CASE Engines
445/M2, 445T/M2 and 668T/M2

Service Manual

Bur 6-74500NA

CASE ENGINES
445/M2 445T/M2 668T/M2

SERVICE MANUAL

Part Number: 6-74500

CONTENT OF SECTIONS

PREFACE TO USER'S GUIDELINE MANUAL

Section I describes the engine illustrating its features and working in general.

Section 2 describes the type of fuel feed.

Section 3 relates to the specific duty and is divided in four separate parts:

1. Mechanical part, related to the engine overhaul, limited to those components with different characteristics based on the relating specific duty.
2. Electrical part, concerning wiring harness, electrical and electronic equipment with different characteristics based on the relating specific duty.
3. Maintenance planning and specific overhaul.
4. Troubleshooting part dedicated to the operators who, being entitled to provide technical assistance, shall have simple and direct instructions to identify the cause of the major inconveniences.

Sections 4 and 5 illustrate the overhaul operations of the engine overhaul on stand and the necessary equipment to execute such operations.

Installation general prescriptions are reported within the appendix.

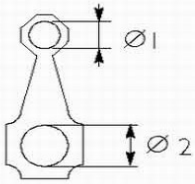
Such prescriptions shall be strictly followed by the operators in–charge of installation to avoid incorrect working as well as serious failures which may reduce performance and life of the engine.

Furthermore, the appendix reports general safety prescriptions to be followed by all operators whether being in–charge of installation or maintenance, in order to avoid serious injury.

SPECIAL REMARKS

Where possible, the same sequence of procedures has been followed for easy reference.
Diagrams and symbols have been widely used to give a clearer and more immediate illustration of the subject being dealt with, (see next page) instead of giving descriptions of some operations or procedures.

Example



Ø 1 = housing for connecting rod small end bush

Ø 2 = housing for connecting rod bearings

Tighten to torque
Tighten to torque + angular value

Graph and symbols

	Removal Disconnection
	Refitting Connection
	Removal Disassembly
	Fitting in place Assembly
	Tighten to torque
	Tighten to torque + angle value
	Press or caulk
	Regulation Adjustment
	Warning Note
	Visual inspection Fitting position check
	Measurement Value to find Check
	Equipment
	Surface for machining Machine finish
	Interference Strained assembly
	Thickness Clearance
	Lubrication Damp Grease
	Sealant Adhesive
	Air bleeding

	Intake
	Exhaust
	Operation
	Compression ratio
	Tolerance Weight difference
	Rolling torque
	Rotation
	Angle Angular value
	Preload
	Number of revolutions
	Temperature
	Pressure
	Oversized Higher than.... Maximum, peak
	Undersized Less than.... Minimum
	Selection Classes Oversizing
	Temperature < 0 °C Cold Winter
	Temperature > 0 °C Hot Summer

UPDATING

SECTION	DESCRIPTION	PAGE	DATE OF REVISION

ENGINES

General information

Thanks to a centenary engine tradition as well as to a continuous research and development process focused on product advancement, E.B.U. is able to ensure the highest level of versatility and efficiency on the market.

The new range of engines is the result of a project originated by the partnership among some of the most important sector manufacturers in the World to meet the expectations of the customer and comply with the new European regulations ruling preservation of the environment.

In addition to their better performances in terms of stout, power, efficiency, reliability and life, these engines comply not only with the anti–pollution Euro 3 regulations and the relevant prescriptions for noise limit allowed but will also meet the prescriptions of the future more severe specifications with no need of substantial modifications.

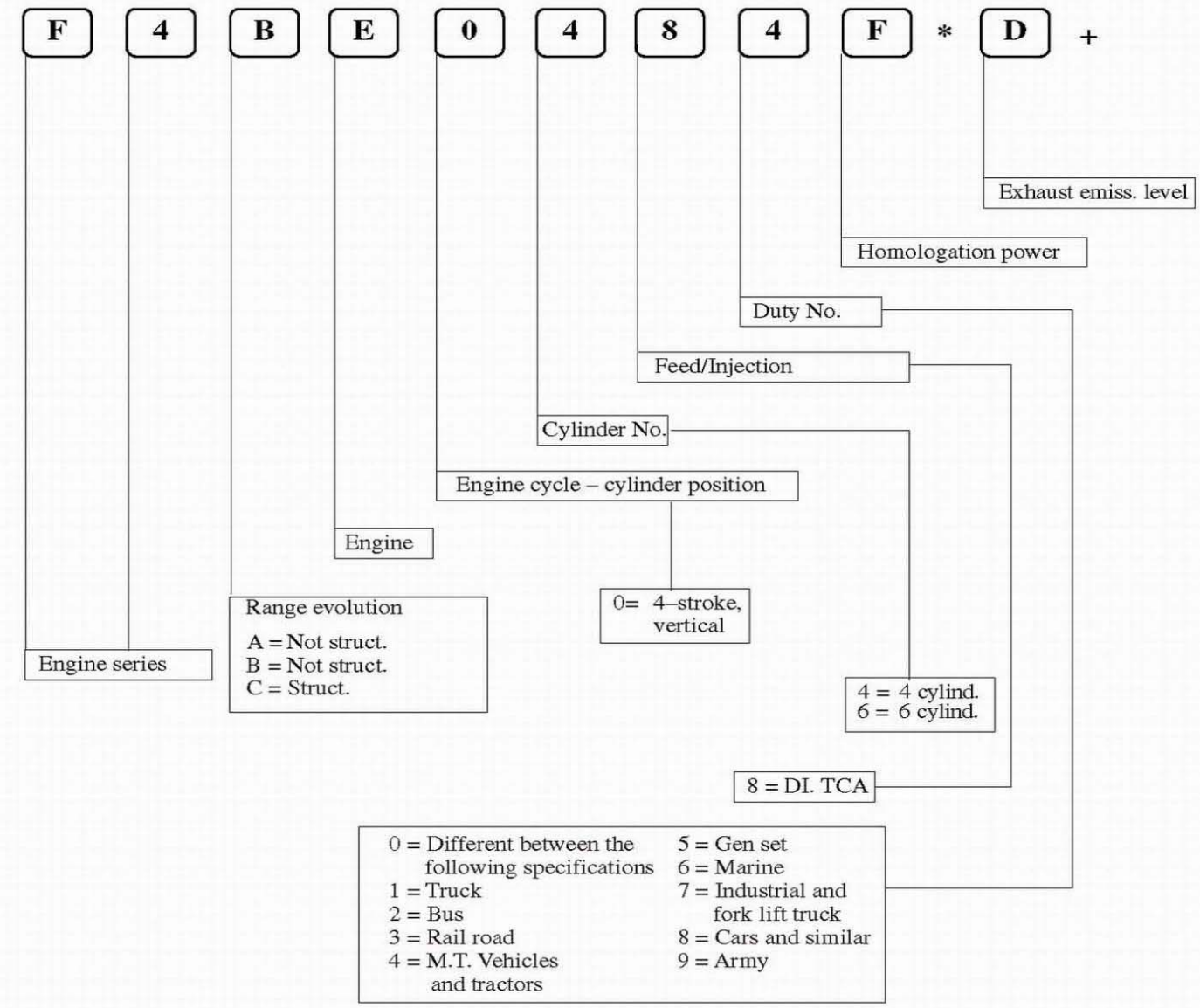
The improvement of the above mentioned features has been possible thanks to the utilisation of new materials, new technologies and technical solutions such as: cylinder head with two–four valves per cylinder, induction and exhaust manifolds improving the dynamic flow of air as well as of exhaust emissions, and pistons with new shaped combustion chamber.

