

## 9. Timing:

### (a) Instructions for using tool No. 38018:

Tool No. 38018 has been developed to eliminate guess work in determining the proper location of the breaker assembly, without the aid of the flywheel. The advantage of the tool is that upon once determining the proper location of the complete breaker assembly, a more accurate adjustment of the governor stem screw and speed adjustment nut can be made, after the flywheel is installed. In other words, it is an accurate means of timing the Multi-Motor.

Remove the magneto plate and take off oil catch ring Ass. 3190. Press the central cylinder of the tool into the hole in the center of the magneto plate, with the long bent finger of the tool between the heels of the coil. Turn the tool until the finger is against the heel nearest the breaker assembly. Loosen the two screws that hold the breaker assembly to the mounting plate, and adjust the assembly so that when the tool is in this position the prong which contacts the breaker blade is just past the bulge on the breaker blade, but resting so that upon moving the finger clockwise the points immediately open to approximately .020".

Observe, when making the adjustments, that the other stud of the tool does not strike the pivot for the breaker blade. The two studs represent the path of the flywheel governor.

Upon locating the correct position of the breaker assembly, install the mounting plate and flywheel, then refine the adjustment of the points with the governor stem screw. It is quite obvious that if the breaker assembly was not properly located the stem screw would also be out of adjustment. Consequently, regulate the position of the stem screw in respect to the opening of the points. That is, turn the screw up or down until you reach the position at which the points open approximately .020".

The speed of the engine can be regulated by the adjusting nut on the screw to which the governor spring is attached. Turn the nut to the right to increase the speed, and to the left to decrease the speed. The speed should be approximately 1050 R.P.M.

- (b) If tool No. 38018 is not available, proceed as follows: With the flywheel in position, adjust stop screw so it is in the approximately correct position in the governor as determined by experience. Loosen screws holding breaker assembly plate and move plate so governor opens points approximately .020". Tighten screws, check spark and refine adjustment of points as necessary. This trial and error method is not recommended unless you are very familiar with the engine. In case the breaker assembly is out of adjustment and, without tool No. 38018 you are unable to make the adjustment, return the complete mag-

neto for repair to the nearest branch office or the factory.

## 10. Starting and Testing Repaired Engine:

- Examine spark plug for cracks in porcelain. Clean and adjust points to .020". Attach plug to spark cable, lay plug on cylinder and spin flywheel. If spark goes through plug, install in cylinder.
- Fill tank with "regular" or a good grade of low test gasoline properly mixed with genuine Maytag oil. Open needle valve and start in the usual manner.
- Check speed. The Multi-Motor should operate at between 1050 and 1100 R.P.M. If necessary to change speed, turn adjusting nut on governor to right to increase and to left to decrease speed.
- If new rings and bushings were installed, the engine should run idle for about 2 hours.
- After engine is adjusted and run in, install the inspection plate, flywheel pulley, and check the nut on crankshaft making certain it is tight and that the cotter pin is in place.

## SUMMARY

### MOST COMMON COMPLAINTS AND METHODS OF CORRECTING:

#### 1. Engine Overheats and Fires Rapidly:

- Excess carbon.** In most cases this results in one or more of the piston rings sticking, which will cause the engine to overheat. Increased friction, insufficient lubrication, or back pressure because of partially closed exhaust ports creates an overload and lowers the speed of the engine until the governor drops back, causing the engine to fire on every revolution. This gives the impression that the engine is running much faster than normal.
- Repair** by removing the cylinder and thoroughly cleaning all carbon from four exhaust and two intake ports, inside of cylinder head, piston, rings and ring grooves. Before assembling be sure that the rings turn freely and are oiled liberally. The gaps of the rings should not be in line and must not pass the ports. After repairing, instruct the operator to use only genuine Maytag Multi-Motor oil, mixed in the proportion of 1 part oil to 16 parts of good regular gasoline.

#### 2. Engine Lacks Power and is Hard To Start:

- This condition is usually due to the engine being dirty and badly carboned as outlined in 1-a, in addition to poor ignition. Poor or faulty ignition may result from a number of causes. The most common are: