PRINCIPAL ENGINE SPECIFICATIONS

Engine Model	6SY-STP2 / 6SY655	8SY-STP
Number of Cylinders	In-line 6	8 (V8, 90°)
Type	Water-cooled, turbocharged	
Combustion System	Direct injection	
Aspiration	Turbocharged with intercooler	
Bore x Stroke	127 mm x 154 mm (5.0 in. x 6.063 in.)	
Displacement	11.7 L (714 cu in.)	15.6 L (952 cu in.)
Firing Order	1-5-3-6-2-4	1-5-4-2-6-3-7-8
Compression Ratio	16:1	

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SPECIAL TORQUE CHART

Component	Torque	Lubricating Oil Application (Thread Portion and Seat Surface)	Reference Page
Rocker Arm Adjusting Screw Lock Nut	39 N·m (29 ft-lb)	-	*See Adjust Valve and Unit Injector Clearances on page 5-18*
Rocker Arm Shaft Support Bracket Bolt	105 N·m (77 ft-lb)	Not Applied	*See Install the Cylinder*

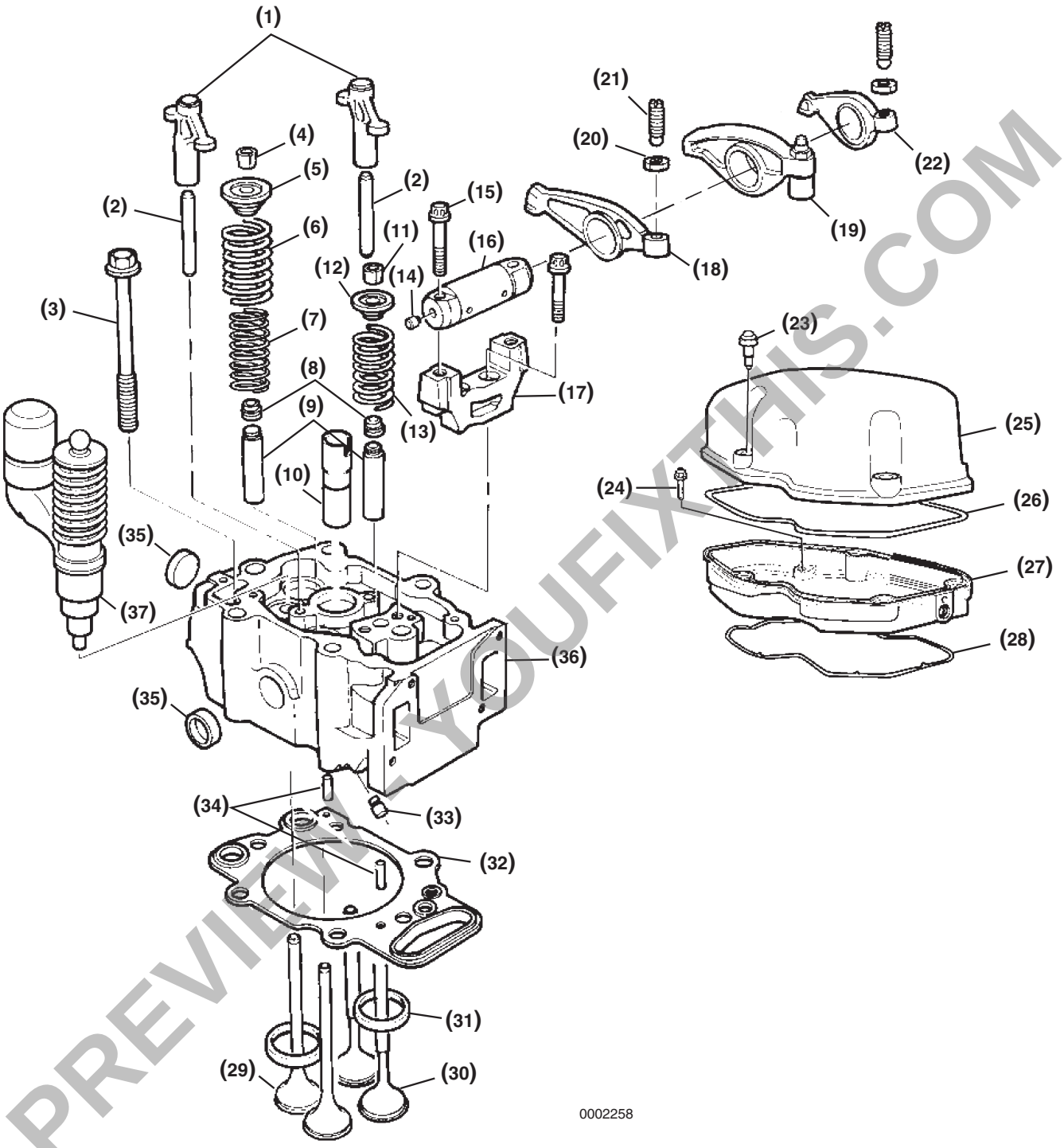
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CYLINDER HEAD

