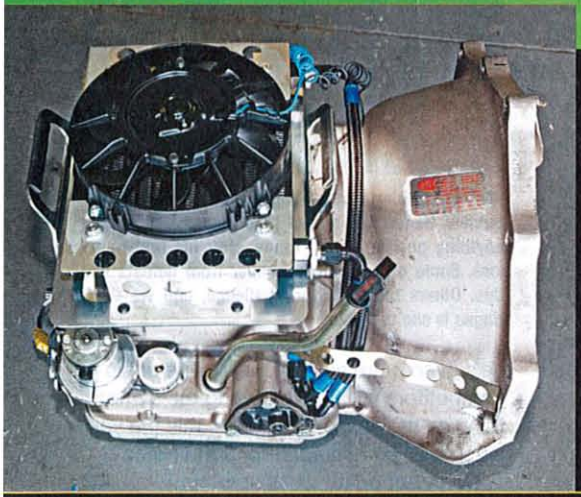
KEEPING YOUR COOL

FINALLY—A WAY TO PROPERLY COOL YOUR TRANS AND CONVERTER



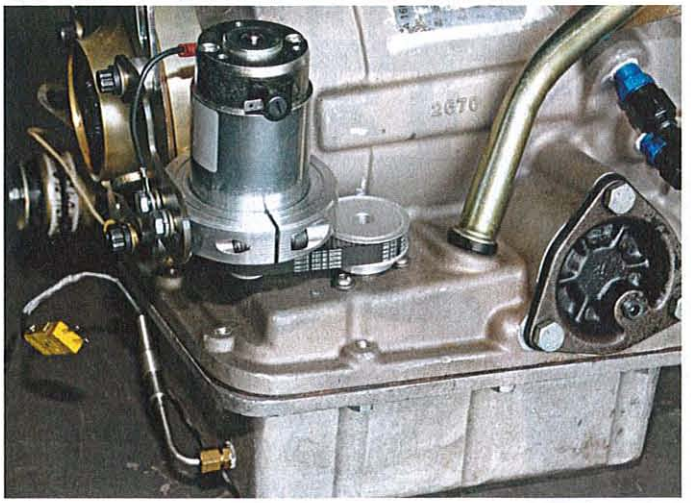
ATI's SCS-30 Cooling System will cure the age-old problem of not being able to properly cool your transmission between rounds.

BY JOHN DiBARTOLOMEO

When it comes to drag racing, it's all about keeping your cool, in more ways than one.

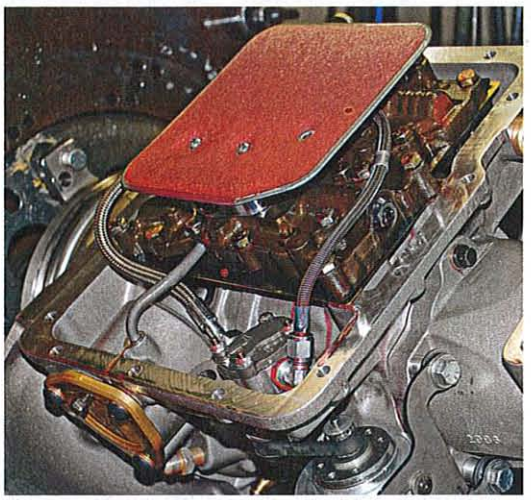
Racers found out quite a long time ago that the use of an electric water pump allowed them to circulate cool water through their engines between rounds. This helped to keep the engine at a constant or consistent temperature, with the key word being consistent.

However, the concern has always remained heat in your transmission and torque converter. With just an oil cooler attached to the transmission's cooler lines, the only time hot fluid flows through it is when the engine is running and the torque converter is spinning. After a few back-to-back runs, the temperature of the transmission oil can reach extremely high levels. Attempting to cool the trans at that point becomes a lesson in futility.



The basis of the SCS-30 is an internal oil pump that is driven by this external motor capable of being used on either 12v or 16v systems. The internal oil pump allows fluid to flow through the transmission even when the engine is turned off.

Jim Beattie of ATI Performance said, "Once the engine shuts off, oil flow stops. This means that super-hot oil lies in the converter and in addition, vital surfaces in the transmission are starved for lubrication. At that point, the only way to properly cool the trans is to ice the cooler and start the engine a few times. This will suck the fluid out of the transmission pan into the torque converter (pushing out the trapped hot fluid), back to the transmission cooler and return into the pan, completing the cycle."



Inside the transmission pan, the internal pump is plumbed through a modified valve body that is equipped with check valves that allow transmission oil to flow in a normal pattern while the engine is running.

