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ENGINE SERVICE MANUAL

334T/M2



NEW HOLLAND
CONSTRUCTION

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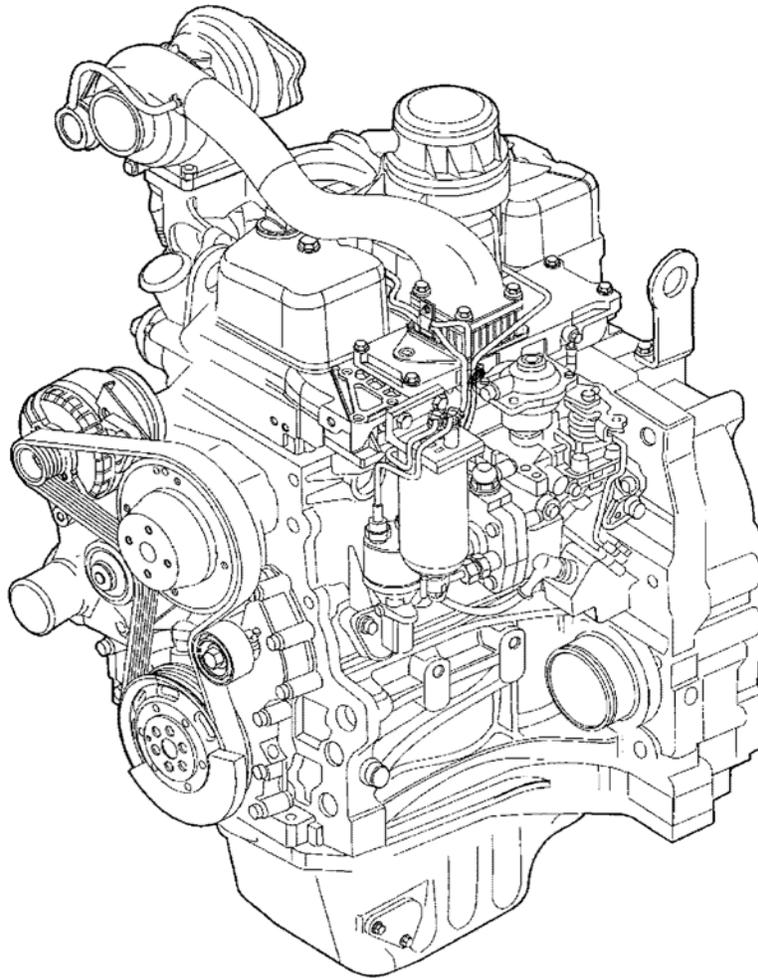
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REPAIR MANUAL FOR NEF ENGINES

F4CE0354A - (334T/M2)

87458412NA



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Edition – March 2004

INTRODUCTION

TO THE READER

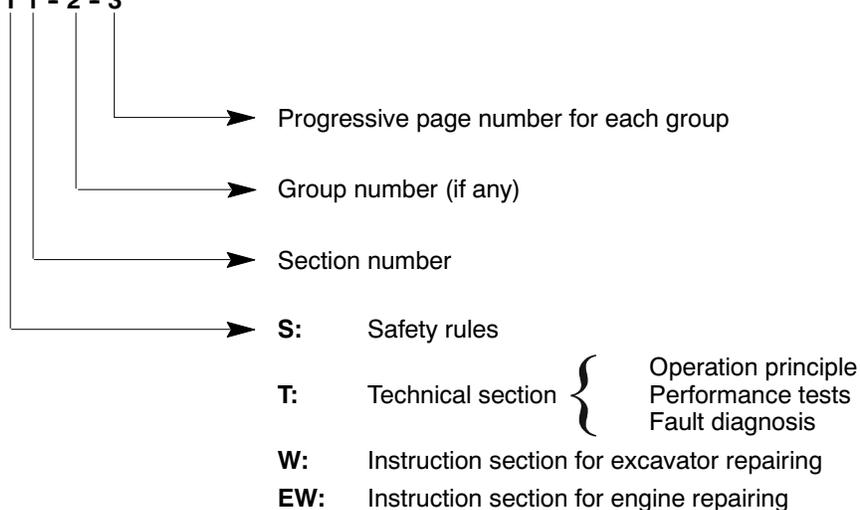
- This manual was written for a skilled technician and contains all the technical information needed to repair this vehicle.
- For any question or comment, or should you notice any mistake concerning the content of this manual, please contact:
- Read this manual carefully for the information concerning repairing operations.

*CNH AMERICA LLC
700 State Street
Racine, WI 53404 U.S.A.*

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.

INTRODUCTION

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

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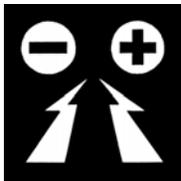
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EW-1-1



Section 2 - Engine F4CE0354A overhaul

EW-2-1



Section 3 - Recharging and start-up

EW-3-1

DIAGNOSTICS



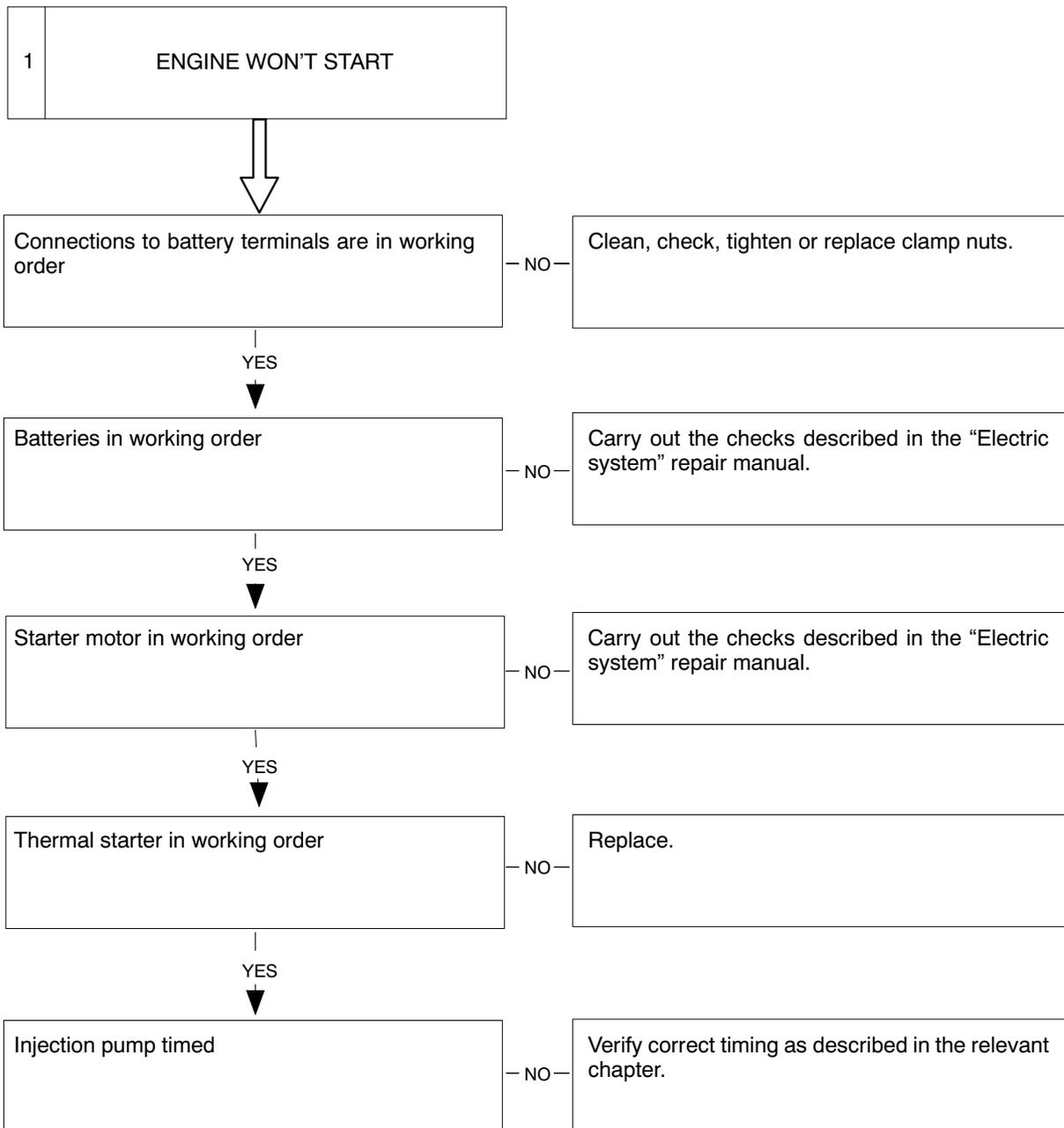
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Diagnostics EW-1-3

