



Technical Circular

0199-2090 en 1st Exchange

Product :
DEUTZ MWM



Date : 23.10.1992

This Circular supersedes TR :

Copies to :

- Service Partners
(Sales Managements / Offices, Subsidiaries,
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- Service Centers
- Head Office Depts (02)
- Service Engineers
- OEMs and End Users

Drawn up by : Service Documentation
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Obtainable from : AI-VTP 4, Tel. : (0221) 822 - 3173

Address :

Note : This document will not be up dated regarding spare parts numbers.
For identifying spare parts, the spare part documentation has to be referred to.

Lube oil

The 1st exchange is being issued on account of:

- Amendment of lube oil table, Enclosure 1,
- Addition of lube oils for seal oil system,
- Addition of TBD 645 engine series,
- Partial modification of lube oil change intervals.

Scope of application:

This Technical Circular applies to the following DEUTZ MWM engines:
D/TBD 234, TBD 604B, S/BAM 816
D/TBD 440, S/BVM 628, R/S/BVM 640, TBD 645

Please proceed analogously for engines no longer included in the build program. In case you need clarification, please contact your nearest DEUTZ SERVICE.

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Enclosure 1, lube oil table

1 Lube oil grade

Lube oils in accordance with existing specifications are stipulated for engines of the D/TBD 234, TBD 604B and S/BAM 816 series. For engines of the D/TBD 440, S/BVM 628, R/S/BVM 640 and TBD 645 series lube oils, which meet the requirements of big engines, are specifically named.

The lube oil producer is responsible to decide whether a lube oil meets the quality requirements or not.

1.1 Engine series D/TBD 234, TBD 604B and S/BAM 816

The lube oils specified for the engines referred to above are based on the following specifications:

- API-Class (American Petroleum Institute)

CD, CE

- CCMC-Class (Committee of Common Market Automobile Construtors)

D 4,D 5 (SHPD oil)

Lube oils complying with comparable specifications not listed here are also permissible.

1.2 Engine series D/TBD 440, S/BVM 628, R/S/BVM 640, TBD 645

In the table of Enclosure 1 are listed those lube oils which, depending on the type of fuel, meet our requirements according to the data received from the oil producers. The sole responsibility for a uniform lube oil grade lies with the oil producer. When the engine has to run under extremely adverse operating conditions with distillate fuel, e.g. cutter operation, the cylinder liners may evidence glazing. In such cases you should use a different lube oil and contact the lube oil producer.

When using synthetic oils or corrosion inhibitor oil (emergency sets), it is necessary to consult DEUTZ SERVICE.

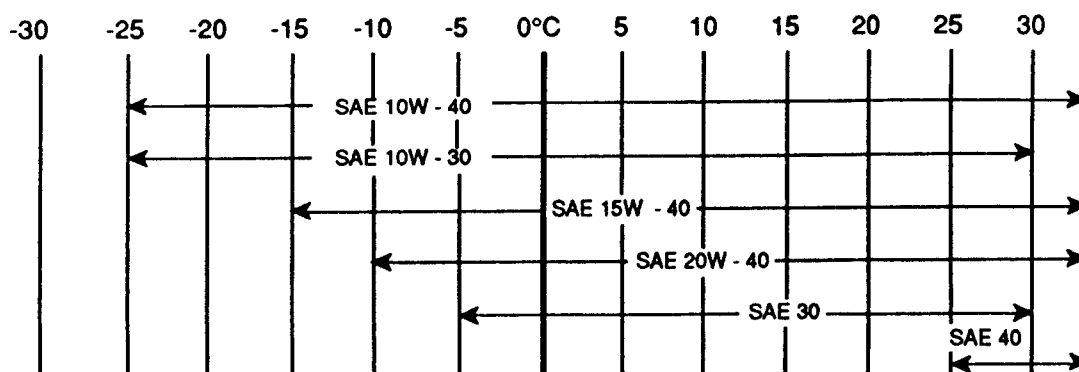
2 Lube oil viscosity

Selection of the lube oil viscosity shall be based on SAE-classification J 300 9/87 (Society of Automotive Engineers). Selection of the SAE-class does not give any indication of the oil grade.

2.1 Engine series D/TBD 234, TBD 604B, S/BAM 816

The ambient temperature is decisive for selection of the proper SAE-class. Multi-grade oils may be used for all-year application (summer and winter), e.g. SAE 15W-40.

Viscosity specification



2.2 Engine series D/TBD 440, S/BVM 628, R/S/BVM 640, TBD 645

The following viscosity classes are specified for these engines:

Engine	Viscosity
D/TBD 440 S/BVM 628 R/S/BVM 640 TBD 645	SAE 40

The BVM 628 engines in operation, which were previously operated with a lube oil viscosity of SAE 30 (previous version: oil cooler upstream of charge air cooler) may be operated with SAE 40 as from now on.

3 Lube oil change intervals

The oil should be changed only with the engine warmed up to service temperature; the oil is then highly fluid and drains off much better.

3.1 Engine series D/TBD 234, TBD 604B, S/BAM 816

The first lube oil change after initial commissioning or re-commissioning following major repair work shall be effected after 50 running hours at the latest. Thereafter the following lube oil change intervals shall be adhered to:

	Mounted centrifugal lube oil filter			
	without		with	
Engine	Type of fuel			
	Distillate fuel	Interm. fuel B2/M2	Distillate fuel	Interm. fuel B2/M2
D 234	500 Bh	250 Bh		
TBD 234	250 Bh	125 Bh		
TBD 604B	250 Bh	125 Bh	500 Bh	250 Bh
S/BAM 816	250 Bh		500 Bh	

Oil change once a year at a minimum

The oil change interval may be extended depending on the engine operating mode and the lube oil grade. This must be determined by a series of used-oil analyses. The lube oil must be changed in any case if one of the following limit values is not reached or exceeded:

Kinematic viscosity at 100°C (DIN 51 562)

Lube oil SAE 30, SAE...W-30

min. 9 mm²/s (cSt)

Lube oil SAE 40, SAE...W-40

min. 11 mm²/s (cSt)

Viscosity increase

max. 25 % of value when new

Flash point (DIN 51 376)

min. 190°C

Total contamination (DIN 51 365)

max. 2.0 % by vol.

Water content

max. 0.2 % by vol.

Total base number (DIN ISO 3771)

min. 50 % of value when new

3.2 Engine series D/TBD 440, S/BVM 628, R/S/BVM 640, TBD 645

With these engines a used-oil analysis is made always before changing the oil. In consultation with the mineral oil producer, the lube oil must be partially replaced or completely changed if one of the following limit values is not reached or exceeded:

Kinematic viscosity at 100°C (DIN 51 562)	
Lube oil SAE 30	min. 9 mm ² /s (cSt)
Lube oil SAE 40	min. 11 mm ² /s (cSt)
Viscosity increase	max. 25 % of value when new
Flash point (DIN 51 376)	min. 190 °C
Total contamination	max. 1.0 % by vol.
Water content	max. 0.2 % by vol.
Total base number (DIN ISO 3771)	min. 60 % of value when new

3.3 Used-oil analysis

The oil sample must be representative of the entire oil filling and must be taken in good time before the oil change becomes due (see operation manual). It is best to start a series of analyses during or shortly after commissioning so as to define a possible variation of the lube oil depending on the duration of engine operation. The used-oil analysis can be carried out in the laboratories of the oil producers, institutes or at DEUTZ MWM.

The DEUTZ MWM test kit allows quick determination of the lube oil grade. This quick test permits a trend definition of the lube oil variation. The DEUTZ MWM test kit with part No. 1213 0382 is obtainable from your DEUTZ SERVICE.

4. Servicing of engine-mounted lube oil filters

Lube oil filter servicing is to be carried out as follows (see also relevant operation manual):

• D/TBD 234

Changing oil filter element	50 running hours after commissioning of new or overhauled engine, thereafter every 500 hours, after 1 year at the latest
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• TBD 604B

Cleaning strainer	}	50 running hours after commissioning of new or overhauled engine, thereafter every 500 running hours
Changing throw-away filter/ elements		
Cleaning centrifugal oil filter		

• S/BAM 816

Cleaning strainer	}	50 running hours after commissioning of new or overhauled engine, thereafter every 500 hours
Changing throw-away filter/ elements		
Cleaning centrifugal oil filter		50 running hours after commissioning of new or overhauled engine, thereafter every 250 hours

- **S/BVM 628**

Oil filter combination:

- Edge-type filter
- Cleaning filter chamber
- Paper filter: Changing paper element

With distillate fuel
With intermediate fuel

Centrifugal oil filter

operating daily
every 1,500 running hours
50 running hours after commissioning of
new or overhauled engine,
thereafter every 3,000 hrs (or after exceeding
thereafter every 1,500 hrs perm.diff. pressure)

50 running hours after commissioning of
new or overhauled engine,
thereafter every 250 hours

- **D/TBD 440**

Oil filter combination

- Edge-type filter
- Cleaning filter chamber
- Paper filter:
Changing paper element

operating daily
every 2,000 running hours

300 running hours after commissioning of
new or overhauled engine,
thereafter every 2,000 hours

- **R/S/BVM 640 and TBD 645**

Cleaning strainer candles

500 running hours after commissioning of
new or overhauled engine,
thereafter every 5,000 hours

5. Lube oil for seal oil system

The engines R/S/BVM 640 and S/BVM 628 are provided with a separate seal oil system for operation with intermediate fuel. As lube oil should be used an oil with a low TBN. Suitable lube oils may be taken from Enclosure 1. Lube oils complying with comparable specifications not listed here are also permissible.

DEUTZ SERVICE INTERNATIONAL GmbH
Central Customer Service

- Fausten -

- Asselborn -



Lube oil selection table **D/TBD 440, S/BVM 628, R/S/BVM 640, TBD 645**

Enclosure 1
TC 0199 - 2090
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Producer	Engine lube oil								Lube oil for seal oil system (Viscosity SAE 30)	
	Type of fuel				Motor					
	Distillate fuel and Intermediate fuel (MDO; MDF)		Intermediate fuel acc. to CIMAC		D/TBD 440	BVM 628	BVM 640	TBD 645	TBN	
	(Viscosity SAE 40)		(Viscosity SAE 40)							
		TBN		TBN						
Agip	Agip DIESEL SIGMA S Agip CLADIUM 120	10,7 12	Agip CLADIUM 300	30	X X -	X X X	X X X	X X X	Agip ACER 100 Agip CLADIUM 50	- 5
Aral	Aral Turboral BM Aral Disola M 4015	15 15	Aral Aurelia 4030	30	X X -	X X ^{*1} X	X X X	X X X	Atlanta Marine D3005	5
Avia	Avia Special HDC				X	X	X	X		
BP	BP Energol DS3-154 BP Vanellus C3	15 10,5	BP Energol IC-HF304	30	X X -	X X X	X X X	X X X	BP OE - HT 30	6
Castrol	Castrol Marine MPX Castrol MarineCRD-DB Castrol Marine MLC	10 10,6 12	Castrol MXD 304	30	X X X -	X ^{*1} X X ^{*1} X	X X X X	X X X X	Castrol Marine CDX30	5
Chevron	Delo 1000 Marine oil		Delo 3000 Marine Oil		X -	X X	X X	X X		
Elf	Elf Performance Super Elf Disola M 4015 Aurelia 4020	11 15 20	Aurelia 4030	30	X X X -	X X ^{*1} X X	X X X X	X X X X		
Esso	EXXMAR 12 TP Essolube XD-3+	12 11,3	Exxmar 30 TP	30	X X -	X ^{*1} X X	X X X	X X X	EXXMAR XA	6
Fina	Kappa Plus Motor Oil Caprano 412		Stellano 430		X X -	X X ^{*1} X	X X X	X X X		
Fuchs	Renolin SDX Renolin HD Superior	11 11			X X	X X	X X	X X	Renolin MR 30	4
Mobil	Mobilgard 412 Mobilgard ADL Mobil Delvac 1340	16 15 10	Mobilgard 424	32	X X X -	X ^{*1} X X X ^{*1}	X X X X	X X X X	Mobil DTE Oil No. 3	
Shell	Shell Gadinia Öl Shell Öl Diesel R Shell Rimula X Monograd Shell Sirius FB Öl	12 13 11,3 9	Shell Argina T Öl	30	X X X X -	X ^{*1} X X X X	X X X X X	X X X X X	Shell Melina S Öl 30	5
Texaco	Taro XD		Taro DP		X -	X X	X X	X X		
Total	Total Thalassa		Total HMA		X -	X X	X X	X X		
Wintershall	Wintershall Record				X	X	X	X		

*1 not permitted for S/BVM 628 with $p_{me} > 16,0$ bar