



RUN - IN - PROGRAM (ENGINE) (former program No. 21 PD)

List of Contents

1. Theoretical Part

- 1.1. Brief description
- 1.2. Road type shares
- 1.3. Route characteristics

2. Practical Part

- 2.1. Checks
- 2.2. Driving procedure
- 2.3. Test route
- 2.4. Route description

3. Data Sheet

1. Theoretical Part

1.1. Brief description

This program is served for the run-in of the engine which is essential for the later performance and durability of the engine.

The program length amounts to 3 000 km.

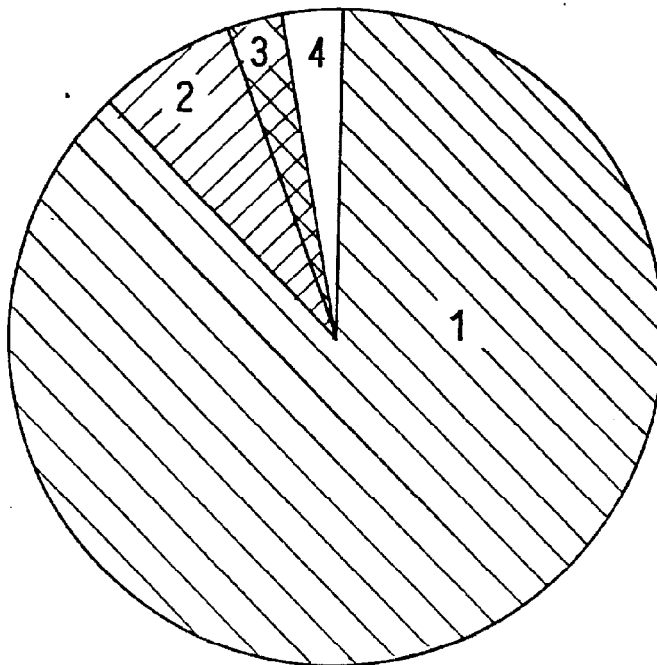
This program is based on a gradually increasing, alternating load (piston pressure) and thermal strain of the engine.

The shares of both types of strain will shift to thermal strain with increasing mileage.

The vehicle is to be operated without additional application of pay-load.



1.2. Road type shares



track	km	%
1. concrete (circular track)	28,58	87,5
2. normal asphalt road	2,27	6,9
3. Belgian block, flat (type Rheinstraße Mainz)	0,90	2,8
4. repaired asphalt road	0,90	2,8
total	32,65	100,0



1.3. Program characteristic

On the circular track speed and acceleration laps are driven in turn, according to the chart shown below.
Use highest gear only!

When driving speed laps, the speed, corresponding to the mileage (see chart) is uniformly driven.

When driving acceleration laps, an acceleration from 50 km/h to the speed corresponding to the mileage is conducted twice per lap.

On the other tracks it is driven in all gears in low speed range, depending on the road's condition.

gas engine : 1 500 - 4 000 / min.

diesel engine: 1 500 - 3 000 / min.

The six laps on the circular track of one program cycle are driven according to the following scheme:

km covered	number of speed laps	number of acceleration laps	permissible speed km/h	accelerator pos. during accelerations
500	1	5	$\sim 0,6 V_{max.}$	$\sim 2/3$
500 - 1000	2	4	$\sim 0,7 V_{max.}$	
1000 - 1500	3	3	$\sim 0,8 V_{max.}$	$\sim 3/4$
1500 - 2000	4	2		
2000 - 2500	5	1	$V_{max.}$	$1/1$
2500	6	0		



2. Practical Part

2.1. Checks

- 2.1.1. Check whether the vehicle is equipped with a rpm-indicator and an engine oil thermometer (temp. transmitter in the oil sump):
- 2.1.2. Before starting to drive the driver has to check the vehicle per "Check List No. 1".
- 2.1.3. The mandatory 1 000 km tune-up is to be made in time.

2.2. Driving program

Basically, the known principles are valid, neither to race the engine without load or underload condition nor to strain it in the low speed range during the first time.

On the circular track the speeds or rpm respectively, shown in the "Run-In-Instructions" are to be strictly observed. On all other tracks it is to be driven in all gears so, that the rpms are in the range of 1500 - 4000 for gas engines and 1500 - 3000 for diesel engines.

During the run-in period it is especially important to control the operating conditions of the engine by means of the instruments and by observation of the engine noise and vibrations. The temperature of the engine oil must not exceed the following values:

km covered	< 500	500-1000	1000-2000	> 2000
engine oil temperat. °C	120	130	140	160