

REPAIR MANUAL
FOR CNH U.K.
ENGINES
667TA/EEG
667TA/EEC
667TA/EBF
667TA/EED
667TA/EBD

REPAIR MANUAL FOR CNH U.K. ENGINES

667TA/EEG•EED•EEC•EBD•EBF

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REPAIR MANUAL FOR CNH U.K. ENGINES

667TA/EEG – 667TA/EEC – 667TA/EBF

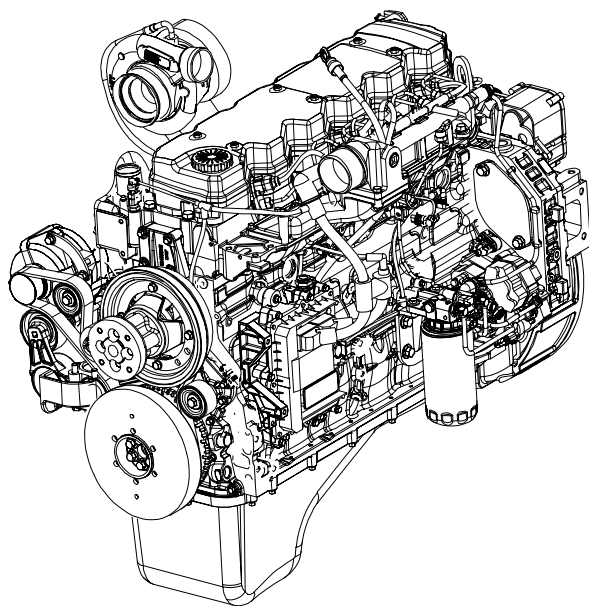
667TA/EED – 667TA/EBD

The following models are to integrate repair manuals:

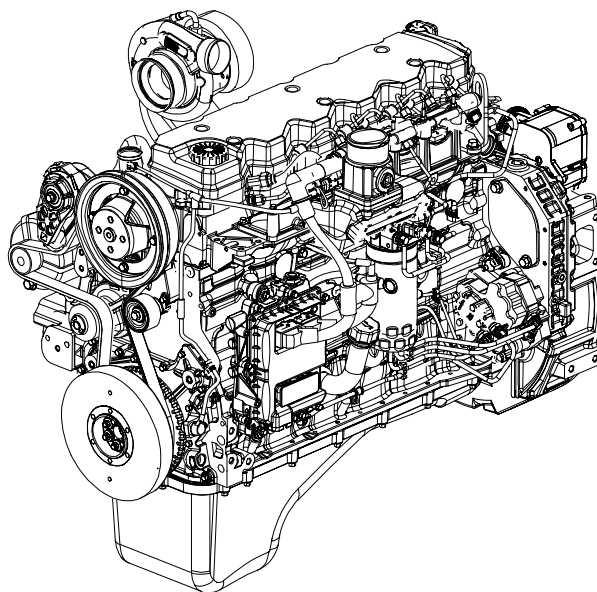
NEW HOLLAND KOBELCO E265 – E305

NEW HOLLAND

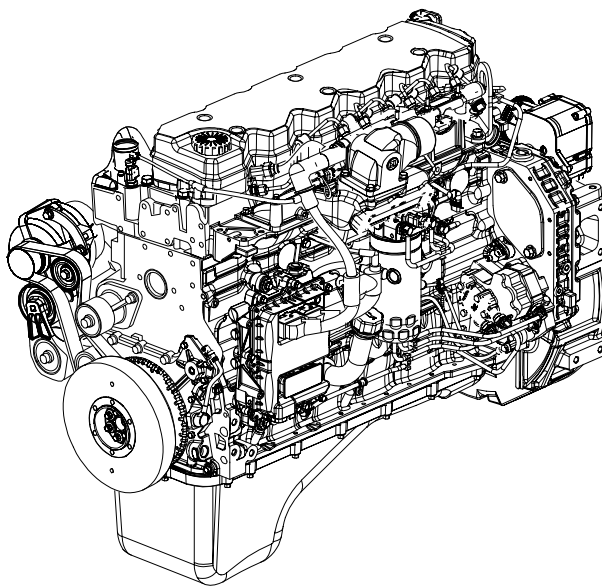
D180 LGP – D180 STD – W170 – W190



667TA/EEG – 667TA/EEC



667TA/EBF – 667TA/EED



667TA/EED – 667TA/EBD

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NEW HOLLAND

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INTRODUCTION

TO THE READER

- ☐ This manual was written for a skilled technician and contains all the technical information needed to repair this vehicle.
- ☐ Read this manual carefully for the information concerning repairing operations.

- ☐ For any question or comment, or should you notice any mistake concerning the content of this manual, please contact:

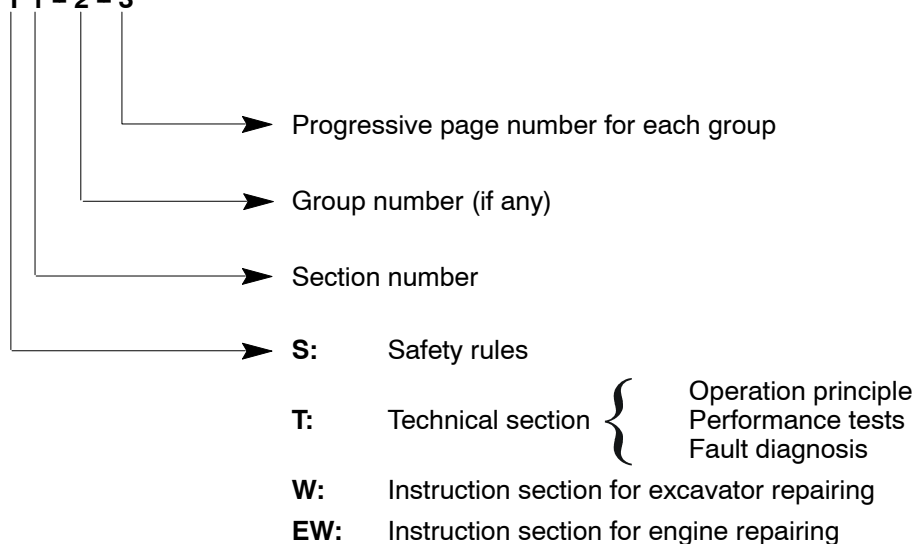
NEW HOLLAND
Strada Settimo, 323
San Mauro Torinese (TO)
10099 ITALIA
PRODUCT SUPPORT
Fax ++39 011 0077357

FURTHER REFERENCES

PAGE NUMBER

- ☐ Every page carries a number on the top right corner. Every page contains the following information:

Example:: **T 1 - 2 - 3**



SYMBOLS

This manual contains safety warning symbols and indications referring to possible injuries or vehicle damages.



This symbol regards safety.

Use great care when you see this symbol because possible injuries to the personnel may occur.

Strictly observe the precautions marked with this symbol.

The safety warning symbol is used also to draw attention on the weight of a component or an element.

Make sure you are always using the right equipment and lifting techniques when handling heavy loads, in order to prevent injuries or damages.

UNIT OF MEASURE

This manual adopts the units of measure based on the International System.

The MKSA system units of measure are indicated within brackets after the units of measure of the International System.

Example: 24.5 Mpa (250 kgf/cm²).

The following table converts the International System units of measure in some of the main units belonging to other systems.

