2012 ACA Meet Information Inside

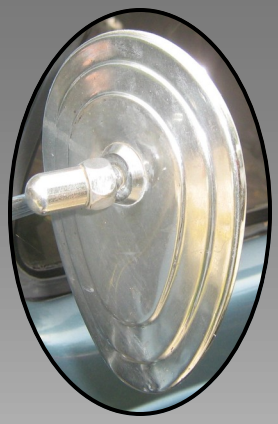
Airflow NEWSLETTER

March 2012

Volume 51 Number 3

Exclusive Article ! Page 3

Jon Clulow on .....Fleeting Airflow Overheating



Art Deco all the way—page 5

See Marketplace

DEDICATED TO THE RESTORATION AND PRESERVATION OF CHRYSLER AND DESOTO AIRFLOW MODEL AUTOMOBILES AND DODGE AIRFLOW TRUCKS-THEIR RELATED HISTORY AND LORE. OFFICIAL PUBLICATION OF THE AIRFLOW CLUB OF AMERICA, A NONPROFIT ORGANIZATION FOUNDED JUNE 1962.

Fleeting Airflow Overheating

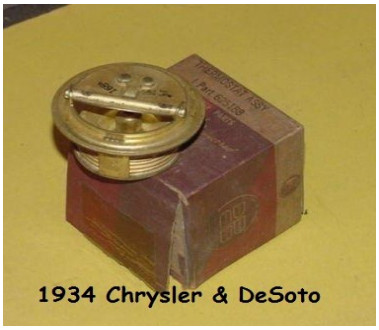
By Jon Clulow
Technical Help by John Spinks
Photos by John Spinks & Jon Clulow
Drawings by Ed Fogelmark & Nick Clulow

The following article is a step-by-step overheating solution guide that I compiled after having had trouble with my C10 Airflow going into the high heat range. After reading about many different corrections. and having the good fortune of the great direction of John Spinks of Australia, I have finally achieved my goal. The running temperature keeps in the 180-degree range, which is very good for an Airflow.


1936 - 1937 Chrysler & 1936 Desoto

With any cooling system a lot of things can go wrong, and it is hard to know where to start. We will go through this step by step to help you identify and solve your problem. Usually overheating is not an issue with DeSoto Airflows as they have a shorter engine, are lighter, and have proportionally larger cooling systems. The Chryslers and DeSotos rely on internal water channels, except for the S2, which can prove to be problematic. Most experts recommend looking at the simplest components first; usually that would mean the thermostat. Take the thermostat out and place in a pan with water on the stove with a candy thermometer. The valve should open about 1/2 inch at 165 to 180 degrees. One should always have a thermostat in your cooling system. This is not just to get your motor to an operating temperature quickly, but it's designed as a flowing and restricting device to maintain the proper temperature. Keep in mind that for most years of Airflows the thermostats are different; only 36 & 37 Chryslers and DeSotos are the same.

Experts agree that water does an excellent job dispersing heat, and antifreeze (Ethylene glycol) doesn't do as well. The obvious benefit of antifreeze is to keep fluid from freezing (to 2 degrees F. for 30% solution) but also helps prevent corrosion, lubricate the water pump and raise the boiling point of the mix (to 220 degrees F. for 30% solution). The best course is to maximize the benefit of both by mixing 70 % distilled water with 30% Ethylene glycol (Not Propylene glycol). The next is to add a bottle of Water Wetter. The recommendation is a 12oz bottle for every 20 quarts of a system. Water Wetter should be added annually.


1934 Chrysler & DeSoto

Capacities

CU/CV	23 quarts
C1 / C2 / C3	19 quarts
C9 / C10 / C11	17 quarts
C17	17 quarts
SE	20 quarts
SG	17 quarts
S2	19 quarts

The next consideration is the carburetor/ manifold pre-heating system. It consists of a small weighted spring-loaded arm and internal flap on the base of the exhaust manifold.
One should move the arm upward (clockwise) and observe the opposite side to see if the shaft rotates; sometimes they are stuck. Free it up if necessary, start the car, and watch to see if the bimetallic spring moves the arm/flap upward. If it does not, you may have to temporarily wire it to its full clockwise position. If the flap stays in the closed position, it will continue to redirect and trap hot exhaust gases directly to the intake manifold, generating more and more heat in the engine.

Insert the Plug Between the Waterpump and the Thermostat Housing

Another issue is the pre-heat bypass system. There is no doubt that all of the thermostat/bypass housings have a fair amount of corrosion. There is no way to expect the original style thermostat will seal hot water out from the bypass system in the wide-open position. David Askey and others proposed that one should permanently block the bypass tube. If one does not, the hottest water in the system will be recycled directly back into the motor without a chance to cool. I know a lot of you are concerned that the engine will take longer to heat up with this and the manifold preheat be inoperable. It certainly will, but we can live with it. When the engine is running cold, just set the hand throttle up a little to compensate for rough idle or no idle until it heats up.

