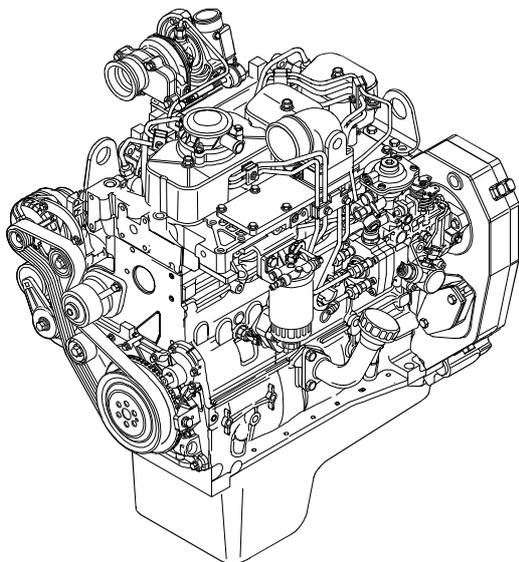
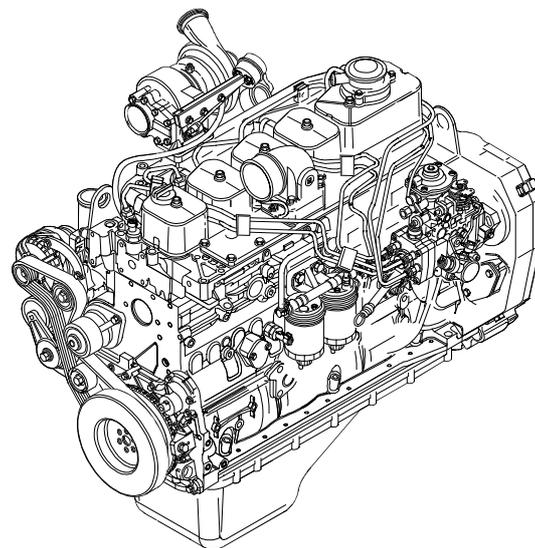


REPAIR MANUAL FOR ENGINES

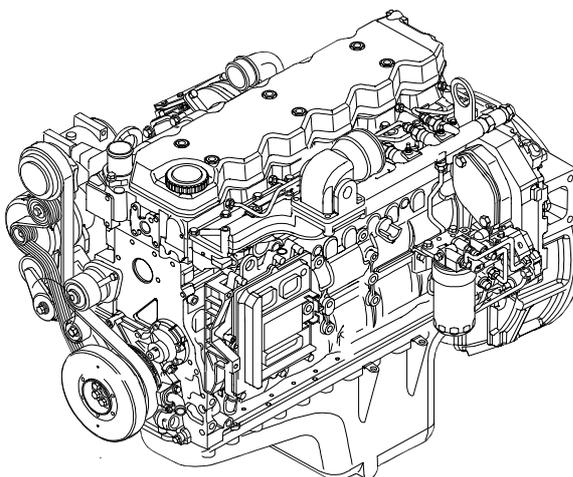
F4GE0484E - F4GE0684F - F4HE0684J



F4GE0484E



F4GE0684F



F4HE0684J

Every information, illustration and specification contained in the present manual is based on the most recent information available at the time of printing.

CNH France S.A. reserves the right, to modify the text at any time without prior communication.

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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



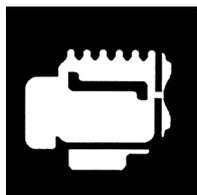
Section 1 - Diagnostics

EW-1-1



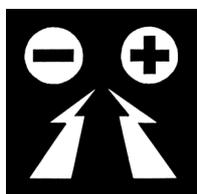
Section 2 - Engine F4GE0484E overhaul

EW-2-1



Section 3 - Engine F4GE0684F - F4HE0684J overhaul

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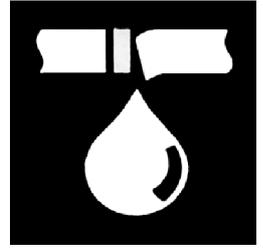


Section 4 - Recharging and start-up

EW-4-1

DIAGNOSTICS

(for engines F4GE0484E - F4G0684F)



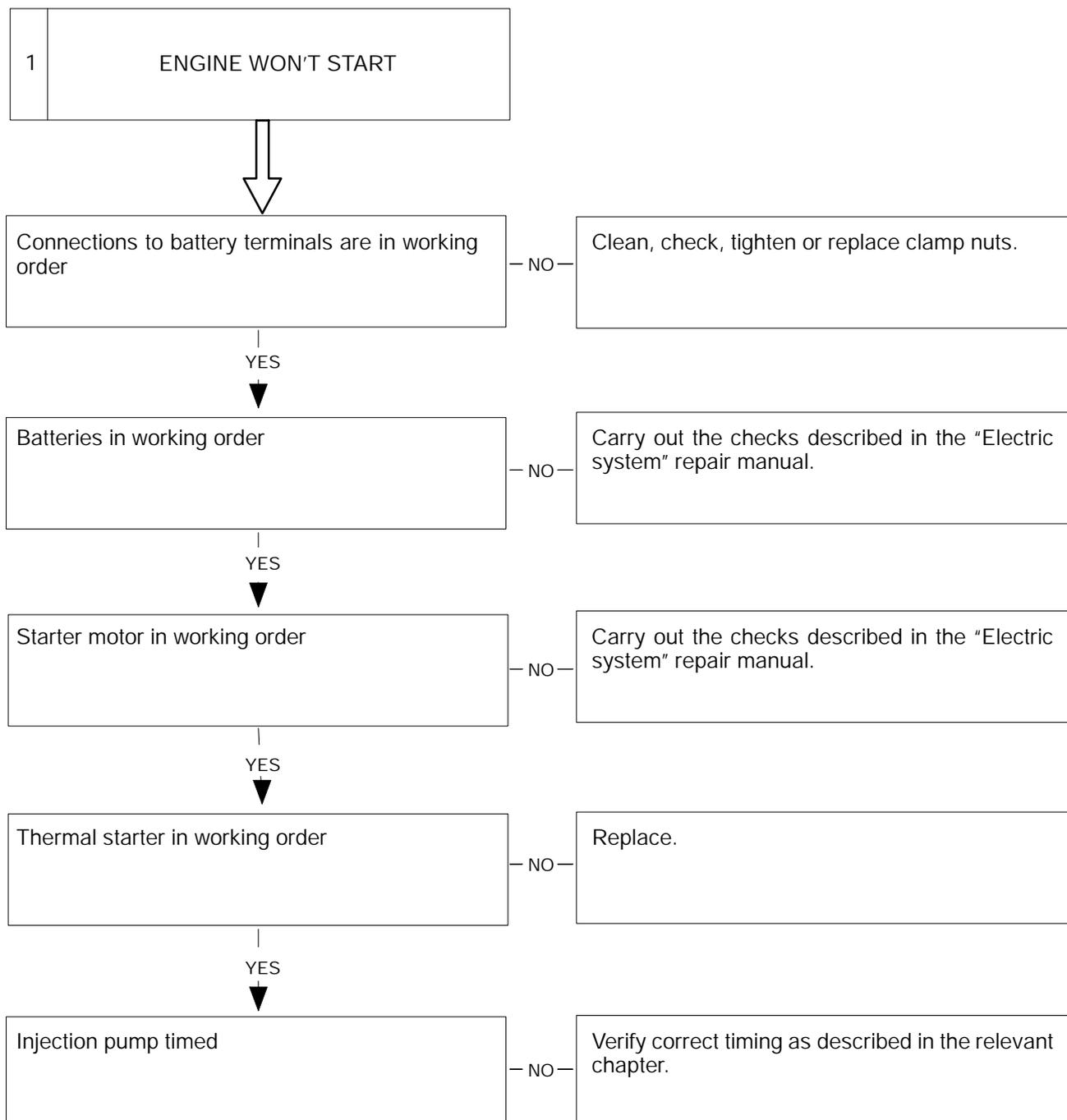
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DIAGNOSTICS