Quantity	To convert from (IS)	in (Others)	Multiply by	Quantity	To convert from (IS)	in (Others)	Multiply by
Length	mm	in	0.03937	Pressure	MPa	kgf/cm ²	10.197
	mm	ft	0.003281		MPa	psi	145.0
Volume	L	US gal	0.2642	Power	kW	PS	1.360
	L	US qt	1.057		kW	HP	1.341
	m ³	yd ³	1.308	Temperature	°C	°F	°C x 1.8 + 32
Mass	kg	lb	2.205	Speed	km/h	mph	0.6214
Force	N	kgf	0.10197		min ⁻¹	rpm	1.0
	N	lbf	0.2248	Capacity	L/min	US gpm	0.2642
Torque	N.m	kgf.m	0.10197		mL/rev	cc/rev	1.0
	N.m	lbf.ft	0.7375				

ENGINES

INDEX OF SECTIONS



Section 1 – Diagnostics

EW-1-1



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DIAGNOSTICS



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DIAGNOSTICS

FOREWORD

A good diagnosis is carried out with the competence acquired from years of experience and taking part in repair courses.

When a user complains about a bad efficiency or operating anomalies, his indications must be kept into due account, taking from them those useful information that will be used to guide our intervention.

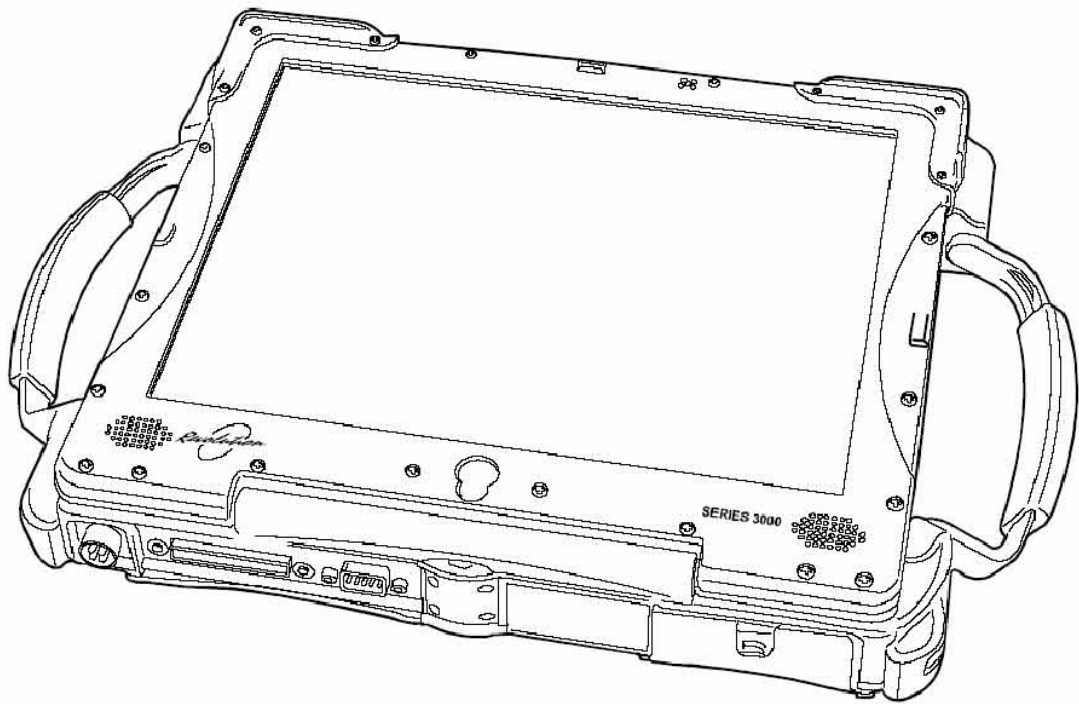
After having detected the anomaly, it is advisable to carry out failure search operations by decoding self-diagnosis data of the central electronic unit of the EDC (Engine Diesel Control) system.

With the use of computerised tools, it is also possible to establish a bi-directional communication with the central unit with which it is possible not only to decode the error codes, but also to address the image in its memory to obtain those further necessary information to go back to the anomaly origin.

Every time an inconvenience occurs and its existence is detected, it is necessary to proceed with the electronic unit query through one of the pointed-out ways and then proceed with the diagnostic survey through tests and measures through which an outline of operating conditions is obtained and the real anomaly reasons are identified.

In case the electronic unit does not provide indications, one will have to proceed with one's experience by adopting traditional diagnostic modes.

CNH – EST DIAGNOSTIC TOOL



88201

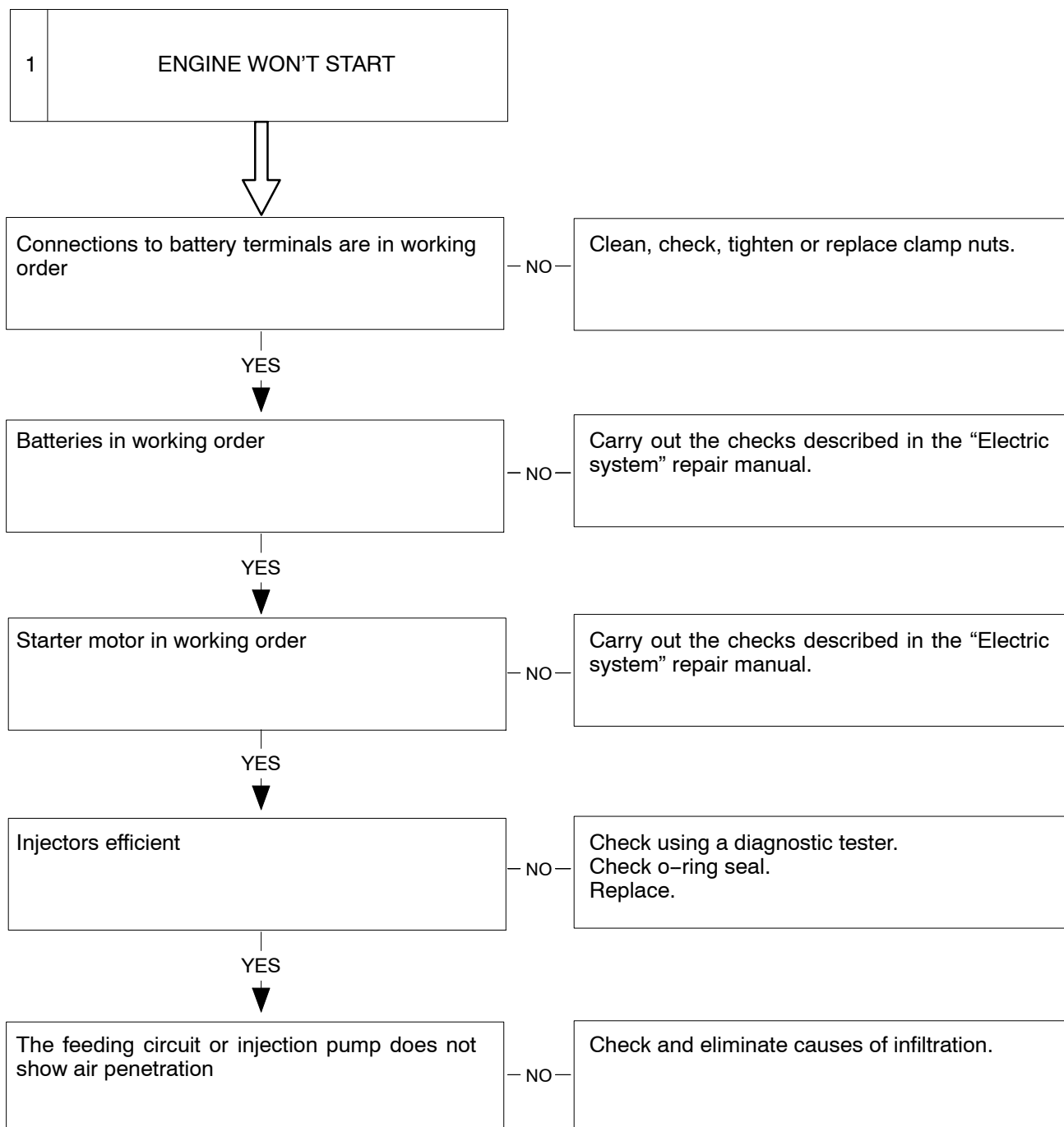
The EST system allows carrying out diagnoses on main machine assemblies by detecting the operating parameters of electronic control components (control units, sensors etc.) and the check of flow-rates, pressures and temperatures; it is further arranged for searching inconveniences and detect data for electronically-controlled CNH engines.