To block the bypass hose you will have to use 50 cents (2 quarters) and center drill holes for a bolt and two nuts. Next drill a small hole in the periphery of both quarters to allow for air to escape from the hose. Insert the bolt though the first quarter, attach the first nut as the spacer, add the second quarter and a lock washer then the second nut and torque it down. Insert it in the small hose and install the thermostat housing and clamps. Keep in mind that the bypass blocking will allow you to install a modern-type thermostat, but this may take some experimentation. The proper flow rate through your cooling system is important. Modern thermostats should have a few small holes to allow air to escape.

Timing is another consideration. There is a lot of leeway in the big eight engine timing so don't be overly concerned. I propose that you retard the timing as much as you can before it runs rough. If the timing is too advanced, the engine will generate more heat. Anyone can tackle this easily; all you need is a vacuum gauge and a small rubber hose to the intake manifold. Hook up the hose to the intake manifold via the windshield wiper connection. Plug the vacuum advance tube. Loosen the distributor just enough to be able to turn it. Start the engine, allow normal running temperature, and then rotate the distributor to get the highest reading on your gauge. Turn the distributor clockwise fractionally just before it starts to drop off. A tachometer would be a big help here. This is a very simple procedure. This is the most accurate way to time an old engine due to an old dampener and other worn parts in the engine.

Even if you are not experiencing heat problems, it would not hurt to take these precautions. All of our engines are getting older, more corrosive, and some parts more worn to the point that heat is on your horizon. So, make a preemptive strike; hold back that heating devil. Just think of modern traffic jams that can occur anywhere at any time. Those hot summer days can sneak up and have you stranded just a block away.

OK, so none of this helps--what's next? Is there blockage in the radiator? One easy way to tell is a non-contact thermometer gun. The radiator should be progressively cooler from the top to the middle to the bottom as well as somewhat uniform crosswise. This gun is a good way to verify your temperature gauge for accuracy. The price of these guns has dropped considerably. You may have had the radiator re-cored but the motor's crud could have transferred into it in short order.

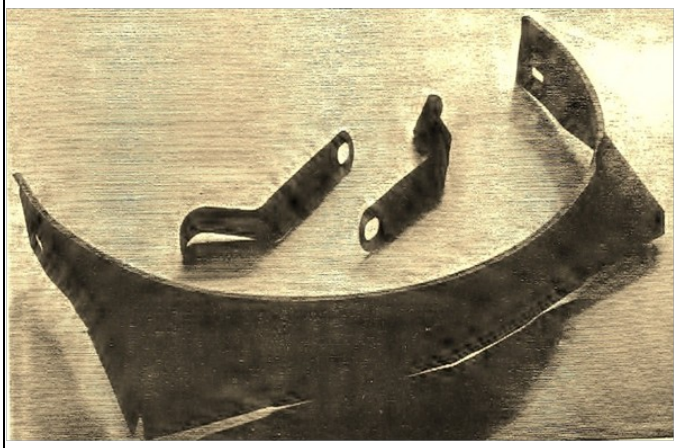
If there are uniformity issues, the radiator will have to be flushed out. I recommend having it professionally done. If it needs to be re-cored, one may contact Rex Barrett @ (630) 893-8312 to have the odd Airflow radiator done. Another possible shop is Ace Radiator Service,724 West 9th Street, Chico, CA 95928, or The Brassworks,500 Linne Rd.,Unit I, Paso Robles, CA. 93446, @ (805) 239-2501.

This next cooling solution will be controversial, and it is up to the individual to determine if this next course of action is valid for their Airflow. Keep in mind the variances of cooling systems through the Airflow years. In early 1934, both Chrysler and Desoto had larger 6-inch cast pulleys. Later they reduced the size to five and five-eighths for the C1, C2, C9, C10 and C17, then to four and five eighths inches for the SG and S2.

As John Heimerl alluded to in his latest cooling article, there must have been cooling problems since Bishop and Babcock (thermostat makers for Chrysler) altered their thermostat and housing three of the four years of the Airflow. Since all of these modifications lend to more flow and faster circulation, did they achieve their goal? Even the last year of Desoto, they added a water distribution tube.

