KHD DEUTZ SERVICE

KHD DEUTZ

DEUTZ MWM

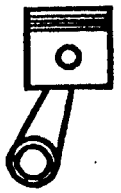
Technical Circular

0199-3002 en

1st Exchange

Product :

DEUTZ / Small-Size DEUTZ MWM Engines



Date : 30.04.1992

This Circular supersedes TR :

Copies to :

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

Drawn up by : Service Documentation
AZ - KE 3, Tel. : (0221) 822 - 3687

Obtainable from : AI-VTP 4 , Tel. : (0221) 822 - 3173

Adress :

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 grade, lube oil viscosity, lube oil change and filter servicing intervals

The 1st exchange circular will be issued because of different lube oil change intervals of the engine series 1011.

This Technical Circular applies to all DEUTZ diesel engines as well as the following DEUTZ MWM engine models:

D 327, 302, 916, 932
D/TD/TBD 226/B

In case you need clarification concerning any predecessor engines no longer included in tne build program, please contact your DEUTZ SERVICE.

Table of contents:

1. Lube oil - general

Only highly blended lube oils are used for modern diesel engines. They consist of basic oils with admixed additives.

The grade of the great variety of oil brands may be very different. It is therefore absolutely necessary that the following specifications be observed to ensure trouble-free engine operation.

2. Lube oil grade

2.1 Lube oil specification

The lube oil stipulated for the DEUTZ and DEUTZ MWM engines reffered to in this Circular is based on the following specifications:

- API-Class (American Petroleum Institute)
- CCMC-Class (Committee of Common Market Automobile Construction)

Permissible lube oil grades

	API-Class			CCMC-Class	
	CC	CD	CE	D4	D5*(SHPD)
NA engines	X	X	X	X	
TC engines		X	X	X	X

* Sulfate ash > 1,8 % by wt.

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

2.2 Determination of lube oil grade

The lube oil grade has to be evidenced by relevant laboratory analyses carried out by the oil producer and by specified test runs. A certificate will be issued after the specified tests have been successfully passed. Such certificate is issued irrespective of whether the test results are well or only slightly above the requirements or the test has been passed only after repeated attempts („Borderline Oils").

3. Lube oil viscosity

Selection of the lube oil viscosity shall be based on the SAE-classification (Society of Automotive Engineers).

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.

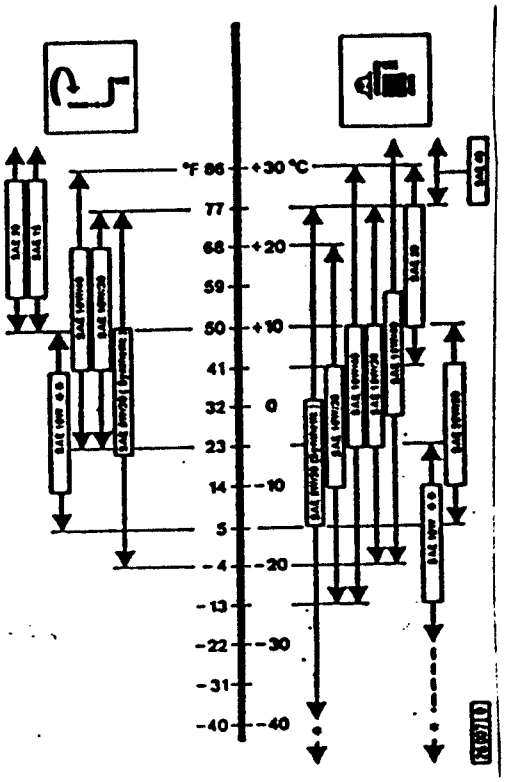
☞ **The selection of the SAE-class does not give any information on the lube oil grade.**

.../3

Viscosity specification

Manual starting

Electr. starting



* Only w.preheating

** Not for series FL 1011/E and BF4L1011/E/T

An extremely high viscosity may cause starting problems, low viscosity may affect the lubricating efficiency and lead to excessive oil consumption.

