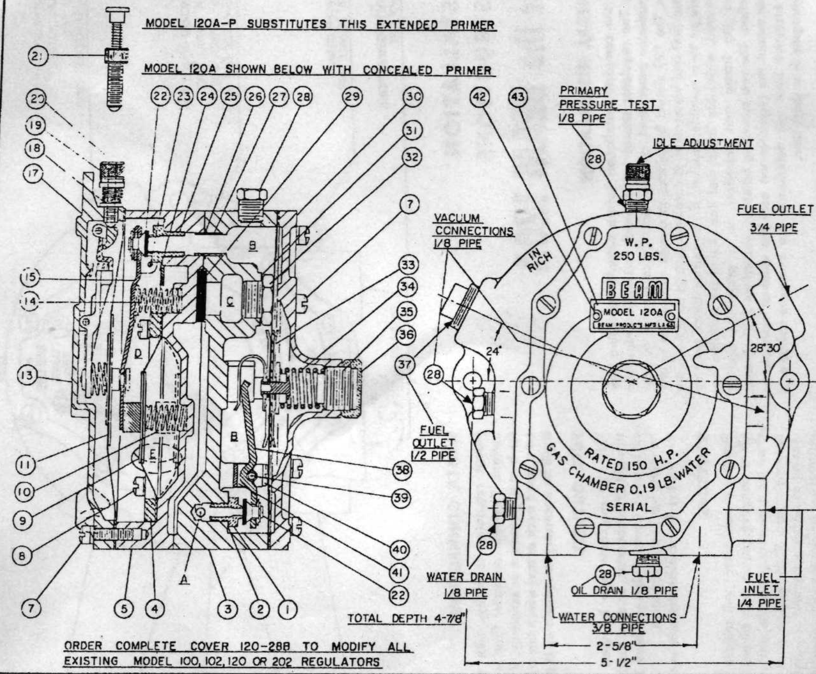


120A	STANDARD PRODUCTION WITH CONCEALED PRIMER, AS PICTURED	UL LISTED 270L	WT. 4 LBS. 9 OZ.
120A-D	FOR USE WITH HIGH PRESSURE OIL OR EXHAUST GAS AS VAPORIZING MEDIUM		
	USE PRIMARY BODY No. 130-1C, ITEM (3). DELETE ITEM (29) 130-5 PLUG		
120A-E	STANDARD 120A MINUS VACUUM-LOCK. REMOVE ITEMS (4) 120-16 RING, (8) 103208-FS SCREWS, (9) 120-15A DIAPHRAGM, (10) 120-14 SPRING		
	ADD ONE ITEM (28) 3152 X 2 PLUG TO OPEN VACUUM CONNECTION		
120A-P	STANDARD 120A WITH PRIMER. REMOVE ITEMS (19) PS-25-1 SCREW, (20) PS-25-4 PIN. ADD ITEM (21) PS-25 SCREW.		

