

HYDRAUL

MULTIPURPOSE TRANSMISSION/DIFFERENTIAL/HYDRAULIC FLUID

June 2005



HYDRAUL* tractor hydraulic fluids offer the following features and benefits:

- ◆ **Premium "All-Purpose" products developed for use in farm, construction and off-highway equipment recommending a single fluid for powershift or hydrostatic transmission, differential, final drive, wet brake, wet clutch and hydraulic components.**
- ◆ **Gear protection demonstrated in John Deere JDQ95 Gear Test, Massey-Ferguson 4-Square Gear Test and CRC L-20 Gear test**
- ◆ **Hydraulic pump protection demonstrated in Allison C4 Vane Pump test and John Deere JDQ84 Axial Piston Pump Test**
- ◆ **Oxidation protection demonstrated in the Allison C4 test**
- ◆ **Brake noise suppression demonstrated in John Deere 4600 Series tractor, New Holland 5010 Series Tractor, Volvo L50C and Volvo L90D wheel loaders**
- ◆ **Brake Chatter Suppression demonstrated in John Deere JDQ96 Anti-Chatter Brake test and Volvo Brake Noise test**
- ◆ **Brake and Clutch capacity demonstrated in Allison C4 Graphite, Massey Ferguson IPTO, Ford 8340 High Energy, and John Deere JDQ94 PST clutch tests and John Deere JDQ96 brake capacity test**

Primary Applications

HYDRAUL oils are recommended specifically for equipment designed with powershift or hydrostatic transmissions. Most such designs use an integrated oil supply with the same fluid used in transmission, differential, final drive and hydraulic systems.

HYDRAUL oils provide the anti-wear requirements essential for gear protection, and the frictional characteristics needed for non-chattering lock-up of wet brakes and clutches used in such systems.

HYDRAUL 56 oil is recommended for systems calling for the heavier grade fluid in summer operation or "all-season" use where temperatures are above -25 °C.

HYDRAUL 50 oil is recommended for year-round service in systems calling for lighter viscosity fluids, and as a winter grade in place of HYDRAUL 56 oil in other systems operating down to -35 °C.

HYDRAUL EXTRA is an all season product suitable for the most severe applications over the operating temperature range of -35°C to 100°C. In addition, HYDRAUL EXTRA meets the demanding FNHA-2-200A specification, which requires excellent shear stability.

Performance Features

Anti-Wear -Anti-wear and extreme pressure additives give exceptional protection against wear and scoring to extend equipment life. In gear applications, protection at the API GL-4 level is achieved.

Anti-Rust-Corrosion inhibitors protect against rust and corrosion even while equipment is idle.

Extended Oil Life-Potent inhibitors resist oxidation and thermal breakdown to maximize oil life and heat resistance.

Minimized Foaming- Anti-foam additives resist foaming for optimum performance of transmission and hydraulic systems.

Optimum Friction- HYDRAUL fluids have carefully balanced friction characteristics for chatter-free wet brake and clutch operation in a wide range of equipment including John Deere, New Holland, Case and Volvo.

Extended Seal Life- HYDRAUL fluids are compatible with commonly used elastomers, including Viton, for extended seal, gasket, brake and clutch component life.

Low Temperature Fluidity- HYDRAUL 50 and Hydraul Extra are specifically developed to ensure good low temperature fluidity for winter operations as low as -35 °C. HYDRAUL 56 oil provides all-season performance down to -25 °C.

Approvals

While it is impossible to meet all the different manufacturers' fluid specifications with a single product, when used in the proper grade, HYDRAUL will satisfy the service needs of the majority of equipment and will provide satisfactory field performance. (See Recommended Applications Table at the end of this data sheet).

HYDRAUL 50, HYDRAUL 56 and HYDRAUL EXTRA fluids are recommended for the performance requirements of:

- * Allison C-4
- * Caterpillar TO-2
- * Vickers 35VQ25
- * John Deere J20C/D
- * Volvo WB-101 Friction

Precautions

HYDRAUL oils are manufactured from quality petroleum base stocks, blended with selected additives. As with all petroleum products, good personal hygiene and careful handling should always be practiced. Avoid prolonged contact with the skin, splashing into the eyes, ingestion, or vapour inhalation. Please refer to the Esso Material Safety Data Sheet for further information.

