

# Shifting Gears

The automatic transmission performs only as well as the automatic transmission fluid (ATF) put into it. Components of the automatic transmission such as the torque converter, clutch packs, brake bands, gears and hydraulic system all place special demands on ATF.

**AMSOIL Synthetic ATF** is formulated to exceed the extreme demands of the modern automatic transmission.

## Torque Converter

The torque converter is a fluid coupler between the engine and the gears of the drivetrain. The torque converter consists of two halves, one attached to the engine (impeller) and one attached to the transmission (turbine).



As the engine spins the impeller, ATF is forced across a small gap onto blades of the turbine, causing it to spin as well. The rotating turbine eventually provides power to the drive wheels.

**Fluid Requirements:** Thermal and Oxidation Stability. Anti-Corrosion Properties. Seal Compatibility. Minimal Viscosity/Temperature Change Characteristics. Anti-Foam Ability.

## Clutch Packs and Brake Bands

These are mechanical devices which release or hold rotating members. When applied with transmission fluid pressure, clutches and brake bands will either hold or turn the gear sets to provide different gear ratios.

**Fluid Requirements:** Correct Frictional Properties. Thermal and Oxidation Stability. Minimal Viscosity/Temperature Change Characteristics. Anti-Wear Properties.



## Gears

Gears are the muscle of any transmission, whether manual or automatic. Gears transfer torque and power and can provide the vehicle with changes in speed and direction.

Planetary gear sets are used as the basic means of transferring or multiplying torque from the engine in an automatic transmission.

Planetary gears offer many advantages over manual slide-type gears. Force is distributed over many teeth for more strength. They are always in mesh and do not have to be shifted to change gears. Therefore, they do not clash like gears going in and out of mesh.

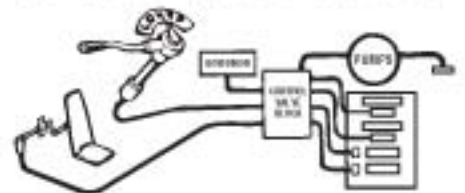
**Fluid Requirements:** Extreme Pressure Properties. Anti-Wear Properties. Anti-Corrosion Properties.



## Transmission Hydraulic System

The transmission oil pump, driven by the torque converter, generates fluid pressure inside an automatic transmission.

Pressurized fluid is the force used to move the valves that determine shift points. The control valve assembly senses inputs from many sources and regulates the valves to



provide smooth shifts at the correct time, based on vehicle speed and engine load.

**Fluid Requirements:** Minimal Viscosity/Temperature Change Characteristics. Anti-Corrosion Properties. Seal Compatibility. Anti-Foam Capability. Anti-Wear Properties.

## AMSOIL Protection

AMSOIL Synthetic ATF provides unmatched thermal and oxidation stability, and it maintains its viscosity over a much wider temperature range than conventional ATF, maximizing transmission performance.

Tests prove AMSOIL Synthetic ATF greatly exceeds all original equipment manufacturer requirements, making it the only choice for maximum transmission protection in modern vehicles.

