

WHY WON'T IT RUN? PART V

By Dick Ray

Previous articles in this series have tried to help get a car running after it has broken down. Of course, we assumed that it started and ran properly in the beginning. As you know by now, that is not always the case.

Maybe you recognize this scenario: Good ol' Charlie arrives early at the set-on point, unloads, and gets his cameras, food, Pepsi, and boombox stowed in his car. Eventually he starts cranking . . . and cranking . . . and cranking, with no effect. While others are learning about the history and scenic highlights of the railroad, he is lying under his car hammering on something. Finally, just as the safety briefing starts, the car does also and half of the people can't hear what is being said. He can't shut it off now because it always starts very hard and it may not restart. Charlie has his own unique way of starting his car and never accepts suggestions on how to do it easier. After all, he is the only one who understands this hard-starting car.

Of course the foregoing is an extreme case, and could apply to a two-stroke, an Onon, or a Waukesha/Hercules engine.

The best advice for starting a two-stroke engine is given by Fairmont:

- Adjust the mixture to 1 1/2 to 2 turns open.
- Retard the timing slightly.
- Adjust the throttle to 1/3 to 1/2 open.
- With the ignition off, crank the engine over several times while holding the choke knob up.
- Turn on the ignition, release the choke, and lift the crank once--HARD.

In normal service and weather it should start. Extreme cold or a long storage period will require more priming.

The big single cylinder engines are very easy to start because of the huge flywheels. Some owners flip the flywheel and bounce the piston off compression to start it. Priming is difficult without a crank, and fuel must be dripped into the priming cups.

The RK two-cylinder engine has a somewhat undeserved reputation for being hard to start. Once all the ignition and fuel system problems are made right, the engine can be easy to start. Just follow the Fairmont instructions with several cautions. First, drain the crankcase if the car has been sitting overnight or longer. A lot of oil and gas condenses in a twin because of the large surface area in the crankcase compared to a single. Next, prime it with only two or three revolutions. Remember that fuel is drawn into the crankcase only when the piston is moving up on compression. If you lift

the crank slowly as you try to overcome the compression force little fuel will be drawn in. Overpriming and flooding is easy because there are two cylinders pulling air through the same size carb as is used on the single. This creates a rich mixture.

Once flooding occurs in the crankcase the excess oil and gas is sucked into the cylinder where it lodges in the spark plug gap. The plug can't fire because the oil is a better insulator than air. In addition the transfer ports in a twin have a low spot where excess oil and fuel can collect. Don't forget to check the screen between the crankcase and transfer ports in a twin. This could get plugged with oil residues.

Another factor which affects starting a twin is the relative lack of flywheel inertia. While the one flywheel weighs as much as two RO flywheels, it is smaller and has less inertia. The compression forces are twice as much. If, when cranking, the timing is retarded too much the flywheel cannot carry the pistons up over top center again. If the timing is advanced too much, the engine can fire and simply stall in place.

So the RK has worse gas flow and less flywheel compared to a single and this tends to make it more intolerant of poor starting techniques. One way to learn the starting technique is to start your RK engine every few days and warm it up. Use the identical technique each time and change only one thing at a time. You may need a dozen plugs before you are done, but it will pay off in the end.

Starting a four-stroke engine is simple for those old enough to remember manual-choke automobiles. Pull the choke out, open the throttle slightly, turn on the ignition, and crank it over a few times. If it doesn't start, open the choke half-way and try it again. This procedure gets some raw fuel into the intake manifold and cylinders. In cold weather it is necessary to wait for a moment after choking so that some of the fuel can vaporize into a combustible mixture. If you flood the engine from excessive choking and cranking (and maybe forgetting to turn on the ignition) simply open the choke all the way, open the throttle all the way, and crank it for five seconds. If it doesn't start, wait fifteen seconds and do it again.

Back to Good ol' Charlie's car. Part of his problem is due to all of the improvements he has made. A 10 to 1 mix of mink oil in avgas with a little benzol for stability, his special aircraft sparkplugs which he cleans and re-installs after each run, his megaphone exhaust system, his special secret timer point adjustment, and the eight layers of shiny aluminum paint on his coil all contribute.

Few things in life are more satisfying than returning your motorcar to the factory specifications, and having it start and run perfectly after that.