DIAGNOSTICS

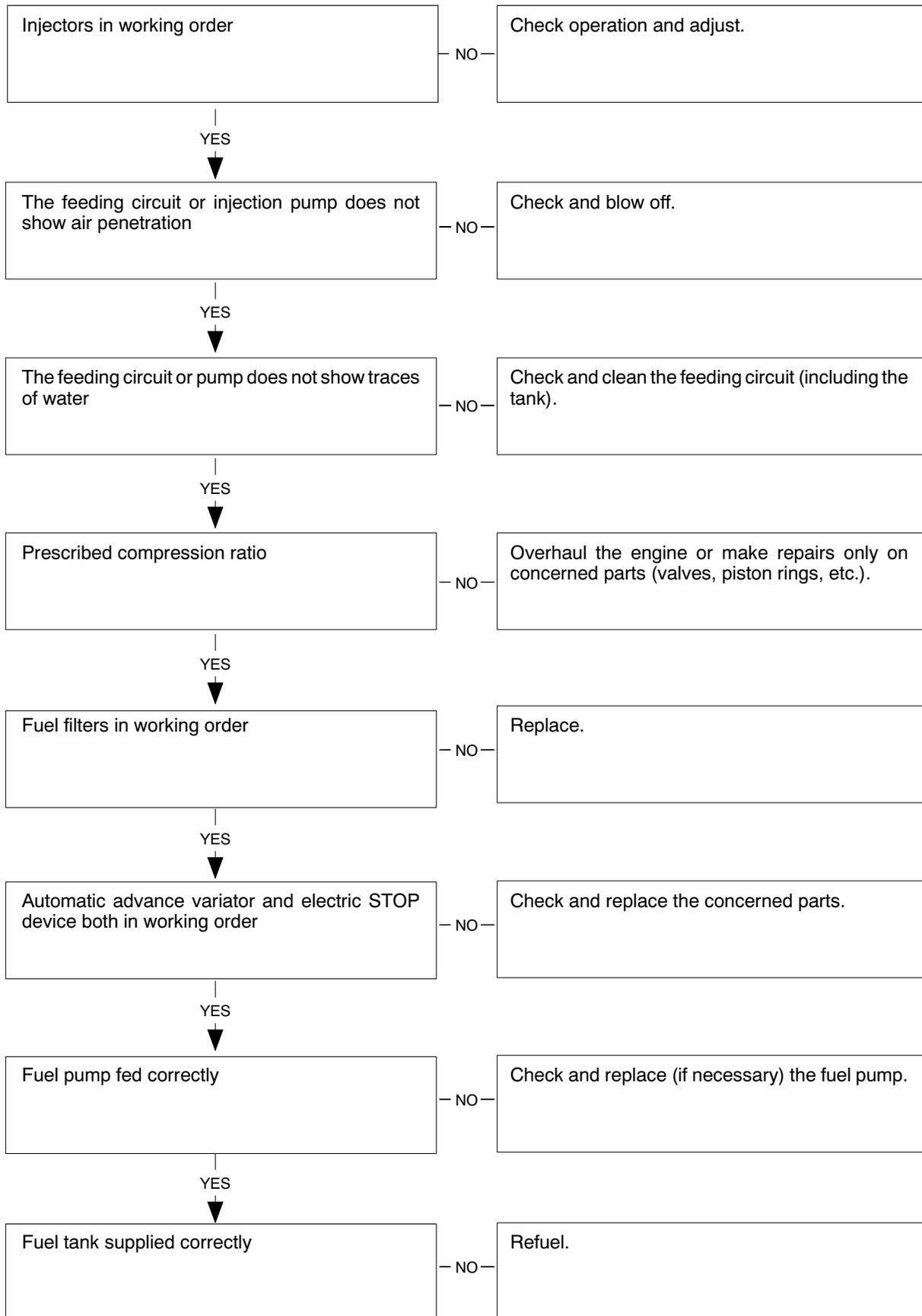
Main engine operating anomalies:

- | | |
|--|--|
| <ul style="list-style-type: none"> 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); | <ul style="list-style-type: none"> 6 - Engine exhaust smoke light blue; 7 - Engine knocks irregularly; 8 - Engine stops; 9 - Engine exceeds max. revs number; 10 - Excessive or insufficient oil pressure; 11 - Excessive fuel consumption; 12 - Engine won't stop. |
|--|--|

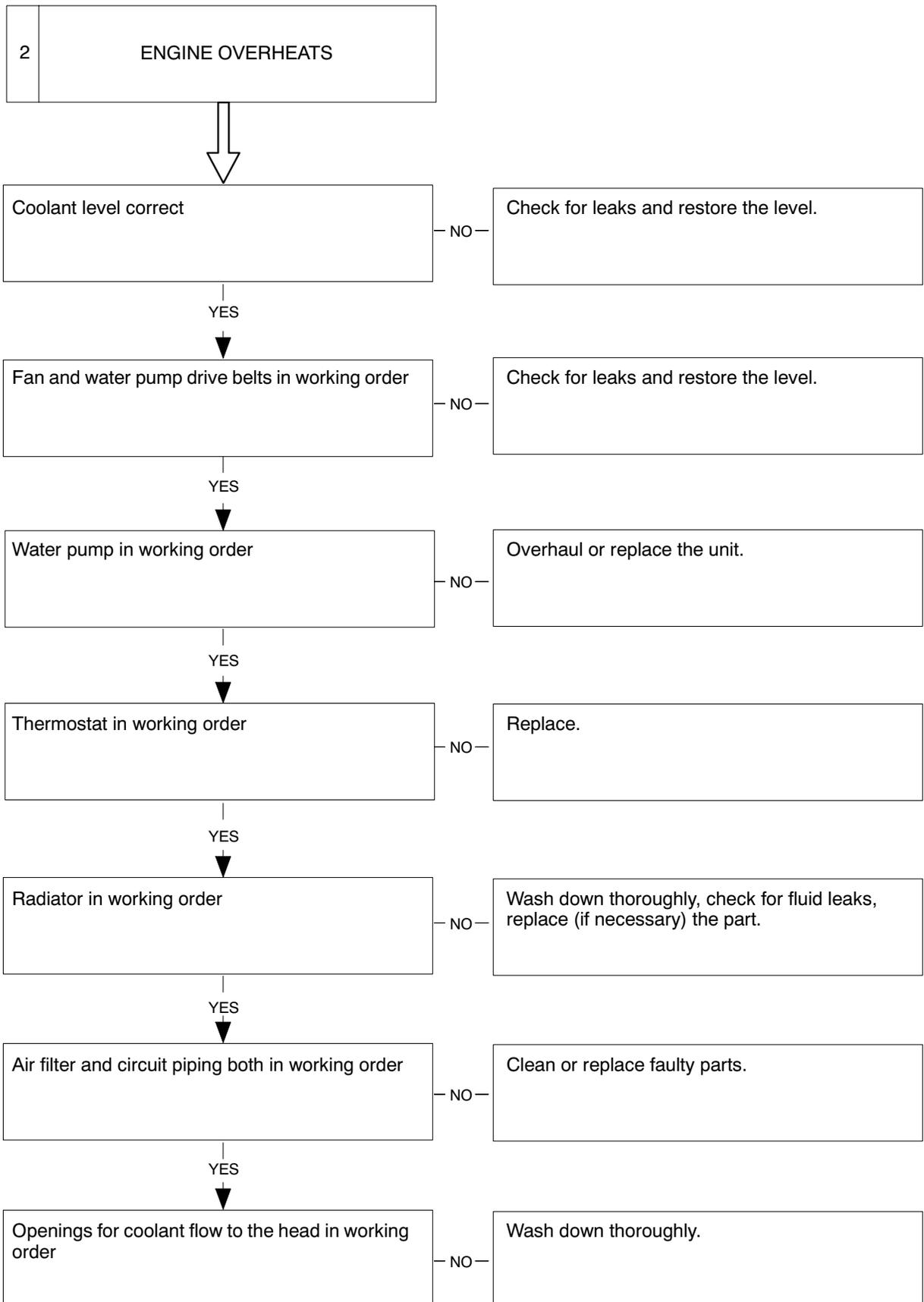


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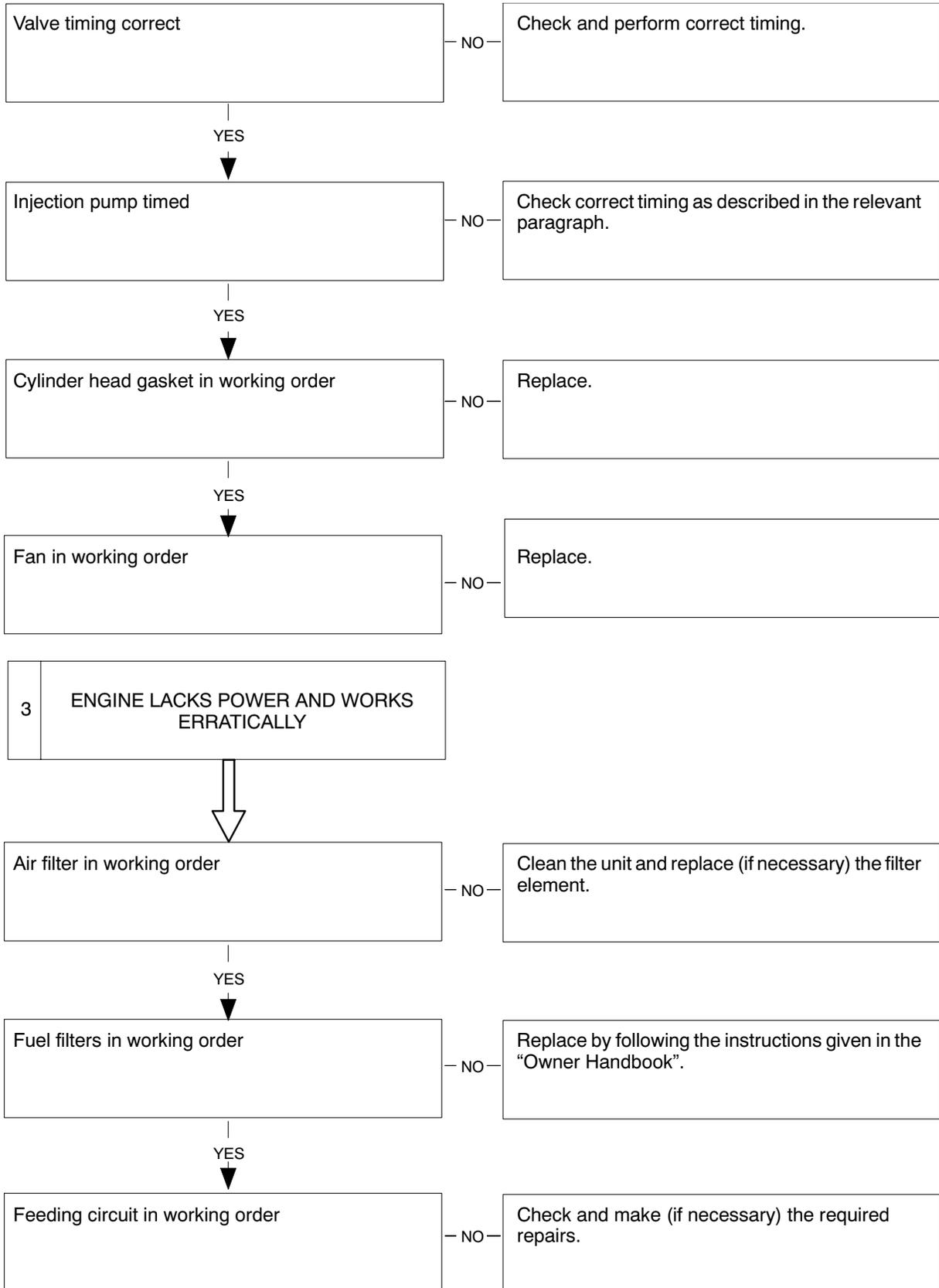
DIAGNOSTICS



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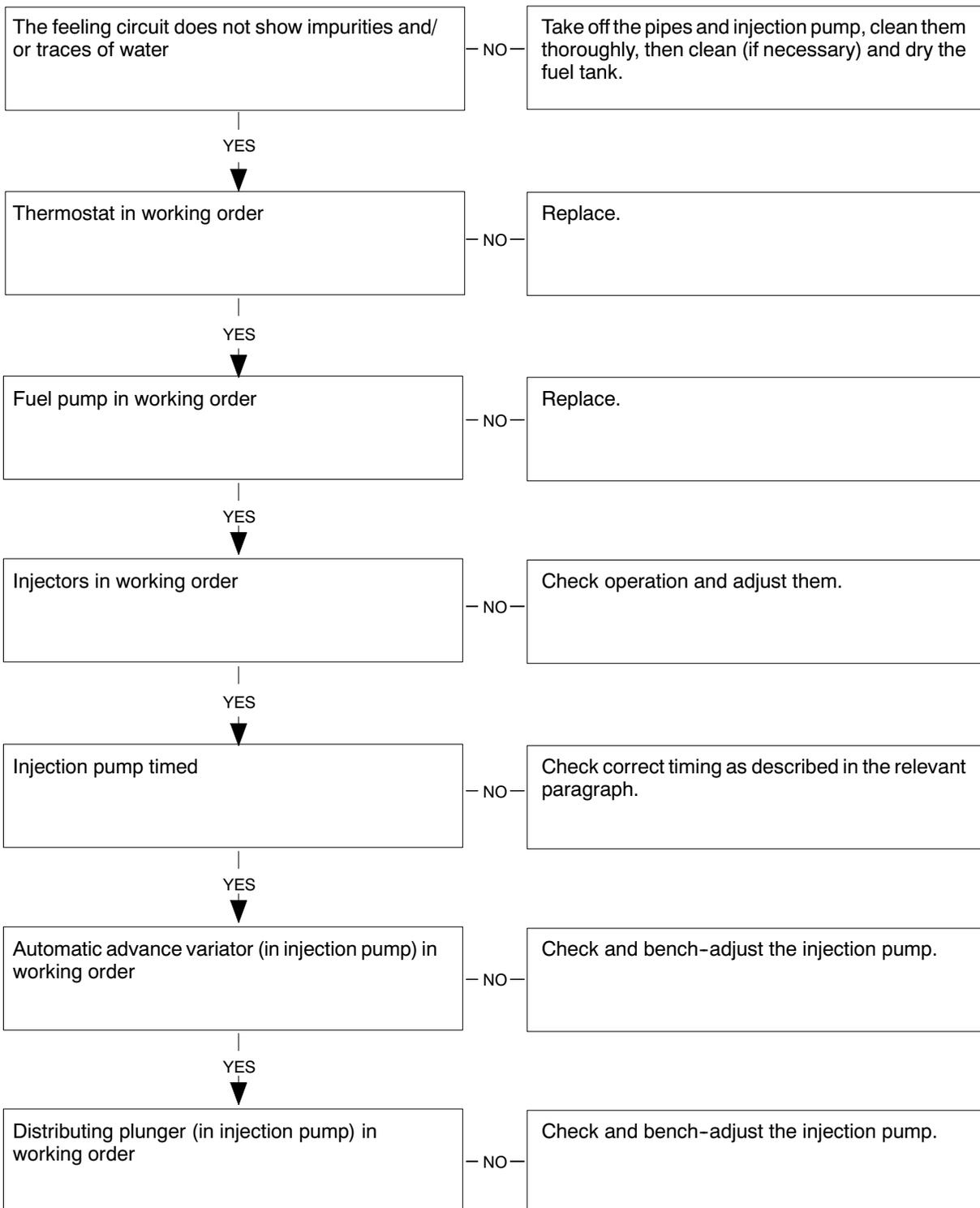


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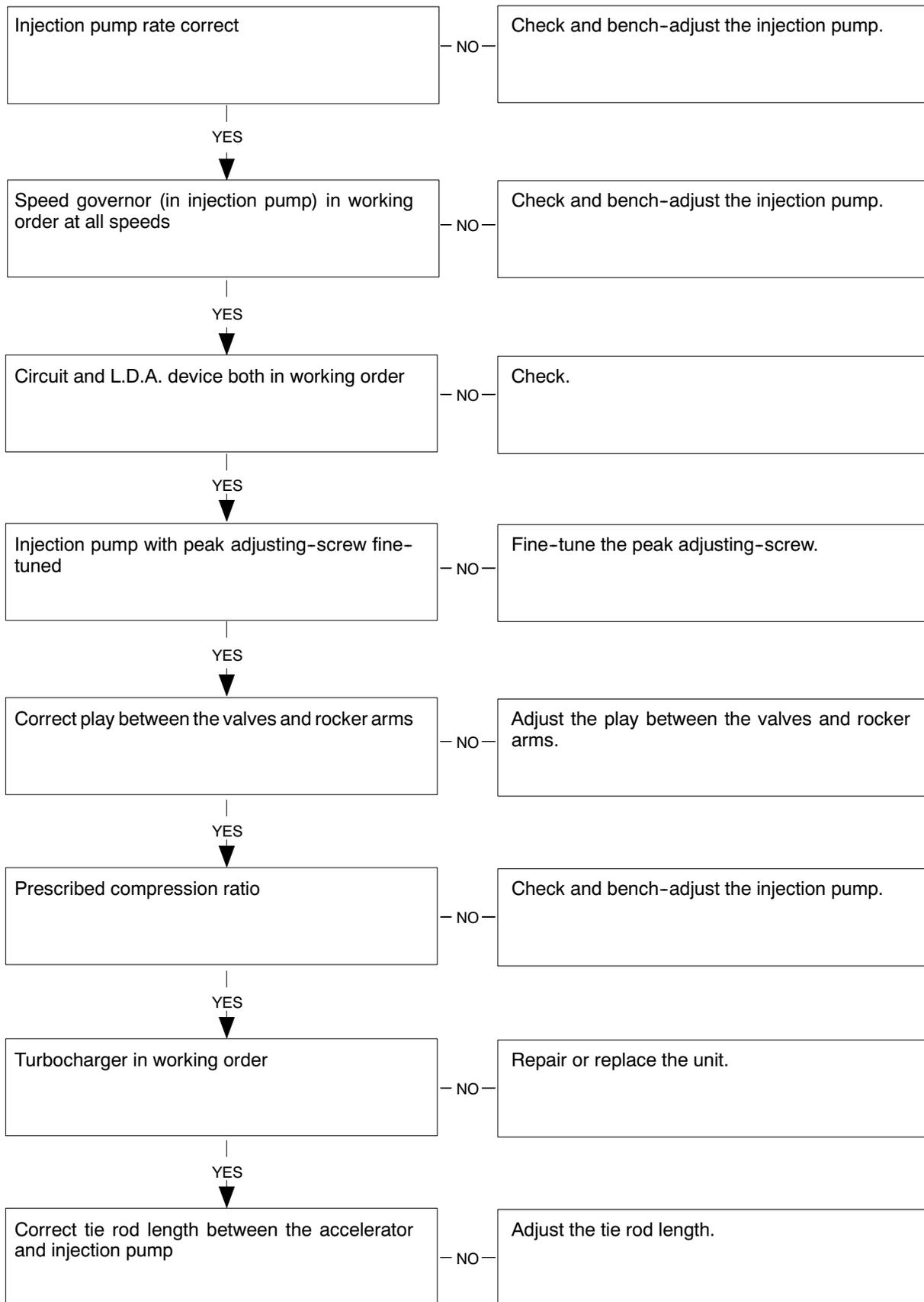
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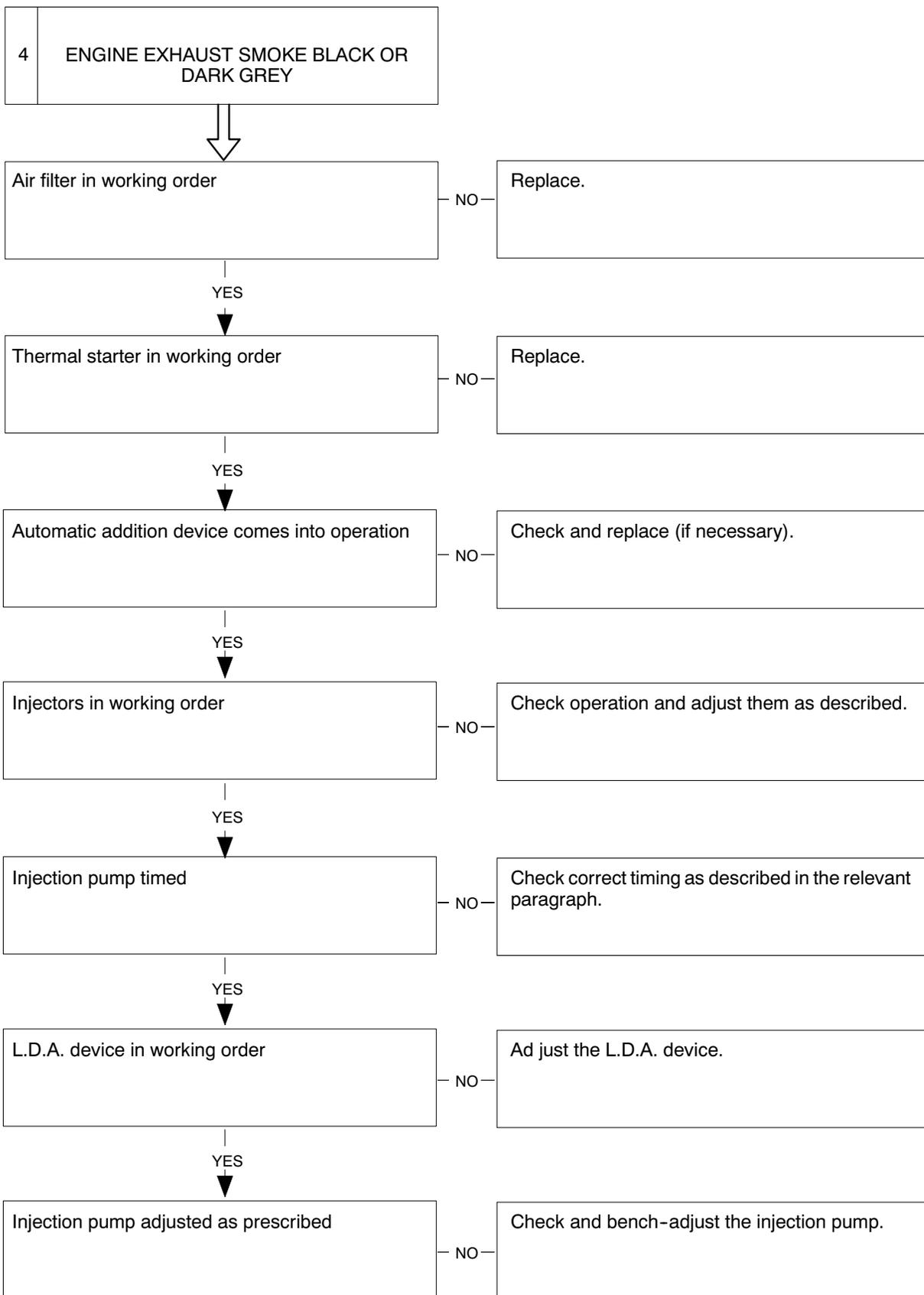


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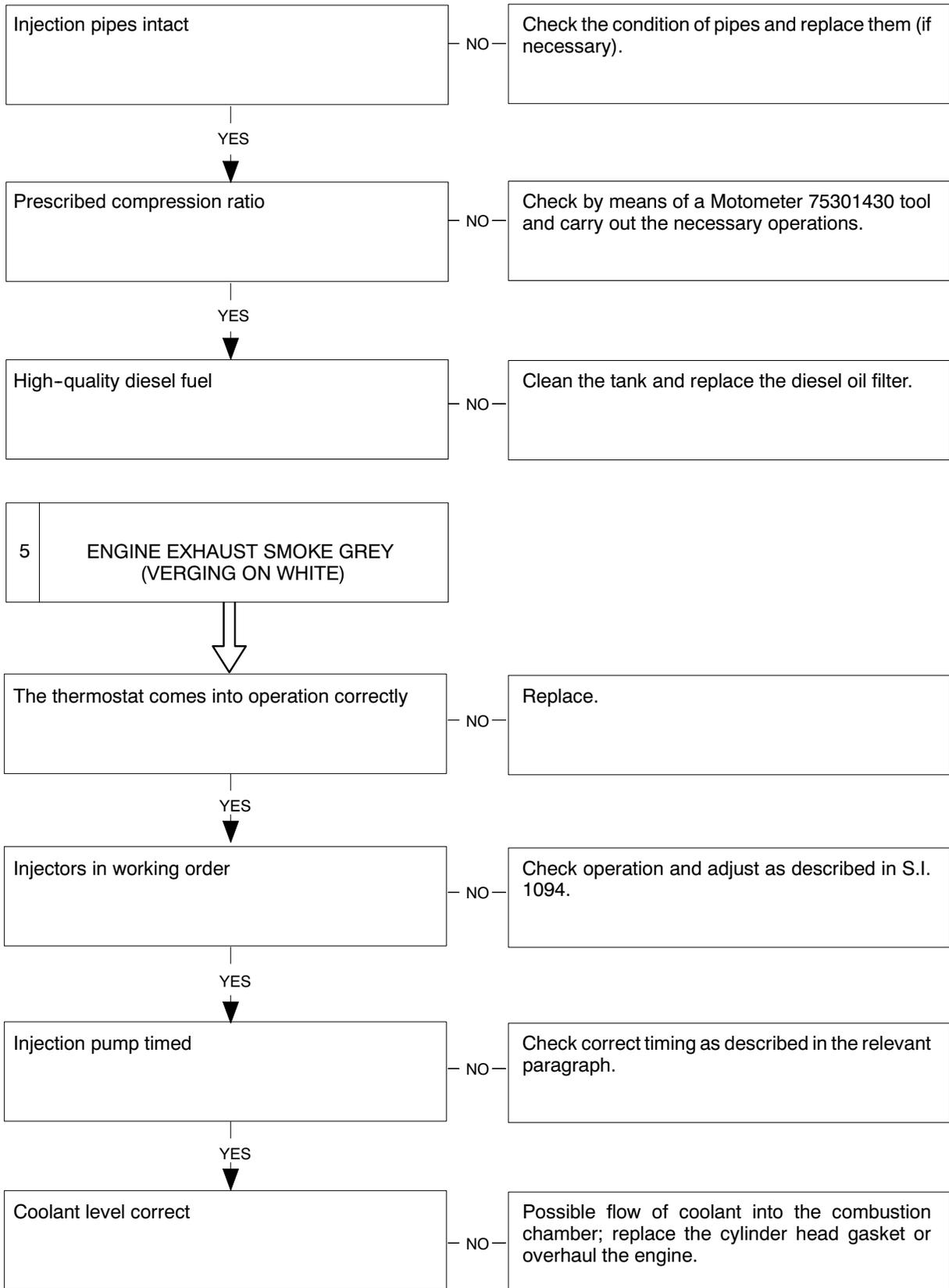


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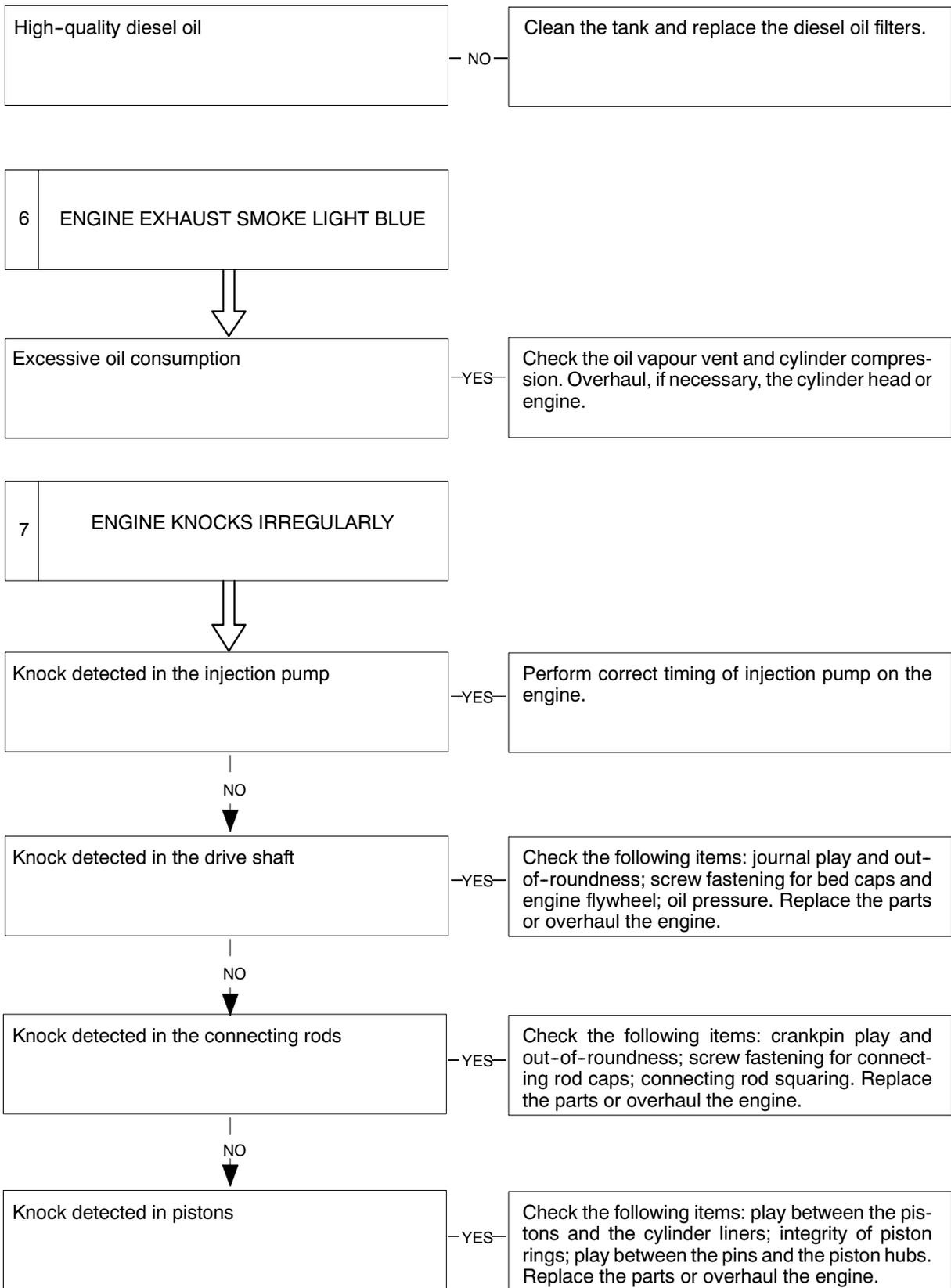
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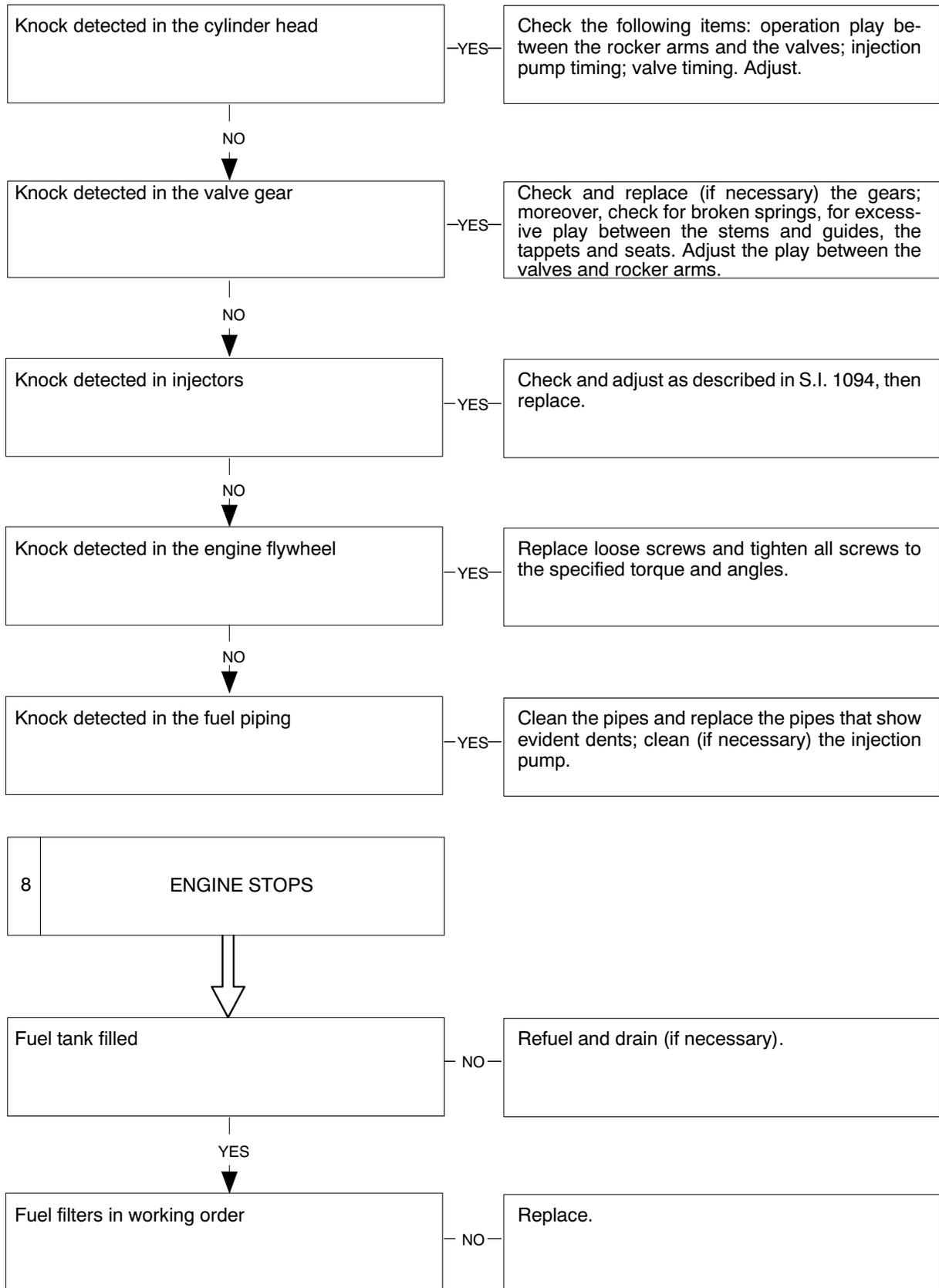
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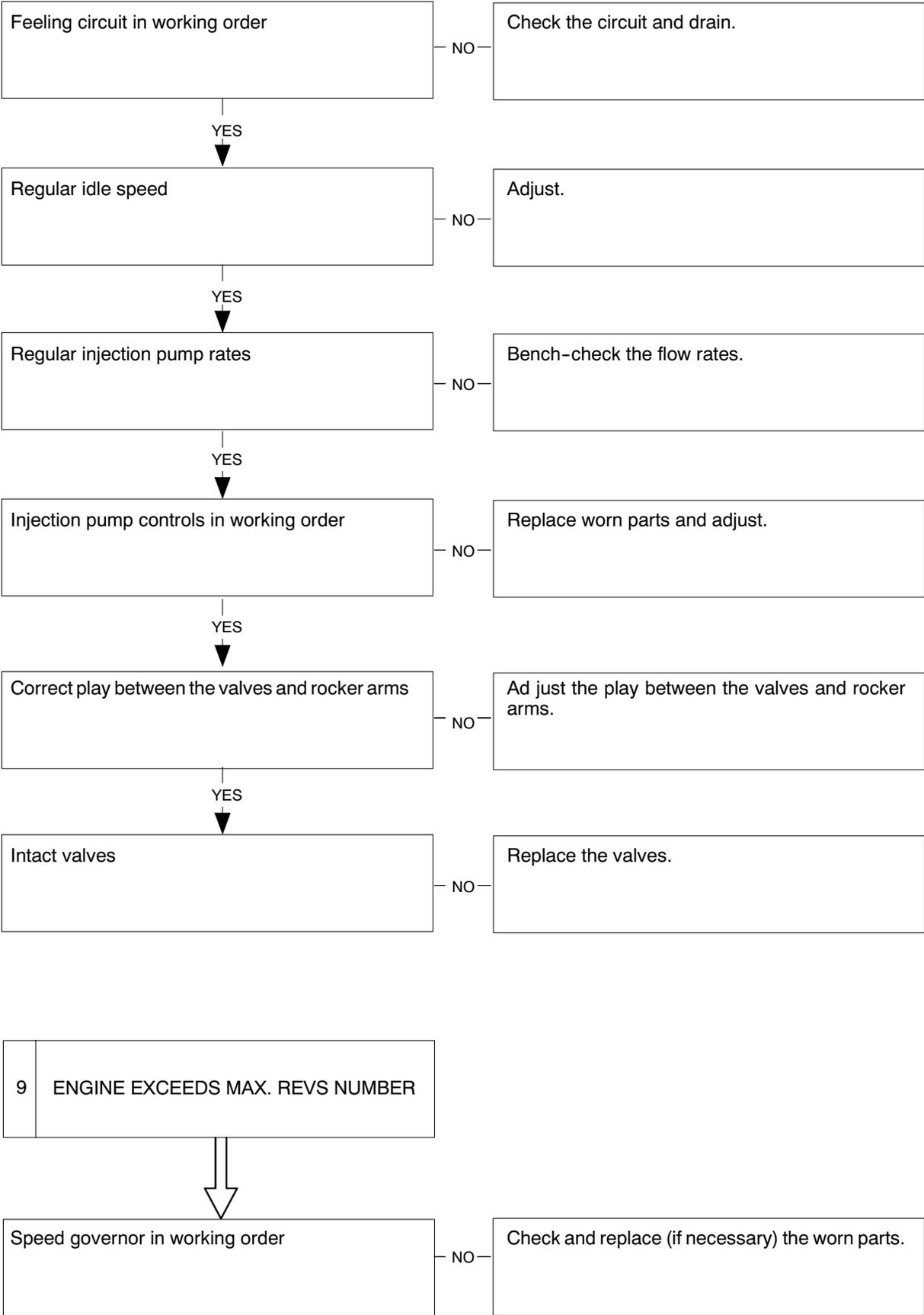
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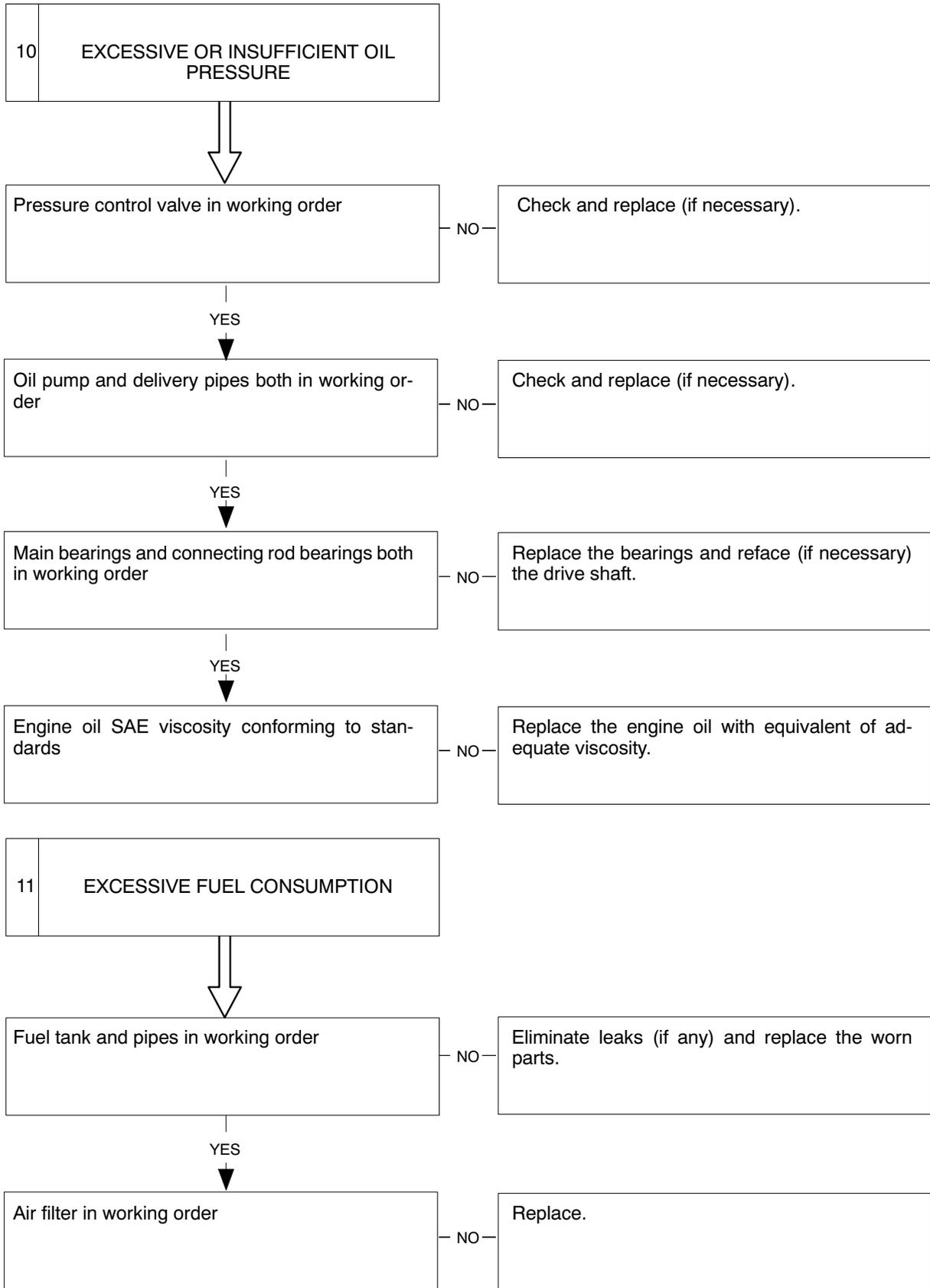