KIT--120-RBK QTY.	KIT--120-RCK QTY.	KIT--120-RK QTY.	KIT--120A-RK QTY.	ITEM	QTY.	PART NO.	DESCRIPTION
1	1	1	1	NS		1⅜x7½x8¾	BOX
				NS	1	6½x5⁵⁄₁₆x6⅞	BOX
1	1	1	1	NS	1	H-170	FORM
1	1	1	1	NS		H-169	FORM
		1	1	NS		H-167	FORM
1	1	1	1	NS		H-165	FORM
1	1			NS		PS-20A	SCREW--IDLE ADJUSTMENT
1	1			NS		400-21	SPRING--IDLE ADJUSTMENT
	1			NS	1	120-26	KEEPER--PIVOT PIN
1	1			NS	1	130-6	SEAL--"O" RING
2	2			NS	2	103205-FS	SCREW--MACHINE/LOCKWASHER
				43	1	120-9TA	TAG--NAME
				42	2	3P-107	SCREW--DRIVE
	1			41	1	120-5	BRACKET--PRIMARY LEVER
2	2			40	2	103205-P	SCREW--MACHINE
	1			39	1	120-7	PIN--PRIMARY PIVOT
	1			38	1	120-6A	LEVER--PRIMARY REGULATOR
				37	1	P-48	PLUG--½ PIPE SQ. HEAD
				36	1	60-32	CAP--SPRING RETAINER
				35	1	120-36	RETAINER--SPRING ADJUSTMENT
1	1			34	1	120-12	SPRING--PRIMARY PRESSURE
1	1	1	1	33	1	120-10R	DIAPHRAGM--PRIM. REG. W/GASKET
				32	1	120-2	PLUG--WATER CORE
				31	1	G-25	GASKET--PLUG
				30	1	120-9	COVER--PRIMARY REGULATOR
1	1			29	1	130-5	PLUG--NEOPRENE EXPANSION
3	4			28	4	3152 x 2	PLUG--⅛ PIPE, HEX HEAD
	1			27	1	130-3	TUBE--FUEL PASSAGE
1	1			26	1	130-4	SEAL--"O" RING
1	1			25	1	120-23	ORIFICE--SECONDARY REGULATOR
	1			24	1	120-18	BRACKET--SECONDARY LEVER
	1			23	1	400-19	PIN--SECONDARY PIVOT
2	2	2	2	22	2	3BRV	VALVE--NEOPRENE FACE
				21		PS-25	SCREW--IDLE ADJ. W/PRIMER
				20	1	PS-25-4	PIN--CONCEALED PRIMER
				19	1	PS-25-1	SCREW--IDLE ADJUSTMENT
				18	1	2S-120	SPRING--IDLE ADJUSTMENT
				17	1	120-43	COVER--SECONDARY W/(21) MANUAL PRIMER
	1			15		120-24B	LEVER--SECONDARY REGULATOR
				15	1	120-39	LEVER--SECONDARY REGULATOR
1	1			14	1	120-27	SPRING--SECONDARY LEVER
				13	1	120-42	COVER--SECONDARY W/ (18)(19)(20) CONCEALED PRIMER
1	1	1	1	11	1	120-22	DIAPHRAGM--SECONDARY
1	1			10	1	120-14	SPRING--VACUUM-LOCK
1	1		1	9	1	120-15A	DIAPHRAGM--VAC.-LOCK W/GASK.
6	6	2	2	8	6	103208-FS	SCREW--MACHINE/LOCKWASHER
21	21	2	2	7	21	103212-FS	SCREW--MACHINE/LOCKWASHER
				5	1	130-2	CASTING--SECONDARY BODY
				4	1	120-16	RING--VACUUM-LOCK COVER
				3		130-1C	CASTING--PRIMARY BODY
				3	1	130-1-1	CASTING--PRIMARY BODY
1	1			2	1	120-4C	GASKET--PRIMARY ORIFICE
1	1			1	1	120-4	ORIFICE--PRIMARY REGULATOR

TOLERANCES UNLESS OTHERWISE SPECIFIED: FRACTIONAL ±1/64; 2 PLACE DECIMAL ±.005; 3 PLACE DECIMAL ±.010; ANGLE ±1/2°

BREAK ALL SHARP CORNERS UNLESS OTHERWISE NOTED

FINISH IRIDITE — MAT'L ALUMINUM

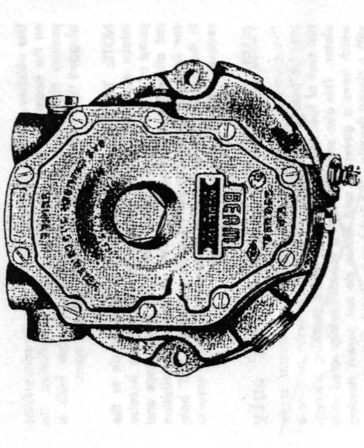
BEAM PRODUCTS MFG. CO.
5545 ROSELYN ST., LOS ANGELES, CALIF. 90058
REGULATORS · CARBURETORS · VALVES · 247-7556

SCALE 1:1 — DRAWN BY EFJ. — DATE 11-17-75

NAME VAPORIZER — REGULATOR

PART NO. 120A — REV. — DRAWING NUMBER C-4135

BEAM® 120A*



for the conversion of

TAXIS — FORK LIFTS — TRACTORS DOOR-TO-DOOR DELIVERY TRUCKS

With the idle adjustment built in, the BEAM 120 A requires only two mounting bolts. No primers or chokes are necessary as starting aids.

An additional feature is the automatic vacuum shut-off which locks off fuel completely when the engine stops rotating.

For use with any LP-Gas carburetor, carburetor adapter, or as a simple spud-in to the gasoline carburetor.

FEATURES

- Weight — 4½ Pounds
- Capacity — 150 H.P.
- Size: 5¾" Diam., 4" Deep
- Built-in Idle Screw
- Built-in Vacuum Shut-off
- 100% Shut-off when Engine stops
- No Priming, No Choking
- No Idle Plates