Cylinder Head Components



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PERIODIC MAINTENANCE SCHEDULE

Daily and periodic maintenance is important to keep the engine in good operating condition. The following is a summary of maintenance items by periodic maintenance intervals. Periodic maintenance intervals vary depending on engine application, loads, diesel fuel and engine oil used and are hard to establish definitively. The following should be treated only as a general guideline.

○: Check or Clean ◇: Replace

System	Item	Periodic Maintenance Interval					
		Daily	Every 50 hours or one month whichever	Every 250 hours or one year whichever	Every 500 hours or 2 years whichever	Every 1000 hours or 4 years whichever	Every 2000 hours or 8 years whichever

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INTRODUCTION

This section contains information and diagnostic troubleshooting charts to accurately diagnose and engine, starter, or alternator problem.

TROUBLESHOOTING CHART

White Smoke

Effect	Cause	Troubleshooting	Action
Incompletely burned fuel	Cold engine	The white smoke starts to turn blue and disappears when the	If possible: reduce engine speed or put the engine under

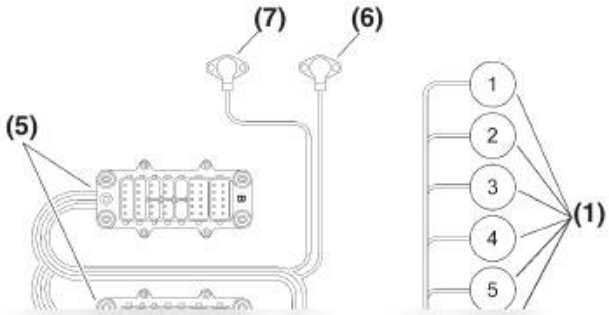
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Installing EMS S6 Wiring

Wiring and Cable Duct - 6SY



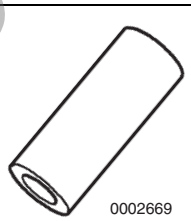
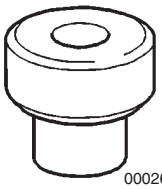
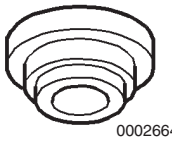
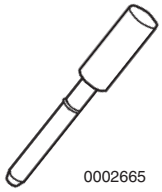
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SPECIAL SERVICE TOOLS

Note: The tool numbers used in this section are either Yanmar or Scania part numbers. Yanmar part numbers are referred to as **Yanmar Part No.** Scania part numbers are referred to as **OEM Part No.** Tools not having part numbers must be obtained locally.