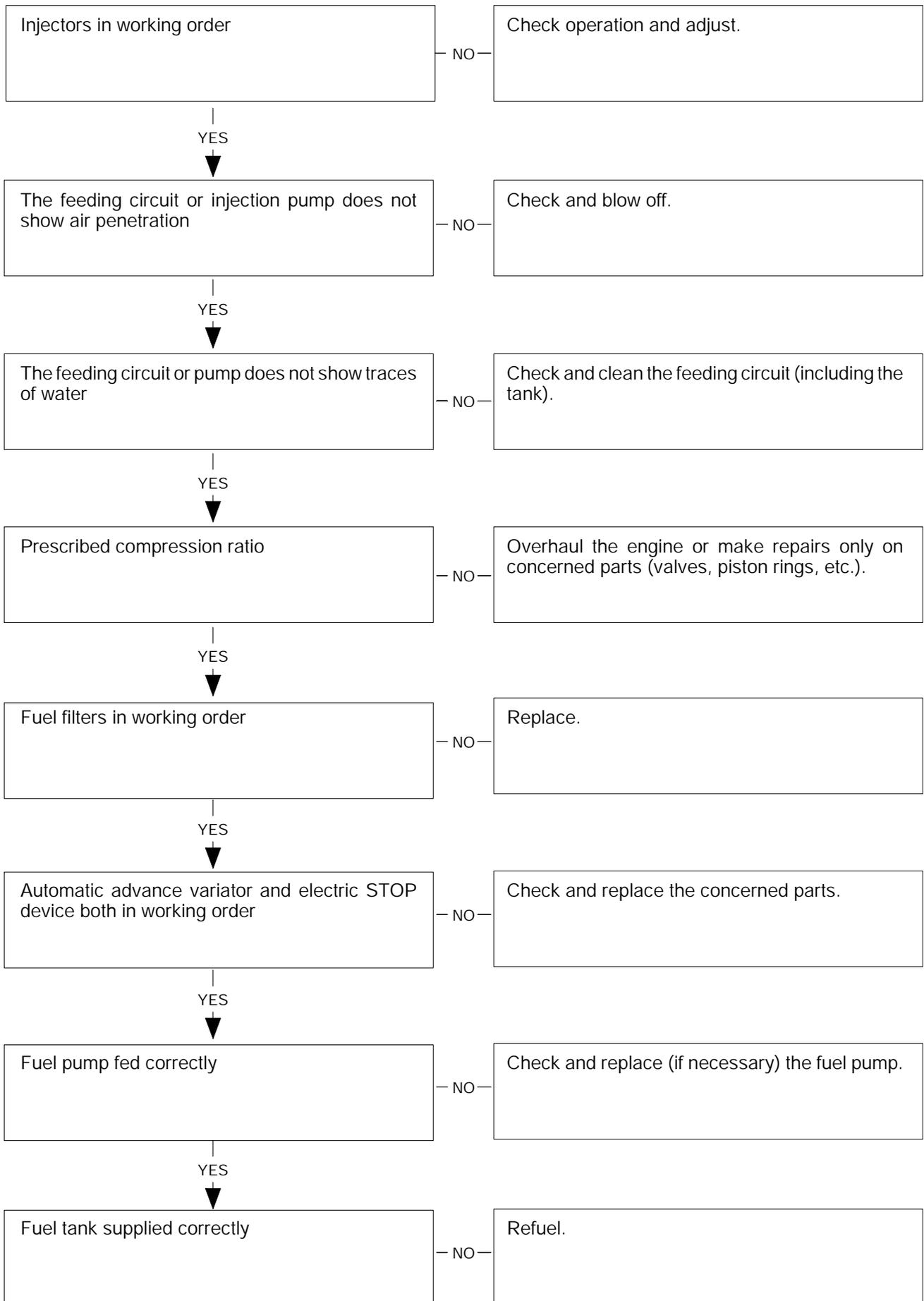
Main engine operating anomalies:

- | | |
|--|--|
| <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. |
|--|--|

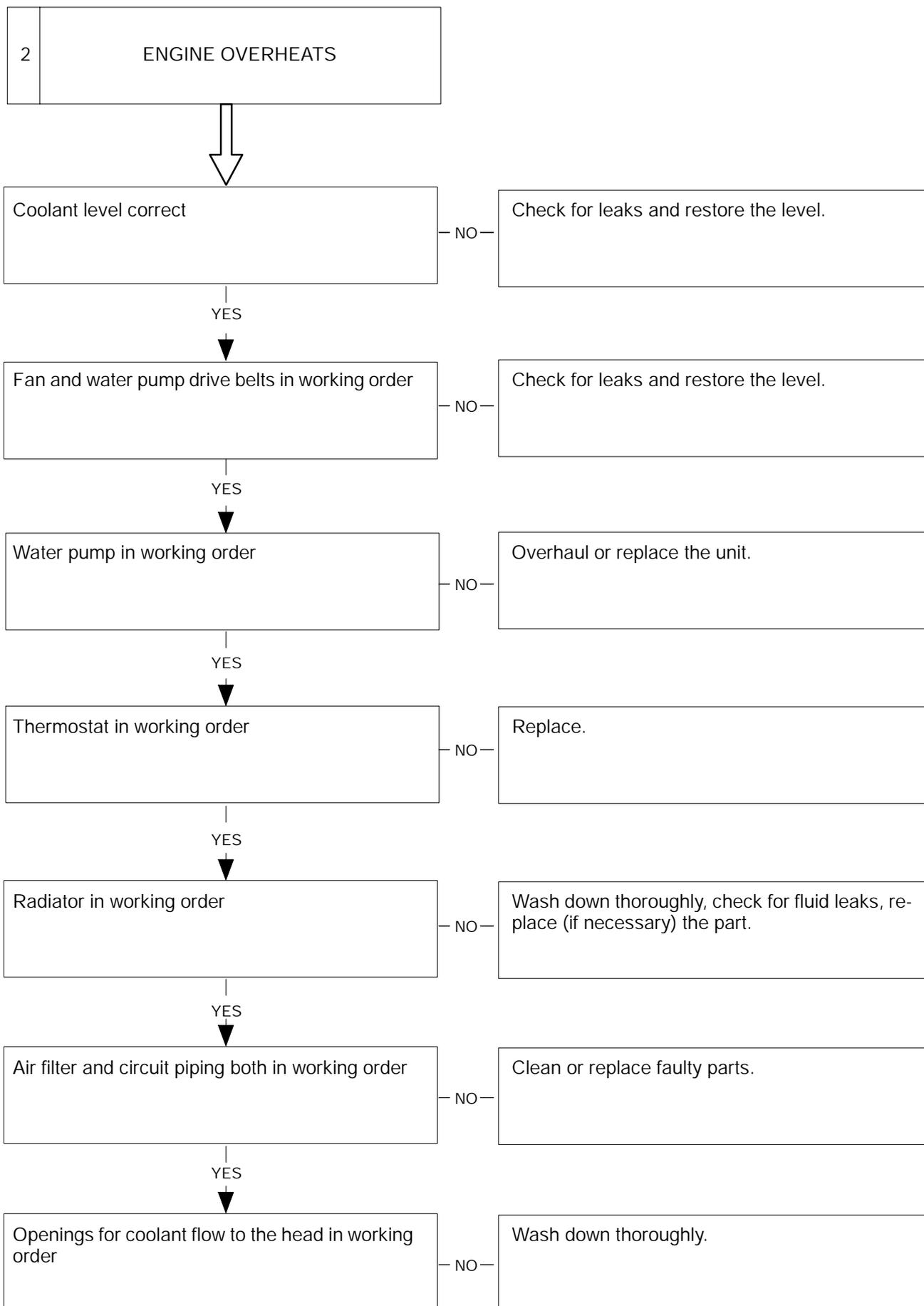


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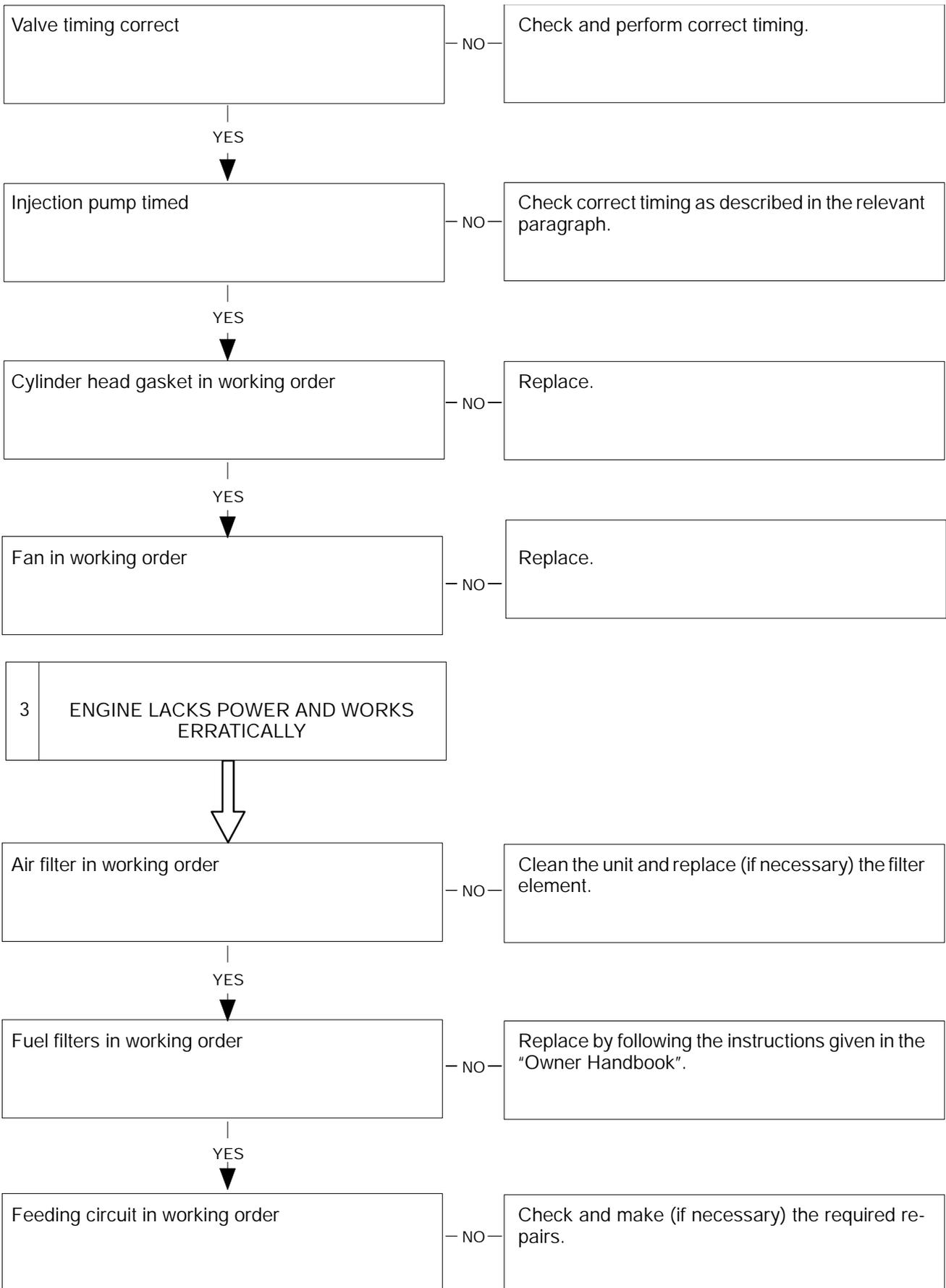
DIAGNOSTICS