Note: This product is NOT controlled under the Canadian WHMIS legislation.

Typical Properties

	Hydraul Extra	HYDRAUL 50	HYDRAUL 56
Kinematic Viscosity, cSt @ 40 °C	43	32	53
cSt @ 100 °C	9.6	7.2	9.5
Viscosity Index	218	201	166
Brookfield Viscosity, cP @ -40°C	12,900	14,600	140,000
cP @ -35°C	6,000	6,300	48,000
cP @ -25°C	1,700	1,800	8,500
Density, kg/m ³ @ 15 °C	883	877	882
Flash, COC, °C	170	170	220
Pour Point, °C	-51	-51	-39
Colour, ASTM	L3.0	L3.0	L3.0
Operating Temperature Range, °C	-35 to 100	-35 to 70	-25 to 80

The values shown above are representative of current production. Some are controlled by manufacturing and performance specifications while others are not. All may vary within modest ranges.

Product Recommendation

Specification	Product Operating Temperature Season	Hydraul 56 -25°C to 80°C Summer	Hydraul 50 -35°C to 70°C Winter	Hydraul Extra -35°C to 100°C All Season
Agco Including: Agco-Allis, Allis-Chalmers, Deutz-Allis Power Fluid 821XL (current) Power Fluid 821 272843, 257541, 246634		X X X	X X X	X X X
Allison -C-2, C-3, C-4		X	X	X
Case (now part of CNH) Including: International Harvester, Case-IH, Steiger MS-1209 (current), MS1207 (Hytran Plus) MS-1205 (TFD II), MS1204 (TFD) MS-1206 (Powergard PTF) MS-1210 (TCH) JIC 143 / 144 / 145 JIC 185 B-5, B-6 (International Harvester) SEMS 17001 (Steiger)		X X X -- X X X X X	X X X X X X X X X	X X X X X X X X X
Caterpillar - TO-2		X	X	X
Denison Including: ABEX HF-O, HF-1, HF-2 (current)		X	X	X
Hesston, Hesston-Fiat (tractors only) AF-87 (current) Multi-F		X X	X X	X X
John Deere J20 C, Formerly J20A (Hy-Gard) J20 D, formerly J20B (Low Vis Hy-Gard) J14 B (303 fluid) J14C J21 A Quatrol		X -- X -- -- X	-- X X X X X	X X X X X X
Kubota - UDT (current)		X	X	X
Massey-Ferguson (now part of Agco) M-1135 (current), M1141(current) (Permatran III) M-1143 (current) M-1110 M-1127 A/B M-1129A (Permatran)		X X -- X X	X X X X X	X X X X X
New Holland (now part of CNH) Including: Ford, Sperry-Vickers, Versatile, New Holland, Fiat CNH MAT 3525 CNH MAT 3526 FNHA-2-C-201 ("134-D" Fluid) (current) FNHA-2-C-200A ("200A" Fluid) (current) FNHA-2-C-200 ("200" Fluid) ESN-M2C134-A/B/C/D ESN-M2C86-A/B/C, ESN-M2C53-A/B ESN-M2C48-A/B/C, ESN-M2C43 ESN-M2C41-B ESN-M2C92-A Specification 23M or 24M (Versatile) I-286-S (Vickers) M-2950-S (Vickers)		X -- X -- -- X X X -- X X X X X X	X -- X -- -- X X X X X X X X X X	X X X X X X X X X X X X X X
Renk Dromat --873, 874 A/B (current)		X	X	X
White Farm Equipment Including: Minneapolis-Moline, Oliver, New Idea (now part of Agco) Q-1826 (current) Q-1766 (Q-1722), Q-1766B Q-1705 Q-1802 Type 55		X X X X X	X X X X X	X X X X X

In addition to the recommendations made in the Table, the Hydraul product line can also be used for agricultural equipment from the following manufacturers,

Belarus

Claas

Clark

David Brown (part of Case)

Eaton Hydraulics

IMT

International Hough (Dresser)

JCB

Kioto

Komatsu, Komatsu / Dresser

Landini

Leyland

McCormick Farmall (part of Case)

Mitsubishi

Rockwell Transmissions

Same Deutz-Fahr

Sunstrand Hydraulics (Plessey)

Universal

Valmet

Vickers Hydraulics

Volvo

Yanmar