Technical Notes
Radiator – Are You in Need?

By Lynn Sondenaa

Let me first explain the cooling process of a radiator. The water pump circulates the hot water from the cylinder head and block to the top tank of the radiator. This part of the radiator has a tank that is divided into rows of tubes. Each of these tubes has cooling fins attached to them. AS the hot water flows to the lower radiator tank, the heat is cooled by air currents passing over the fins. The fan helps to draw air through the tubes and fins. The faster the Model A travels the more air flows to cool the water.

Specifications of original stock radiators

	1928	1929	1930	1931
Number of tubes	101	101	95	95
Number of rows	3	3	3	3
Number of fins	5*	8*	5 or 8**	5 or 8**

Note: * 1928 radiators tended to overheat so the amount of fins was increased.
** In 1930 & 1931 Ford offered heavy duty radiators which had 8 fins/per inch.

Now before you rush off and have your radiator record or purchase a new one, consider these causes of overheating:

- Loss of water*
- Low speed driving (parades)
- Spark retarded too far
- Incorrect dash adjustment of carburetor
- Loose fan belt
- Incorrect over flow tube height or angle
- Lack of engine pans (A-6775 & A-6776)
- Type of fan (2 blades, 4 blades, 6 blades)
- High compression head
- Decorations on the radiator (badges or emblems)
- Damaged tubes or fins
- License plate on headlight bar**

*Natural causes of water loss are evaporation and boiling. **On 1928 & 1929 models the license plate really affects the air flow. I use a 1935 Ford license plate bracket that mounts the license plate of the bumper bracket. It is not as critical on the 1930 & 1931 models as their radiators are taller.

A person can do a quick home test of the radiator tubes by using a non-contact infra-red heat sensor. The engine must be at operating temperature. Start at the top left and move from top to bottom. A difference of 50 degrees usually indicated a blocked tube. Ok, now you have decided to rescore or purchase a reproduction radiator. Remember the more fins per inch equals the greatest cooling efficiency. I would highly recommend that foreign reproduction radiators not be used. They are usually not well made to fit the radiator shell and they don't have the 3 clips on the lower tank to hold the wiring harness for the headlights.

Do you want more cooling power? A pressurized radiator can increase the boiling point by about 12 degrees. The down side is the stock Model A is a non-pressurized system. Be sure your engine block is good with no cracks or JB Weld repairs. Also it would be wise to seal the inside of the water jackets with "Irontite Seal" for added protection against cracks. One last thing to mention! Radiators can be purchased with round tubes or flat tubes. The pros say the flat tubes are more efficient.

Why do radiators cost so much? If they are good quality they are constructed from brass and copper. These are semi-precious metals sold on the commodity market. Thus the better constructed radiators have more metal, costing more money.