DIAGNOSTICS

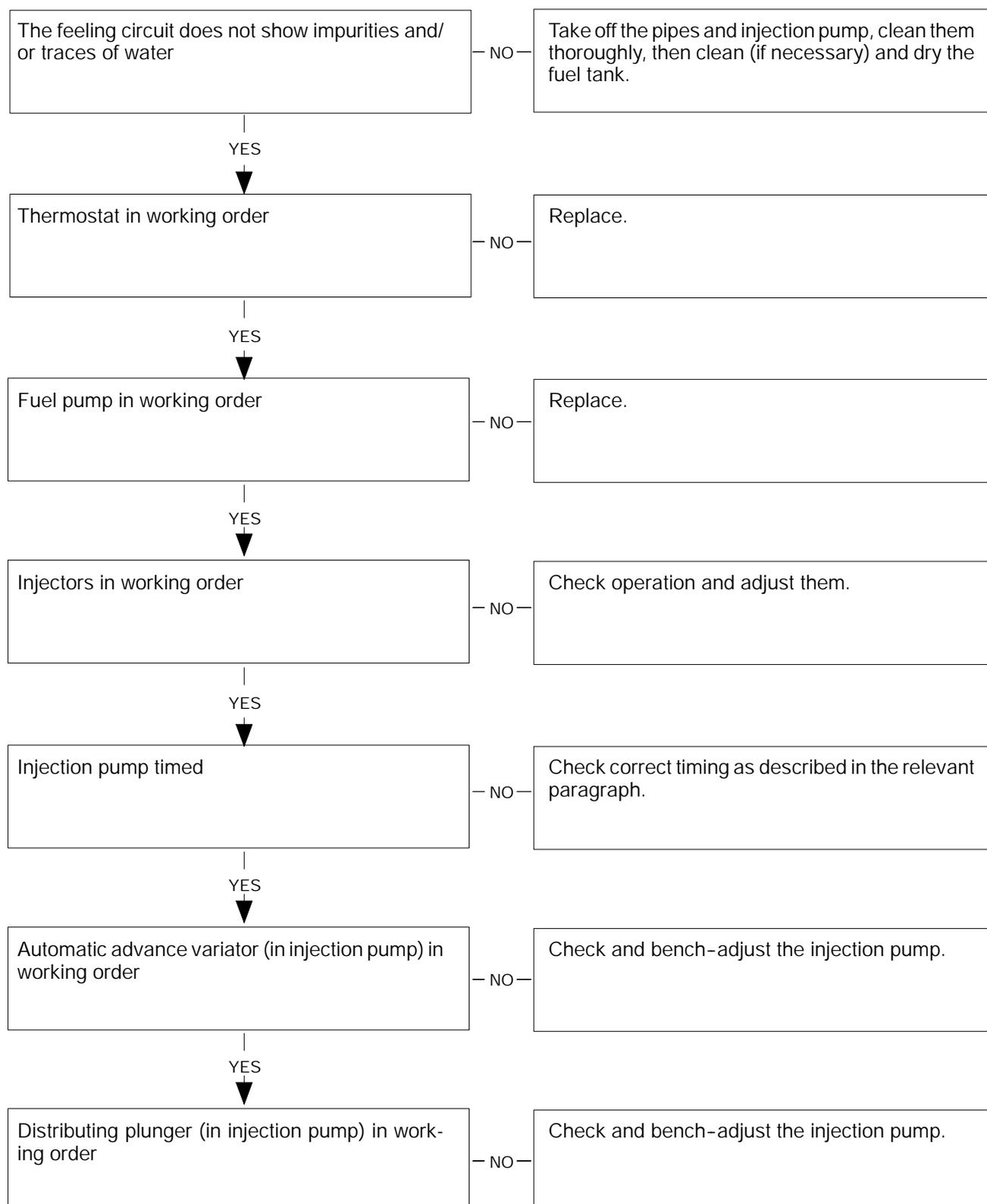


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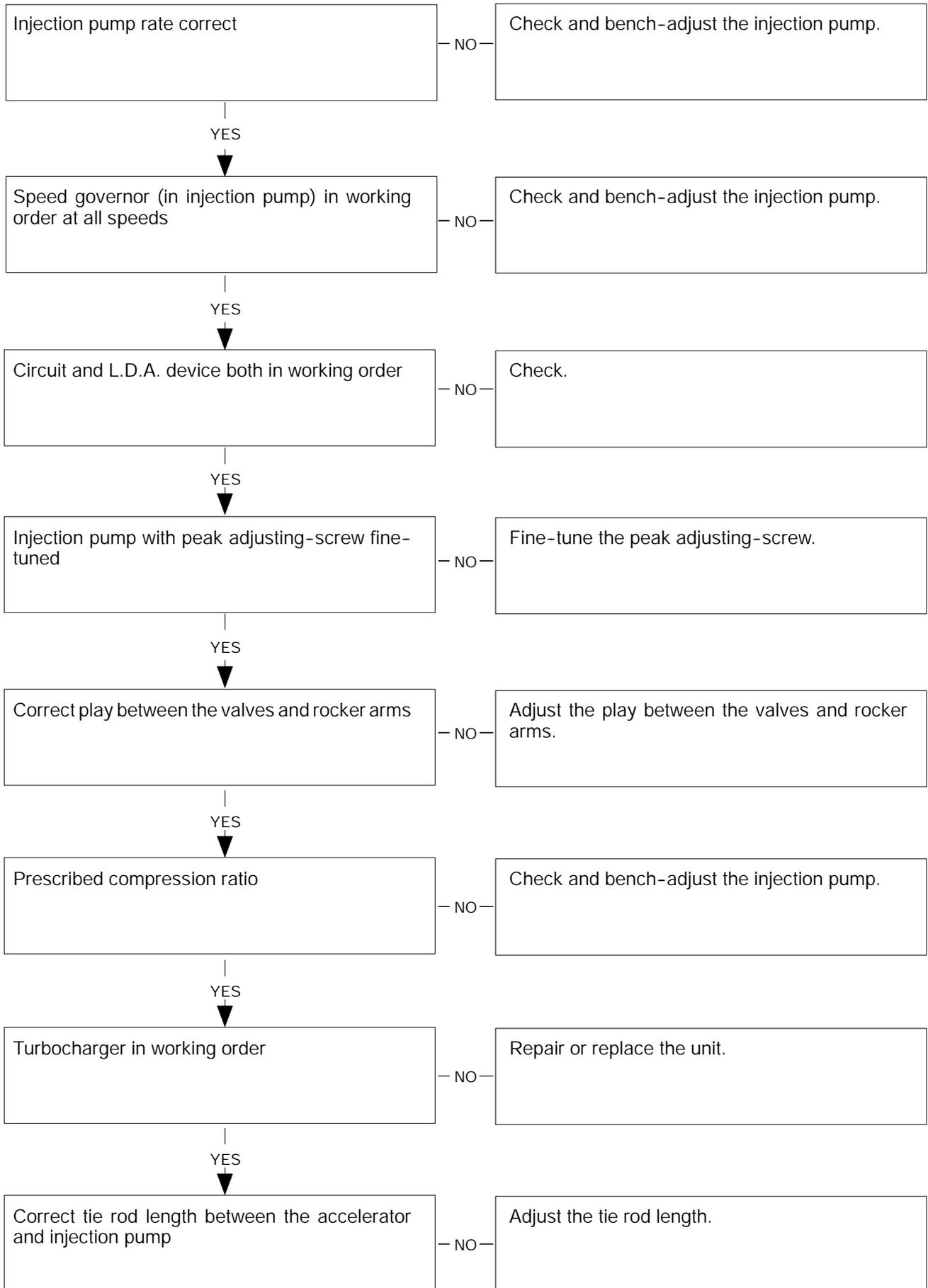
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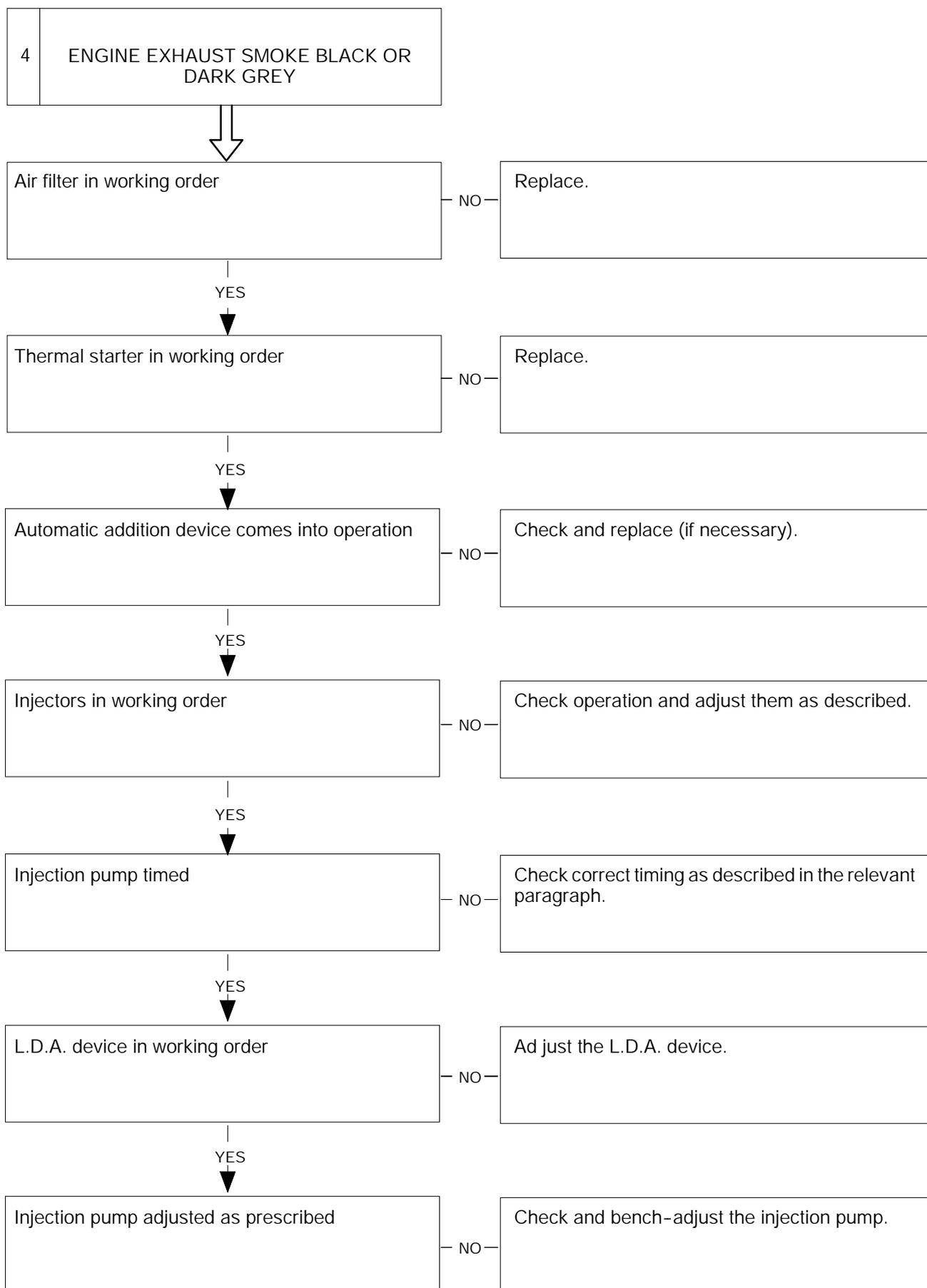


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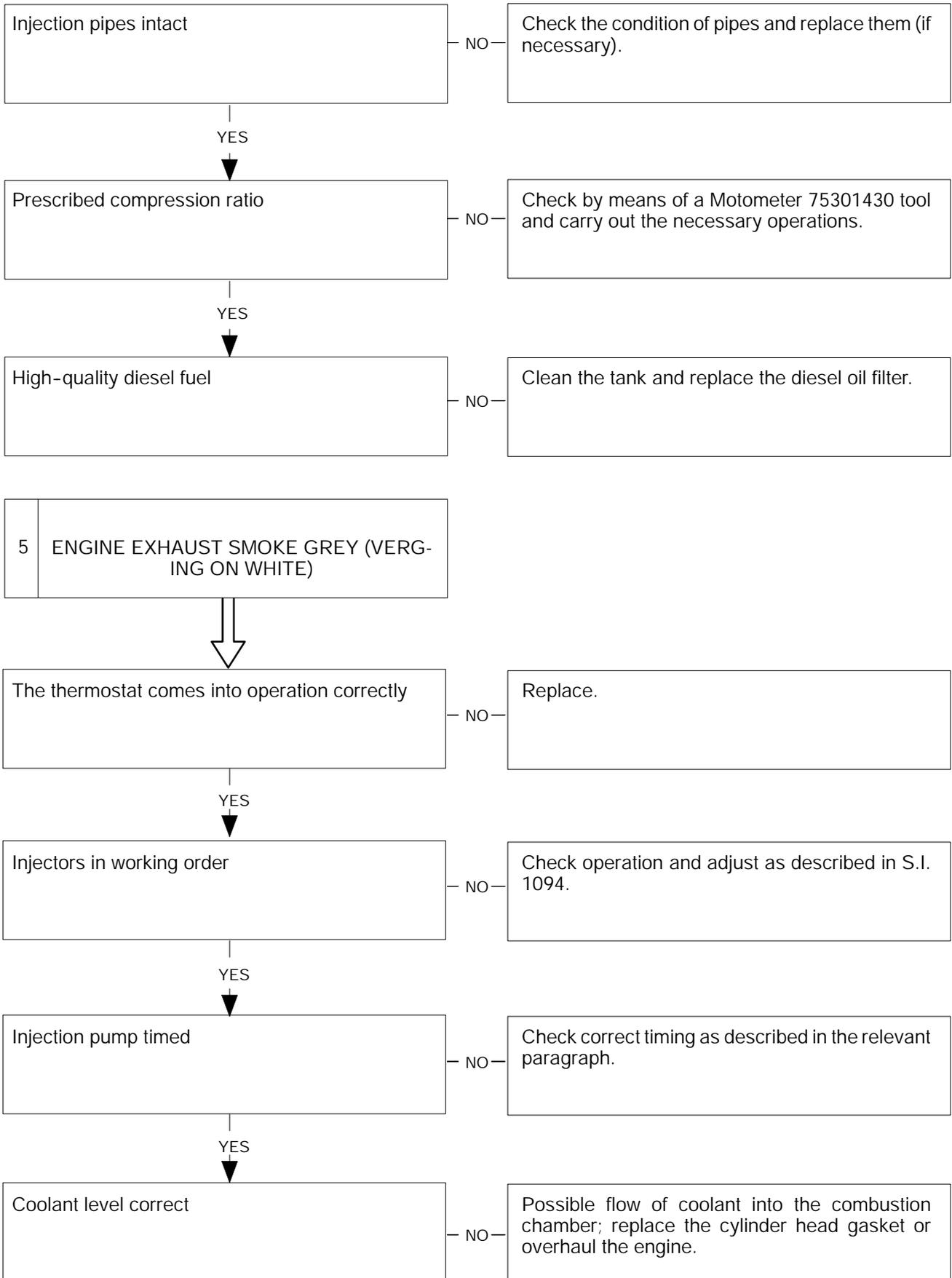