Code	Description	Language
380060157	CE EST diagnostic kit	Italiano
380060158		French
380060159		English
380060160		German
380060161		Spanish
380060162		Holland
380060163		Danish
380060164		Portuguese

DIAGNOSTICS

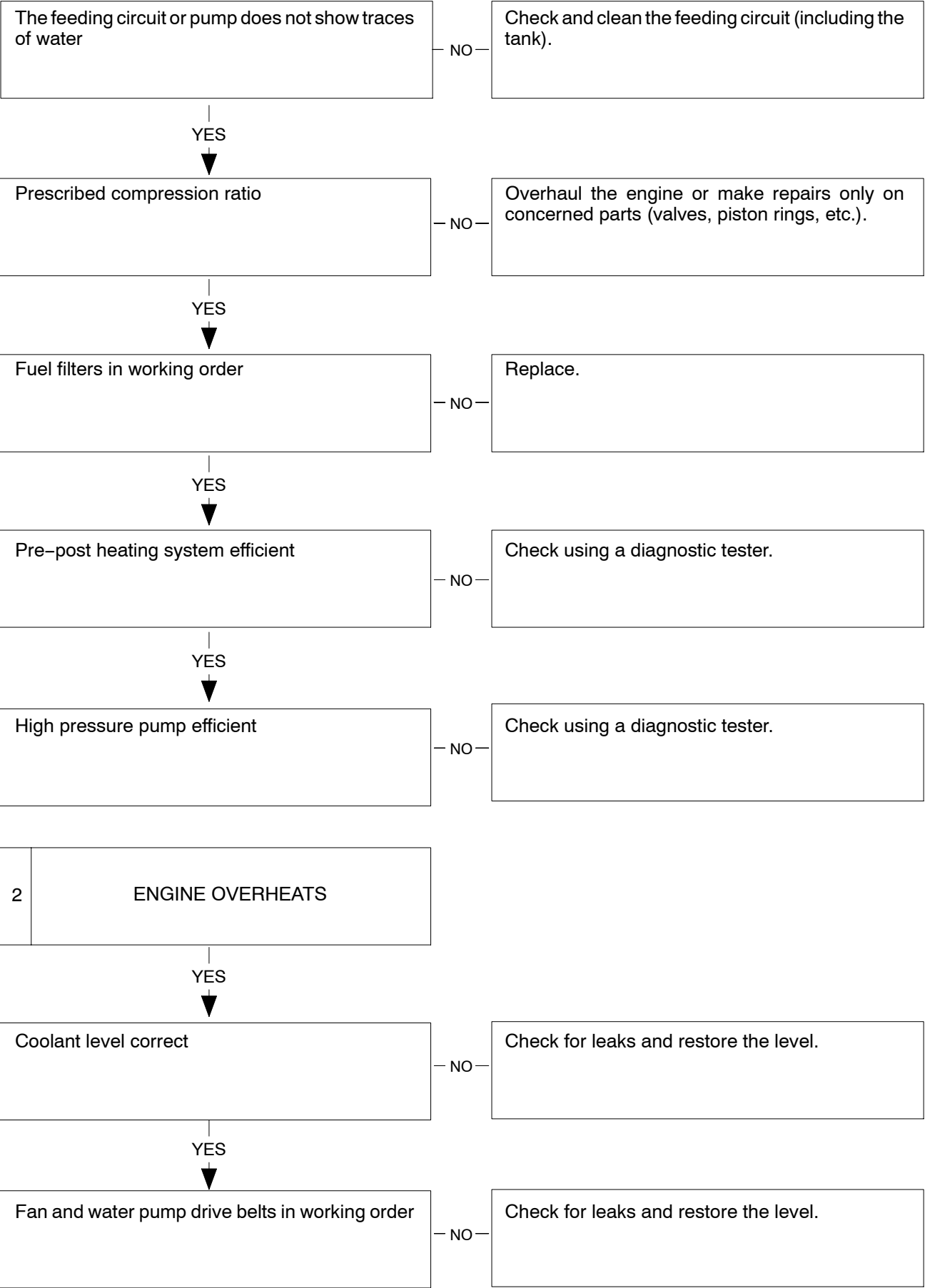
MAIN ENGINE OPERATING ANOMALIES

- | | |
|--|--|
| 1 – Engine won't start;
2 – Engine overheats;
3 – Engine lacks power and works erratically;
4 – Engine exhaust smoke black or dark grey;
5 – Engine exhaust smoke grey (verging on white); | 6 – Engine exhaust smoke light blue;
7 – Engine knocks irregularly;
8 – Engine stops;
9 – Excessive or insufficient oil pressure;
10 – Excessive fuel consumption; |
|--|--|