Let me set the scene back in 2009 as John and Diane Spinks traveled across the Mojave Desert with us when it was 120 degrees Fahrenheit ambient temperature. My C10 was cresting 260 degrees engine temperature. Keep in mind I was running Evans Coolant which is not water based and will not boil. Both our bodies and minds were sweating. We decided to slow down and our engine temperature immediately dropped. If we kept a lower speed our temperature was more reasonable. I understand if there is less combustion, there is less heat; however, that led us to believe the fluid was moving too fast to efficiently cool the engine. I have tried the six-bladed water pump, and it did not change a thing. There are examples of engines, such as the early Ford V8s that benefited by restricting water flow. So I tried it. One more factor that has to be considered is that my radiator was re-cored which allows faster flow. I installed a half-inch restricting nozzle in the thermostat outflow hose, and it helped drop the engine temperature. This may be something you might want to experiment with; it may or may not help.

Most of you have heard the Carl Breer fan safety shroud story. Carl stated at an Airflow meet that the shroud unexpectedly dropped the engine temperature. I had my son-in-law Rob construct one from John Heimerl's plan;, the benefit other than keeping your fingers, hands and head out of the way, is very minimal, but it was a help.



This article will be concluded next month

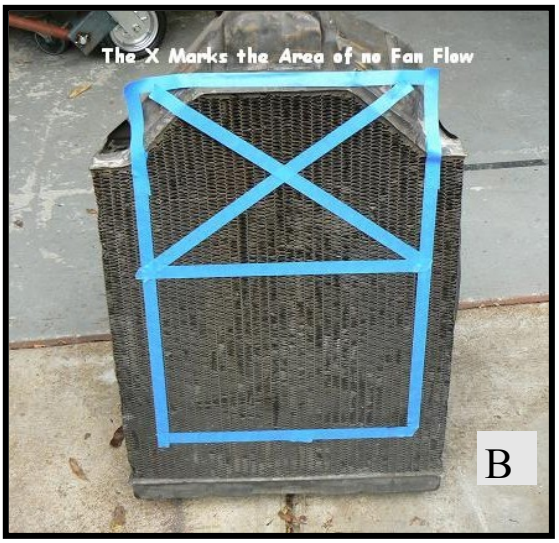
Like Cool Mirror?

Member Gary Grossich of Bloomington, California has one of the more unique mirrors on his DeSoto Airflow S-2.. Anybody else?

Fleeting Airflow Overheating Part 2

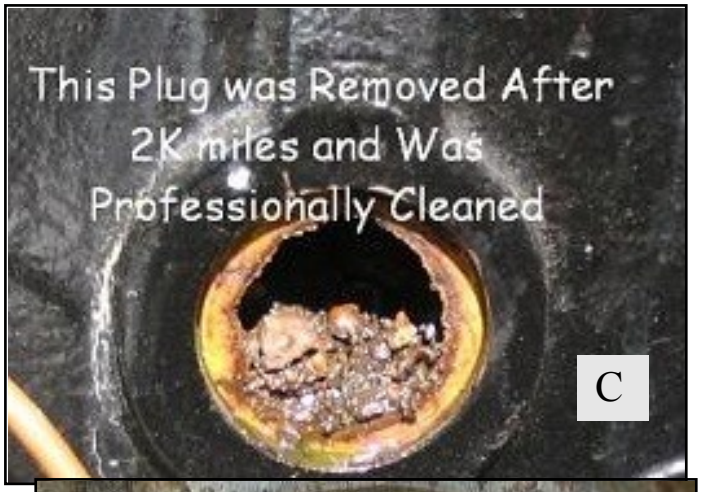
A continuation of John Clulow's overheating article; technical assistance by John Spinks

The crank-shaft mounted fan moves air through the bottom part of the radiator but is somewhat lacking in moving air through the top. One might consider mounting a 6-volt fan on the upper part of the radiator (photos A and B); however, the electric fan creates a couple of problems: one) it looks unoriginally hideous, and two) it will probably put undue strain on your electrical system. I made mine very easy to remove with a clamp at the top and a wing nut at the bottom. To combat the strain you can install an alternator to up the amps; however, it will not look original. An alternative to an alternator would be a Gener-Nator (gener-nator.com). It is a self-regulating alternator in your generator shell. This can also be a solution to all your electrical charging problems, especially if your regulator went bad and you can't find a new one. Mine has been installed for over 12,000 miles and still charges well.