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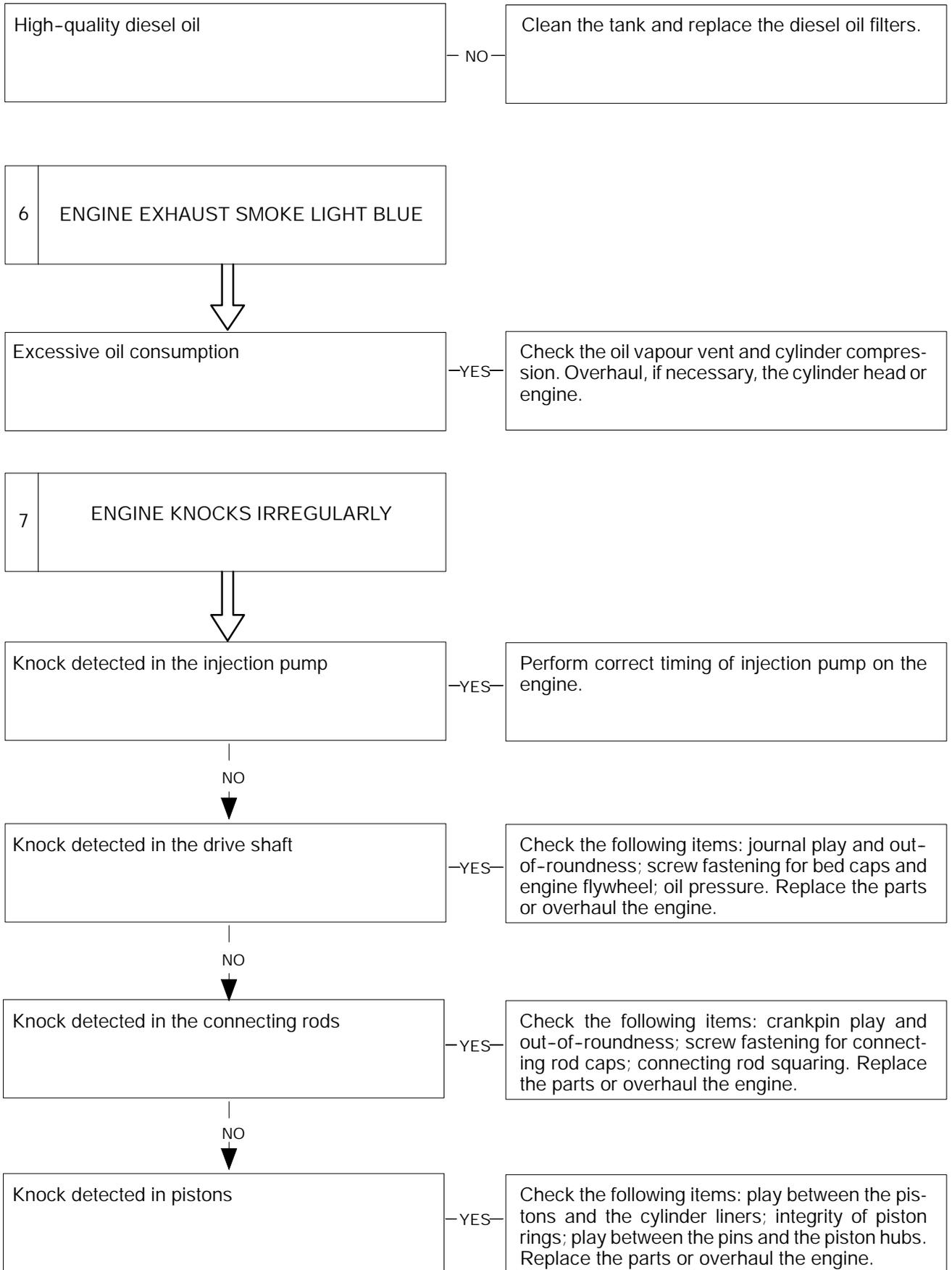
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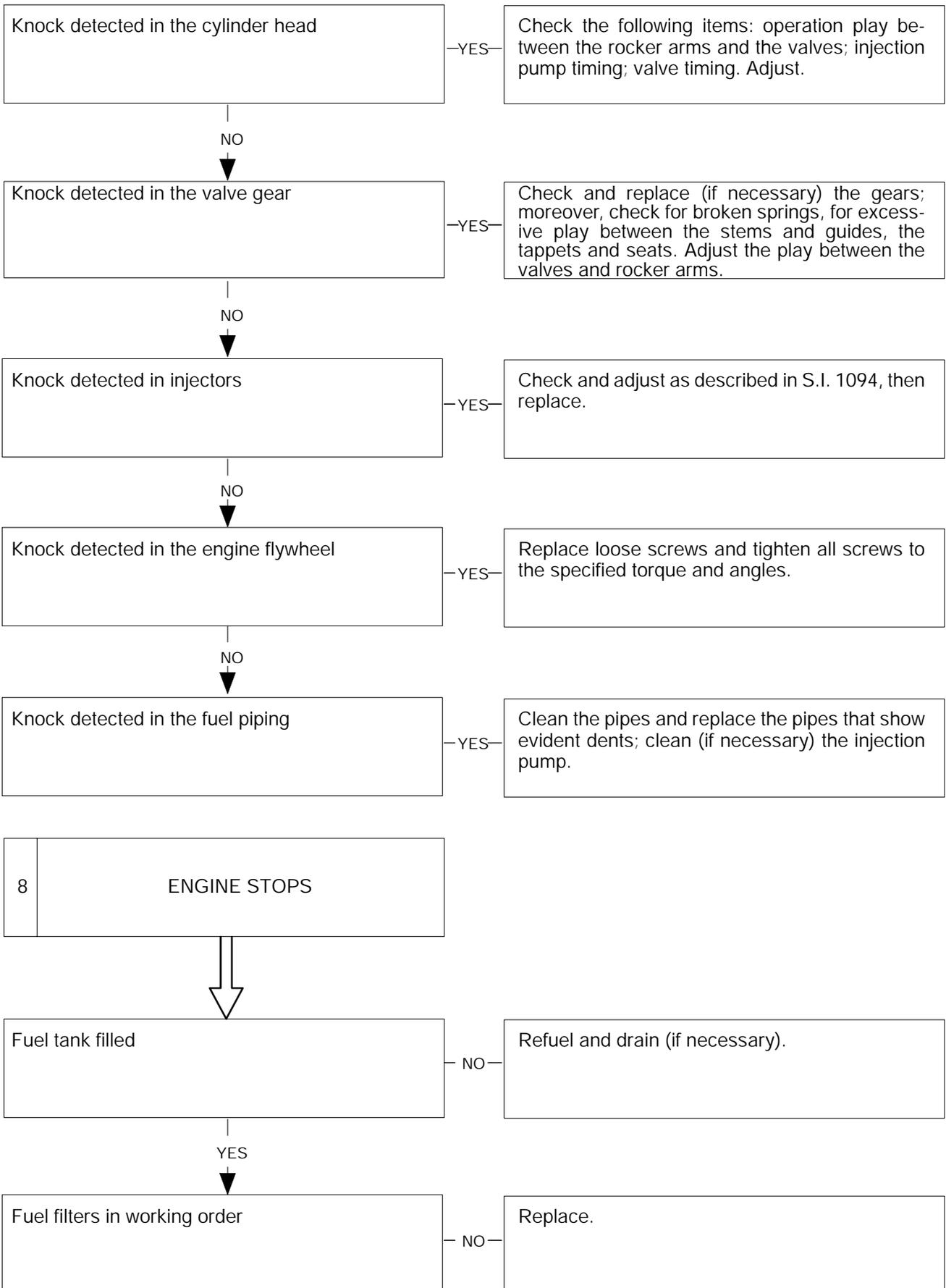
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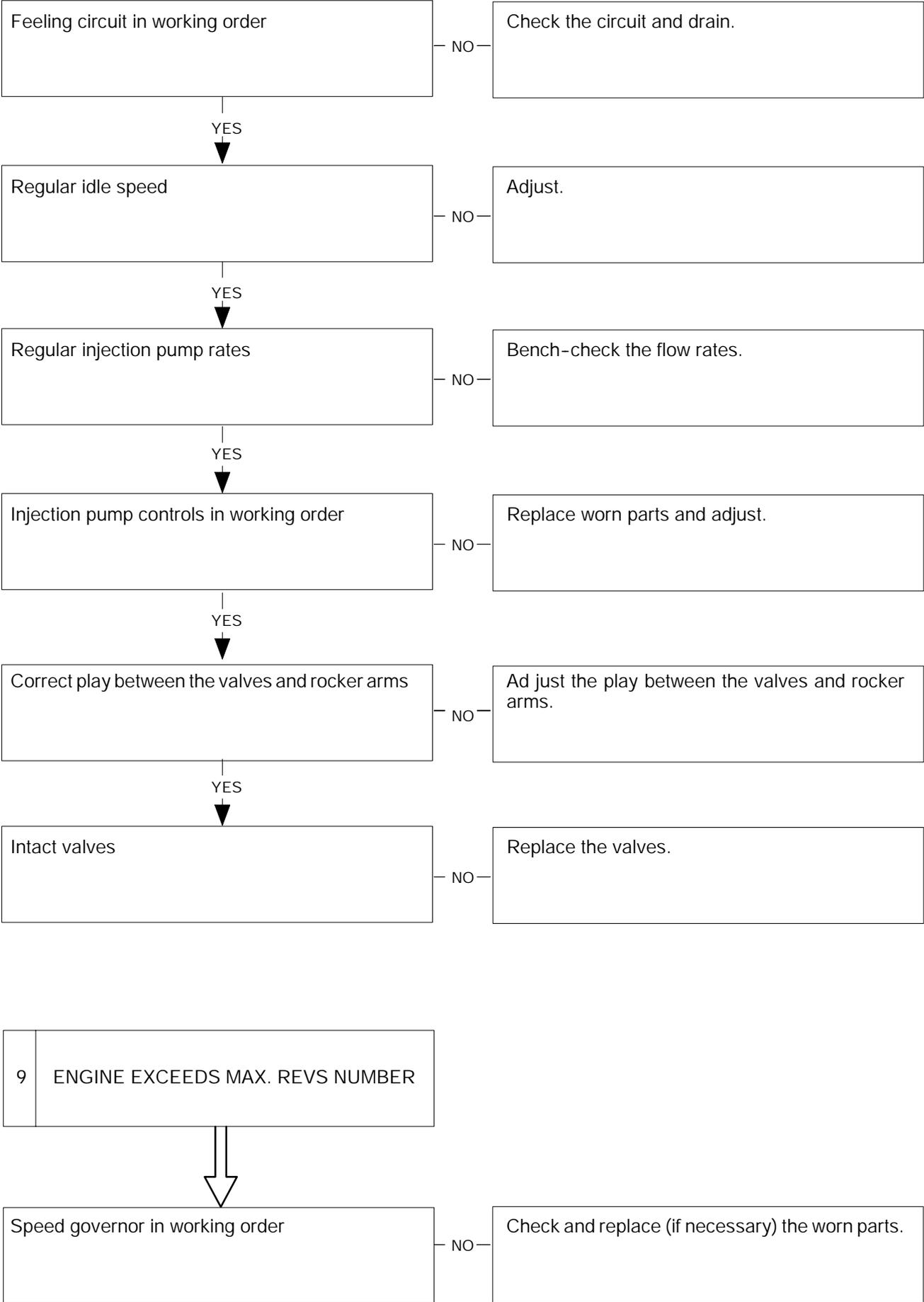
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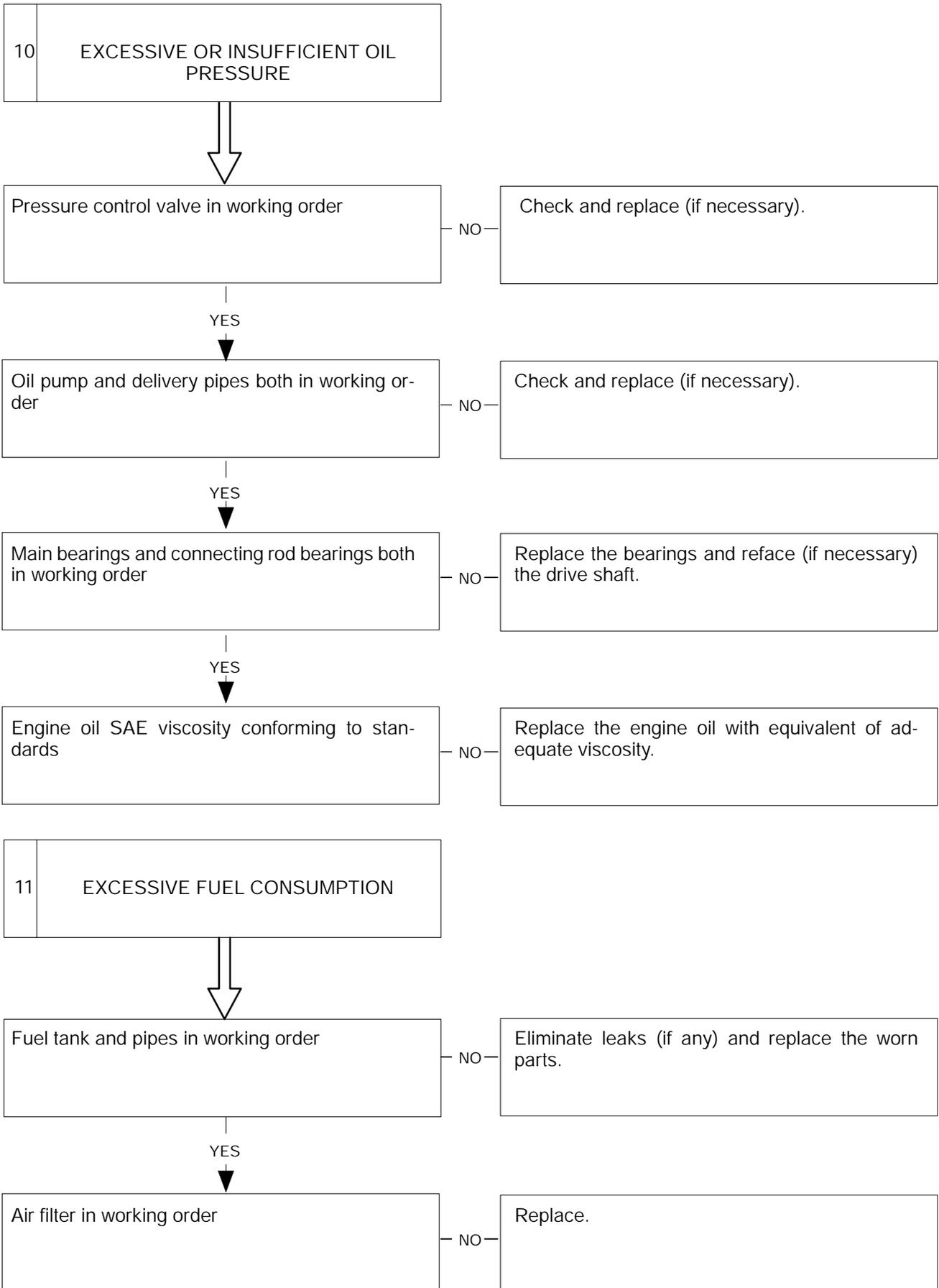


