



HYDRAULIC FLUID RECOMMENDATIONS

FOR

ALL ALLISON COMMERCIAL AND MILITARY TRANSMISSIONS

AND INDUSTRIAL TORQUE CONVERTER ASSEMBLIES

Recent surveys of Powershift Transmissions and Industrial Torque Converters in new and projected vehicle applications have revealed some Dexron® II, Type C-2 oils and engine oil formulations will have lower friction retention properties than desired. As a result of these findings, a new C-3 specification has been developed to span those heavier and more severe duty operations anticipated.

A listing of the new Type C-3 transmission fluids commercially available to date (see date on list) is attached hereto for your convenience. If listed, Dexron® type or Type C-2 oil referenced in the listing is a qualified Type C-3 based on the supplier's certification to Detroit Diesel Allison. Commercial Universal Farm Tractor fluids acceptable to date are defined and listed on page 13 of 13. The publication of the oil listing is not to be construed as a specific endorsement by Detroit Diesel Allison Division or General Motors Corporation of the products.

Dexron® or Dexron® II transmission fluids remain the only fluid recommended for Detroit Diesel Allison automatic transmissions (except CL(B)T 700 Series). The AT, MT, HT, and V Series transmissions are Automatic models; all others are Powershift. The CL(B)T 700 transmissions are automatics; but due to vehicle applications, Type C-3 oil should be used.

Oil recommendations for prevailing ambient temperature are as follows:

A. Commercial Automatic Transmissions

AT-MT-HT-V

Prevailing Ambient Temperature

Above -30°F
Below -30°F

Recommended Oil Specification

DEXRON®/DEXRON® II Transmission Fluid
DEXRON®/DEXRON® II Transmission Fluid

A. Commercial Automatic Transmissions (Continued)

CAUTION: The -30°F sump temperature specification is based on cold engine operation. Even if the engine is warm and capable of full throttle output, the transmission should not be operated for 30 seconds to allow for buildup of sufficient main pressure.

NOTE: Ford Motor Company's assembly line oil fill is with Ford Type F fluid. It is permissible to continue using either Type F fluid conforming to the latest Ford specification or Dexron®/Dexron® II following delivery. These fluids may be intermixed.

CLT, CLBT 750

<u>Prevailing Ambient Temperature</u>	<u>Recommended Oil Specification</u>
Above -10°F	Hydraulic Transmission Fluid, Type C-3
Below -10°F	Hydraulic Transmission Fluid, Type C-3 Auxiliary preheat required to raise temperature in the sump to a temperature above -10°F.

B. Commercial Powershift Transmissions and Industrial Torque Converters

<u>Prevailing Ambient Temperature</u>	<u>Recommended Oil Specification</u>
Above -10°F	Hydraulic Transmission Fluid, Type C-3 (Except Grade 30).
Below -10°F	Hydraulic Transmission Fluid, Type C-3 (Except Grade 30). Auxiliary preheat required to raise temperature in the sump to a temperature above -10°F.
Above 32°F	Hydraulic Transmission Fluid Type C-3 or Type C-3, Grade 30.

C. Military Transmissions, Commercial Powershift Transmissions, Commercial Automatic Transmissions and Industrial Torque Converters in Military Applications

Prevailing
Ambient Temperature

Recommended Oil Specification

Above -10°F

MIL-L-2104 Grade 10 to latest specification,
or Hydraulic Transmission Fluid Type C-3.

0°F to -65°F

MIL-L-10295 to latest specification.

NOTE: If auxiliary preheating equipment is available and the sump temperature can be raised to -10°F, it is recommended that MIL-L-2104 Grade 10 oil be used. When changing to oil of different grade, thoroughly flush system with grade oil to be used before refilling.

CAUTION: Do not use MIL-L-10295 when the ambient temperature is consistently above -10°F.

DETROIT DIESEL ALLISON DIVISION, GMC
QUALIFIED LIST OF TYPE C-3 TRANSMISSION FLUIDS

THIS LIST OF COMMERCIALY AVAILABLE C-3 TRANSMISSION FLUIDS IS COMPILED BY DETROIT DIESEL ALLISON DIVISION AS A SERVICE TO MANUFACTURERS, OWNERS, AND OPERATORS OF EQUIPMENT USING ALLISON TRANSMISSIONS. IT IS BASED ON CERTIFICATION OF DATA TO DETROIT DIESEL ALLISON BY A RESPONSIBLE OFFICER OF THE RESPECTIVE SUPPLIERS OF THESE FLUIDS EVIDENCING COMPLIANCE WITH THE ALLISON C-3 SPECIFICATION.