Pat. Nos. 2,775,981 and 2,926,682

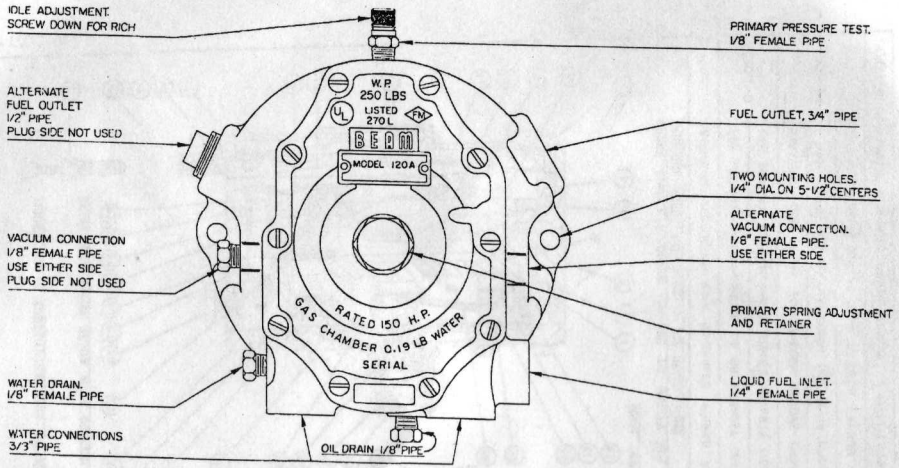
120A* Standard Production. Two vapor outlets; 1/2" pipe at 10:00 o'clock position and 3/4" pipe at 2:00 o'clock. Optional primer as pictured on page 4.

120A-D No freeze plug, otherwise standard production. For use with high pressure hot oil or exhaust gas for vaporizing medium. (Not for use with water.)

120A-E Standard Production, but less vacuum-lock diaphragm assembly. These installations must be equipped with a fuel solenoid valve and an engine controlled safety switch.

120A-P Extended Manual Primer added to the Standard Production Model 120A.

BEAM PRODUCTS MFG. CO.



INSTALLATION INSTRUCTIONS for the BEAM 120A

GENERAL INSTALLATION

Plan the complete installation before actually mounting any item. The regulator should be mounted vertically, below the top radiator water level, and as near the carburetor as possible. The 120 should be placed in a spot convenient to the various fuel and water lines. It may be mounted directly to the vehicle or to a suitable bracket. If the engine block position is selected, a flexible liquid fuel line should be installed between the frame and vaporizer as a protection against vibration. The two mounting holes are drilled on 5½" centers. Never mount the regulator too near the exhaust manifold or the excessive heat will deteriorate the neoprene valves and diaphragms in a short time.

FUEL CONNECTION

On new installations, before connecting the line to the regulator, open the tank valve a moment and blow out the fuel line to free it from all tank impurities and metallic chips loosened during the installation. Complete fuel connection from tank through LPG filter, to lower right side ¼" female pipe inlet. Use pipe compound carefully so none gets inside to clog the internal valves. Turn on the fuel tank valve (open slowly so as not to close the excess flow tank valve) and test all points for leaks with soap and water.

VACUUM CONNECTION

Make vacuum connection from ⅛" pipe hole on either side to any spot on the intake manifold. Neoprene or copper tubing may be used. This vacuum line is essential in order to open the vacuum lockoff which is built into the low pressure section. This line does not carry the idle mixture. Note: When starting with a closed throttle, a one quarter turn of the engine will open this vacuum lockoff.

WATER CONNECTIONS

Mount regulator vertically, with water connections at the bottom. Direction of water flow is not important — connect for best appearance or simplicity. If installation is being made on a small truck or taxi which has a hot water heater installed, it will be necessary to connect up in parallel using ¾" pipe tees.

FUEL OUTLETS

This 120 regulator may be used with carburetor adapter, straight LP carburetor, or as a spud-in to the regular gasoline carburetor. Connect dry-gas hose to whichever fuel outlet is handiest for neat installation. Be sure to plug whichever of the fuel outlets that are not used.

STARTING

Starting a cold motor will require a closed throttle position. Or a pumping action that allows the throttle to completely close for a moment (while the starter is turning the engine) will be satisfactory. If the engine does not start immediately, releasing of starter a moment actually primes the unit. On a new installation, before the idle adjustment has been set, it may be necessary to hand choke. This priming may also be done by applying suction to the vacuum connection

ADJUSTING

Once the engine is running and has heated up to operating temperatures, the idle and power adjustments should be made. The idle screw is at the top of the unit. Adjust for smoothest IDLE or highest vacuum by turning IN for RICH—and OUT for LEAN. Power adjustment is made by turning the POWER screw IN for LEAN and OUT for RICH. If an exhaust analyzer is available, it is good practice to check the final adjustments. Power reading should be set at 13.0 or 13.2 air fuel ratio on the gasoline scale.

NOTE

As an added convenience in changing fuels it may be desirable to install electric solenoid valves in both fuel lines. On straight LP conversions, similar to fork lifts, where storage is primarily indoors, an LPG Lockoff is recommended as an added safety precaution.