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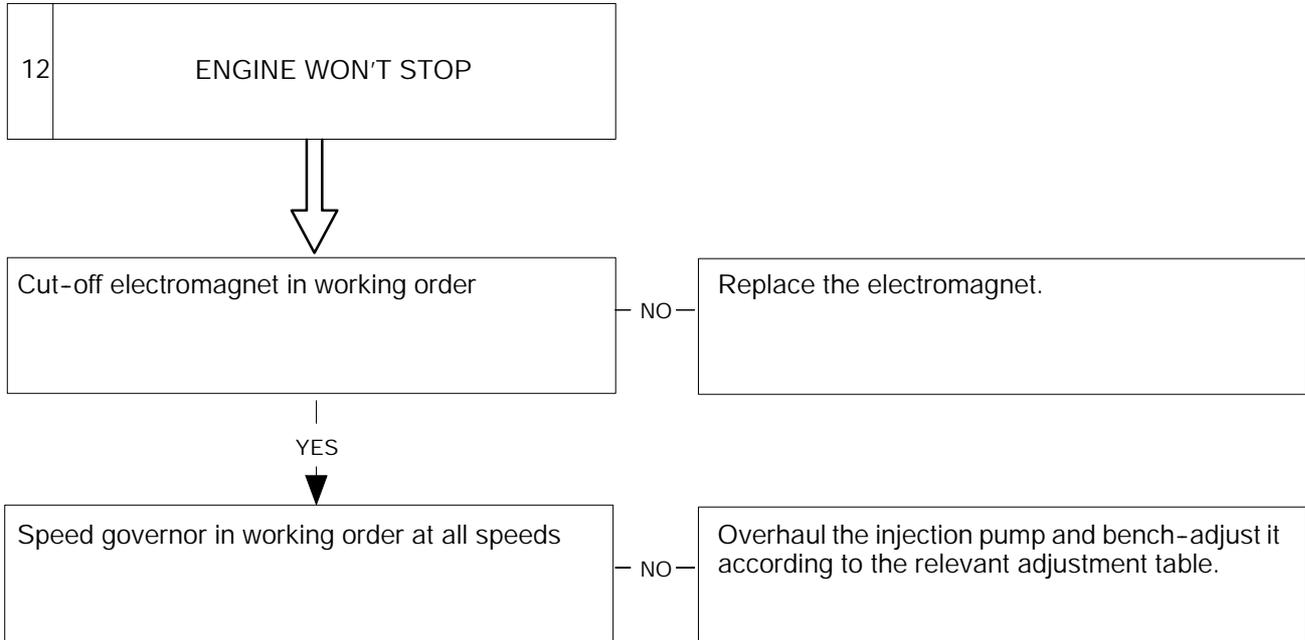
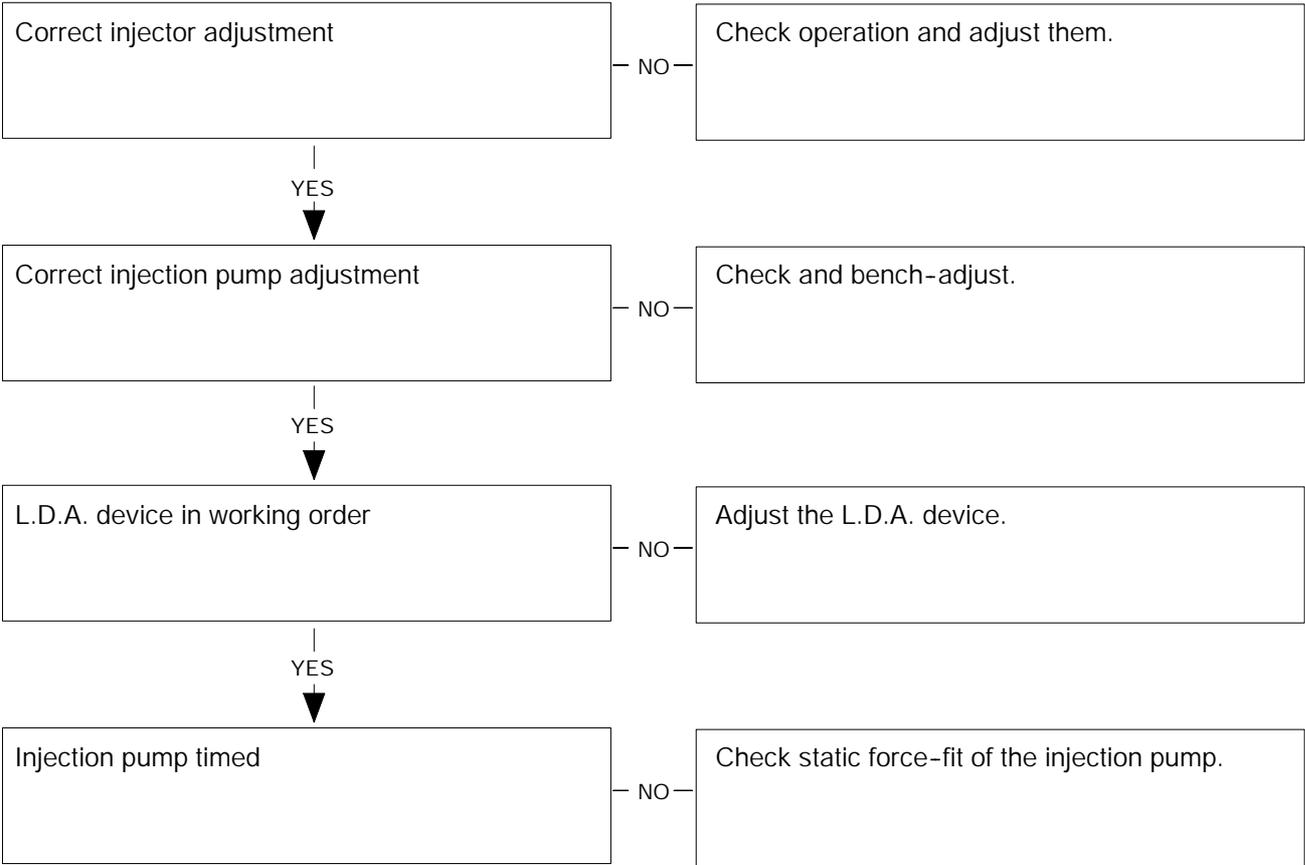