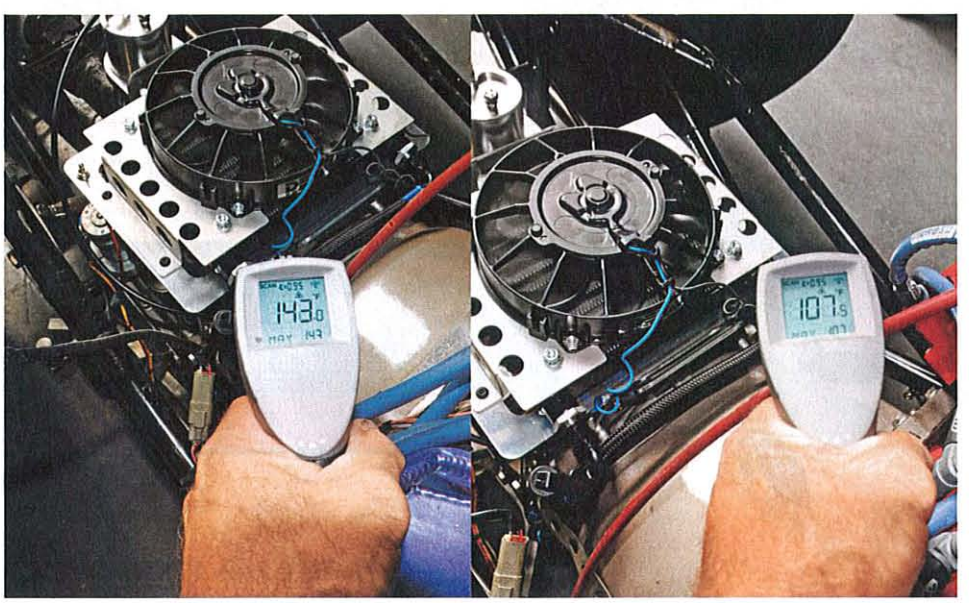
If the concern is to maintain a constant temperature for all components in your car, having very little control over transmission fluid temperature becomes a problem. The hotter the transmission fluid, the more the viscosity of the oil changes, which will allow the oil to flow differently. For a piece of equipment that is predicated on oil flow, it can have an adverse effect on how the transmission or, in this case, the transmission's converter acts. Change the characteristics of the converter and you'll quickly change how your car reacts. The big question is: How do you control transmission temperature?

Beattie said, "Adding an additional pump that could be run when the engine is off was the only solution similar to what we've done over the years with the use of an electric water pump on your engine. With the pump we can move fluid through the converter and into the cooler and back to the transmission. In this manner, everything is cooled quickly.

"However," Beattie added, "designing a pump and system that could take the heat along with plumbing it through the transmission passages with check valves that would allow the transmission's oiling system to work as originally designed all posed problems to be overcome."

The answer eventually was ATI's SCS-30 Cooling System, which is a heavy-duty, extreme temperature, all-metal pump that is mounted within the company's Powerglide SuperCase and so unique as to be awarded a U.S. Patent. It can also be installed in any stock Powerglide case. An external motor that can also be used on either 12v or 16v systems, drives the pump that circulates oil through the valve body, converter, trans cooler and all transmission oil circuits.

A valve body with a simple modification and corresponding check valves allows the electric pump to be run at all times if so desired. When the engine is running, oil flows through the transmission in its normal pattern. Once the engine is turned off, hot oil will continue to flow, allowing critical lubrication pressure to continually flow oil through the trans cooler. At that point, it functions exactly as if your engine were running, completing the cooler circuit normally supplied by the transmission pump, into the converter, out to the cooler and back to the transmission, all with the ability to move 30 gallons of hot fluid an hour through your oil cooler. A fan mounted on the cooler will help to move air, which will completely cool your transmission and converter between rounds to increase consistency and reliability. In this manner, transmission oil cooling begins immediately after a run even if the car is towed back to the pits. The 12v motor can be wired to run all the time or with a switch to run only when required. An optional temperature sensor can be wired and installed to allow you to utilize a preset temperature for the SCS-30 to turn on and off. The SCS-30 system typically cools the trans and converter to ambient temperature in 15-20 minutes using a radiator-style and fan-mounted cooler.



The benefits are obvious. With the engine off and the SCS-30 running through an ATI fan-mounted cooler, temperature readings both in and out of the cooler clearly shows the advantage. The SCS-30 system will typically cool the trans and converter to ambient temperature in 15-20 minutes.

Another advantage to the SCS-30 is the ability to properly fill your trans and converter without the need to start the engine in order to check the fluid level.

Another benefit to the system is the ability to completely fill your transmission, converter, cooler and lines without having to start your engine. Changing your transmission oil is usually completed by draining and dropping the transmission's oil pan. The problem with that is there is still quite a bit of oil that continues to lie inside the converter as well as the trans cooler. With the SCS-30 system, you can change the oil in your transmission and completely flush the converter and cooler lines without even having to drop the transmission oil pan.

While the pump and lines itself are completely contained inside the transmission, the 12v motor and pump pulley must be mounted externally, which requires holes to be drilled in either the stock or ATI SuperCase.

Beattie said, "Many racers wait until they're going to buy a new case or certification is up on their present case. Installation requires a valve body and filter spacer modification and we offer a $275 credit for an out-of-certification or old aftermarket case trade-in, or no charge on recertification of an ATI SuperCase with a transmission rebuild."

The bottom line to all of this is there is now an answer to the age-old problem of how to cool a transmission and converter between rounds. DRA

SOURCES

ATI PERFORMANCE PRODUCTS
6747 Whitestone Rd., Dept DRA
Baltimore, MD 21207
410-298-4591
www.atiracing.com