# SPECIFICATIONS

| Engine model | S4D95LE-3 |
|---|---|
| | FD40ZY-10, FD35Y-10, FD40Y-10 |

PREVIEW - YOUFIXTHIS.COM

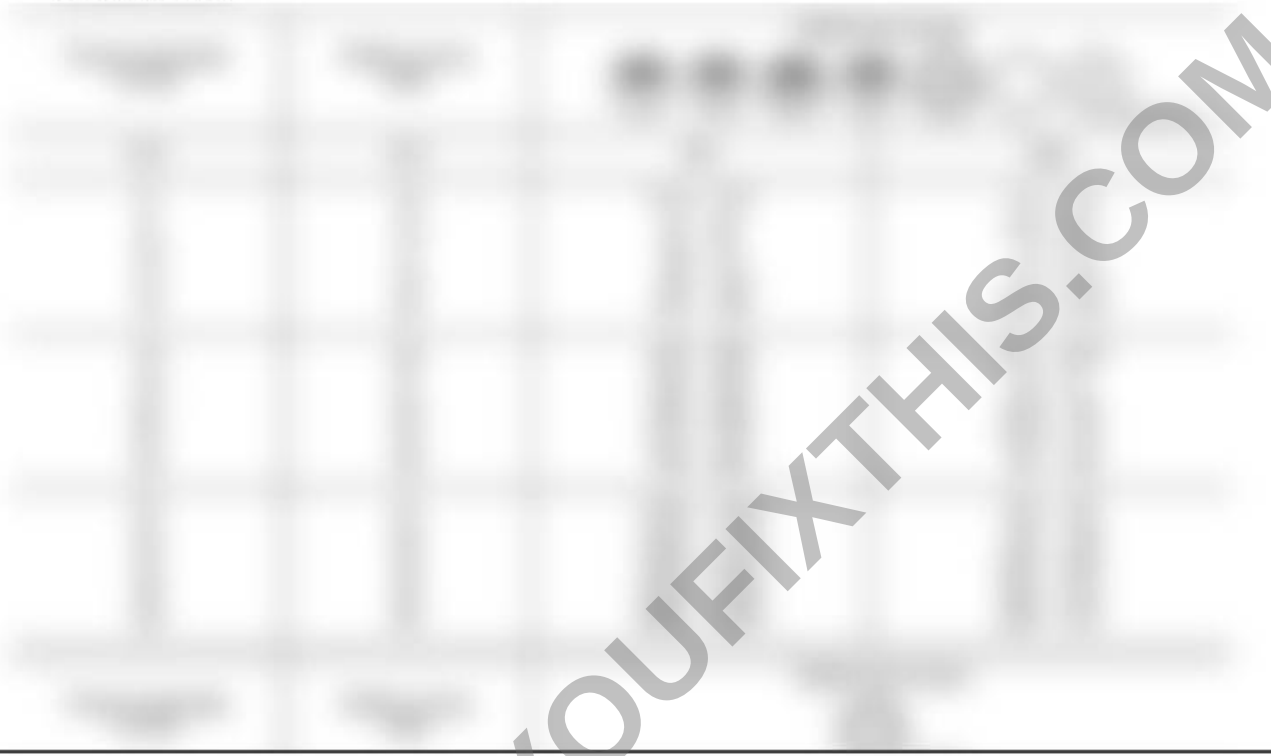
Blurred on purpose. The manual you buy has this page in full quality.

Download full manual at youfixthis.com

# STANDARD TIGHTENING TORQUE

## STANDARD TIGHTENING TORQUE TABLE (WHEN USING TORQUE WRENCH)

In the case of metric nuts and bolts for which there is no special instruction, tighten to the torque given in the table below.



Blurred on purpose. The manual you buy has this page in full quality.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

# DISASSEMBLY

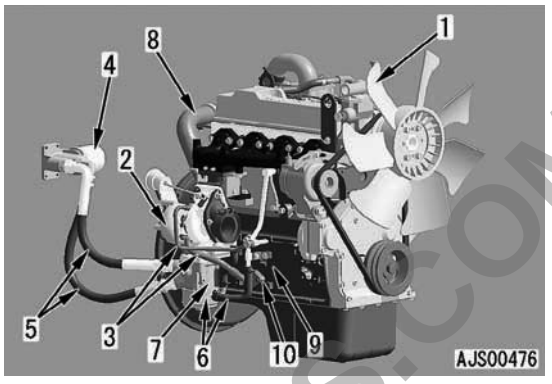
## Preparatory work

★ Remove all dirt and mud from around the engine.
★ Drain the oil from the engine.