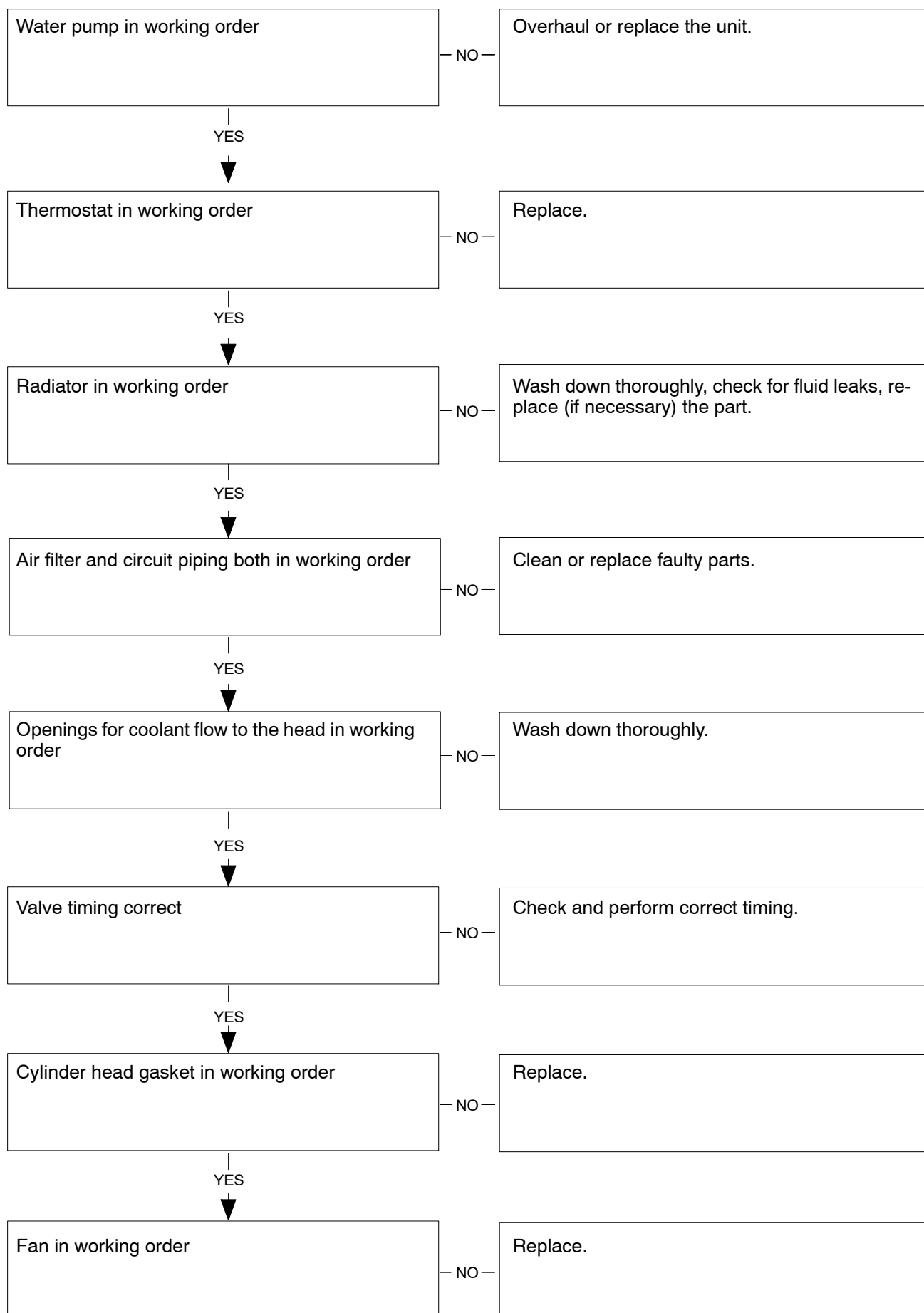
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DIAGNOSTICS