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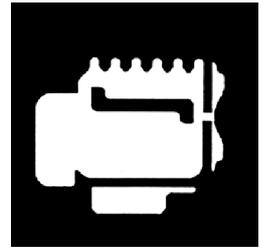
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DIAGNOSTICS



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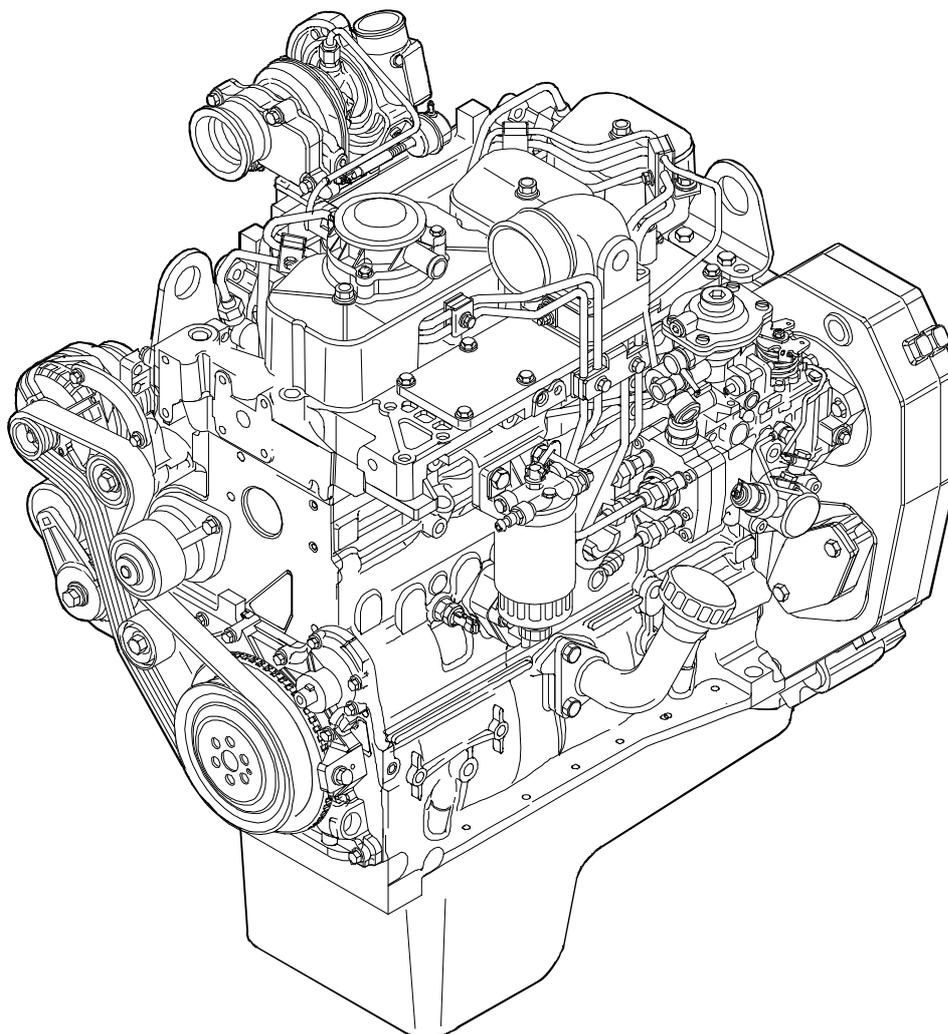
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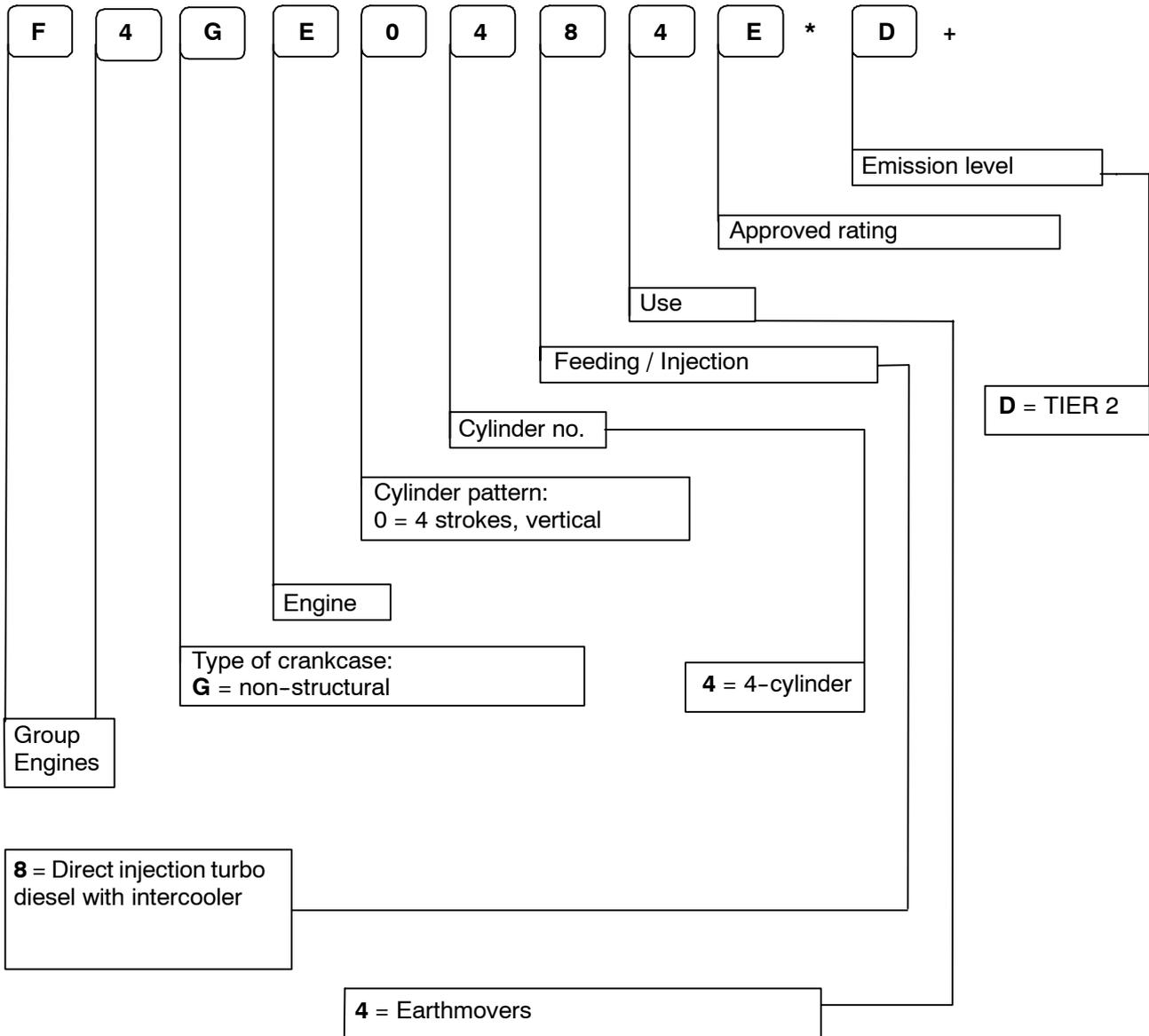
ENGINE F4GE0484E OVERHAUL