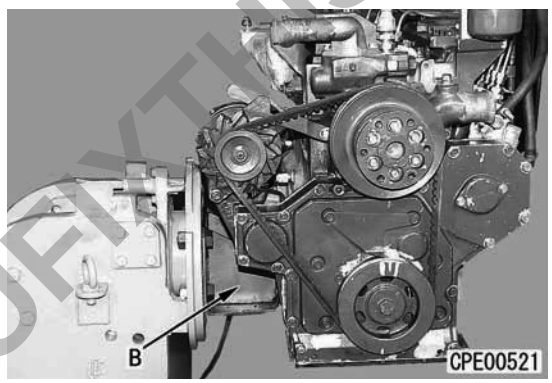
Engine oil : **Approx. 11 ℓ**

⚠ Set engine repair stand **A** on horizontal ground to prevent the engine from falling over.

- Remove fan (1), turbocharger (2), turbocharger oil inlet, outlet tubes (3), oil filter (4), oil hoses (5), oil cooler, water pipings (6), oil cooler adapter (7) and boost tube (8).

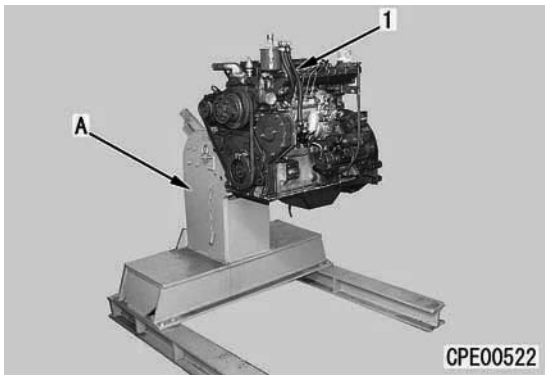



- Install bracket **B** to the position of block (9) and cover (10).



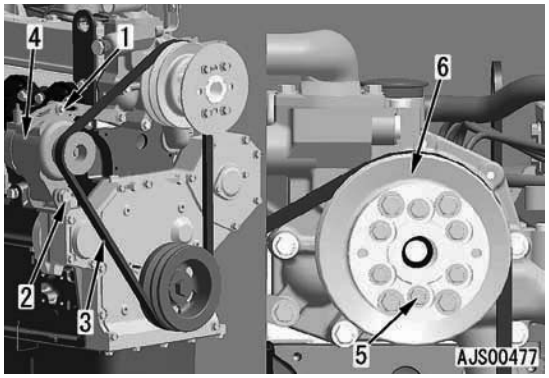

- Install engine assembly (1) to engine repair stand **A**.

Engine assembly : **300 kg**
(The weight differs according to the machine model.)




**1. Alternator, fan pulley**

1) Loosen adjustment bolt (1) and mount bolt (2), then move alternator (4) towards engine block and remove fan belt (3).
2) Remove adjustment bolt, and mount bolts (1) and (2), then remove alternator assembly (4).
3) Remove mounting bolts (5), then remove fan pulley (6).




PREVIEW - YOUFIXTHIS.COM



Download full manual at youfixthis.com

## S-1 Starting performance is poor (starting always takes time)

★ Check that the monitor panel does not display any abnormality in the governor control system.
General causes why exhaust smoke comes out but engine takes time to start
- Defective electrical system
- Insufficient supply of fuel
- Insufficient intake of air
- Improper selection of fuel (At ambient temperature of 10ºC or below, use ASTM D975 No. 1)

★ Battery charging rate

| Charging rate / Ambient temperature | 100% | 90% | 80% | 75% | 70% |
|---|---|---|---|---|---|
| 20ºC | 1.28 | 1.26 | 1.24 | 1.23 | 1.22 |
| 0ºC | 1.29 | 1.27 | 1.25 | 1.24 | 1.23 |
| –10ºC | 1.30 | 1.28 | 1.26 | 1.25 | 1.24 |

- The specific gravity should exceed the value for the charging rate of 70% in the above table.
- In cold areas the specific gravity must exceed the value for the charging rate of 75% in the above table.