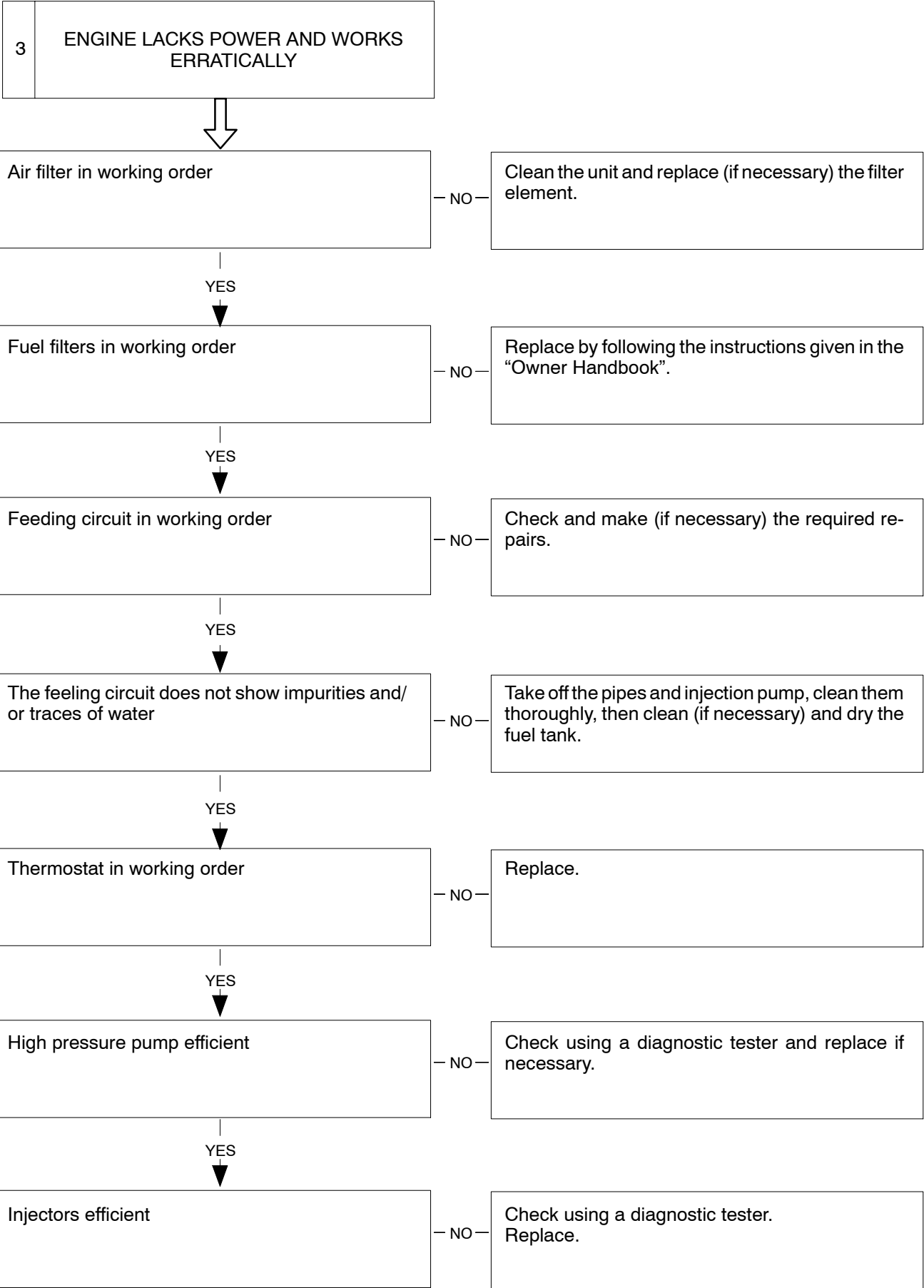


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DIAGNOSTICS

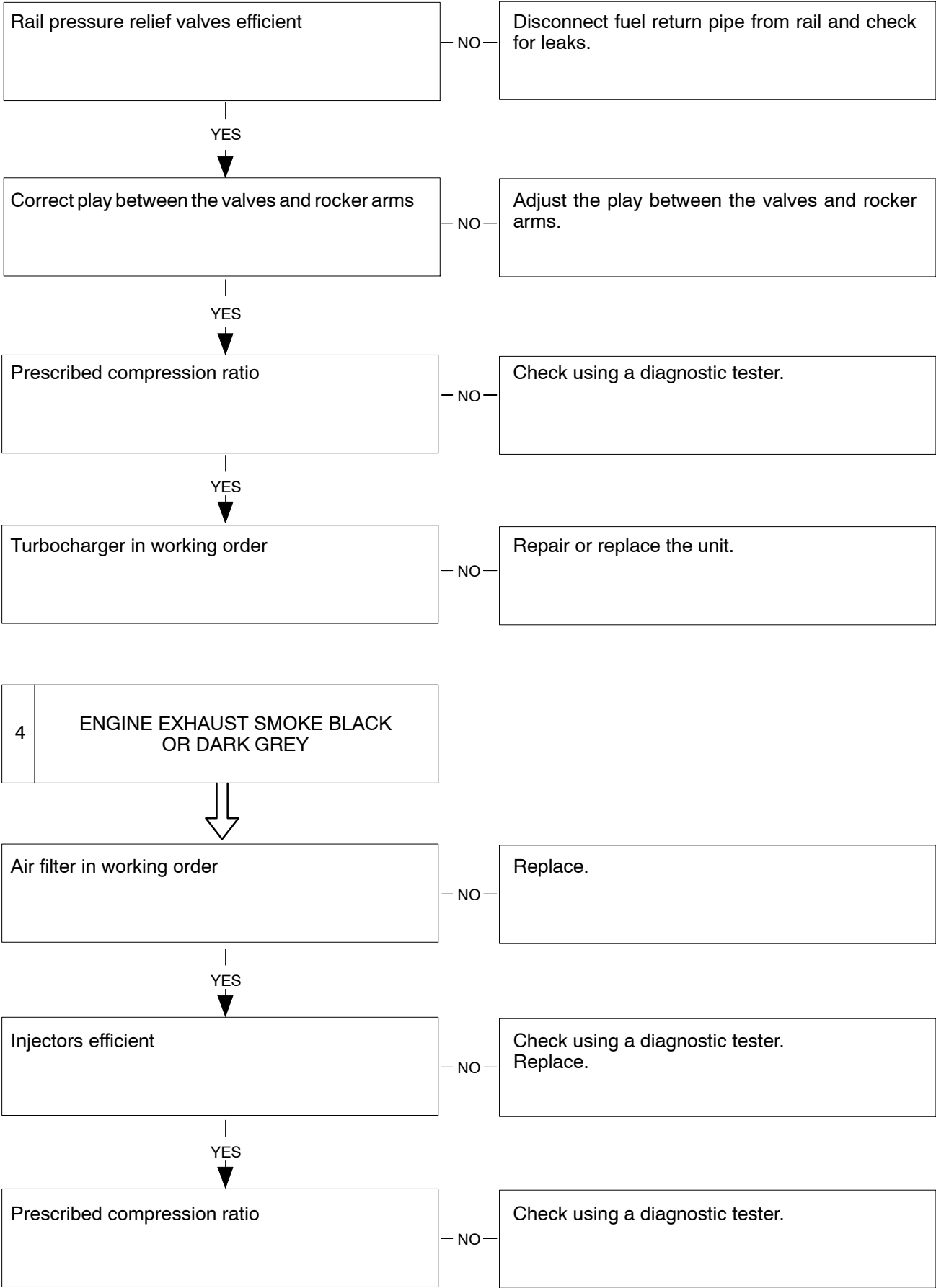


DIAGNOSTICS



(to be continued)

DIAGNOSTICS



(to be continued)

DIAGNOSTICS

High-quality diesel fuel	NO	Clean the tank and replace the diesel oil filter.
--------------------------	----	---

5	ENGINE EXHAUST SMOKE GREY (VERGING ON WHITE)
---	---



Injectors efficient	NO	Check using a diagnostic tester. Replace.
---------------------	----	--



Coolant level correct	NO	Possible flow of coolant into the combustion chamber; replace the cylinder head gasket or overhaul the engine.
-----------------------	----	--



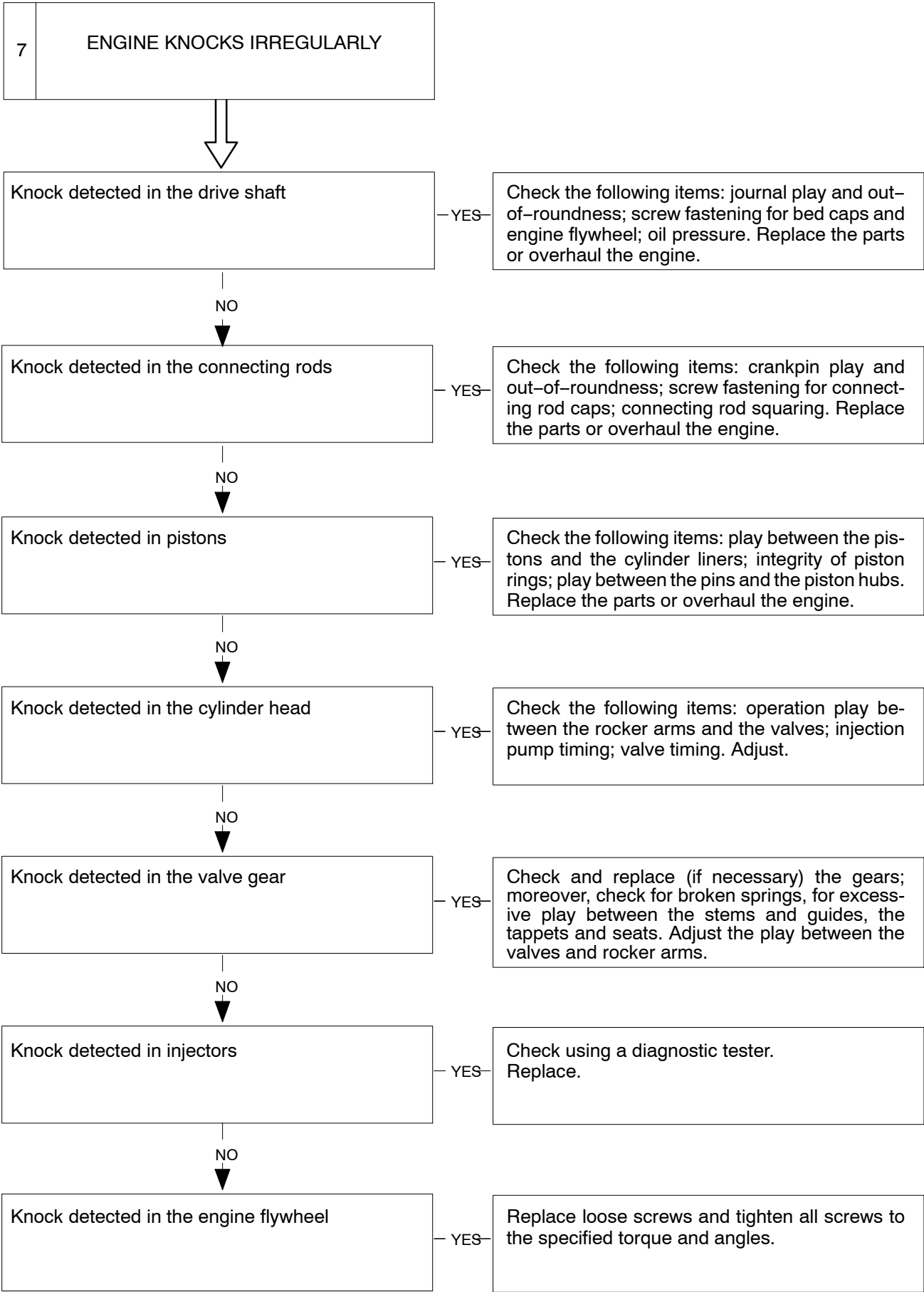
High-quality diesel oil	NO	Clean the tank and replace the diesel oil filters.
-------------------------	----	--