RESPONSIBILITY FOR THE QUALITY OF A HYDRAULIC FLUID AND ITS PERFORMANCE MUST REMAIN WITH THE OIL COMPANY MAKING THE PRODUCT.

SINCE NEW PRODUCTS ARE CONTINUOUSLY BEING TESTED BY THE OIL INDUSTRY, REVISED LISTS WILL BE MADE AVAILABLE FROM TIME TO TIME. NEW PRODUCTS THAT HAVE BEEN VERIFIED BY THE FLUID SUPPLIER AS MEETING THE ALLISON APPROVED C-3 SPECIFICATION WILL BE INCLUDED IN THESE REVISED LISTS.

IT IS PERMISSIBLE FOR A LISTED MARKETER TO DUPLICATE THIS LISTING PROVIDED HE INDICATES ON THE REPRODUCTION THAT IT IS A COMPLETE REPRINT OF THE ORIGINAL.

September 1977

THE FOLLOWING OILS CONFORM TO DETROIT DIESEL
ALLISON C-3 GRADE 10W AND GRADE 30 SPECIFICATIONS

OIL GRADES ARE INDICATED AS FOLLOWS

GRADE 10W *
GRADE 30 ***

SEPTEMBER 1977

---A---

MARKETER	TRADE NAME
AGIP S.P.A.	* AGIP F.1 DIESEL GAMMA SAE 10W * AGIP F.1 DIESEL SIGMA SAE 10W *** AGIP F.1 DIESEL SIGMA SAE 30
AMALIE REFINING CO.	* AMALIE HD-1 MOTOR OIL SAE 10W
AMERICAN PETROFINA CO. OF TEXAS	* FINA C-3 TRANSRAULIC FLUID FOR ALLISON * FINA ALLISON HYDRAULIC TRANSMISSION TYPE C-3 FLUID CODE 9720
AMOCO OIL COMPANY	* AMOCO FLUID TYPE C-2 * AMOCO C-3 FLUID
AMPOL PETROLEUM LIMITED	* AMPOL HYDRAULIC TRANSMISSION FLUID TYPE C-3, SAE 10W
ANTAR S.A. ET COMPAGNIE	* MILANTAR 3C 10W * TRANSANTAR C 3
ARKLA CHEMICAL CORPORATION	* ARKLA TC-252
ATLANTIC RICHFIELD COMPANY	* ARCO C-3 FLUID * ARCOFLEET MS-3

---B---

BENZ OIL INC.	* BENZ C-3 TRANSMISSION FLUID
BORON OIL CO.	* FACTO 10W

---B---

MARKETER	TRADE NAME
BP AUSTRALIA LIMITED	* BP AUTRAN C-3
BP OIL INC.	* VANNELLUS MCS-3 10W * BP HYDRAULIC TF-C3
BP OIL LIMITED	* BP DIESEL S3 SAE 10W
BP TRADING LIMITED	* BP VANNELLUS C3 SAE 10W *** BP VANNELLUS C3 SAE 30 * BP AUTRAN GM-MP

---C---

CALTEX PETROLEUM CORPORATION	*** CALTEX RPM DELO 400 OIL SAE 30 * CALTEX RPM TORQUE FLUID NO. 5
CASTROL AUSTRALIA PTY., LTD.	* CASTROL TRANSMISSION FLUID TYPE C-3 10W 20
CASTROL LIMITED	* CASTROL/DEUSOL TFC 310 *** DEUSOL TFC 330
CATO OIL AND GREASE CO.	* C-3 TRANSRAULIC FLUID FOR ALLISON
CHAMPLIN PETROLEUM COMPANY	* CHAMPLIN S-3 PLUS MOTOR OIL (SAE 10W)
CHEVRON OIL CANADA, LTD	* CHEVRON DELO 400 MOTOR OIL (SAE 10W) *** CHEVRON DELO 400 MOTOR OIL (SAE 30) * CHEVRON TORQUE FLUID 5
CHEVRON OIL EUROPE, INC.	* CHEVRON TORQUE FLUID 5
CHEVRON U.S.A. INC. (CHEVRON OIL COMPANY)	* CHEVRON DELO 400 MOTOR OIL (SAE 10W) *** CHEVRON DELO 400 MOTOR OIL (SAE 30) * CHEVRON TORQUE FLUID 5
CITIES SERVICE COMPANY	* CITGO TORQUE CONVERTER FLUID 250
COMPAGNIE FRANCAISE DE RAFFINAGE	* TOTAL ATF H 5017
COMPANHIA ATLANTIC DE PETROLEO S/A	* "HT FLUID" - TYPE C-3

