



SERVICE INFORMATION LETTER



This SIL replaces 13-TR-90, Rev. D.
Please discard your copy of 13-TR-90, Rev. D.
This SIL includes information about Allison
oil recommendations, oil specifications and
Allison/Castrol TranSynd™ 1.

13-TR-90, Rev. E
March, 2001
Product Code(s):
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SUBJECT: Transmission Fluid Recommendations

EQUIPMENT AFFECTED: All Allison Commercial Transmissions

Introduction:

An important element in ensuring optimum performance of Allison heavy-duty automatic and powershift transmissions is the proper selection of the transmission fluid. The transmission fluid is an integral part of the automatic transmission system and contributes to the overall performance and durability of the transmission. The purpose of this document is to aid the customer in the proper selection of the transmission fluid.

In addition to selecting a transmission fluid to meet performance needs, it is also important to select a transmission fluid which minimizes maintenance of the transmission. The total life cycle costs of transmission operation may therefore be reduced. Transmission fluids are formulated to pass minimum performance requirements as specified by Allison Transmission Division/GM and General Motors Corporation.

¹ TranSynd™ is a trademark of Castrol Ltd.

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SG/TJ/mmw

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ROUTE TO:

- General Manager
- Sales Manager
- Service Manager

- Parts Manager
- Dealer Manager
- Training Manager

- Transmission Mechanic
- File
- Other _____

General Fluid Recommendations:

The following chart lists general recommendations. Consult your local Allison distributor/dealer for questions about usage.

Transmission Model	Recommended Transmission Fluid Type (See Transmission Fluid Type Definitions Below)
1000, 2000, 2400 Series™ MD, HD, B 300, B 400, B 500 Series	TranSynd™ DEXRON®-III
AT 500, MT 600, HT 700, V 700 Series	TranSynd™ DEXRON®-III C-4
CLBT 750, 5000, 6000, 9000, DP 8000 Series	C4 Only

Transmission Fluid Types:

TranSynd™ — TranSynd™ is a *full synthetic* automatic transmission fluid from Allison Transmission Division and Castrol Ltd. TranSynd™ meets new Allison specifications for *Severe Duty* and *Extended Drain Intervals (TES-295)*. TranSynd™ is available through Allison distributors and dealerships. TranSynd™ is also fully qualified to the Allison C4 specification and the GM DEXRON®-III specification.

DEXRON®-III Automatic Transmission Fluids — DEXRON® is a registered trademark of the General Motors Corporation. Proper use of this trademark requires that the GM license number be included on the product container. The GM license number is a five digit number preceded by the letter designation “G” (example: GXXXXX). DEXRON®-III transmission fluids are dyed red in color for identification purposes. Some DEXRON®-III automatic transmission fluids qualify to the Allison C4 specification.

C4 Fluids — Some approved C4 products are heavy duty diesel engine oils. A variety of SAE² viscosity grades (i.e., SAE 30, 15W-40, etc.) have been approved to the C4 specification. Also, some DEXRON®-III automatic transmission fluids qualify as a C4 fluid. These oils are tested and evaluated in accordance with the Allison C4 Transmission Fluid Specification (TES-228) and offer satisfactory performance when used in any Allison automatic transmission. C4 fluids are not approved for use in 1000/2000/2400 Series™ transmissions unless they are also licensed as DEXRON-III®. An approved oil list (GN3465EN) is available from your local Allison dealer/distributor or via the Allison website at www.allisontransmission.com.

Fluid Viscosity:

When choosing the fluid viscosity, consider geographic location and preheat requirements. Proper viscosity grade selection is important for transmissions operating in cold ambient conditions. Preheat and start-up procedures are required when operating ATD transmissions below the fluid’s minimum critical temperature which is viscosity grade dependent. Higher viscosity fluids, SAE 30 or SAE 15W-40, are recommended for optimum transmission life in 5/6/8/9000 Off-Highway transmissions.

Supplemental Additives:

Supplemental additives are products which are manufactured and marketed as “add-ons” to transmission fluids and engine oils for the purpose of altering the frictional, anti-wear, and/or oxidation properties of the host oil.

Important: *These products are not approved for use in any Allison automatic and/or powershift transmission and must not be used.*

² SAE = Society of Automotive Engineers

Unapproved And/or Untested Oils:

Some heavy duty diesel engine oil products and some automatic transmission fluids may be labeled “Meets the Allison C4 Specification” and/or “Meets the GM DEXRON®-III Specification”. Only approved or licensed products that carry either a valid Allison C4 approval number or a valid GM DEXRON®-III license number should be used in Allison automatic and/or off-highway transmissions. Consult your transmission fluid vendor for proof of authenticity by requesting Allison C4 approval number or GM DEXRON®-III license number documentation. Proof of authenticity documents should be readily available from all reputable marketers of C4 products and/or DEXRON®-III products.