6	ENGINE EXHAUST SMOKE LIGHT BLUE
---	---------------------------------

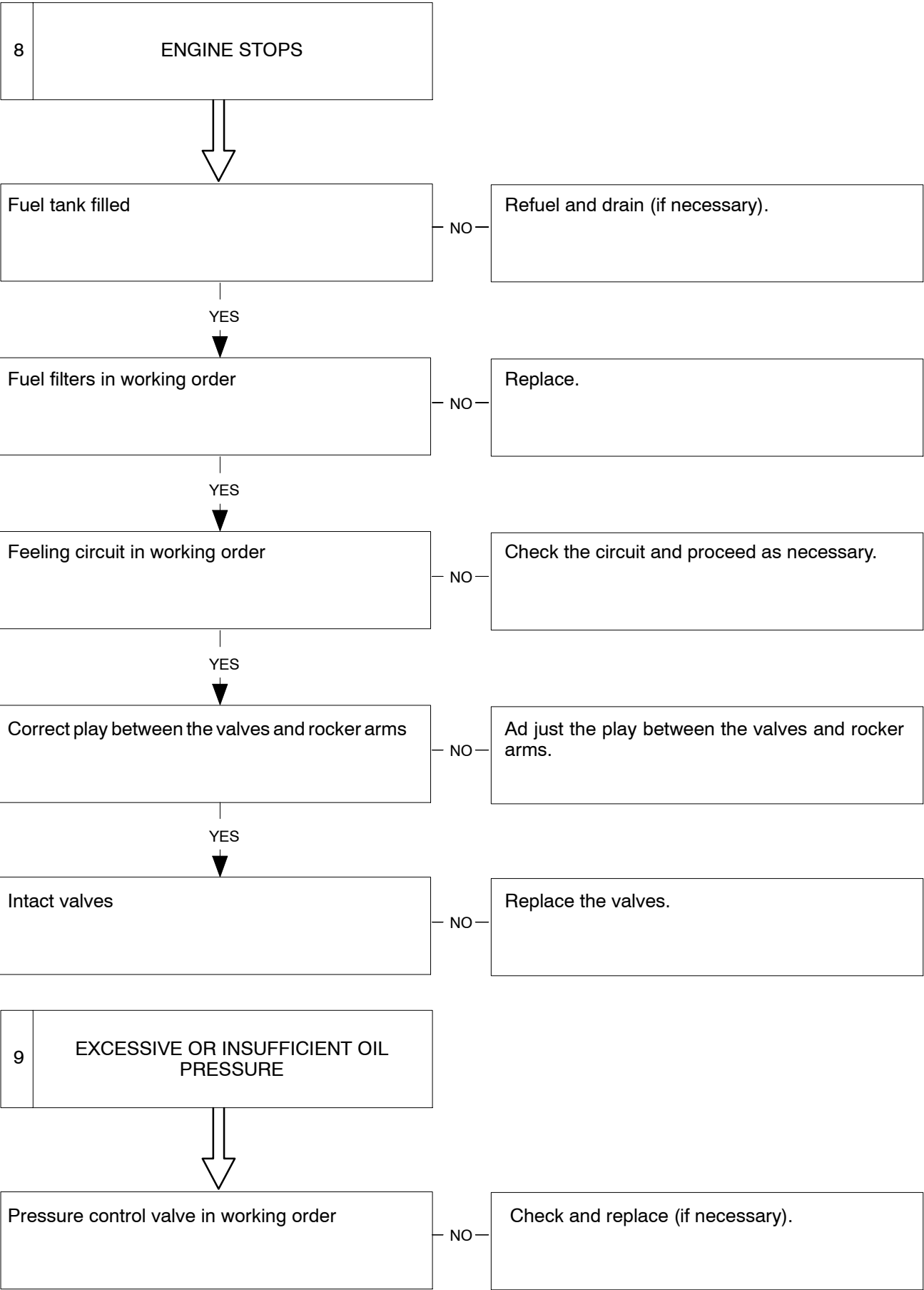


Excessive oil consumption	NO	Check: oil vapour breather; cylinder compression. Leaks into or out of turbocharger. Leaks from valve guides Overhaul cylinder head or engine if necessary.
---------------------------	----	--

DIAGNOSTICS

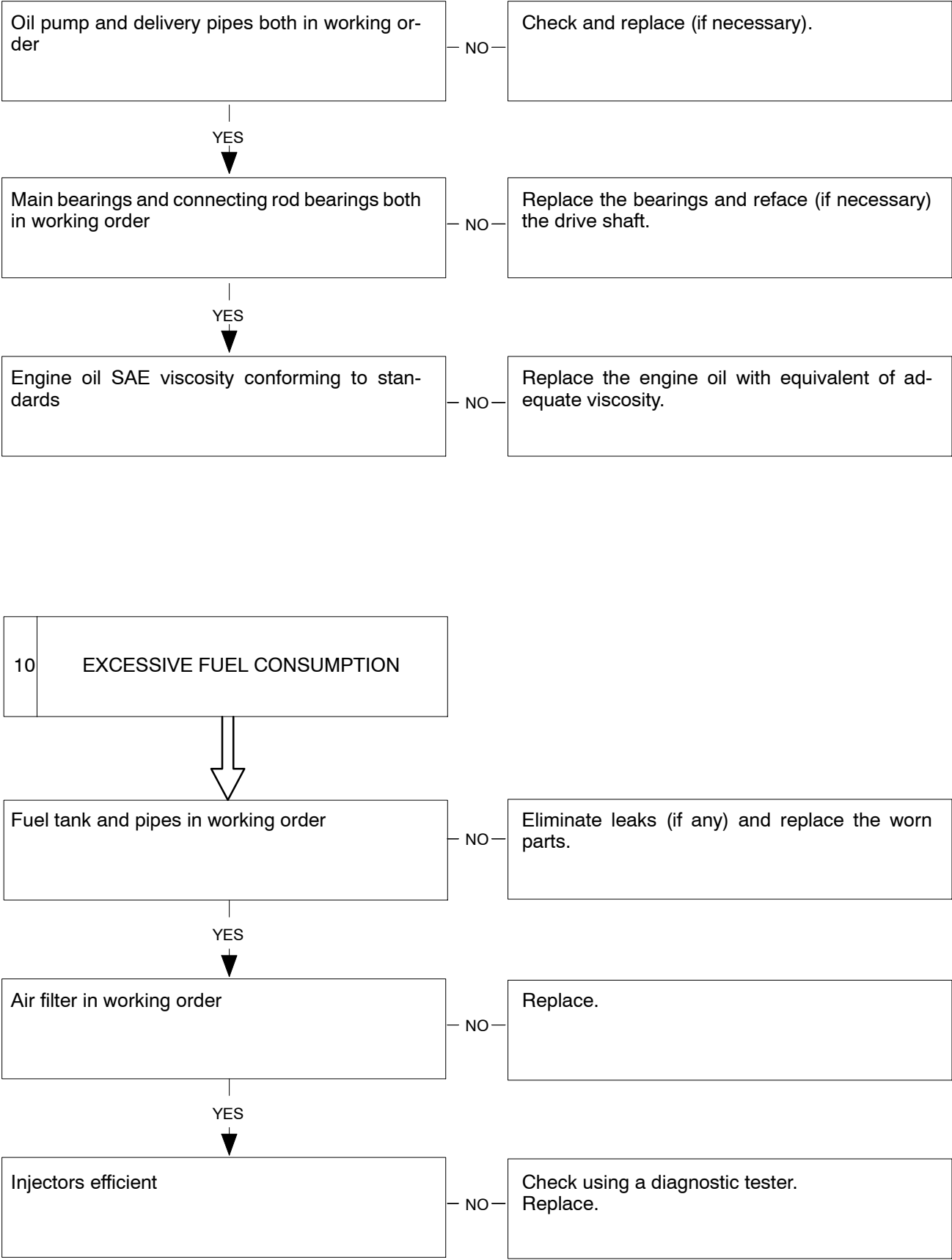


DIAGNOSTICS



(to be continued)