---C---

MARKETER	TRADE NAME
COMPANIA PETROLERA CHEVRON	* CHEVRON DELO 400 MOTOR OIL (SAE 10W) *** CHEVRON DELO 400 MOTOR OIL (SAE 30) * CHEVRON TORQUE FLUID 5
COMPANIA PETROLERA CHEVRON, INC.	* CHEVRON DELO 400 MOTOR OIL (SAE 10W) *** CHEVRON DELO 400 MOTOR OIL (SAE 30) * CHEVRON TORQUE FLUID 5
COMPANIA PETROLERA CHEVRON, LTD.	* CHEVRON DELO 400 MOTOR OIL (SAE 10W) *** CHEVRON DELO 400 MOTOR OIL (SAE 30) * CHEVRON TORQUE FLUID 5
CONTINENTAL OIL COMPANY	* CONOCO POLAR START DN-600 FLUID * CONOCO HYDRAULIC TRANSMISSION FLUID, TYPE C-3

---D---

D-A LUBRICANT COMPANY, INC.	* D-A TORQUE FLUID * D-A DIESEL PLUS OIL, SAE 10W GRADE *** D-A DIESEL PLUS OIL, SAE 30 GRADE
DAVIS-HOWLAND OIL CORP.	* DSL TORQUE FLUID C-3
DELTA PETROLEUM CO., INC.	* FIVE STAR ALLISON C-3
DRYDEN OIL COMPANY, INC.	* TORQUE FLUID C-3 (1204) * TORQUE FLUID C-3 (DEXRON TYPE) (1906) * DRYDEN SUPREME XHD-10

---E---

ESSO AUSTRALIA LTD	* ESSO TORQUE FLUID 47
ESSO BRASILEIRO DE PETROLEO S.A.	* ESSO TORQUE FLUID 47
ESSO CHILE S.A. PETROLERA	* ESSO TORQUE FLUID 47
ESSO EUROPE INC. AFFILIATES	* ESSO TORQUE FLUID 47

---E---

MARKETER

TRADE NAME

EXXON COMPANY U.S.A.

- * TORQUE FLUID 47
- * XD-3, SAE 10W

---F---

FARMLAND INDUSTRIES, INC.

- * CO-OP DIESEL ENGINE OIL, SAE 10W

FS SERVICES, INC.

- * FS SUPER LUBE SAE 10-10W

---G---

GOLDEN BEAR DIVISION OF
WITCO CHEMICAL CORPORATION

- * GOLDEN BEAR "CODE 510"
- *** GOLDEN BEAR "CODE 513"

GOLDEN FLEECE

- * AUTOFLOW C3 10

GULF OIL CANADA LIMITED

- * GULF LOW ASH SUPER DUTY
MOTOR OIL 5W 20
- * GULF LOW ASH SUPER DUTY
MOTOR OIL 10W
- *** GULF LOW ASH SUPER DUTY
MOTOR OIL 15W-40
- * GULFLUBE MOTOR OIL X.H.D. 5W-20*
- * GULFLUBE MOTOR OIL XHD SAE 10W
- * GULF SUPER DUTY MOTOR OIL 10W

GULF OIL CORPORATION

- * GULF HT FLUID C-3

---I---

IMPERIAL OIL LIMITED

- * ESSOLUBE HDX PLUS 10W
- * ESSOLUBE HDX PLUS 5W 20
- * ESSOLUBE XD-3 10W
- * ESSO HYDRAULIC OIL XD-3 10W
- *** ESSOLUBE XD-3 15W-40
- * HYDRAUL 50

MARKETER	TRADE NAME
KENDALL REFINING COMPANY	* KENDALL F-L SELECT MOTOR OIL
KERR-MCGEE REFINING CORPORATION	* C-3 TRANSRAULIC FLUID FOR ALLISON