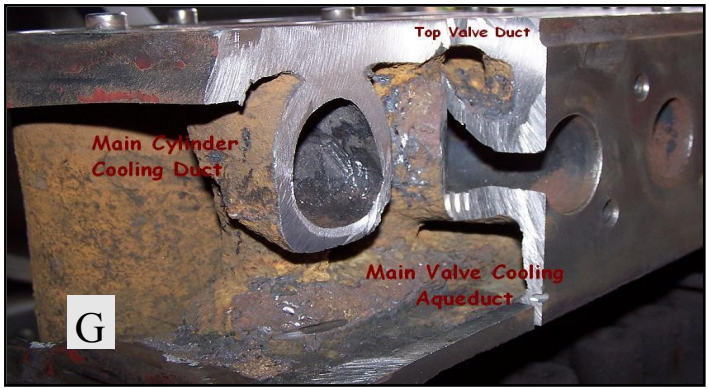
Among other issues one might look at is the carburetor jetting; the larger jet size .053 will help to keep an engine running cooler (AAV2 .051). More fuel will have a cooling effect. Also, valve timing and gap setting is critical in a cool running engine. And exhaust restriction can play a factor, as well as dragging brakes.

I saved the hardest for last; it has to do with the cooling of the engine through the water passages. If they are clogged, there is no way your engine will run cool. If all else fails, this has to be it.



To access the passages one should remove the head, freeze plugs,manifold studs and head studs (photo C).

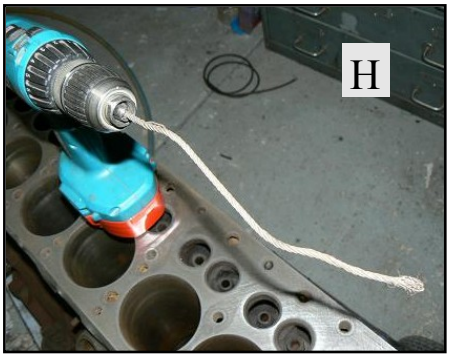
Next procedure would be to protect each valve set and cylinder. Be very careful to clean the block deck thoroughly so the tape will adhere well (Photo D). Tape and cover each area to seal out all the flying debris. Stuffing clean rags in the cylinders is an added measure of protection.

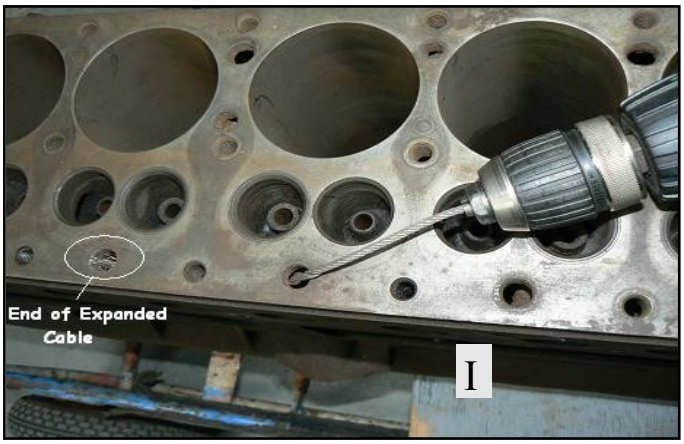


Warning: cleaning the water passages is very tedious and time consuming. To realize the area and depth of the necessary cleaning, John Spinks reverse engineered an Airflow block for us.(photos E, F and G above).

You can see there are three main channels (photos E, F and G) that may have debris. It could have rust, scale or sand. Sand was used in the original casting of the block, due to the seven degree tilt back of the engine; sand may still be left from the original casting of the block. Years generate the rust and scale. Sometimes it takes no time at all, especially if your engine has been sleeved as the one in the freeze plug image.

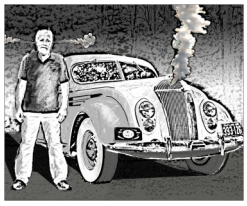
To achieve the proper level of cleaning, John Spinks developed the following technique to clean the three major cooling ducts.First obtain a cable to be attached to a drill as the one pictured. Any large hardware store will have this size cable. Start from an end and work your way through (photos H and I).





Make sure you have the drill rotating in the opposite direction than the cable is wound so as it flails it will unwind a bit to dig into the debris. Reverse direction will help to remove the device. Use a high-powered air pressure gun to work it all out of the block (J). Do not be concerned about damaging the interior of the water passages. Be reassured by the thick metal passages as seen in the previous images. Take your time and do a very thorough job (K). Clean between the cylinder pairs and the valve areas as well as the three main channels (K and L). Expect to spend many an hour completing this task, but it is well worth the effort.

One last measure that I am a little reluctant to mention is the boring of holes in your block and head. This procedure is potentially devastating if a mistake occurs. The justification for this process is the additional holes stamped in your head gasket. The holes were obviously added in later model engines to aid cooling. All you have to do is mark all the gasket's non-bored holes except for the front two over the water pump mounting area. Please be careful to angle all holes inward away from the block and head edges and other drilled holes. You will note that the majority of extra holes are in the back part of the engine where the cooling is most needed.



This is all I have but let me assure you, these are the best ways to cool your wheels.