

# **MTU\_ValueService** **Technical Documentation**

**MTU Fluids and  
Lubricants Specifications  
for Series 1600**

Fluids and Lubricants Specifications  
**A001063/00E**



Printed in Germany

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# 1 Preface

The service life, operational reliability and function of the drive systems are largely dependent on the fluids and lubricants employed. The correct selection and treatment of these fluids and lubricants are therefore extremely important. This publication specifies which fluids and lubricants are to be used.

The Fluids and Lubricants Specifications will be amended or supplemented as necessary. Before using them, make sure you have the latest version. The latest version is also available at: [http://www.mtu-online.com/Select language/MTU ValueCare/MTU\\_ValueService Technical Documentation/Fluids and Lubricants Specifications](http://www.mtu-online.com/Select language/MTU ValueCare/MTU_ValueService Technical Documentation/Fluids and Lubricants Specifications)

If you have further queries, please contact your MTU representative.

Test standards for fluids and lubricants:

DIN	Federal German Standards Institute
EN	European Standards
ISO	International Standards Organization
ASTM	American Society for Testing and Materials
IP	Institute of Petroleum

Note:

Use of the approved fluids and lubricants, either under the brand name or in accordance with the specifications given in this publication, constitutes part of the warranty conditions.

The supplier of the fluids and lubricants is responsible for the worldwide standard quality of the named products.



Fluids and lubricants for drive plants may be hazardous materials. Certain regulations must be obeyed when handling, storing and disposing of these substances.

These regulations are contained in the manufacturers' instructions, legal requirements and technical guidelines valid in the individual countries. Great differences can apply from country to country and a generally valid guide to applicable regulations for fluids and lubricants is therefore not possible within this publication.

Users of the products named in these specifications are therefore obliged to inform themselves of the locally valid regulations. MTU accepts no responsibility whatsoever for improper or illegal use of the fluids and lubricants which it has approved.



## 2 Lubricants

### Engine oils

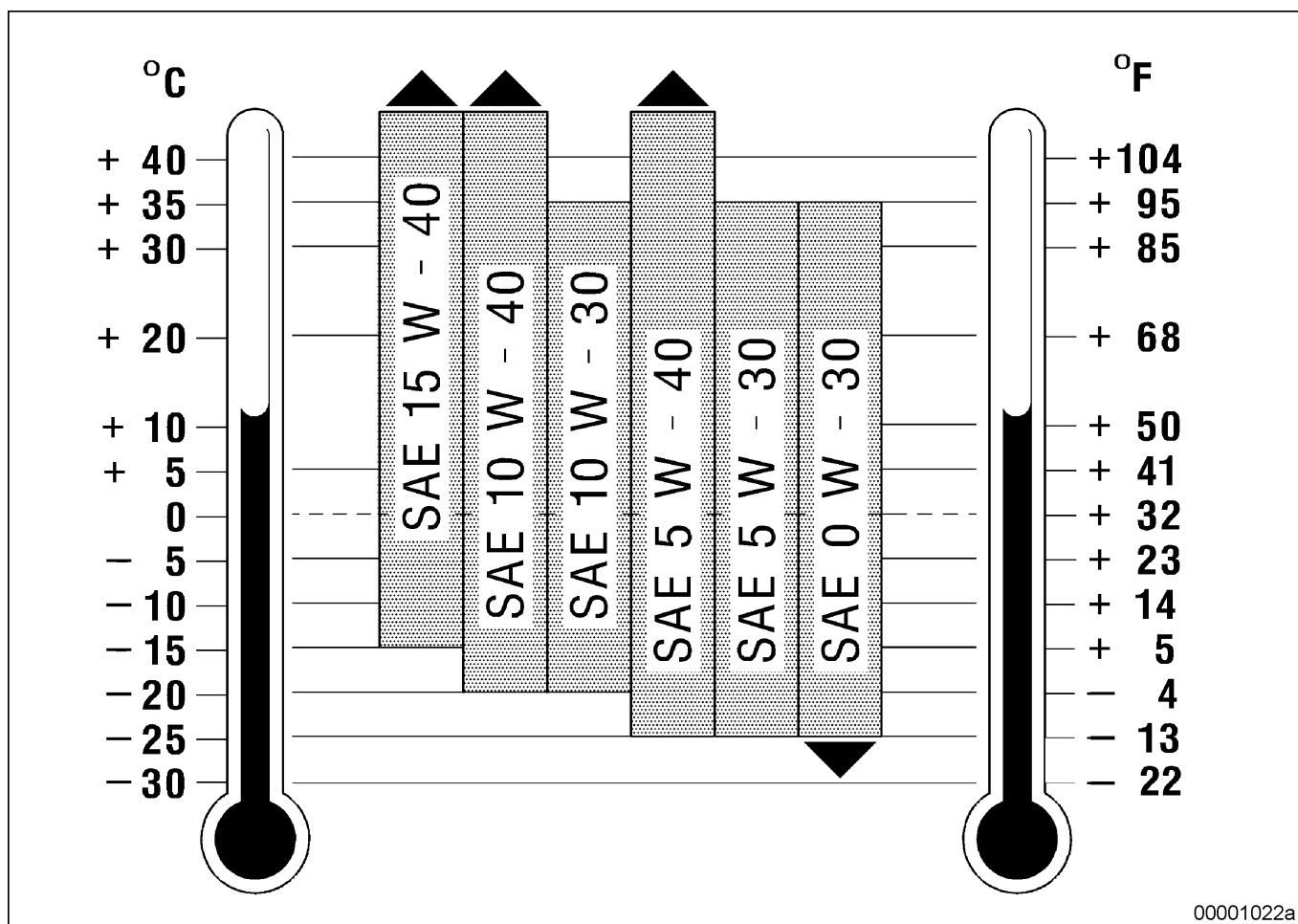


Dispose of used fluids and lubricants in accordance with local regulations.  
Used oil must never be disposed of via the fuel tank!

#### Selection of viscosity grades

Selection of the viscosity grade is based primarily on the ambient temperature at which the engine is to be started and operated. If the relevant performance criteria are observed the engines can be operated both with single grade and multigrade oils, depending on the application. Standard values for the temperature limits in each viscosity grade are shown in Chart 1.

If the prevailing temperature is too low, the engine oil must be preheated.



00001022a

Diagram 1

### Engine oils for Series 1600 engines



For Series 1600 engines, only engine oils in accordance with Chapter 5 may be used.

The oil change interval is 1,000 operating hours or max. 1 year under the condition that engine oils of oil category 3 and approved fuels as per Chapter 4 are used.

The oil change interval is 500 operating hours or max. 1 year under the condition that engine oils of oil category 2 and approved fuels as per Chapter 4 are used.

If fuels which have not been approved are used, shorter oil change intervals are to be expected.

Before using fuels which have not been approved, consult MTU Friedrichshafen GmbH to agree the oil change intervals.

### Oil drain intervals for diesel engines



Mixing different engine oils is strictly prohibited!

Changing to another oil grade can be done together with an oil change. The remaining oil quantity in the engine oil system is not critical in this regard.

### 3 Coolants

#### Requirements

Coolants must be prepared from suitable fresh water and a coolant additive which has been approved by MTU Friedrichshafen GmbH. Conditioning of the coolant takes place outside the engine.



Mixing of different coolant additives and supplementary additives is prohibited!

The quantity of coolant remaining in the coolant circuit during a coolant change is not critical.

To prevent cooling system damage:

- When topping up (following loss of coolant) it must be ensured that the concentration of corrosion-inhibiting additive in the cooling system is 50% by volume (frost-protection to  $-37\text{ °C}$ ).
- Do not use concentrations of corrosion-inhibiting additives exceeding 55% by volume (max. antifreeze protection). Concentrations in excess of this reduce antifreeze protection and heat dissipation.

Coolant mixtures:

#### Coolant mixtures (Table 8)

Antifreeze protection to °C	-37	approx. $-45$
Water % by vol.	50	45
Corrosion-inhibiting additive % by vol.	50	Max. 55

#### Fresh water

Only clean, clear water with values in accordance with those in Table 9 must be used for preparing the coolant. If the limit values for the water are not achieved, its hardness or mineral content can be decreased by adding demineralized water.

#### (Table 9)

	Min.	Max.
Total earth alkalines <sup>1)</sup> (Water hardness)	0 mmol/l 0°d	2.7 mmol/l 15°d
pH-value at 20 °C	6,5	8,0
Chloride ions		100 mg/l
Anion total		200 mg/l

<sup>1)</sup> Common designations for water hardness in various countries:

1mmol/l = 5.6°d = 100 mg/kg CaCO<sub>3</sub>

- 1°d = 17.9 mg/kg CaCO<sub>3</sub>, USA hardness
- 1°d = 1.79° French hardness
- 1°d = 1.25° English hardness

#### Operational monitoring

Inspection of the fresh water and continuous monitoring of the coolant are essential for trouble-free engine operation. Fresh water and coolant should be inspected at least once per year and with each fill-up. Inspections can be carried out using the MTU test kit which contains the necessary equipment, chemicals and instructions for use.

The following tests can be conducted with the MTU Test Kit:

- Determination of total hardness (°d)
- pH value
- Chloride content of fresh water
- Antifreeze (corrosion-inhibiting) concentration

Orders for fresh water and coolant analysis may be placed with MTU Friedrichshafen GmbH.

Samples of min. 0.25 l must be supplied.

### Limit values for prepared coolant (Table 10)

pH value when using:		
– Corrosion inhibitor / antifreeze	Min. 7.0	Max. 9.0
– Silicon (valid for coolants containing Si)	Min. 25 mg/l	

### Storage capability of coolant concentrates up to max. 35 °C (Table 11)

Corrosion-inhibiting antifreezes	5 years	
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## 4 Fuels

### Diesel fuels

#### Selection of a suitable diesel fuel

The quality of the fuel is very important for satisfactory engine performance, long engine service life and acceptable exhaust emission levels.

In order to achieve optimum engine performance and satisfactory service life for the entire fuel and injection system, the limit values for water and total contamination must be complied with in the vehicle tank for all approved fuel qualities.

#### Limit values for water and total contamination (Table 12)

		Test Method		Limit Value
		ASTM	ISO	
Proportion of water	Max.	D 6304	EN 12937	200 mg/kg
Total contamination	Max.	D 6217	EN 12662	24 mg/kg



It is strictly recommended to integrate an additional filtering system in the fuel system.



The use of fuels which have not been approved may lead to considerable deviations from the specified engine power and to severe damage to the engine.



Dispose of used fluids and lubricants in accordance with local regulations.  
Used oil must never be disposed of via the tank of the vehicle!

#### Fuel lubricity (Table 13)

		Test Method		Limit Value
		ASTM	ISO	
Lubricity at 60 °C	Max.	D6079	12156-1	520 µm

## Requirements

Commercially available diesel fuels meeting the following specifications are approved for use:

### Distillate fuels

– Diesel fuel	in accordance with	EN 590 (B5)
– B7 diesel fuel	in accordance with	DIN 51628 (B7) or EN590:2009 (B7) as from 10.2009
– Grade No. 1–D (S15, S500, S5000)	in accordance with	ASTM D 975–06
– Grade No. 2–D (S15, S500, S5000)	in accordance with	ASTM D 975–06



Distillate fuels according to the above-mentioned standards with a sulfur content <50 mg/kg must not be used if lubricity (HFRR) is <520µm.

### Low-sulfur diesel fuels

Sulfur is contained in chemically bound form in crude oil and is therefore present in fuel at varying levels.

A sulfur content of max. 50 mg/kg or 10 mg/kg (depending on category) has been a European Union requirement since 01.01.2005. Since 01.2009, the term “sulfur-free” is used here to designate diesel fuels with a sulfur content of max. 10 mg/kg. Low-sulfur diesel fuels (max. 50 mg/kg) are to be recommended for environmental reasons.

### Diesel fuels in winter operation

At low outdoor temperatures, the diesel fuel’s fluidity can be inadequate on account of paraffin precipitation.

In order to prevent operational problems (e.g. clogged filters) during the winter months, diesel fuel with suitable cold-flow characteristics should be used.

