

## BLUE RIBBON SERVICE

### 2. F-6 Magneto, 29826-D—

Has "H" stamped on the frame preceding the F-6 serial number. Red magnet. Used on PA-100 Power Unit with gasoline carburetor for 17-1/3° advance (measured on the engine crankshaft.) It is also used on 3-5/16 x 4-1/8 6-cylinder harvester-thresher engine. In this case the spark advance limiting mechanism permits a maximum of 18° measured on the engine crankshaft. This magneto is timed by using the line mark on the distributor gear.

### 3. F-6 Magneto, 32361-D—

Has "D" stamped on the frame preceding the serial number. Has white magnet and impulse coupling housing. This magneto is fitted with a timing link that provides 15° spark advance measured on the engine crankshaft. It is timed by using the line mark on the distributor gear. This magneto is used on the large 6-cylinder Diesel engine. It is also fitted with a special main pawl in the impulse coupling and special engaging pawls. These are designed to lower the "throw-out" speed of the coupling and thus insure easier starting.

### 4. F-6 High Tension Inductor Type Magneto, 60447-D—

A new magneto for 6-cylinder engines equipped to burn natural gas. The new magneto is incorporated as a part of the natural gas attachments for the U-21, PA-40, and PA-50 power units and regular equipment on the PA-100 unit natural gas burning engine, displacing the regular magneto 21448-D in all these applications effective with Serial No. 42286, since a magneto generating a higher voltage is required for natural gas burning engines, especially when engine is operated at slow speed.

When operating power units on natural gas and using them for oil field work, the ignition requirements are much greater than are ordinarily necessary, due to the much higher compression ratio used and the dryness of the fuel, or a higher voltage is necessary to jump the spark plug gap.

The outward appearance on this special F-6 magneto is the same as the standard magneto; however, basic changes have been made to secure the desired increased output. This magneto can be identified by the prefix letter "N" in front of the serial number. The breaker points have been set to .013" for greater point life. This setting should be maintained at all times.

The ignition system of natural gas units should be inspected at the end of every 200 hours of continuous operation or approximately once a week or every ten days. At this time the breaker points should be cleaned and filed, and if necessary, reset. If necessary, repack the fiber grease in the pocket of the rubbing block. Make sure the breaker points themselves are free of grease and oil, otherwise excessive arcing and rapid wear of the points will occur.

Inspect the distributor disc and, if necessary, clean the excessive tracking with a soft rubber eraser. Do not use sand paper or any abrasive material as this will scratch the disc and cause excessive wear of the brush, which in turn will pile up carbon on the brush path and eventually lead to cross-firing. The use of an ordinary pencil eraser is all that is necessary to thoroughly clean the disc.

The quality of the inspection and the care given the spark plugs is one of the most important items affecting the efficiency of natural gas operation in oil field work. Spark plugs should be inspected at least every 200 hours of operation or approximately every week to ten days.

Due to the dryness of the fuel, the severe operating conditions, and the rapid accumulation of hours, the electrodes of the spark plugs may wear to an abnormal gap in a relatively short period of time. When making an inspection, if the spark plug gap has been burned wide, and the electrodes appear to be spongy on the tip, file off this spongy material and re-set the gap to .013 to .018 inches. This gap should be maintained for increased hours of operation between inspection and also for better engine performance at lower speeds under full load.

In checking the gap of the spark plugs as removed from the engine, do not be misled by a gap which may appear to be only .025 inches with a feeler gauge whereas under actual operating conditions the spark may have to jump .040 to .060 inches gap (refer to the illustration.) Turbulance in the combustion chamber will blow the spark in the somewhat circular path as shown. As a matter of fact the spark may never jump the actual gauge gap, but will be required to jump a gap twice as large. Therefore, spark plugs should be inspected every 200 hours, for conditions mentioned above, filed, and re-set to our recommended gap