---L---

LION OIL COMPANY SUBSIDIARY OF THE OIL SHALE CORPORATION	* LION C-2/C-3 FLUID
--	----------------------

---M---

MARATHON OIL COMPANY	* MULTIPower -3 MOTOR OIL SAE 10W
MID-STATES DISTRIBUTING CO.	* C-3 TRANSRAULIC FLUID FOR ALLISON
MOBIL OIL CORPORATION	* POWER FLUID C-2 * MOBIL DELVAC 1310 *** MOBIL DELVAC 1330 * MOBILFLUID 423 * MOBIL ATF 200
MOBIL USA	* MOBIL DELVAC 1210 *** MOBIL DELVAC 1230 * POWER FLUID C-2 * MOBIL DELVAC 1310 *** MOBIL DELVAC 1330 * MOBILFLUID 423 * MOBIL ATF 200
MORRIS & COMPANY (SHREWSBURY) LTD.	* GOLDEN FILM LIQUIMATIC C-3

---N---

AB NYNAS-PETROLEUM. STOCKHOLM. SWEDEN	* NYNAS HTF C3
--	----------------

---P---

PACER LUBRICANTS, INC.	* PACER ALLISON C-2, C-3 FLUID
------------------------	--------------------------------

---P---

MARKETER	TRADE NAME
PENNZOIL COMPANY	* PENNZOIL C-2/C-3 FLUID
PENTALUBE OIL, INC.	* PENTA TORQUE CONVERTER OIL TYPE C-3
PETROFINA S.A., BRUSSELS & AFFILIATED COMPANIES	* FINA TRANSMISSION OIL C 3
PETROL OFISI	*** UNIVERSAL MOTOR YAGI D SAE-30
PETROLEO BRASILEIRO S.A. PETROBRAS	* LUBRAX MD 300 SAE 10W
PETROTORQUE	* PETROTORQUE 47
PHILLIPS PETROLEUM COMPANY	* TYPE C-2/C-3 FLUID * SUPER HD II MOTOR OIL * SUPER HD MOTOR OIL
PRIMROSE OIL COMPANY	* PRIMROSE #253 C-2/C-3 HYDRAULIC TRANSMISSION FLUID

---S---

SHELL BRASIL S/A (PETROLEO)	* SHELL TRANSMIFLUIDO
SHELL CANADA LIMITED	* SHELL ARCTIC CL-1082 (5W 20) * SHELL RIMULA CT OIL SAE 10W * SUPER U 10W
SHELL INTERNATIONAL PETROLEUM COMPANY LIMITED	* SHELL DONAX TM * SHELL RIMULA CT OIL 10W *** SHELL RIMULA CT OIL 30
SHELL OIL COMPANY	* DONAX T-5, CODE 53005 * SHELL HYDRAULIC FLUID C-3, CODE 53105 * RIMULA U SAE 10W *** RIMULA U SAE 30
SHELL OIL SOUTH AFRICA (PTY) LIMITED	* SHELL RIMULA CT OIL 10W * DYNASHELL MARK II 10W

---S---

MARKETER	TRADE NAME
SOLENE LUBRICANTS. INC.	* SOLENE C-2 FLUID * SOLENE C-3
SOUTHWEST GREASE & OIL CO. (WICHITA). INC.	* HYDRAULIC TRANSMISSION FLUID C-3 * MOTOR OIL SAE 10W SE-CD
STANDARD OIL CO. (OHIO)	* FACTO 10W
J. D. STREETT & CO., INC.	* ZEPHYR SUPER HEAVY SAE 10-10W
SUN PETROLEUM PRODUCTS COMPANY (DIV. OF SUN COMPANY, INC.)	* SUNFLEET C-2/C-3 FLUID * SR ATF C-2/C-3 TYPE *** SUNFILL C2 30
SUNOCO INCORPORATED	* SUNOCO TRANSMISSION FLUID C-2/C-3 * SUNFLEET C-2/C-3 FLUID
SUN OIL COMPANY (BELGIUM) NV	* SUNOCO TRANSMATIC FLUID TYPE A SUFFIX A

---T---

TEXACO BRAZIL S.A.	* TORQUE FLUID C-3
TEXACO. INC.	* TORQUE FLUID C-3 * TRANSHYDRAL FLUID * URSA SUPER PLUS (10W) *** URSA SUPER PLUS (15W 40) *** URSA SUPER PLUS SAE-30 * URSA OIL SUPER 3 SAE-10W *** URSA OIL SUPER 3
TEXACO SERVICES (EUROPE) LTD.	* URSA OIL S-3 SAE-10W
TURBO REFINERIES LTD.	* TURBO AUTOMATIC TRANSMISSION FLUID "TYPE A"

---U---

MARKETER

TRADE NAME

UNION OIL COMPANY
OF CALIFORNIA

* UNION C-3 FLUID
*** UNION C-3 FLUID

UNITED OIL COMPANY, INC.