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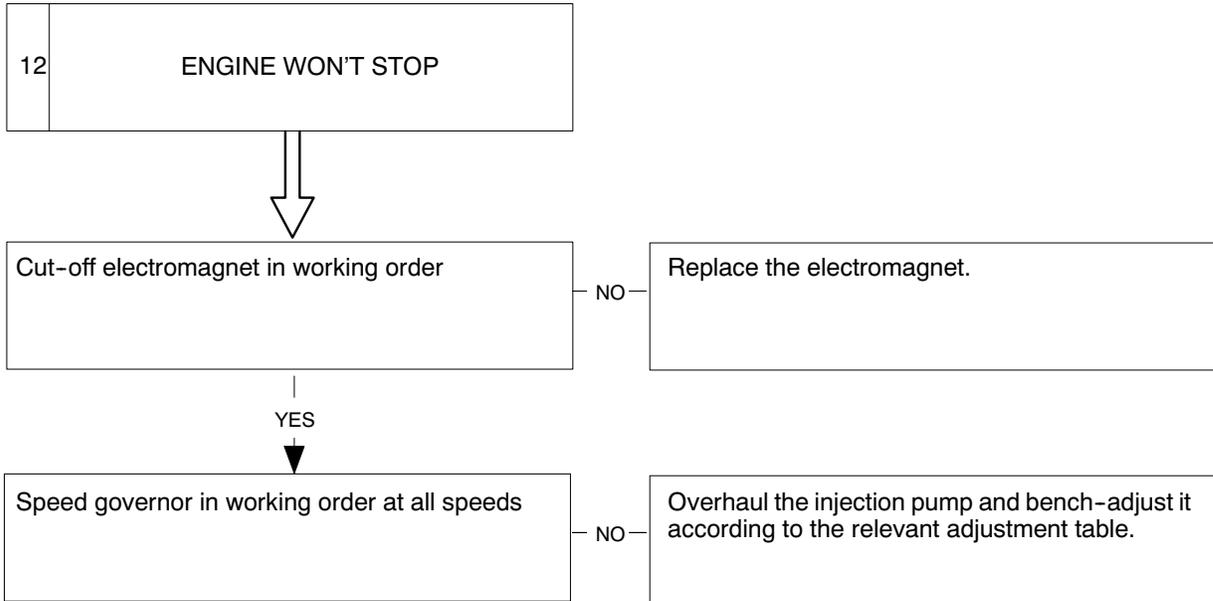
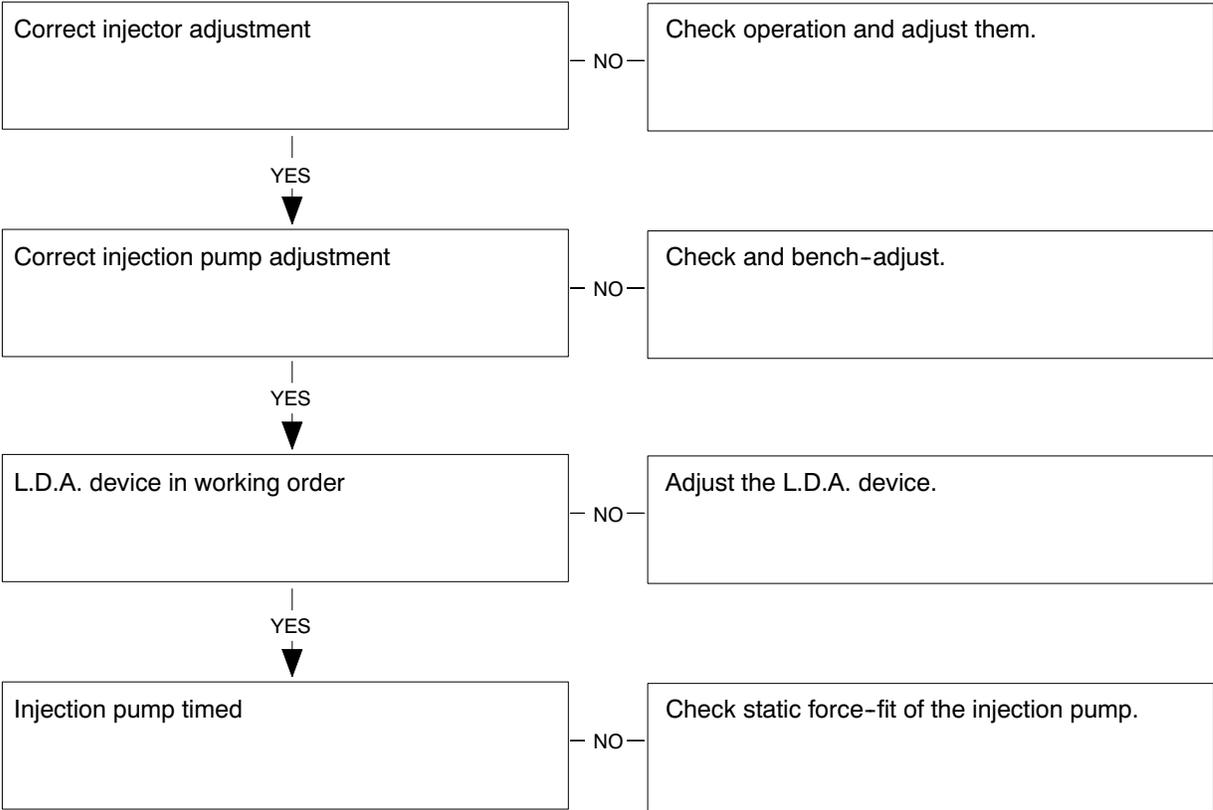


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DIAGNOSTICS



DIAGNOSTICS

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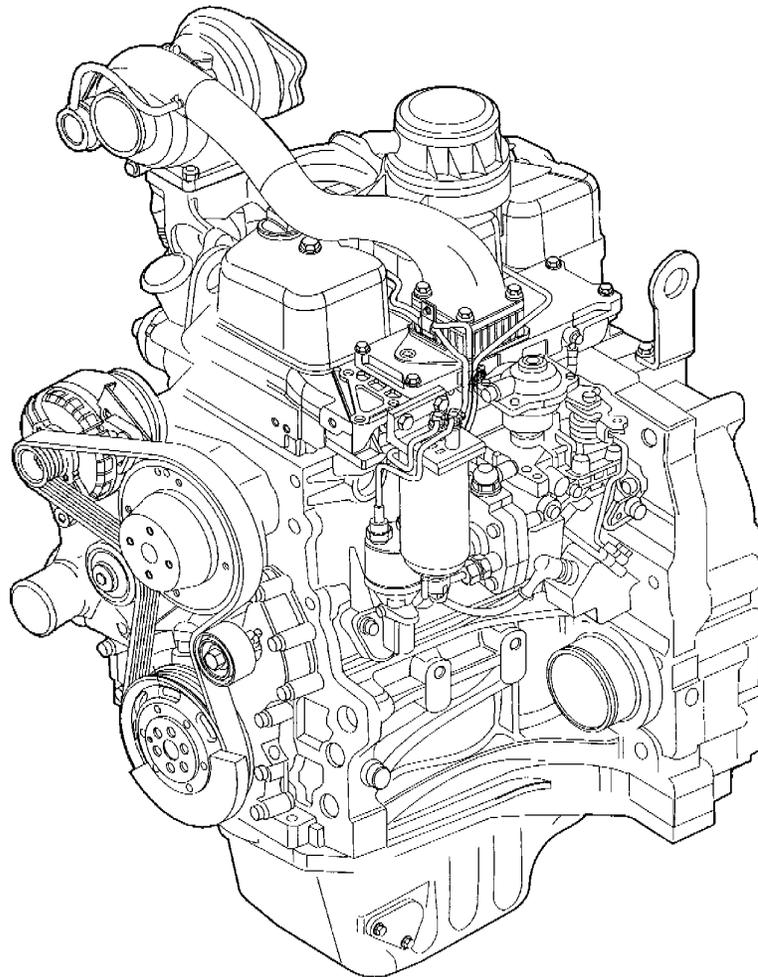
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ENGINE F4CE0354A OVERHAUL