DIAGNOSTICS



DIAGNOSTICS

NOTES

ENGINE OVERHAUL



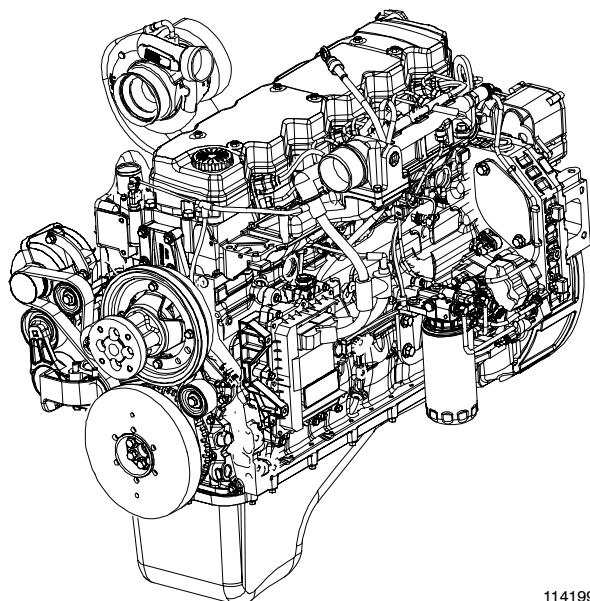
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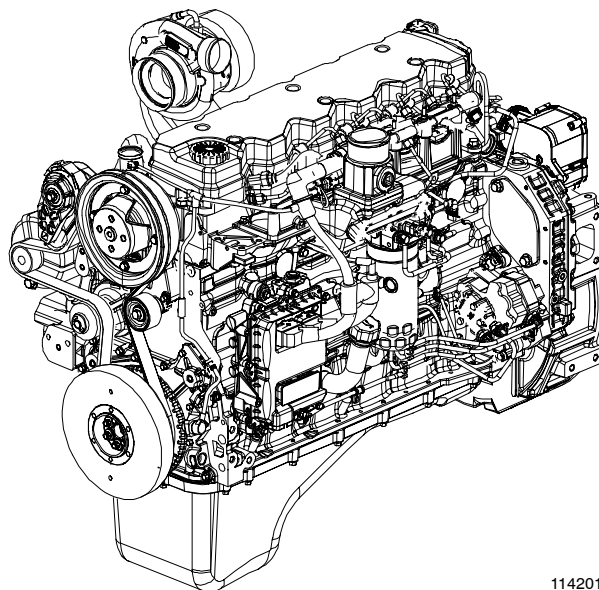
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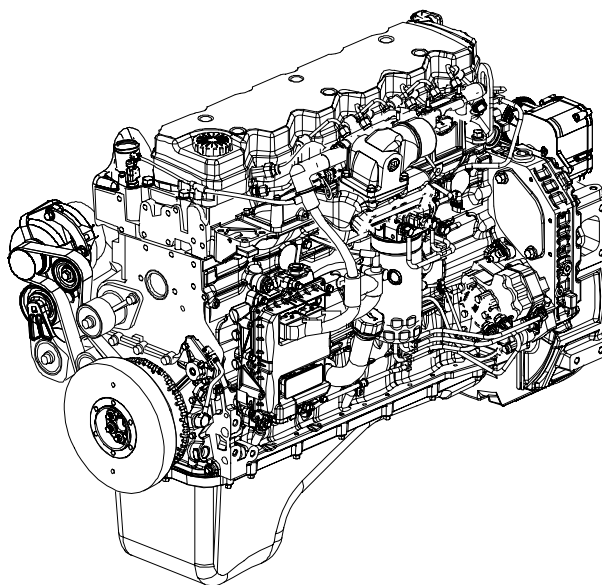
667TA ENGINE OVERHAUL

Figure 1

ENGINES: 667TA/EEG – 667TA/EEC

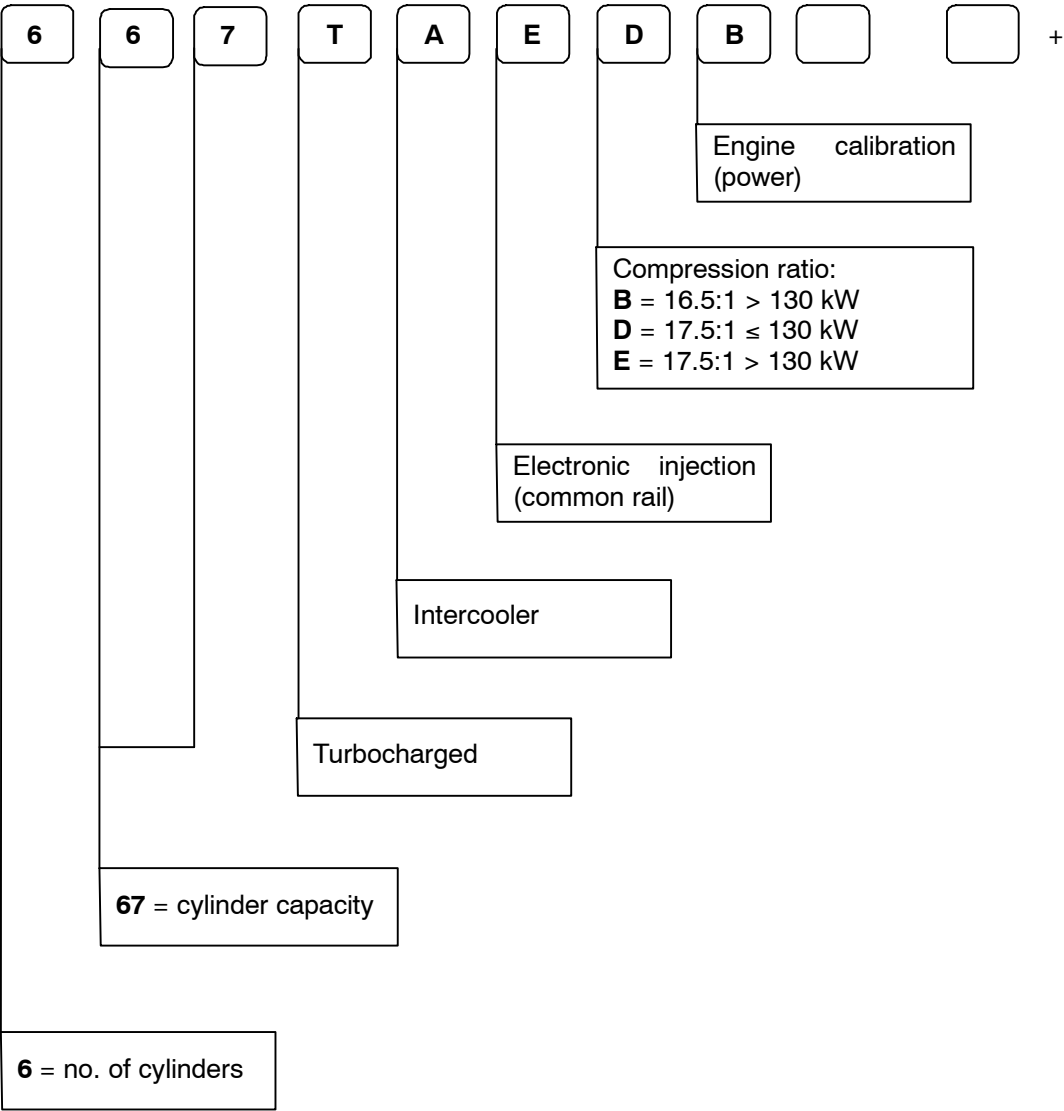
Figure 2

ENGINES: 667TA/EED – 667TA/EBF

Figure 3

ENGINES: 667TA/EED – 667TA/EBD

CODING OF SOURCE ENGINES



667TA ENGINE OVERHAUL

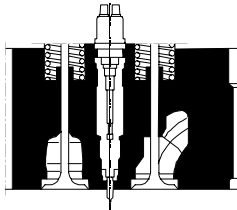
MAIN ENGINES FEATURES

A	E265	E305	D180 LGP	D180 STD	W170	W190
B	667TA	667TA	667TA	667TA	667TA	667TA
C	EEG	EEC	EBF	EED	EED	EBD
D						
E	6728 cm ³					
F	137 kW 2100 rpm	148 kW 2100 rpm	157 kW 2000 rpm	145 kW 2000 rpm	145 kW 2000 rpm	169 kW 2000 rpm

