Valve Assy
	S1-69	Screw 10-24 x 1" (3)
14	N1-5	† Nut, dome 10-24 (3)
15	W1-2	† Washer, No.10 light flat (6)
16	G1-1	*† Gasket, filter cover
17	R2-2	† Rivet, vent valve
18	V1-13	† Valve cover vent
19	C1-2	Cover, diaphragm (CA300A only)
20	AC1-2	Cover Assy, w/Vent Valve (VL300A, FB300A, CA300A-M)
	AC1-2-3	Cover Assy w/Vent Valve (CA300AM, FB300AM)
21	S2-2	† Spring, air valve
22	S1-12	Screw, 8-32 x 5/16" SEMS (6)
23	P2-1	Plate, diaphragm backup
24	D1-1	Diaphragm, air valve hydrin
	D1-1-2	* Diaphragm, air valve, silicone
25	G1-15	* Gasket, air valve
26	R1-2	Ring, air valve
27	BV1-10	Valve, air metering: V1-10, L1-3, B3-24
28	L1-3	* Lock, nylon idle adjustment
	AV1-10	† Air Valve Assy w/Diaphragm (RK300MA1/20)
29	AV1-10-2	† Air Valve Assy w/Diaphragm (RK300MA-1/20-2)
	AV1-10-2A	Air Valve Assy w/Diaphragm (VL300A)
30	R1-3	Ring, diaphragm support (VL300A, FB300A, CA300A only)
	R1-40	Ring, diaphragm support (VL300AM, FB300AM, CA300AM)
31	S1-5	Screw, 1/4"-20 x 5/8" hex head SEMS (3)
32	S1-219	† Screw, 10-24 x 1-1/2" SEMS (3)
33	C2-1	Clamp, Boden wire
34	S1-8	Screw, 10-32 x 5/8" hex head
35	AB1-2	Base ass'y, complete
	BB1-2	Base ass'y, complete
36	N1-5	Nut, square, 1/4"-20
37	S1-69	Screw, 1/4"x 5/16" (plug)
38	AC2-2	Cam ass'y: C2-2, W1-2, S1-7



\*Indicates Components of Minor Repair Kit

†Indicates Components of Major Repair Kit.

Note that extra screws are included in the repair kits to replace any that may be damaged.



## REBUILD INSTRUCTIONS

### Disassembly

1. Remove 3 Dome Nuts and 3 Cover Screws.
2. Remove Cover and air filter (if applicable).
3. Remove 3 Hex Head Bolts mounting the carburetor to adaptor.
4. Remove 3 Screws and Elbow Assy.
5. Remove Gas Valve assembly by backing out idle adjust screw.
6. Remove 3 Screws in legs of base to complete disassembly.
7. Minor Repair Kit Only: Disassemble Air Valve Assembly.
8. Clean all parts thoroughly with a safety solvent. 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

1. Open the repair kit. Identify all components and verify that the kit is complete. Match the new replacement parts to the old.
2. Minor Repair Kit Only: Replace the Diaphragm and Gasket in the Air Valve Assy and reassemble using 6 Screws. Torque to 18-22 in-lbs. Replace the Gas Valve Seat on the Gas Valve Assembly.
3. Press the new Valve Cover Vent over the Rivet in the Valve Cover. Note: A new Rivet is included in the repair kit in the event the old one is damaged. If replacement is necessary, drill out the old and install the new one using a rivet gun.
4. Hold cover underside up and place the Air Valve Spring on guide.
5. Place the Air Valve Assembly on the Spring and push down onto guide. Holding these parts together with one hand, place Gas Valve Assembly in position in the Cover and screw in Idle Screw in to engage threads in the Air Valve. Screw in until tip of the Screw is flush with Nylon Lock on underside of Air Valve. The assembly is now held together by the Idle Screw. Note: The Nylon Lock was used on older models to prevent the Idle Adjustment Screw from vibrating loose. Newer applications use thread lock to secure the Idle Adjustment Screw.
6. Note the Diaphragm Cover has 3 clearance holes and 3 tapped holes on the perimeter. The Diaphragm Support Ring also has 3 clearance and 3 tapped holes.
7. Place the three 1" screws through the clearance (untapped) holes in the Cover, then through the Gasket and the Diaphragm and thread them in the 3 tapped holes in the Diaphragm Support Ring, flat side up. Tighten Screws lightly.
8. Turn this assembly upside down and place 3 Screws in the legs of the Base Assembly and thread into the 3 tapped holes in the Cover. Torque to 36 +/- 2 in-lbs. Remove the three 1" Screws from the Cover. The Diaphragm Support Ring should now be seated on the Base Assembly and the Diaphragm should have a slight amount of bag.
9. Tighten the Idle Adjust Screw until the rubber washer touches the top of the gas port. When set in this position there should be a slight gap between Air Valve ring and lifter (approximately .005" to .010").
10. Replace the Elbow Assembly with a new Gasket and Seals over the Idle Screw and fasten it to the Cover with three ½" screws. Torque to 30 +/- 2 in-lbs. Lubricate the Gas Valve with a light film of petroleum jelly or Vaseline to ensure free movement.
11. Push up on the Air Valve Assembly to check freedom of movement—it must not bind, hang up or have a rough travel. If a slight drag exists, grasp the air valve and wobble it to all sides. This should position the Gas Valve in the port so it moves smoothly.
12. Mount Air Cleaner (if equipped) with new gasket.
13. If necessary, remove Idle Adjustment Plug and adjust idle to engine manufacturer's specifications. Once completed, replace Plug and torque to 20 in-lbs.



## **WARNING:**

**IMPROPER INSTALLATION OR USE OF THIS PRODUCT MAY CAUSE  
SERIOUS INJURY 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 OR LOCAL LAW, WHICHEVER IS APPLICABLE 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 WITH FEDERAL, STATE OR LOCAL LAW.

### **IN CANADA**

REFER TO CAN/CGA PROPANE INSTALLATION CODES.

### **CNG INSTALLATIONS IN THE UNITED STATES**

MUST BE DONE IN ACCORDANCE WITH FEDERAL STATE OR 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 WITH FEDERAL, STATE OR LOCAL LAW.

### **IN CANADA**

REFER TO CAN/CGA CNG INSTALLATION CODES.

### **LPG AND/OR NATURAL GAS INSTALLATIONS ON STATIONARY ENGINES**

MUST BE DONE IN ACCORDANCE WITH FEDERAL, STATE OR 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.

DUE TO THE INHERENT DANGER OF GASEOUS FUELS THE IMPCO PRODUCTS SHOULD NOT BE INSTALLED OR USED BY PERSONS NOT KNOWLEDGEABLE OF THE HAZARDS ASSOCIATED WITH THE USE OF GASEOUS FUELS.