### Flow improvers

Flow improvers cannot prevent paraffin precipitation but they do influence the size of the crystals and allow the diesel fuel to pass through the filter.

The effectiveness of the flow improvers is not guaranteed for every fuel.

Certainty is only assured after laboratory testing of the filtering capability.

Required quantities and mixing procedures must be carried out according to the manufacturer’s instructions.

### Microorganisms in fuel

Bacterial attack and sludge formation may occur in the fuel under unfavorable conditions. In such cases, the fuel must be treated with biocides in accordance with the manufacturer’s specifications. Overconcentration must always be avoided.

For prophylactic use, the appropriate concentration must be identified in consultation with the relevant manufacturer.

**Approved biocides (Table 16)**

<b>Manufacturer</b>	<b>Brand name</b>	<b>Concentration for use</b>
ISP Global Technologies Deutschland GmbH Emil-Hoffmann-Str. 1a 50996 Köln Tel. +49 (0)2236 9649 304/301 Fax. +49 (0)2236 9649 295	Bakzid	100 ml per 100 l
Schülke und Mayr 22840 Norderstedt Tel. +49 (0) 40/52100-00 Fax. +49 (0) 40/52100-244	Grota MAR 71 StabiCor 71	0.5 l / ton 0.5 l / ton
Rohm und Haas In der Kron 4 60489 Frankfurt Tel. +49 (0) 69/78996-0 Fax. +49 (0) 69/7895356	Kathon FP 1.5	100-200 mg/kg
Maintenance Technologies Simon's Town 7995 Cape Town – South Africa Tel. +27 21 9877377 Fax. +27 21 9794611 E-mail: maintech@telkomsa.net	Diesalcure Fuel Decontainment	1 : 4000 (250mg/kg)



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## 5 Approved fluids and lubricants

### Engine oils

For details and special features, see chapter on “Lubricants” (→ Page 05)

## Multi-grade oils – category 2, SAE-grades 10W-40 and 15W-40 for diesel engines

## MTU/MTU-DD multigrade engine oil

Manufacturer	Brand name	SAE Vis- cosity class	TBN			Remarks
			8-10mgKOH/g	10 – 12 mgKOH/g	>12 mgKOH/g	
	Power Guard DEO SAE 15W-40	15W-40		X		20l container (Order No. X00037902) 208l container Order No. X00037897)
	Fascination of Power	15W-40		X		18l barrel (order no. 91818/P) 200l container (order no. 92727/D) available through MTU Asia

## Other multigrade oils

Manufacturer	Brand name	SAE Vis- cosity class	TBN			Remarks
			8-10mgKOH/g	10 – 12 mgKOH/g	>12 mgKOH/g	
Addinol Lube Oil	Addinol Diesel Longlife MD1047	10W-40		X		
	Addinol Diesel Longlife MD1548	15W-40		X		
	Addinol Diesel Power MD1547	15W-40		X		
	Addinol Diesel Longlife MD1546	15W-40		X		
	Addinol Diesel Longlife MD1547	15W-40		X		
Anomina Petroli Italiana	IP Taurus	15W-40	X			
	IP Taurus Turbo	15W-40	X			
	IP Taurus Turbo Plus	15W-40	X			
API	D Multi Diesel Turbo	15W-40		X		
AP Oil International Ltd.	AP X-Super Dieselube Turbo CF-4	15W-40	X			
Arabi Enertech KSC	Burgan Diesel CH-4	15W-40		X		
Belgin Madeni Yaglar	Lubex Marine M	15W-40		X		
Bharat Petroleum	MAK MB SHPD 15W-40	15W-40		X		
Bölünmez Petrocülük A-S	MOIL Dizel 15W-40	15W-40		X		

