

Look Beyond the Obvious with Bad Scope Patterns

By Richard R. Vensel

Following are the existing conditions of the IG Ford alternator under discussion:

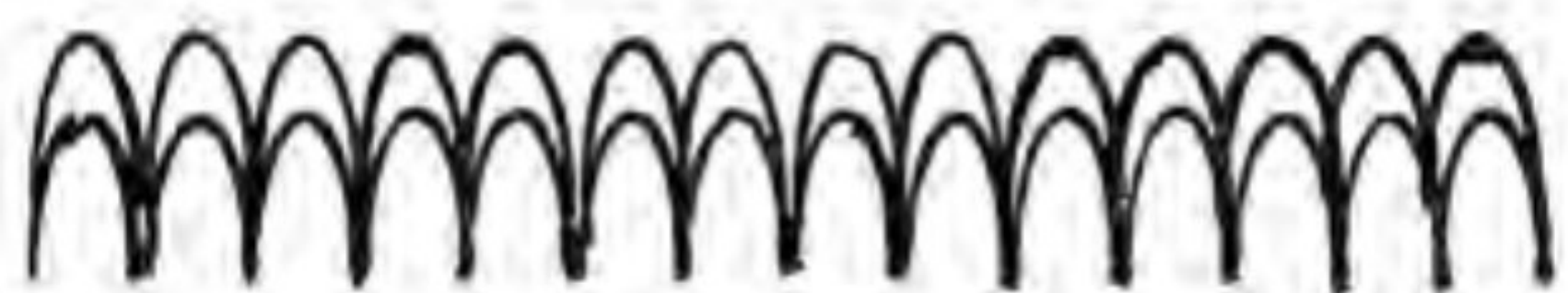


Parts replaced: rectifier, rotor, stator, bearings and brushes.

Sound indication: loud growl like a bad stator and louder while charging.



Good Sample Pattern



Pattern Under discussion
(With all major parts replaced)

Test bench indication: OK rotor draw, good cut in rpm, good amp output.

What do you think this is indicating?

What we are seeing here is a noise mixed with the normal scope pattern. This produces a distorted pattern like above. This distortion can also be a snakelike pattern across your screen and sometimes fine lines running above and below the “Good M” pattern.

So what caused this weird pattern?

A bad needle bearing caused this pattern. This is not unusual on Ford units with needle bearings. The OD of the bearing could be too large, or the housing could have been left in a steel shot machine too long causing it to expand, or the housing could have been knurled too much.

This problem can be fixed by pressing the old bearing out and reinstalling two times. This corrects the hole size. Then replace the bearing with one that has the correct OD.

In conclusion, not all bad patterns are caused by electrical problems. It pays to look further.

Thanks to Kenneth Thompson of Thompson Electric in Minden, Neb. for the sample scope patterns.

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