Important: Only approval numbers and/or license numbers indicate authenticity.

Tractor Hydraulic and Torque Fluids:

Tractor hydraulic and torque fluids are no longer approved for use in any Allison transmission.

Cold Weather Operation (Pre-heating Requirements):

Transmission fluid selection is critical for transmission operation during cold weather. Preheating and/or cold temperature start-up procedures are required when operating Allison automatic and/or off-highway transmissions when outside air temperatures are below the Minimum Operating Temperature for the SAE Viscosity Grade or Fluid Type. Refer to the following chart.

Minimum Operating Temperature is defined by an oil’s response to cold temperature and is based on simulated cranking torque and flow characteristics.

SAE Viscosity Grade * Or Oil Type	Minimum Operating Temperature	
	Degrees (C)	Degrees (F)
0W-20 (Arctic Oil) or TranSynd™	-30	-22
DEXRON-III®	-25	-13
10W	-20	-4
15W-40	-15	5
SAE 30	0	32
SAE 40	10	50
* SAE “W” designation means winter weight based on cold temperature properties.		

When preheating is necessary, preheat the fluid in the transmission sump by using either of the following two (2) procedures:

1. Preheat fluid before operating the transmission using an auxiliary heat source such as a sump heater.
2. If preheating equipment, such as an auxiliary sump heater, is not available, operate the transmission in Neutral for a minimum of 20 minutes at idle prior to range operation.

Oil Change Intervals:

Optimum performance and reliability of heavy-duty automatic transmissions can be noticeably influenced by the type of fluid used and the frequency with which that fluid is changed. Allison Transmission Division and General Motors have designed extensive programs including specifications and tests to verify the quality of fluids and consequently have specific fluid and filter change recommendations. **Local conditions, severity of operation, or duty cycle may require more or less frequent fluid change intervals that differ from the published recommended fluid change intervals of Allison Transmission.** Transmission protection and fluid change intervals can be optimized by the use of fluid analysis. Allison Transmission strongly recommends customers use fluid analysis to determine their fluid and filter change intervals.

Oil Analysis:

Oil analysis requires that periodic samples be taken from operating transmissions and sent to a reputable oil analysis laboratory for testing. Oil analysis may be used to set oil change intervals; however, it is important to remember that oil analysis must be monitored regularly and results must be analyzed consistently to determine trends for best results.

For customer convenience, Allison Transmission now offers an Oil Analysis Kit (P/N 29537805) available through the Allison Distribution Network. Consult your nearest dealer or distributor for details, pricing, and availability. The oil analysis kit allows the user to take the sample and ship it to our contracted independent laboratory for analysis. Analysis results are returned via email, fax, or hardcopy mailing.

Transmission protection and fluid change intervals can be optimized by monitoring fluid parameters according to limits shown in the following tables.

Condition	Limit
Viscosity	+/- 25% change from new fluid
Total Acid Number (TAN)	+3.0* change from new fluid
Solids	2% by volume maximum
* mg of KOH required to neutralize a gram of fluid	

The following chart provides a listing of typical contaminants and comments on limits.

Contaminant	Limit
Water	0.2% maximum
Glycol	0; no trace allowed. If detected, repair transmission.

Refer to Allison publication number GN2055EN, “Technicians’ Guide to Automatic Transmission Fluids”, for additional information on oil analysis and general knowledge about engine oils and transmission fluids.

C4 Approved Fluids List:

An approved fluids list (GN3465EN) is available via the Allison website at www.allisontransmission.com. The list of C4 approved fluids is sorted by Company Name, Brand Name, Fluid Type, SAE Viscosity Grade, and Marketing Region. The last column indicates the C4 Approval Number.

DEXRON®-III automatic transmission fluids are listed with the GM license number in addition to the C4 Approval Number.

C4 APPROVED ENGINE OILS — If stated by the manufacturer to meet any of the current API³ engine oil categories, the specific class is listed (i.e., CG-4, SJ, etc.).

Publication of the C4 Approved Fluids List (GN3465EN) is not to be construed as a specific endorsement of these products by the Allison Transmission Division of the General Motors Corporation.

The listed oils qualify to the Allison C4 Heavy Duty Automatic Transmission Fluid Specification.

³ API = American Petroleum Institute