

Magneto Instructions

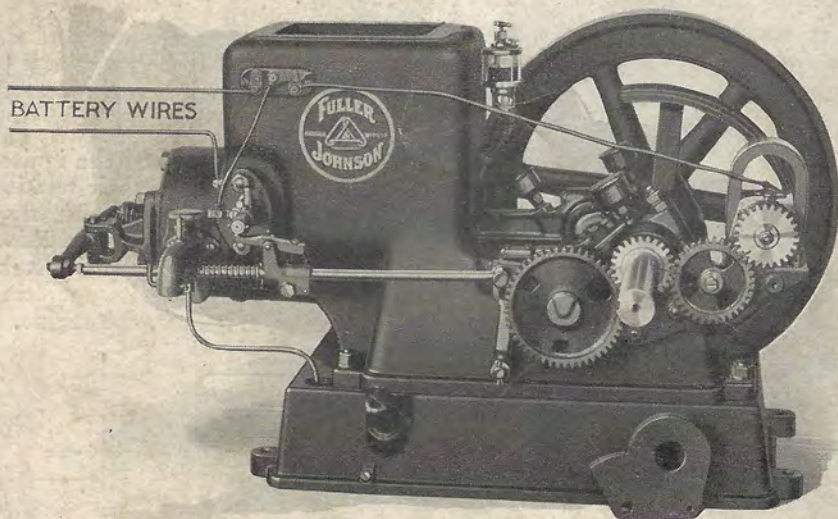
For

Gear Driven Low Tension Magnetos

On $1\frac{1}{2}$ H. P. and $2\frac{1}{2}$ H. P.

FULLER & JOHNSON

Model "N" Gasoline Engines



Switch is supplied on all engines but used only on Engines with both Starting Battery and Magneto

Figure 1

Low-tension, slow speed, geared magnetos as *built in* on the Fuller & Johnson engine, make a most positive and reliable source of ignition.

1. **STARTING BATTERY:** If starting battery is used it is very important that the battery and the magneto be wired to the ignitor through a single pole double throw or 3-point switch as illustrated in Fig. 1. When the switch is in the right hand position, the magneto is connected to the ignitor and the battery is disconnected. When the switch is in the left hand position, the battery is connected to the ignitor and the magneto is disconnected. With this arrangement, there is no possibility of battery current flowing through the magneto winding. If battery current should flow through the magneto winding, it will demagnetize the magnets and render the magneto useless until the magnets are again charged.

2. **TIMING:** To Test—Rotate the engine flywheel in the direction in which the engine runs until the word "SNAP" stamped on the face of the flywheel comes opposite the exhaust push rod, the piston moving forward on the

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compression stroke. *Stop* at this point, and examine the indicator on the magneto shaft to see if it is exactly in line with the mark on the magneto bearing (the mark farthest from engine cylinder). See Fig. 2.



Figure 2

3. If the indicator on the magneto shaft, just back of the gear, does not point to the mark (R) on the magneto bearing (Fig. 2), remove the screws that hold the magneto in place, lift the magneto up and turn the magneto gear until either one of the points on the indicator is exactly in line with the mark on the bearing farthest from the engine cylinder. (This will not be required unless the magneto has been taken off the engine.)

4. If you cannot mesh the gears so that the indicator point exactly registers with the mark on the magneto bearing, mesh them so that the point is slightly past the mark, which position will give a good spark.

5. If the setting is O. K. a good plan is to mark the magneto gear and the intermediate gear (using a small chisel), so that should it be necessary to separate the gears it will be easy to replace them and maintain the correct setting.

6. **OCCASIONAL READJUSTMENT OF TIMING:** When the ignitor has been timed to the engine and the magneto to the ignitor, their relation should not vary. Wear of the ignitor parts and actuating mechanism may cause it to get out of time with the engine and the magneto. Since the relation between the magneto and the engine should not be changed, once it is established, it is necessary to occasionally readjust the ignitor and its operating mechanism, to keep the three in time: the magneto, the ignitor, the engine.

7. CARE OF ENGINE IGNITOR:

Keep the contact points clean and smooth, renewing them when necessary. See that the points touch together firmly when the ignitor closes, also that they open quickly at the firing instant. Oil the moving parts of the ignitor sparingly. See that all moving parts work freely. Keep the carbon cleaned from the inner end of the ignitor, especially around the insulated electrode. Keep grease and dirt off of the mica insulating washers on the outside end of the insulated electrode. Keep the ignitor operating mechanism so adjusted that the contact points come together at least one-sixth of a flywheel revolution, if possible, before they snap apart. This is important. See Fig. 3.