4. Lube oil change intervals

The lube oil change intervals are dependent on the oil grade, the sulfur content in the fuel and the engine operating conditions.

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. In the case of automotive engines, after 1000 to 3000 driven kilometres depending on the average driving speed.

The oil should be changed only when the engine is hot; it is then highly fluid and drains off much better.

The lube oil change intervals specified for equipment engines are indicated in runninghours (hrs) and for automotive engines usually in mileage (km). It is possible to adapt the lube oil change intervals to the service intervals specified by our OEMs for the equipment (e.g. tractor, construction equipment). In such case the indicated lube oil change intervals shall not be exceeded, however.

The lube oil change intervals may be prolonged for DEUTZ engines of the 1011 series in view of the larger oil volume in circulation (engines are oil/air-cooled), see chapter 4.1.

.../4

4.1 Equipment engines

		Oil change intervals in running hrs			
		NA engines		TC engines	
Oil grade	API-class	CC	CD/CE	CD/CE	
	CCMC-class		D 4	D 4	D 5 (SHPD)
Light duties, e.g.: Road vehicles,tractors Lift trucks,cranes, Construction equipment, rail traction units, ships,gensets,pumps, heat pumps,cogen plants		250	500	250	500
		500*1	1000*1	500*2	500*2
Heavy duties, e.g.: Combines,underground mining,road sweepers, winter service equipment, emergency gensets and pumps,engines w.two-stage combustion		125	250	125	250
		250*1	500*1	250*2	250*2

*1 only engine series FL 1011/E
*2 only engine series BF 4L 1011/E/T

- Should within once year the engine run less than the hours stated in the table, the oil must be changed at least once a year.
- The oil change intervals are subject to the following conditions:
  - Prevailing ambient temperature ≥ -10°C (+14°F)
  - Sulfur content in diesel fuel ≤ 0.5 % by wt.
- For stationary applications oil change intervals may also be determined by analysis.

In case of more adverse operating conditions

1. Prevailing ambient temperature < -10°C (+14°F)
   or
2 Sulfur content of diesel fuel > 0.5 % up to 1 %
   the intervals between oil changes are to be halved.

If the sulfur content in the diesel fuel exceeds 1 %, please consult your DEUTZ SERVICE.

4.2 Automotive engines

			Oil change intervals (km)			
			NA engines		TC engines	
Oil grade	API-class		CC	CD/DE	CD/CE	
	CCMC-class			D 4	D 4	D5(SHPD)
Service category	Annual mileage (km)	Average driving speed approx. km/h				
I	up to 30,000	20	5,000	10,000	5,000	10,000
II	above 30,000 up to 100,000	40	10,000	20,000	10,000	20,000
III	above 100,000	60	15,000	30,000	15,000	30,000
Buses			Individual approval (please consult head office)			

- If the annual mileage specified for oil change is not reached, the oil must be changed at least once a year.
- Conditions the same as for equipment engines, see chapter 4.1.
- If for specific applications, vehicle/engine maintenance is based on running hours, the oil change intervals for equipment engines „light duties" shall apply, see chapter 4.1.

5. Lube oil filter servicing

Oil filter cartridge change or filter cleaning to be effected as follows:

Cartridge change/ Filter cleaning	Equipment engines	Automotive engines		
		Service categories		
		I	II	III
initially after	50 hrs	1,000 km	2,000 km	3,000 km
thereafter every	500 hrs	10,000 km	20,000 km	30,000 km
	1,000 hrs*	—	—	—

* Only applies to engine series FL 1011/E and lube oil grad API-CD/CE or CCMC-D 4

These intervals also apply to the cleaning of bypass filters, if any, (centrifugal filter in the blower).
Bypass filters in addition to standard filtering system are not required. Should bypass filters be requested, however, only KHD-approved filters are permissible. They do not allow any prolongation of oil change intervals, however.

DEUTZ SERVICE INTERNATIONAL GmbH
Central Customer Service

- Fausten - - Asselborn -