INSTALLATION INSTRUCTIONS for the BEAM 102N

VACUUM CONNECTION

Make vacuum connection from the side ⅛" pipe hole to any spot on the intake manifold. Either 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.

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 or with the small hand primer wire at the top of the unit.

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 at either the regulator or at the carburetor, depending on the installation. 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.

OPERATION OF VACUUM LOCKOFF: The instant an engine begins to turn, (start with closed throttle) the vacuum diaphragm (15) 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 auxiliary spring (14) to push bumper (D) against the secondary arm (24) and exert an especially tight closing force to insure 100% shutoff.

NEOPRENE SEATS: (3BR) Both primary and secondary seats are identical and have a swivel action feature which permits easy replacement in the field. Install the shakeproof washers with the cupped side down so as to hold the seats in firm position. To seat squarely, pull up firmly on the tail end of arm and with a pointed instrument held against the metal top of the seat, move it around slightly until you feel it seat flat with the valve port. Check both lever arms for correct settings of tail end of arms.

VACUUM: 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. This diaphragm is held down by vacuum while the engine is in operation. A strong coil spring underneath insures a tight lockoff of the secondary chamber. NOTE: This vacuum connection should be made to the intake manifold. Never connect to vacuum booster pump as this will hold a vacuum after the motor stops and not allow this diaphragm to close. However, installations have been 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: The push pin near the idle adjustment 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 small refrigerated units which have governors 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.

DIAPHRAGMS: Both primary and secondary diaphragms are hooked to their respective lever arms. To remove or replace the secondary diaphragm, it is necessary to unhook the diaphragm pin from the secondary lever arm. Depress the vacuum lock to get the secondary center pin past the vacuum bumper peg. 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 arm.

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 whisker spring wire holds the secondary port open slightly. However this starting and idle mixture is shut off tightly by the vacuum lockoff whenever the engine stops.