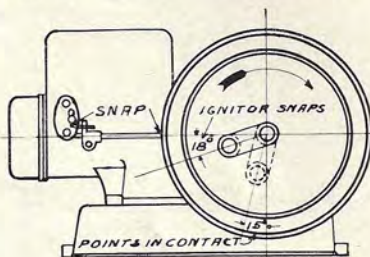


Figure 3

8. **FAILURE OF IGNITOR INSULATION:** The failure of ignitor insulation is first indicated by the engine being difficult to start or by missing after the engine has been running. Frequently if a battery is substituted for the magneto, the engine will operate satisfactorily for a day or two longer because the low voltage battery current does not leak through broken down insulation as readily as the higher voltage magneto current. Whenever this insulation failure occurs, the Mica around the stationary electrode should be renewed.

9. **OILING:** A light grade of oil such as cream separator oil, or sewing machine oil is recommended. Place two drops of good light oil in each of the

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oil cups every ten hours of actual operation. Do not flood the magneto with oil and do not allow it to run dry.

10. **DO NOT TAKE THE MAGNETO APART:** If the magnets are removed, they lose some of their magnetism. If the armature is taken out, this has the same effect on the magnets. There is nothing inside to adjust and if the oiling is carefully watched, the magneto should need no attention.

11. **IGNITION TROUBLE:** In case of ignition trouble:

First Remove and clean the ignitor; carefully file the contact points slightly; scrape off all carbon and oil deposits; replace the ignitor and see that the gasket is in good condition.

Second Examine all wiring and see that connections are tight; that the wire is not broken under the insulation and that the wire does not come in contact with anything except the binding posts on magneto and ignitor.

Third Check up on the timing of Ignition. See Fig. 3.

Fourth Make sure that the ignitor insulation is not partially short-circuited.

Fifth If the trouble is not then found, it will be necessary to take the magneto off, pack it carefully and send it in for examination and repair.

12. **GUARANTEE:** Each magneto is tested and found perfect before leaving our factory and is guaranteed to be in permanently perfect condition if properly used in the service for which it is designed. Any part which may fail because of inherently imperfect material or workmanship will be replaced free of charge within a period of one year, if returned to us transportation charges prepaid. This guarantee is not in effect if the magneto has been taken apart or if battery current has been allowed to flow through the armature.

HOW TO INSTALL AN E-16 MAGNETO ON A 1½ H. P. OR 2½ H. P. FULLER & JOHNSON MODEL N GASOLINE ENGINE

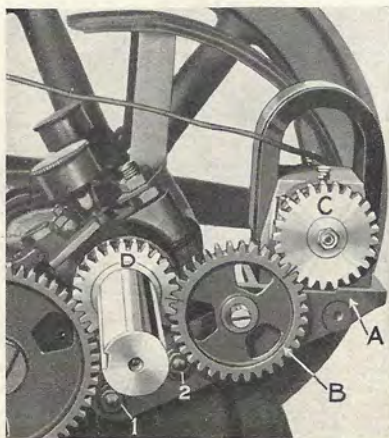


Figure 4

1. This is a gear driven, *timed* magneto and therefore the magneto must be set correctly and in time with the ignitor.

2. Remove the magneto and gear shield from bracket (A).

3. Mount magneto bracket (A) by bolting it to the side of the engine base. Put the bolts (1) and (2) through from the inside; turn the nuts on loosely. Be sure to use the lock washers. The holes are slotted so that the bracket can be adjusted until the intermediate gear (B) meshes properly. Tighten nuts on bolts (1) and (2) so that the bracket will be held rigidly in position.

4. Turn the engine in the direction in which it runs until the mark "SNAP" on

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the face of the flywheel is exactly opposite the center of the exhaust push rod, the piston moving forward on the compression stroke, and see that the ignitor trips at that instant.

5. Mount the magneto on the bracket and start the screws that hold the magneto—being sure to use the lock washers.

6. Raise the magneto up so that the gears are out of mesh and turn the magneto gear (C) until the pointer on the magneto shaft just back of the gear registers on or just past the right hand mark on the bearing (the mark farthest from the engine cylinder). See Fig. 2. Mesh the gears in this position and tighten up the screws that hold the magneto in place.

7. To Test—Rotate the engine flywheel in the direction in which the engine runs until the word "SNAP" stamped on the face of the flywheel comes opposite the exhaust push rod, the piston moving forward on the compression stroke. *Stop* at this point and examine the indicator on the magneto shaft to see if it is exactly in line with the mark on the magneto bearing (the mark farthest from engine cylinder).

8. After the magneto and bracket are all in place and nuts set up tight see that there is a little play between the intermediate gear (B) and the pinion (D) and also between the magneto pinion (C) and the intermediate gear (B). If these gears are too tight the bearings will heat and cut out.

9. Mark the gears with a small cold chisel or center punch, so that if the magneto is ever removed it can be replaced without losing the setting.

10. Put on the magneto gear shield.

The Fuller & Johnson Mfg. Co.

Established 1840

Madison, Wisconsin

Manufacturers of

The Farm Pump Engine.

Model "N" Gasoline Engines, stationary and portable $1\frac{1}{2}$ to 12 H. P.

Model "K" Kerosene Engines, stationary and portable 3 to 25 H. P.

Special Pumping and Sawing Outfits, etc.