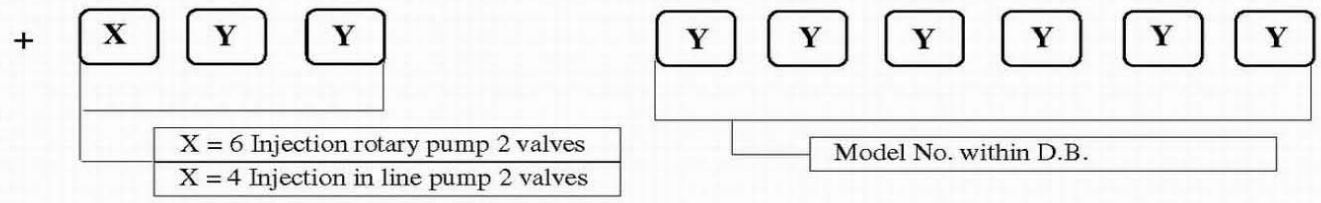
Furthermore, the reliability and cost reduction has been enhanced reducing the number of components and utilising the same parts not only for engines destined to road engine applications but also for the most different purposes such as marine and station engines.

SECTION 1

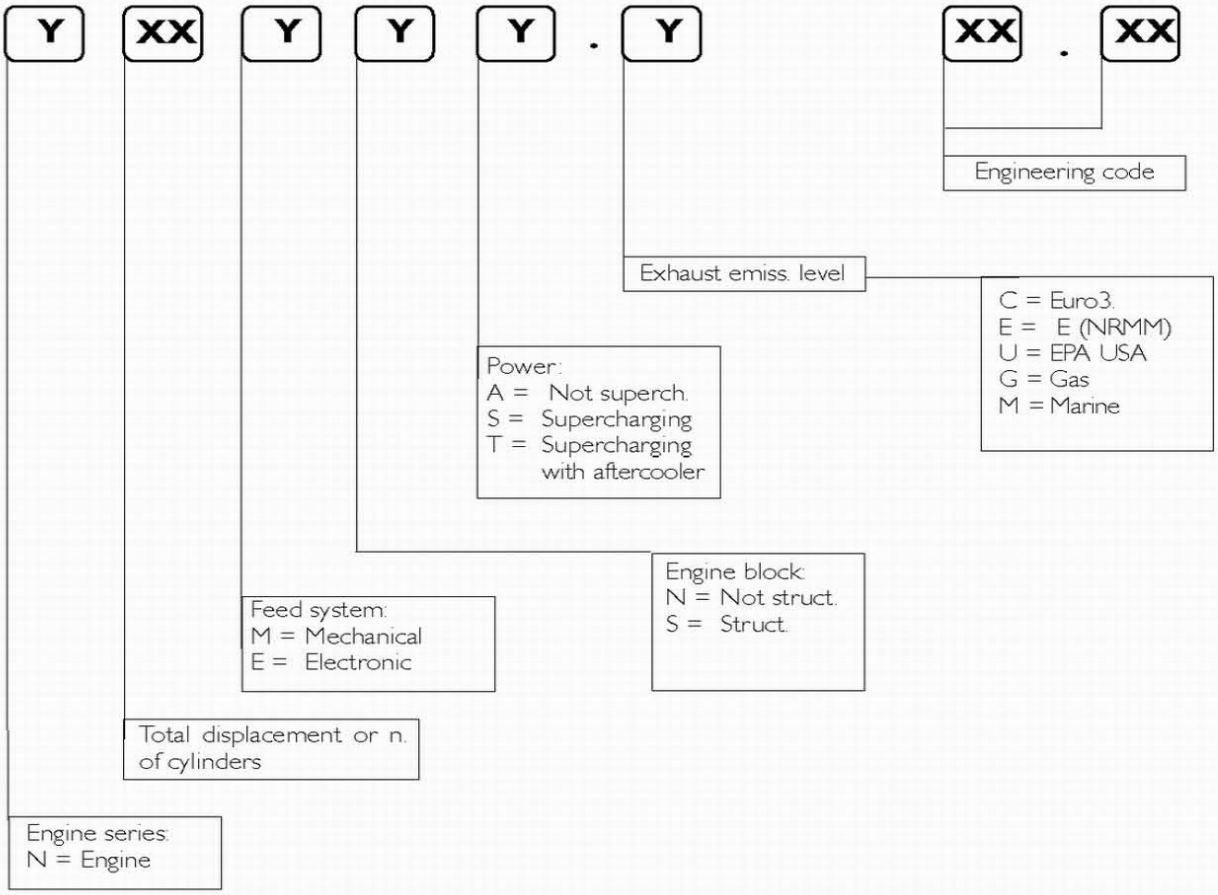
General Specifications

ENGINE IDENTIFICATION CODE