* DURALENE TYPE C-3

---V---

VALVOLINE OIL COMPANY

* VAL-TORQUE C-3
*** VALVOLINE UNITRAC FLUID

VALVOLINE (AUSTRALIA) PTY.
LIMITED

* VAL-TORQUE C-3

VISCOSITY OIL COMPANY

* INTERNATIONAL HARVESTER
"IH NO. 1 ENGINE OIL SAE 10W"

---W---

WESTLAND OIL COMPANY

* WESTLAND DURA C-3 TRANS FLUID

WM. PENN

* MULTI-SERVICE FLEET
ENGINE OIL 10W

WOLF'S HEAD OIL REFINING CO.

* WOLF'S HEAD AUTOMATIC
TRANSMISSION FLUID C-3

INTERMEDIATE VISCOSITY FLUIDS

CERTAIN COMMERCIAL UNIVERSAL FARM TRACTOR FLUIDS MEET ALL OF THE REQUIREMENTS FOR HYDRAULIC TRANSMISSION FLUID, TYPE C-3, BUT DO NOT FALL WITHIN THE DEFINED VISCOSITY LIMITS FOR GRADE 10W OR GRADE 30. SUCH LUBRICANTS WILL PERFORM SATISFACTORILY IN DETROIT DIESEL ALLISON OFF-HIGHWAY TRANSMISSIONS WHEN USED ABOVE +10 DEGREES F.

MARKETER

TRADE NAME

---D---

D-A LUBRICANT COMPANY, INC.

D-A HYDRATRANS 135

---I---

IMPERIAL OIL LIMITED

HYDRAUL 56

Product Update Bulletin

Allison Transmissions

INCREASED OIL TEMPERATURE LIMITS
OFF HIGHWAY APPLICATIONS

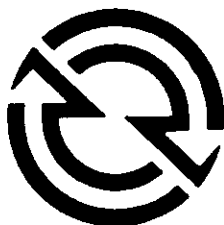
PUB. NO.

2

DATE

MARCH 1978

FORM 8514



DETROIT DIESEL ALLISON DIVISION
GENERAL MOTORS CORPORATION
P. O. BOX 894
INDIANAPOLIS, INDIANA 46206
ATTENTION: SALES DEVELOPMENT H-4



Detroit Diesel Allison
Division of General Motors Corporation

Indianapolis Operations

P. O. Box 894
Indianapolis, Indiana 46206
Phone: (317) 244-1511
Cable: GM COMM IND A

SUBJECT: Increased Oil Temperature Limits -
Off-Highway Applications

REFERENCE: PIM 361

Improvements in transmission component materials and oil technology will now permit increases in the maximum allowed operating oil temperatures. These new limits apply to all transmission models used in off-highway applications.

Experience has shown that for most off-highway applications the cooling requirements should be based on continuous cooling at the 70% efficiency point. Where specific operating conditions are known that require continuous cooling at less than 70% efficiency, the known conditions should be used in the design of the cooling system. At the relevant operating efficiency the previous 121.1°C (250°F) maximum converter out temperature is being increased to 135°C (275°F). This limit applies to continuous operation. During typical duty cycles, the actual converter out temperature may rise above the 135°C (275°F) point but should never be allowed to exceed the absolute maximum of 165°C (330°F). For the purpose of sizing the transmission cooler and engine radiator an ambient temperature of 43.3°C (110°F) should be assumed unless more specific operating conditions are known.

During retarder operation the maximum temperature has been increased from 148.9°C (300°F) to 165°C (330°F). Thus, intermittent retarder operation is allowed that produces temperatures up to 165°C (330°F). When this limit is reached, operation must be discontinued until the oil temperature is reduced. For the design of the retarder cooling system, 43.3°C (110°F) ambient should be used unless specific operating conditions are known.

The temperature gauges, P/N's 6838457, 6838458 and 6838459 are being changed accordingly. The new gauge will show a green band between 40°C (104°F) and 135°C (275°F), yellow band between 135°C (275°F) and 165°C (330°F) and red beyond 165°C (330°F). The new gauge will include both Metric and English units.

A decal, P/N 6880750 shown on the attached, is also available. This decal provides additional explanation of the various operating bands and is available from service parts.