Net power at flywheel (ISO 14396)

G

Direct injection



H

(common rail)

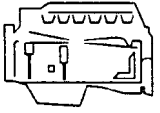
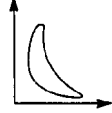
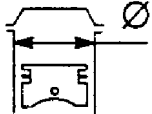
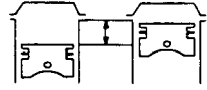
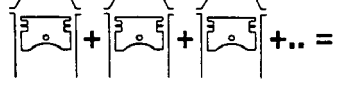
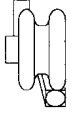
I

T.A.A.
(Boosted by intercooler)

- A** Machine type
- B** Type of engine
- C** Engine model
- D** Number of cylinders
- E** Total displacement
- F** Max. power currently available
- G** Type of injection
- H** Injection system
- I** Air supply system

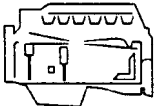
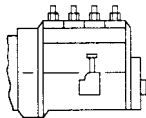
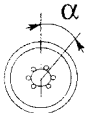
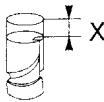
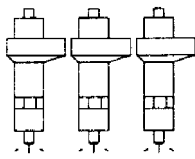
667TA ENGINE OVERHAUL

GENERAL ENGINES FEATURES

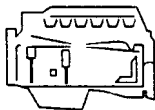
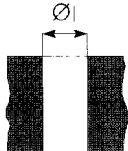
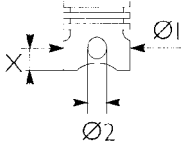
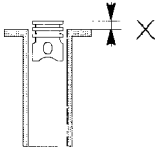
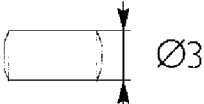
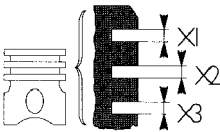
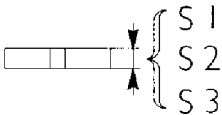
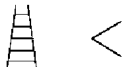
	Type	667TA				
		EEG	EEC	EBF	EED	EBD
	Cycle	4-stroke diesel engine				
	Feeding	Boosted by intercooler				
	Injection	Direct				
	Number of cylinders	6 in-line				
	Bore	mm				
	Stroke	mm				
	Total displacement	cm ³				
	Compression ratio	-				
	Max. rating*	kW min ⁻¹				
		137 2100	148 2100	157 2000	145 2000	169 2000
	Max. torque	Nm (kgm) min ⁻¹				
		710 1400	810 1400	952 1400	860 1400	1002 1400
	No-load idle rpm	min ⁻¹				
	No-load peak rpm	min ⁻¹				
	BOOSTING Type of turbocompressor:	With intercooler HOLSET HX35				
	LUBRICATION	Forced by means of gear pump. pressure relief valve. oil filter				
	Oil pressure with hot engine: at idle rpm at peak rpm	bar bar				
		1.2 3.8				

* Net power at flywheel (ISO 14396)

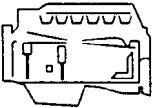
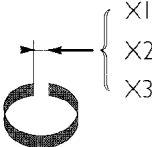
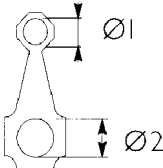
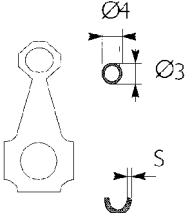
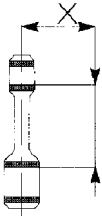
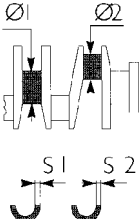
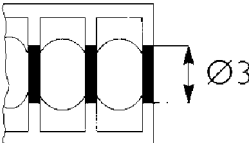
667TA ENGINE OVERHAUL

		Type	667TA					
			EEG	EEC	EBF	EED	EBD	
COOLING			By fluid					
			By means of belt					
			81± 2					
Water pump drive:								
Thermostat:								
Start of opening: °C								
 Ambra Mastergold HSP	FILLING							
	Total capacity	litres	–	–				
	1 st filling:	kg	–	–				
	– engine sump	litres	–	–				
		kg	–	–				
	– engine sump + filter	litres	17	19				
	kg	–	–					
		FEEDING	high pressure Common Rail					
Bosch-type injection								
		Pump setting						
		Start of delivery	mm					
		Type of injector	CRIN 1	CRIN 2				
		Injection sequence	1 – 5 – 3 – 6 – 2 – 4					
 		Injection pressure	bar	–	250 to 1600	250 to 1400	250 to 1600	

ASSEMBLING PLAY – SPECIFICATIONS

	Type	667TA				
		EEG	EEC	EBF	EED	EBD
CRANK GEAR COMPONENTS AND CYLINDER ASSEMBLY		mm				
	Cylinder liners  1	104.000 to 104.024				
	Pistons: supplied with standard spares Type Measurement dimension X Outer diameter Ø1 Pin seat Ø2	49.5 103.759 to 103.777 38.010 to 38.016				
	Piston – cylinder liners	0.235 to 0.273				
	Piston diameter Ø1	0.4				
	Position of pistons from crankcase X	–				
	Gudgeon pin Ø3	37.994 to 38.000				
	Gudgeon pin–Pin seat	0.01 to 0.022				
	Type of piston X1* Piston ring slots X2 X3 * measured on Ø of 101 mm	2.705 to 2.735 2.420 to 2.440 4.03 to 4.05				
	Piston rings S1 S2 S3 * measured 1.5 mm away from the external Ø	2.560 to 2.605 2.350 to 2.380 3.977 to 3.990				
	Piston rings – Slots 1 2 3	0.100 to 0.175 0.04 to 0.09 0.040 to 0.083				
	Piston rings	0.4				

667TA ENGINE OVERHAUL

	Type	667TA				
		EEG	EEC	EBF	EED	EBD
CRANK GEAR COMPONENTS AND CYLINDER ASSEMBLY		mm				
	Piston ring end opening in cylinder liner: X1 X2 X3			0.3 to 0.4 0.6 to 0.8 0.3 to 0.55		
	Connecting rod small-end bushing seat Connecting rod bearing seat	Ø1 Ø2		40.987 to 41.013 72.987 to 73.013		
	Connecting rod small-end bushing diameter Outer Inner	 Ø4  Ø3		41.279 to 41.553 38.019 to 38.033		
	Connecting rod small-end bushing – seat			0.266 to 0.566		
	Gudgeon pin – Bushing			0.019 to 0.039		
	Measurement dimension Max. error on connecting rod axis parallelism	X =		– –		
	Journals Crankpins Main half bearings Connecting rod half bearings * supplied with spares	Ø1 Ø2 S1* S2*		82.99 to 83.01 68.987 to 69.013 2.456 to 2.464 1.955 to 1.968		
	Bed supports no.: n. 1–7 n. 2–3–4–5–6	Ø3		87.982 to 88.008 87.977 to 88.013		