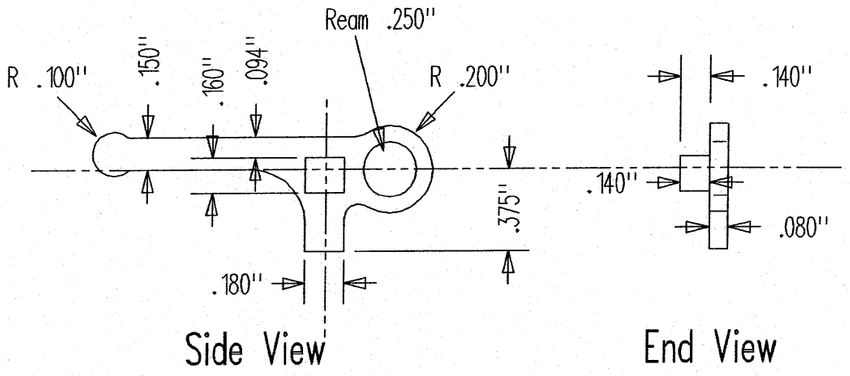
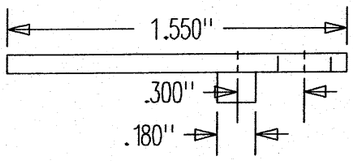


Side View

End View



Top View

Timing Advance Arm

Material: Delrin

The "Bill" engine was designed to use the TIM-6 transistor ignition module and a Hall Effect sensor magnetic pickup. If you have aversions to electronics, you can use mechanical contacts of your own design instead. In that case I would recommend the mounting of a tiny arm type micro switch such that the arm is activated by the cam lobe. Keep the dwell time as short as possible with this set up. I am sure you will be able to take it from here. You will still need the TIM-6 circuit because micro switch contacts can't handle the current draw of an ignition coil and will not last long before they fail. TIM-6 takes care of that problem though.

Use super glue or epoxy to mount the magnet in place on the cam gear. As noted below, the center of the cam lobe is 4 gear teeth clockwise of the magnet. The drawing is looking at the cam gear from the engine side.

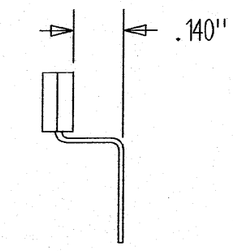
Spread the leads of the Hall sensor apart in crows foot fashion to solder the wires to them. Use as small a stranded wire as possible and hold each lead with needle nose pliers or heavy tweezers as heat sinks during soldering to prevent heat damage to the sensor. The wire I use is .016" diameter and is .028" diameter over the teflon insulation. Radio Shack or other electronic stores should have this.

Cut the heat shrink tubing that I include in the TIM-6 kit in thirds and slide them up the Hall sensor wires and over the solder joints and shrink them on with a little heat from a lighter flame while being careful not to allow the Hall sensor to get hot. Wind a layer or two of common sewing thread around the leads as shown and secure with super glue.

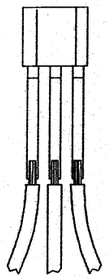
When Delrin is reamed, the hole will be a tad on the small side which will make the arm a friction fit over the Cam Post Bushing. Push it up against the engine crankcase. The arm requires no retainer or anything. It will stay put wherever you position it. Raising the arm advances the timing and lowering the arm retards it. Route the wires down and away from the engine and allow a small amount of slack in the wire for bending as the timing lever is moved and exit the wire through an appropriate hole in the engine base. Make sure the wire will not be able to get against the cam gear.

Don't forget to provide a ground wire from the engine frame to either the coil or the circuit board according to the directions included in the kit. Failure to do so will result in the high voltage of the coil spark to find its way back to the coil through the Hall sensor which will destroy it.

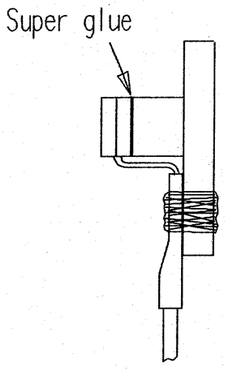
You will find that once properly installed, a Hall Effect sensor pick up will last almost forever and require no further adjustments.



Bend Hall Sensor leads to fit arm

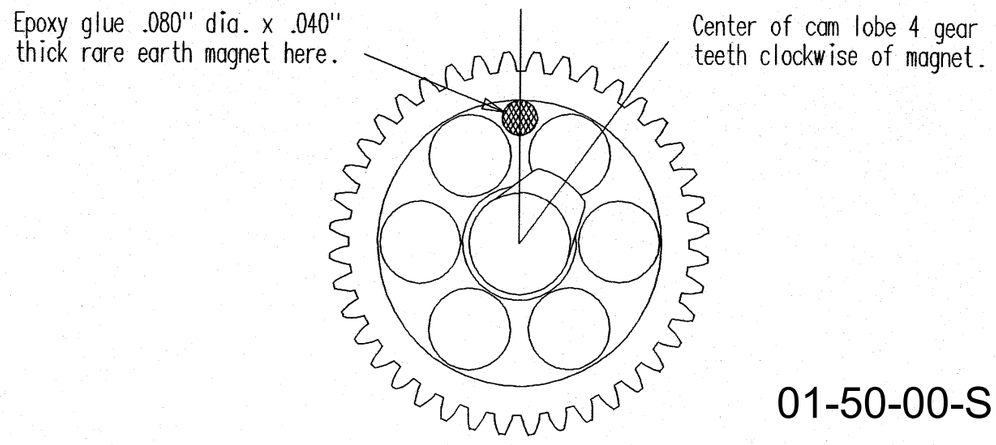


Solder wires to the Hall sensor leads



Install heat shrink tubes and bind Hall leads to arm tab with thread and soak with your favorite glue.

Use the smallest stranded wire you can get.



Hall Sensor/Timing Arm Assembly

01-50-00-SHT-07

Jerry E. Howell 3980 Becket Drive Colorado Springs, CO 80906 Model Project Plans & Kits	Project: **"Bill" - 1906 Four Cycle Gas Engine**		
	Sheet # **15**	Date: *06/20/02*	By: *Jerry E. Howell*
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