

LUBE

TECHNI-GRAM



FROM:

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TODAY'S TRANSMISSIONS NEED SUPERIOR OIL AND USED OIL ANALYSIS

Transmission designs are under continuous change to meet customers needs for increased durability and productivity. These design changes have also increased the work load on gears and bearings and it has required the development of superior, hardworking transmission fluids. As one transmission manufacturer states, "Providing the correct lubricants to support these new designs is critical for maximum life and performance."

Today's harder working transmissions and drivelines see higher fluid temperatures than their predecessors. Hotter operation is attributable to a number of factors. Sleeker aerodynamics have lowered the carriage line of many automobiles, trucks, buses and heavy equipment, so the undercarriage air circulation may be inhibited. Improved gear-tooth, shaft and synchronizer materials permit the same levels of engine torque to be transmitted, but it's transmitting through more compact gear sets, in smaller casings which, necessarily, have much smaller fluid capacities. Naturally, less oil in that situation means less heat dissipation. As a result the oil must be more resistant to thermal and oxidative degradation and maintain lubricity performance for the longer desired drain intervals, or increasingly, the total component life.

The cause of these ever increasing performance demands, transmission manufacturers are greatly promoting the use of used fluid analysis results. Comprehensive tests offered through SWEPCO's Laboratory Oil Analysis (LOA) such as viscosity and oxidation will tell a customer when a fluid is oxidizing. Most transmission manufacturers recommend that a fluid should be changed when its viscosity varies by 25% (plus or minus) from its original viscosity. Another special test that SWEPCO's LOA program offers, the detection of glycol, traditionally receives no attention with typical "metal wear analysis" offered through equipment companies. Testing for glycol or coolant is extremely critical, as water robs the oil of its ability to protect heavily loaded steel bearings and gears. Coolants can glaze over friction disks, causing them to slip excessively. Successful oil analysis typically runs samples at engine-oil changes because a transmission that is working fine at one fluid change can burn up a clutch and be a basket case before the next transmission service.



... to keep it running

In addition to promoting the use of superior transmission fluids and laboratory oil analysis, transmission manufacturer's offer the following troubleshooting tips for maximizing transmission life:

Troubleshooting Transmissions	
Symptom	Possible Cause
Hesitation/ Slippage	<ul style="list-style-type: none"> • Worn plates and disks • Wrong oil used • Linkage out of adjustment • Incorrect pressure settings • Low fluid level • Linkage not free or binding
Overheating	<ul style="list-style-type: none"> • Wrong oil used • Plugged radiator • Worn pump • Worn pressure relief valve • Worn or damaged seals • Low fluid level • Worn or dirty control valve
Unusual Noise	<ul style="list-style-type: none"> • Worn gears • Dirt entry • Aeration/cavitation • Worn bearings • Low fluid level
Vibration	<ul style="list-style-type: none"> • Bent drive shaft • Gear failure • Bearing failure
Debris in Filter or Magnetic Screen	<ul style="list-style-type: none"> • Dirt entry • Wrong oil used • Extended oil change period • Worn gears/bearings • Disk disintegration
Leaks	<ul style="list-style-type: none"> • Worn, cracked or hard seals

Without question, based on the demands for increased temperature resistance, thermal and oxidation stability, longer drain intervals, unimpaired lubricity and increased component life, fleet owners/operators can greatly benefit from higher performance driveline fluids specifically designed to meet these ever increasing demands. SWEPCO 714 Hydraulic Transmission Fluid type TO-4/C-4 not only meets, but exceeds, these demands!