No.	Tool Name	Applicable Model and Tool Size	Illustration
1	Valve Guide Tool (For Removing Valve Guides)	OEM Part No. 99 383	 0002668
2	Valve Guide Tool (For Installing Valve Guides)	OEM Part No. 99 382	 0002669
3	Guide (For Removal and Installation of Injector Sleeves. Use with 588 221 Pilot Tap)	OEM Part No. 99 394	 0002670
4	Drift (For Installing Valve Seats)	OEM Part No. 99 384	 0002664
5	Driver (For Use with 99 384 Drift)	OEM Part No. 99 385	 0002665
6	Pilot Tap (For Removing Injector Sleeves)	OEM Part No. 588 221	 0002667

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3. Carefully turn the adjusting screw **(Figure 5-5, (3))** while simultaneously using a finger to sense the position of the small piston **(Figure 5-5, (2))**. Adjustment is correct when the piston is flush with the flat upper surface **(Figure 5-5, (1))** of the tool.
4. Tighten the adjusting screw locknut to 39 N·m (29 ft-lb).

REPAIR

If the engine is to be completely disassembled, perform the following preliminary steps:

1. Disconnect battery cables at the battery. Always disconnect negative (-) battery cable first.
2. Close all valves in the fuel supply system.
3. Remove throttle cable, electrical connections, intake and exhaust system connections, and fuel supply lines from engine. Cap or plug all open fuel connections.
4. Drain engine coolant from cylinder block.
5. Remove engine from boat. *See Lifting the Engine on page 5-92*. Mount engine to a suitable engine repair stand having adequate weight capacity. **DANGER! *NEVER stand under a hoisted engine. If the hoist mechanism fails, the engine will fall on you, causing death or serious injury.***
6. Cap or plug all openings to prevent contamination.
7. Remove starter motor and alternator.
8. Clean engine by washing with solvent, air or steam cleaning. Carefully operate cleaning equipment so as to prevent any foreign matter or fluids from entering engine or any fuel system or electrical components remaining on the engine.
9. Remove cooling system components from engine.
10. Drain engine oil into a suitable container. Remove oil filter.

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TABLE OF CONTENTS

Page

Table of Contents 2-i
Introduction 1-1
Safety 2-1
General Service Information 3-1
Periodic Maintenance 4-1
Engine 5-1
Fuel System 6-1
Cooling System 7-1
Lubrication 8-1
Turbocharger 9-1
Starter Motor 10-1
Alternator 11-1
EMS 12-1
Troubleshooting 13-1

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Section 2

SAFETY

Yanmar is concerned for your safety and the condition of your marine engine. Safety statements are one of the primary ways to call your attention to the potential hazards associated with Yanmar marine engines. Follow the precautions listed throughout the manual before operation, during operation and during periodic maintenance procedures for your safety, the safety of others and to protect the performance of your marine engine. Keep the decals from becoming dirty or torn and replace them if they are lost or damaged. Also, if you need to replace a part that has a decal attached to it, make sure you order the new part and decal at the same time.



This safety alert symbol appears with most safety statements. It means attention, become alert, your safety is involved! Please read and abide by the message that follows the safety alert symbol.

⚠ DANGER

Indicates a hazardous situation which, if not avoided, *will* result in death or serious injury.

⚠ WARNING

Indicates a hazardous situation which, if not avoided, *could* result in death or serious injury.

⚠ CAUTION

Indicates a hazardous situation which, if not avoided, *could* result in minor or moderate injury.

NOTICE

Indicates a situation which can cause damage to the machine, personal property and / or the environment or cause the equipment to operate improperly.

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SAFETY PRECAUTIONS

⚠ WARNING

Fire Hazard



Diesel fuel is flammable and explosive under certain conditions. NEVER put diesel fuel or other flammable material such as oil, hay or dried grass near the engine during engine operation or shortly after shutdown.

Never use a shop rag to catch the fuel.

ALWAYS put an approved fuel container under the opening whenever you remove any fuel system component (such as changing the fuel filter). Dispose of waste properly.

Wipe up all spills immediately.

High-Pressure Hazard



Avoid injury from escaping fuel under pressure. NEVER check for a fuel leak with your hands. ALWAYS use a piece of wood or cardboard.

INTRODUCTION

This section of the *Service Manual* describes the procedures necessary to remove, install, and adjust the PDE31 and PDE32 unit injectors and their associated system components as used on the Yanmar 6SY and 8SY engines.

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