Manufacturer	Brand name	SAE Vis- cosity class	TBN			Remarks
			8-10mgKOH/g	10 – 12 mgKOH/g	>12 mgKOH/g	
BP p.l.c.	BP Vanellus C6 Global	15W-40	X			
	BP Vanellus C6 Global Plus	10W-40		X		
	BP Vanellus E6	15W-40		X		
	BP Vanellus C7 Global	15W-40	X			
	BP Vanellus Multi-Fleet	15W-40	X			
	BP Mine Multi	15W-50	X			
Castrol Ltd.	Castrol Diesel X	15W-40	X			
	Castrol Tecton T	15W-40		X		
	Castrol Tecton Plus	15W-40		X		
Cepsa	Cepsa Euromax	15W-40		X		
Chevron	Caltex Delo SHP Multigrade	15W-40		X		
	Caltex Delo Gold [ISOSYN] Multigrade	15W-40		X		
	Caltex Delo 400 Multigrade	15W-40		X		
	Chevron RPM Heavy Duty Motor Oil	15W-40		X		
	Chevron Delo 400 Multigrade	15W-40		X		
	Texaco Ursa Super Plus	15W-40		X		
	Texaco Ursa Super TD	10W-40		X		
	Texaco Ursa Super TDS	15W-40		X		
	Texaco Ursa Premium TDX					
Chinese Petroleum Company	CPC Superfleet CG-4 Motor Oil	15W-40	X			
Conoco Phillips Com.	Conoco Hydroclear Power D	15W-40			X	
Cubalub	Cubalub ExtraDiesel	15W-40			X	
Delek	Delkol Super Diesel	15W-40	X			
Denizati Petrokimya Urunleri San	Seahorse Motor Oil 15W-40	15W-40		X		
EKO	Eko Forza Extra	15W-40	X			
ENI S.p.A.	Agip Sigma Truck	15W-40	X			
	Agip Sigma Turbo	15W-40	X			
	Agip Blitum T	15W-40	X			
Exxon Mobile	Essolube XT 4	15W-40	X			
	Mobil Delvac Super 1400	15W-40	X			
	Mobil Delvac XHP	10W-40		X		
	Mobil Delvac XHP	15W-40	X			
Feoso Oil	Ultra VG Motor Oils	15W-40	X			
FL Selenia	Urania LD7	15W-40		X		

Manufacturer	Brand name	SAE Vis- cosity class	TBN			Remarks
			8-10mgKOH/g	10 - 12 mgKOH/g	>12 mgKOH/g	
Fuchs	Fuchs Titan Truck Plus	15W-40		X		
	Fuchs Titan HPE	15W-40	X			
	Fuchs Titan Cargo LD	10W-40		X		
	Titan Unic Plus MC	10W-40		X		
	Titan Unic Ultra MC	10W-40		X		
	Titan Formel Plus	15W-40		X		
	Titan Truck	15W-40		X		
	Titan Unimax	15W-40		X		
	Gulf Oil International	Gulf Superfleet LE	10W-40		X	
Gulf Superfleet LE		15W-40		X		
Gulf Superfleet Supreme		10W-40		X		
Gulf Superfleet Supreme		15W-40		X		
Gulf Superfleet Plus		15W-40	X			
Huiles Berliet S.A.	RTO Maxima RD	15W-40	X			
	RTO Maxima RLD	15W-40	X			
Hyrax Oil	Hyrax Admiral	15W40	X			
Igol, France	Trans Turbo 5X	15W-40	X			
	Trans Turbo 7X	15W-40	X			
	Trans Turbo 9X	15W-40	X			
	Protruck 100 X	10W-40		X		
	Protruck 100 X	15W-40		X		
Imperial Oil	Esso XD-3 Extra	15W-40		X		
Indy Oil SA	Indy Super Turbo Diesel	15W-40		X		
Indian Oil Corp.	Servo Premium (N)	15W-40		X		
Kuwait Petroleum	Q8 T 720	10W-40	X			
	Q8 T 750	15W-40	X			
Kocak Petrol Ürünleri San	Speedol SHPD Tirot 15W-40	15W-40		X		
Lotos Oil	Turdus Powertec CI-4 15W-40	15W-40		X		
Lukoil Oil Company LLK-International	Lukoil Avangard	15W-40	X			
Mauran SAS	Turboland	15W-40	X			
MOL-LUB Ltd.	MOLDynamic MK9	15W-40				
	MOL Mk-9	15W-40		X		
	Mol Dynamic Super Diesel	15W-40	X			
Motor Oil, Hellas	EMO SHPD Plus	15W-40		X		