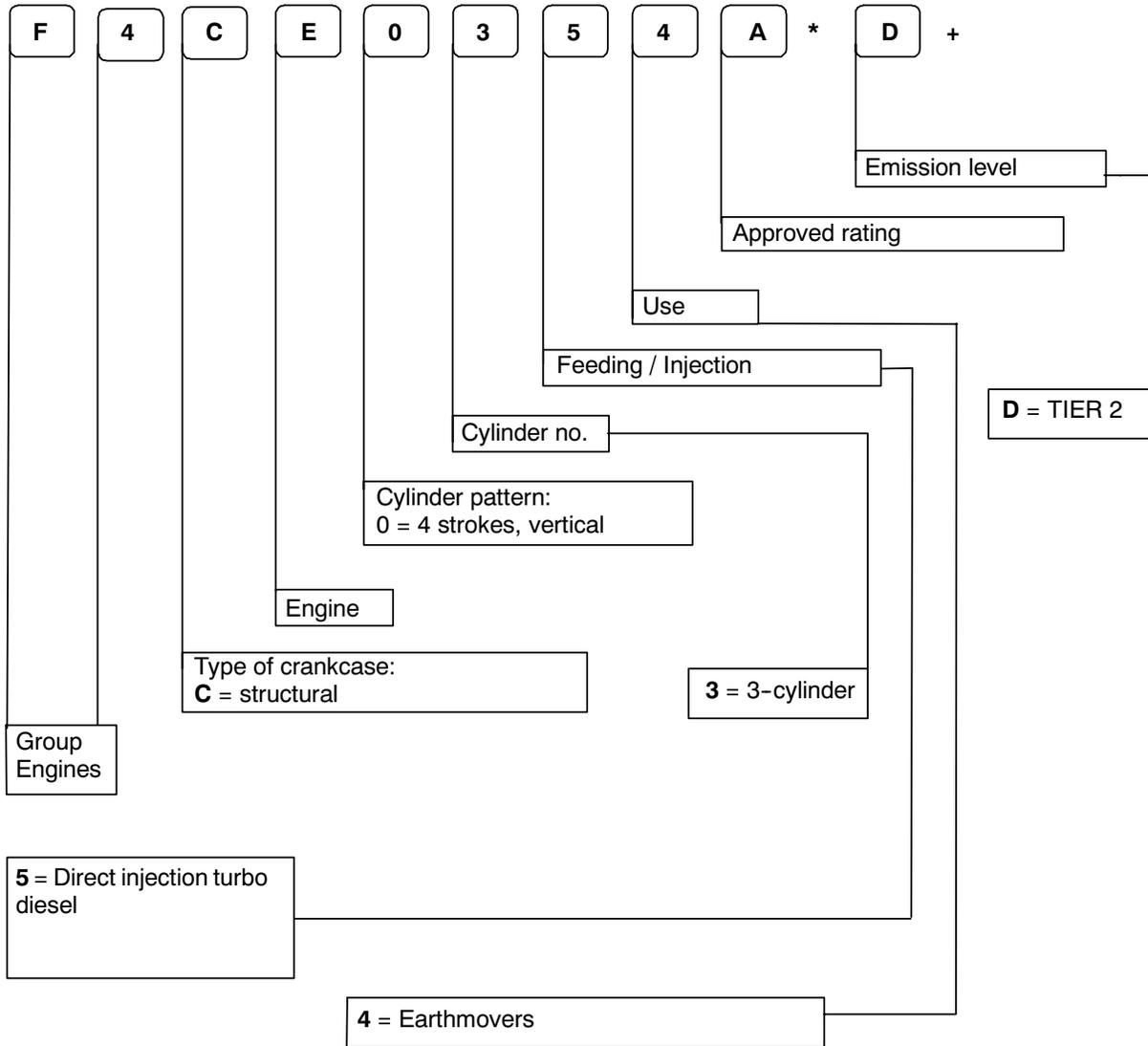
ENGINE F4CE0354A

Figure 1



ENGINE F4CE0354A OVERHAUL

CODING OF SOURCE ENGINES



X Y Y

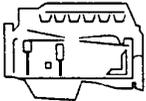
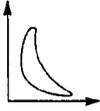
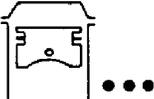
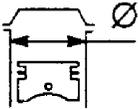
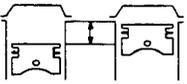
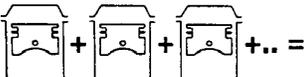
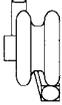
X = 6 rotary, 2-valve injection pump
Y = Engine model

Y Y Y Y Y Y

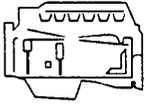
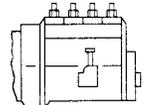
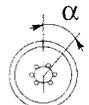
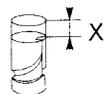
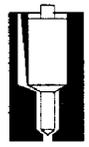
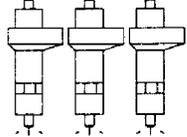
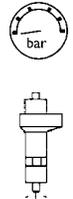
Manufacturing sequence number

ENGINE F4CE0354A OVERHAUL

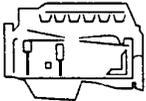
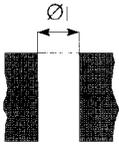
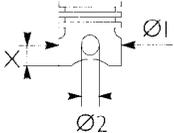
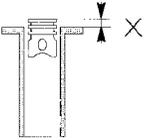
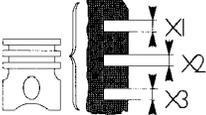
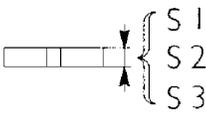
GENERAL ENGINE FEATURES

	Type		F4CE0354A *D
	Cycle		4-stroke diesel engine
	Feeding		Turbocharged
	Injection		Direct
	Number of cylinders		In-line, 3-cylinder
	Bore	mm	104
	Stroke	mm	132
	Total displacement	cm ³	3364
	Compression ratio		17.5 : 1
	Max. rating	kW min ⁻¹	58 2300
	Max. torque	Nm (kgm) min ⁻¹	310 (31) 1400
	No-load idle rpm	min ⁻¹	—
	No-load peak rpm	min ⁻¹	—
	BOOSTING Type of turbocompressor:		HOLSET HX20W
	LUBRICATION		Forced by means of a lobe pump, pressure modulating valve, oil filter
	Oil pressure with hot engine: at idle rpm at peak rpm	bar bar	1.2 3.8

ENGINE F4CE0354A OVERHAUL

	Type	F4CE0354A *D
<p>COOLING</p>	Water pump drive:	By fluid
	Thermostat:	By means of belt
	Start of opening: °C	81 ± 2
 <p>Ambra Super Gold 15W40 10W30</p>	REFUELLING	
	Full filling capacity 1° litres	—
	- engine sump litres	8
	- engine sump + filter litres kg	9
	FEEDING Bosch-type injection	VE3 / 12 F 1150 L 947
	Pump setting	—
	Start of delivery	mm
	Type of nozzle	DSLA 145 P1255
	Injection sequence	1 - 3 - 2
	Injection pressure (bar)	260

ASSEMBLING PLAY - SPECIFICATIONS

	Type	F4CE0354A *D	
CRANK GEAR COMPONENTS AND CYLINDER ASSEMBLY		mm	
	Cylinder liners  Ø1	104.000 to 104.024	
	Pistons: supplied with standard spares Measurement dimension X Outer diameter Ø1 Pin seat Ø2	59 103.730 to 103.748 38.010 to 38.016	
	Piston - cylinder liners	0.252 to 0.294	
	Piston diameter  Ø1	0.4 - 0.8	
	Position of pistons from crankcase X	0.28 to 0.42	
	Gudgeon pin  Ø3	37.994 to 38.000	
	Gudgeon pin - Pin seat	0.004 to 0.016	
	Piston ring slots * measured on Ø of 101 mm	X1* X2 X3	2.705 to 2.735 2.440 to 2.460 4.030 to 4.050
	Piston rings * measured on Ø of 101 mm	S1* S2 S3	2.560 to 2.600 2.350 to 2.380 3.970 to 3.990
	Piston rings - Slots	1 2 3	0.155 to 0.175 0.060 to 0.110 0.040 to 0.080
	Piston rings	0.4 to 0.8	