BEAM 120A GENERAL SERVICING AND ADJUSTING

SPECIFICATIONS

Capacity	Up to 150 h.p.
Type	Liquid withdrawal
Source of Heat	Engine coolant (water)
Regulation	Two stages
Mounting Position	Vertical
Fuel Lockoff	Built-in vacuum-lock
Primary Pressure	5 p.s.i.
Primary Orifice	⅛" diameter
Secondary Orifice	¼" diameter
Weight	4½ pounds
Size	5¾" dia., 4¾" depth

OPERATION OF VACUUM LOCKOFF

The instant an engine begins to turn, (starting with closed throttle) the vacuum-lock diaphragm is drawn down and then the secondary regulator, with the Beam idle system, becomes a slightly positive unit ready for immediate starting. Such a secondary overcomes the necessity of primers or chokes as starting aids.

This diaphragm remains down, out of the way, while the motor is running. Although a vacuum gauge may show a zero reading during heavy pulling, the air velocity past the manifold vacuum connection is still great enough to hold down this relatively large vacuum diaphragm so that it does not interfere with normal operation. When the engine is stopped, the release of manifold vacuum allows the vacuum-lock spring to push the diaphragm bumper against the secondary regulator lever and exert an especially tight closing force to insure 100% shutoff.

VACUUM CONNECTION

This vacuum connection is necessary to open the built-in vacuum lockoff. Any vacuum leaks in this line or fittings will prevent satisfactory operation of the regulator. The diaphragm is held down by vacuum while the engine is in operation. A strong coil spring under the diaphragm insures tight lockoff of the secondary chamber whenever the engine stops and vacuum is released.

Use whichever side of the two possible vacuum connections on the Beam 120A that makes the neatest installation. Be positive that the opposite (not used) ⅛" pipe hole is plugged tightly or the vacuum lockoff will not open.

NOTE: This vacuum connection should be made to the intake manifold. Never connect to the vacuum booster pump as this will hold a vacuum after the motor stops and not allow the diaphragm to close. However, installation can be made to this booster by drilling a small 1/16" hole in the vacuum fitting so as to release this suction several seconds after the engine is stopped.

FUEL TEST BAR Special order only

The aluminum push pin near the idle adjustment screw may be pushed toward the back cover in order to give a test shot of fuel or to determine if fuel is reaching the regulator. This also enables priming of small refrigerated units which have a governor and hence do not permit starting with a closed throttle. This test bar is an aid to starting new installations before idle and power adjustments have been made. After a unit has been properly adjusted this priming should no longer be necessary.

PRIMARY SECTION

If inspection discloses that the primary pressure is above normal, either: (a) the loop spring on the diaphragm has not been hooked under the lever, (b) the primary valve is not seating squarely, or the valve is damaged, (c) the orifice fitting is leaking at the gasket (either loose or damaged), or (d) the primary diaphragm is torn or has worked loose from one of the outside hold down screws. (Although rare, the primary diaphragm breather may be plugged).

If the primary pressure shows too low, check the fuel supply. You may be out of LP-Gas or running on vapor. Also check the fuel line, the excess flow check valve in the tank, or the chance of a dirty fuel filter. After corrections are made, set the tail end of the primary lever at the proper distance from the floor (9/32").

NEOPRENE VALVES (3BRV)

Both the primary and secondary valves are identical and have a swiveling feature which permits easy replacement in the field. Install the shakeproof washer with the cupped side down so as to hold the valve in firm position.

To seat squarely, pull up firmly on the tail end of the lever and with a pointed instrument held against the metal top of the valve, move it around slightly until you feel it seat flat with the orifice. Check both levers for correct height setting of the tail end of the lever.

REGULATOR LEVERS

The proper settings of the two levers are shown in the sectional drawing on the reverse side. When held shut, the tail end of the primary lever should be from ¼" to 9/32" from the floor of the casting. In order to take out the primary lever, the two screws and entire hinge bracket must be removed.

The tail end of the secondary lever must be flush or very slightly above level of the casting, and can be removed simply by pulling the pivot pin. This is held in place by a spring wire keeper which must be sprung back to remove or replace the pivot pin.

DIAPHRAGMS

Both the primary and secondary diaphragms are hooked to their respective levers. When reinstalling the primary diaphragm, be sure that the ends of the flat balance spring ride on each side of the center fuel passage. The loop spring must be hooked under the primary regulator lever.

To remove or replace the secondary diaphragm, it is necessary to unhook the diaphragm center pin from the secondary lever. Depress the vacuum-lock to get this pin past the vacuum bumper peg.

IDLE

The idle mixture in the Beam system is supplied to the venturi through the main fuel passages. This is a great aid in keeping the idle and power adjustments independent. The idle spring holds the secondary valve open slightly. However, this starting and idle mixture is shut off tightly by the vacuum lockoff whenever the engine stops.