SPECIFIC ENGINE CODE



EXAMPLES:

N40ENTC
N = Engine
40 = 4 liters
E = Electronic
N = Type of Engine block
T = Supercharger with aftercooler
C = Euro3

LUBRICATION

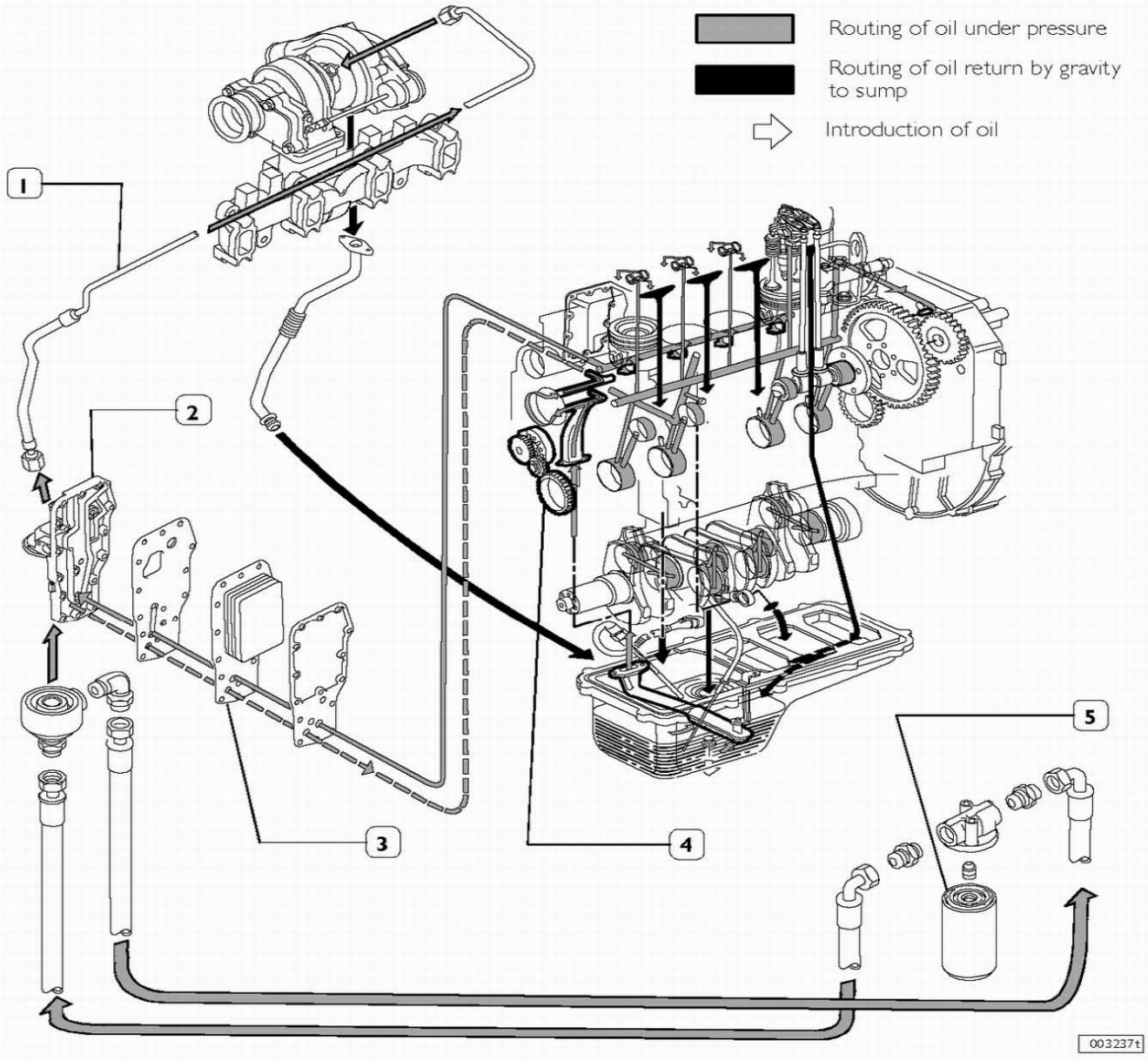
Lubrication by forced circulation is achieved through oil rotary expansion pump (4), placed in the front part of the basement, driven by the straight–tooth gear splined to the shaft's bar hold.