ENGINE F4GE0484E

Figure 1



CODING OF SOURCE ENGINES



X **Y** **Y**

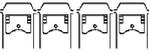
X = 6 rotary, 2-valve injection pump
Y = Engine model

Y **Y** **Y** **Y** **Y** **Y**

Manufacturing sequence number

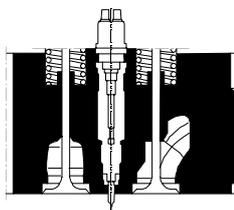
ENGINE F4GE0484E OVERHAUL

MAIN ENGINE FEATURES

A →	521D
B →	F4GE0484E
C →	*D601
D →	
E →	4485 cm ³
F →	89 kW 2,000 rpm

G →

Direct injection



H →

Rotary injection pump

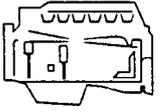
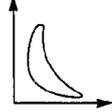
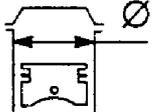
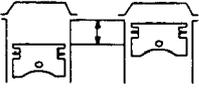
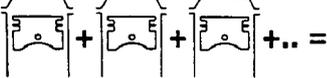
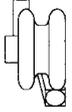
I →

T.A.A.
(Boosted by intercooler)

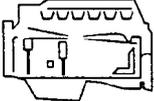
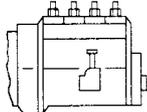
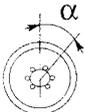
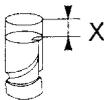
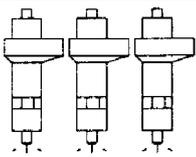
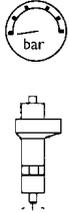
- A** Wheeled loaders
- B** Type of engine
- C** Engine model
- D** Number of cylinders
- E** Total displacement
- F** Max. power currently available
- G** Type of injection
- H** Injection system
- I** Air supply system

ENGINE F4GE0484E OVERHAUL

GENERAL ENGINE FEATURES

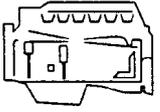
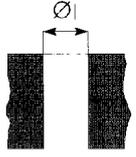
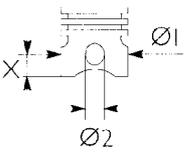
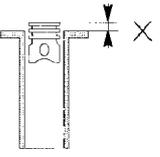
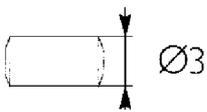
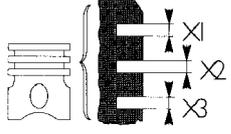
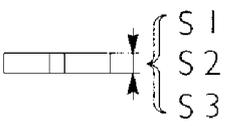
	Type	F4GE0484	
		*D601	
	Cycle	4-stroke diesel engine	
	Feeding	Boosted by intercooler	
	Injection	Direct	
	Number of cylinders	In-line, 4-cylinder	
	Bore	mm	104
	Stroke	mm	132
	Total displacement	cm ³	4485
	Compression ratio	17.5 : 1	
	Max. rating	kW min ⁻¹	89 2000
	Max. torque	Nm min ⁻¹	480 1400
	No-load idle rpm	min ⁻¹	800
	No-load peak rpm	min ⁻¹	-
	BOOSTING Type of turbocompressor:	With intercooler HOLSET HX25W	
	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

ENGINE F4GE0484E OVERHAUL

	Type	F4GE0484E		
			*D601	
COOLING		By fluid		
Water pump drive:		By means of belt		
Thermostat: Start of opening: °C		81 ± 2		
REFUELLING				
	Ambra Super Gold 15W40 10W30	Full filling capacity 1° litres	-	
	- engine sump		kg	
	- engine sump + filter		litres	-
			kg	-
	FEEDING Bosch-type injection	VE4 / 12 F 1000 L 691		
	Pump setting	0° ± 0°.5		
	Start of delivery	mm	1	
	Type of nozzle	DSL A 145 P1174		
	Injection sequence	1 - 3 - 4 - 2		
	Injection pressure (bar)	245 bar		

ENGINE F4GE0484E OVERHAUL

ASSEMBLING PLAY - SPECIFICATIONS

	Tipo		F4GE0484E
			*D601
CRANK GEAR COMPONENTS AND CYLINDER ASSEMBLY			mm
	Cylinder liners	 Ø1	104
	Pistons: supplied with standard spares Measurement dimension X Outer diameter Ø1 Pin seat Ø2	X Ø1 Ø2	61 103.73 ÷ 103.748 38.016 ÷ 38.010
	Piston - cylinder liners		-
	Piston diameter	Ø1	0,5
	Position of pistons from crankcase X		0.28 ÷ 0.52
	Gudgeon pin	Ø3	37.994 ÷ 38.000
	Gudgeon pin - Pin seat		0.01 ÷ 0.022
	Type of piston X1* Piston ring slots X2 X3 * measured on Ø of 99 mm	X1* X2 X3	2.705 ÷ 2.735 2.35 ÷ 2.38 4.03 ÷ 4.05
	Piston rings S1 S2 S3 * measured on Ø of 99 mm	S1* S2 S3	2.560 ÷ 2.605 2.350 ÷ 2.380 3.977 ÷ 3.990
	Piston rings - Slots	1 2 3	0.100 ÷ 0.175 0.06 ÷ 0.11 0.040 ÷ 0.083
	Piston rings		0.5