Manufacturer	Brand name	SAE Vis- cosity class	TBN			Remarks
			8-10mgKOH/g	10 – 12 mgKOH/g	>12 mgKOH/g	
OMV AG	OMV eco truck extra OMV truck LD	10W-40 15W-40	X	X		
Panolin AG	Panolin Universal SFE Panolin Diesel Synth	10W-40 10W-40	X	X		
PDVSA Deltaven S.A.	Ultradiesel MT	15W-40	X			
Pennzoil Products	Supreme Duty Fleet Motor Oil Longlife EF Heavy Duty Multigrade Engine Oil Pennzoil Long.Life Gold	15W-40 15W-40 15W-40	X X	X		
Pertamina	Meditran SMX	15W-40	X			
Petro-Canada Lubricants	Duron Duron XL Synthetic Blend	15W-40 15W-40	X X			
Petrol Ofisi	PO Maximus Turbo Dizel Extra PO Turbo Dizel Extra	15W-40 15W-40	X X			
Petrolimex Petrochemical Joint-Stock Company	PLC Diesel SHPD 15W-40	15W-40		X		
Petron Corporation	Petron REV-X Trekker	15W-40	X			
Prista Oil AD	Prista SHPD Prista Turbo Diesel	15W-40 15W-40	X X			
Ravensberger Schmierst- offvertrieb GmbH	RAVENOL Expert SHPD RAVENOL Formel Diesel Super RAVENOL Mineralöl Turbo Plus SHPD	10W-40 15W-40 15W-40	X X X	X X		
Repsol YPF	Repsol Extra Vida MT	15W-40	X			
Shanghai HIRI Lubricants	HIRI 245	15W-40	X			
Shell	Shell DEO Super Shell Rimula MV Shell Rimula R3 X Shell Rimula R4 L Shell Rimula RT4 L Shell Rimula Super Shell Rimula X Shell Rotella T Shell Rotella T Multigrade Rimula X CH-4	15W-40 15W-40 15W-40 15W-40 15W-40 15W-40 15W-40 15W-40 15W-40 15W-40	X X X X X X X X X X	X X X X X X X X X X		

Manufacturer	Brand name	SAE Vis- cosity class	TBN			Remarks
			8-10mgKOH/g	10 - 12 mgKOH/g	>12 mgKOH/g	
Sinclair Oil Corp.	Sinclair Dura Tec Premium 1000	15W-40		X		
Singapore Petroleum Company	SDM 900, SAE 15W40	15W-40		X		
Sinopec Corp.	Great Wall Jinpai Zunlong	15W-40	X			
SRS Schmierstoff Vertrieb GmbH	SRS engine oil O 236	15W-40		X		Increased corrosion protection
	Wintershall Multi-Rekord top	15W-40		X		
	Wintershall Multi Rekord plus	15W-40	X			
	Wintershall Turbo Rekord	15W-40		X		
	Wintershall Turbo Diesel Plus	15W-40		X		
	Wintershall TFX	10W-40		X		
Statoil	Turbosynt	15W-40			X	
Svenska Statoil	MaxWay	15W-40		X		
Total	Antar Milantar PH	15W-40	X			
	Antar Milantar PX	15W-40	X			
	Elf Performance Trophy DX	15W-40	X			
	Elf Performance Victory	15W-40		X		
	Fina Kappa Optima	15W-40	X			
	Total Caprano TDH	15W-40	X			
	Total Caprano TDI	15W-40	X			
	Total Disola W	15W-40		X		
	Total Rubia TIR 6400	15W-40	X			
Total Rubia TIR 7400	15W-40		X			
Unil Opal	Medos 700	15W-40	X			
Valvoline	Valvoline Premium Blue	15W-40		X		
Yacco	Inboard 100 4 T Diesel	15W-40	X			
	Transpro 40 S	10W-40		X		