From the pan, the lubrication oil flows to the driving shaft, to the camshaft and to the valve drive.

Lubrication involves the heat exchanger (2,3) as well, the supercharged (through pipe 1) and the eventual compressor for any eventual compressed air system.

All these components may often vary according to the specific duty.

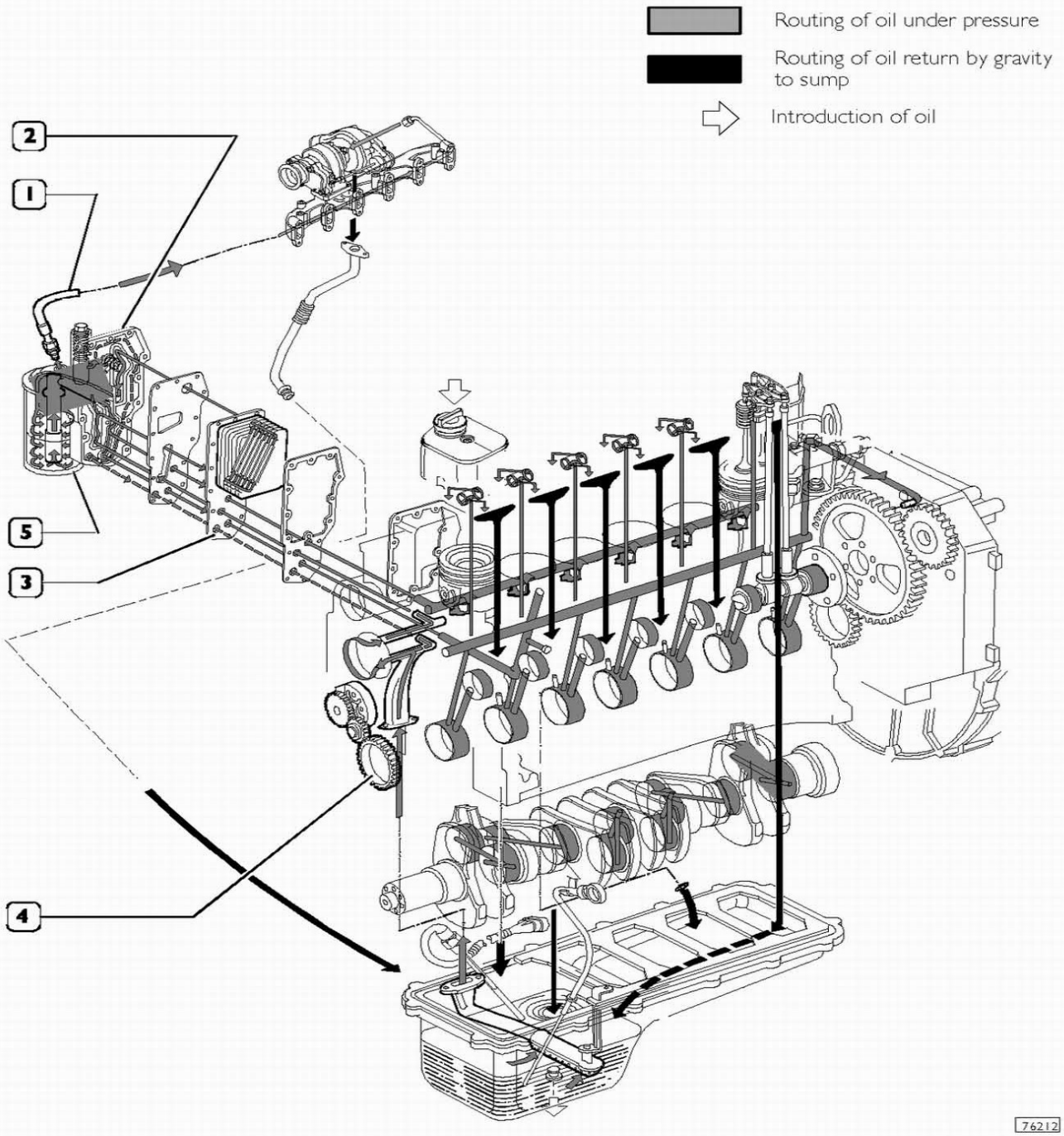
Figure 1



LUBRICATION SYSTEM LAYOUT (4 cyl. engines)

1. Lubrication oil pipe to supercharger – 2. Heat exchanger body – 3. Heat exchanger – 4. Oil rotary expansion pump – 5. Oil filter

Figure 2

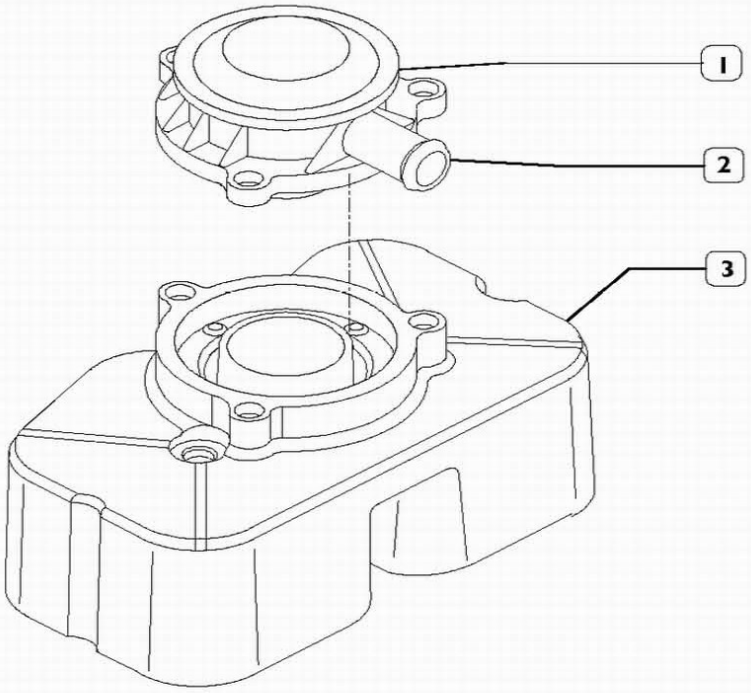


LUBRICATION SYSTEM LAYOUT (6 cyl. engines)

1. Lubrication oil pipe to supercharger – 2. Heat exchanger body – 3. Heat exchanger – 4. Oil rotary expansion pump – 5. Oil filter

OIL VAPOUR RECIRCULATING SYSTEM

Figure 3



1. Valve – 2. Breather pipe – 3. Tappet Cap

On the tappet cap (3) there is a valve (1) whose duty is to condense oil vapour inducing these to fall down because of gravity, to the Tappet cap underneath.

The remaining non–condensed vapours shall be properly conveyed through the breather pipe (2), by suction as an example (connection towards these vapours shall be designed by the Engineer).

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