**Multigrade oils – category 3, SAE-grades 5W-30, 5W-40 and 10W-40 for diesel engines**

Manufacturer	Brand name	SAE Vis- cosity class	TBN			Remarks
			8-10mgKOH/g	10 – 12 mgKOH/g	>12 mgKOH/g	
Addinol Lube Oil	Addinol Ultra MD 0538	5W-30			X	
	Addinol Super Truck MD 1048	10W-40			X	
Aral AG	Aral Super Turboral	5W-30			X	
BP p.l.c	BP Energol IC-MT	10W-40			X	
	BP Vanellus E8 Ultra	5W-30			X	
Bucher	Motorex MC Power 3	10W-40			X	
Castrol Ltd.	Castrol Enduron MT	10W-40			X	
	Castrol Enduron Plus	5W-30			X	
	Castrol Elixion 5W-30	5W-30		X		
Cepsa	Cepsa Eurotrans SHPD	5W-30			X	
	Cepsa Eurotrans SHPD	10W-40		X		
Chevron	Caltex Delo XLD Multigrade	10W-40			X	
	Texaco Ursa Super	10W-40		X		
	Texaco Ursa Premium FE	5W-30			X	
	Texaco Ursa Super TDX	10W-40			X	
Elinoil	Elin Diesel Tec Synthetic	10W-40		X		
ENI S.p.A.	Agip Sigma Trucksint TFE	5W-40			X	
	Agip Sigma Super TFE	10W-40		X		
	Agip Sigma Ultra TFE	10W-40			X	
Enoc	Enoc Vulcan 770 SLD	10W-40		X		
Exxon Mobil	Mobil Delvac XHP Extra	10W-40			X	
	Mobil Delvac 1 SHC	5W-40			X	
FL Selenia	Urania 100 K	10W-40		X		
	Urania FE	5W-30			X	
Fuchs	Titan Cargo SL	5W-30			X	
	Titan Cargo MC	10W-40			X	
	Titan Cargo LDF	10W-40			X	
Ginouves	York 847 10W40	10W-40			X	
Gulf Oil International	Gulf Fleet Force synth.	5W-30			X	
	Superfleet ELD	10W-40		X		
Huiles Berliet S.A.	RTO Extensia ECO	5W-30			X	
	RTO Extensia RXD	10W-40		X		
Igol, France	Trans Turbo 8X	5W-30			X	

Manufacturer	Brand name	SAE Vis- cosity class	TBN			Remarks
			8-10mgKOH/g	10 – 12 mgKOH/g	>12 mgKOH/g	
INA	INA Super 2000	10W-40			X	
Iranol Oil Co.	Iranol D – 40000	10W-40		X		
Kuwait Petroleum	Q8 T 860	10W-40		X		
	Q8 T 905	10W-40	X			
Lotos Oil	Turdus Semisynthetic XHPDO	10W-40		X		
	Turdus Powertec Synthetic	5W-30			X	
Meguin	Megol Motorenöl Super LL Dimo Premium	10W-40		X		
	Megol Engine Oil Diesel Truck Performance	10W-40			X	
MOL-LUB	MOL Synt Diesel	10W-40		X		
Ölwerke Julius Schindler	Econo Veritas Truck FE	5W-30			X	
OMV	OMV truck FE plus	10W-40			X	
	OMV super truck	5W-30			X	
Panolin	Panolin Diesel HTE	10W-40			X	
Petróleos de Portugal	Galp Galaxia Ultra EC	10W-40		X		
	Galp Galaxia Extreme	5W-30		X		
Petrol Ofisi	PO Maxima Diesel	10W-40		X		
Prista Oil AD	Prista UHPD	10W-40	X			
Ravensberger Schmierstoffvertrieb GmbH	RAVENOL Super Performance Truck	5W-30			X	
	RAVENOL Performance Truck	10W-40			X	
Redoil Italia	Challoils Syntextruck	10W-40		X		
Repsol YPF	Repsol Diesel Turbo VHPD	5W-40			X	
Shell	Shell Rimula Ultra	5W-30			X	
	Shell Rimula R6 M	5W-30			X	
	Shell Rimula Ultra E7	10W-40			X	
SMV GmbH JB German Oil	JB German Oil High Tech Truck	10W-40			X	
SRS Schmierstoff Vertrieb GmbH	Wintershall TFF	10W-40			X	
	Wintershall TFL	5W-30			X	
	Wintershall TFG	10W-40			X	

Manufacturer	Brand name	SAE Vis- cosity class	TBN			Remarks
			8–10mgKOH/g	10 – 12 mgKOH/g	>12 mgKOH/g	
Total	Antar Maxolia	10W-40		X		
	Elf Performance Experty FE	5W-30			X	
	Elf Performance Experty	10W-40		X		
	Fina Kappa First	5W-30			X	
	RTO Extensia ECO	5W-30			X	
	RTO Extensia RXD	10W-40		X		
	Total Rubia TIR 8600	10W-40			X	
	Total Rubia TIR 9200 FE	5W-30			X	
Unil Opal	LCM 800	10W-40			X	
Valvoline International	Profleet	10W-40	X			
	Valvoline Pro Fleet Extra	5W-30			X	
Wolf Oil Corporation	Champion Turbofleet UHPD	10W-40				
Yacco	Yacco Transpro 45	10W-40			X	

## Coolant additives

For details and special information, see chapter on “Coolants” (→ Page 07)



Mixing of different coolant additives and supplementary additives is prohibited!



Before changing from a corrosion-inhibiting antifreeze concentrate containing silicon to a silicon-free corrosion-inhibiting antifreeze concentrate, flush the coolant circuit with fresh water!

Before changing from a silicon-free corrosion-inhibiting antifreeze concentrate to a corrosion-inhibiting antifreeze containing silicon concentrate, flush the coolant circuit with fresh water!

**Corrosion-inhibiting antifreeze concentrates (containing silicon)**

<b>Manufacturer</b>	<b>Brand name</b>	<b>Operating time Hour / Year</b>	<b>Remarks</b>
Addinol	Antifreeze Super	9000 / 5	
Avia Mineralöl-AG	Antifreeze APN	9000 / 5	
BASF AG	Glystantin G 48 Glystantin Protect Plus	9000 / 5 9000 / 5	
Bucher AG	Motorex Antifreeze Protect G48	9000 / 5	
Castrol Ltd.	Castrol Antifreeze NF	9000 / 5	
Clariant GmbH	Genantin Super	9000 / 5	
Deutsche BP	Aral Antifreeze Extra Castrol Antifreeze NF Veedol Antifreeze NF	9000 / 5 9000 / 5 9000 / 5	
Fuchs Petrolub AG	Fricofin Maintain Fricofin	9000 / 5 9000 / 5	
Ginouves Georges S.A.	York 716	9000 / 5	
Krafft S.A.	Krafft Refrigerante ACU 2300	9000 / 5	
Maziva - Zagreb d.o.o.	INA Antifriz AI Super	9000 / 5	
MOL-LUB Ltd.	EVOX Extra G48 Antifreeze concentrate	9000 / 5	
OMV	OMV Coolant Plus	9000 / 5	
Panolin AG	Panolin Anti-Frost MT-325	9000 / 5	
Samyang	Auto Cool S100	9000 / 5	
Shell International	Glyco Shell	9000 / 5	
Sotragal – Mont Blanc	Antigel Power Cooling Concentrate	9000 / 5	
The Valvoline Company	Zerex G 48	9000 / 5	
Total	Glacelf MDX	9000 / 5	

**Corrosion-inhibiting antifreezes: ready-mix**

<b>Manufacturer</b>	<b>Brand name</b>	<b>Operating time Hour / Year</b>	<b>Remarks</b>
Hermann Bantleon GmbH	Avilub Antifreeze Mix (50%)	9000 / 5	
Castrol Ltd.	Castrol Antifreeze NF Premix (45%)	9000 / 5	
Samyang	Auto Cool S105 (50%)	9000 / 5	
Sotragal – Mont Blanc	L.R. Power Cooling (44%)	9000 / 5	
	L.R. Power Cooling (52%)	9000 / 5	
Total	Coolelf MDX	9000 / 5	



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## 6 Engine preservation

### Note

If you have queries with regard to engine preservation, please contact your MTU representative.



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## 7 Revision overview

### General

This publication is only applicable to Series 1600 engines.

For information on the other MTU engine series and MTU-DD Series S60, please refer to the MTU Fluids and Lubricants Specifications, publication No. A001061/.. .

### Revisions

NONE, first issue.