Legend
○ : Possible causes (judging from Questions and check items)
◎ : Most probable causes (judging from Questions and Check items)
△ : Possible causes due to length of use (used for a long period)
● : Items to confirm the cause

| | | Causes: Worn piston ring, cylinder | Defective contact of valve, valve seat | Clogged air cleaner element | Clogged fuel filter, strainer | Clogged feed pump strainer | Electrical intake air heater | Glow plug | Auxiliary starting system: Defective regulator | Defective alternator | Defective or deteriorated battery | Defective fuel injection nozzle | Leakage, clogging, air in fuel piping | Defective fuel injection timing | Clogged fuel injection pump (rack, plunger stuck) | Clogged air breather hole in fuel tank cap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Questions | Confirm recent repair history | | | | | | | | | | | | | | | |
| | Degree of use of machine: Operated for long period | | | △ | △ | △ | | | | △ | | | | | | |
| | Ease of starting: Gradually became worse | ◎ | ◎ | ○ | ○ | ○ | | | | | | | | | | |
| | Ease of starting: Starts when warm | | | | | | ◎ | ◎ | | ◎ | | | | | | |
| | Indicator lamp does not light up | | | | | ◎ | ◎ | | | | | | | | | |
| | Engine oil must be added more frequently | ◎ | | | | | | | | | | | | | | |
| | Replacement of filters has not been carried out according to Operation Manual | | | ◎ | ◎ | ◎ | | | | | ○ | | ○ | | | |
| | Non-specified fuel is being used | | | | ○ | ○ | | | | | ○ | | ○ | | | |
| Check items | Dust indicator is red | | | ◎ | | | | | | | | | | | | |
| | Battery charge lamp is ON | | | | | | | | ◎ | ◎ | | | | | | |
| | Starting motor cranks engine slowly | | | | | | | | | ◎ | | | | | | |
| | When exhaust manifold is touched immediately after starting engine, temperature of some cylinders is low | | | | | | | | | | ◎ | | | | | |
| | Engine does not pick up smoothly, and combustion is irregular | ○ | ○ | | | | | | | | ◎ | | | | | |
| | Blow-by gas is excessive | ◎ | | | | | | | | | | | | | | |
| | Match marks on fuel injection pump are out of alignment | | | | | | | | | | | ◎ | | | | |
| | Mud is stuck to fuel tank cap | | | | | | | | | | | | | | | ○ |
| | When engine is cranked with starting motor, 1) Little fuel comes out even when fuel injection pipe sleeve nut is loosened | | | | | | | | | | | ◎ | | | | |
| | When engine is cranked with starting motor, 2) Little fuel comes out even when fuel filter air bleed plug is loosened | | | | ◎ | ◎ | | | | | | ◎ | | | | |
| | Leakage from fuel piping | | | | | | | | | | | ○ | ◎ | | | |
| | There is hunting from engine (rotation is irregular) | | | | ○ | ○ | | | | | | | | ◎ | ○ | |
| Troubleshooting | When compression pressure is measured, it is found to be low | ● | ● | | | | | | | | | | | | | |
| | When air cleaner element is inspected directly, it is found to be clogged | | | ● | | | | | | | | | | | | |
| | When fuel filter, strainer are inspected directly, they are found to be clogged | | | | ● | | | | | | | | | | ● | |
| | When feed pump strainer is inspected directly, it is found to be clogged | | | | | ● | | | | | | | | | | |
| | Glow plug mount does not become warm | | | | | | ● | ● | | | | | | | | |
| | Is voltage 26 – 30V between alternator terminal B and terminal E with engine at low idling? Yes | | | | | | | | ● | | | | | | | |
| | Is voltage 26 – 30V between alternator terminal B and terminal E with engine at low idling? No | | | | | | | | | ● | | | | | | |
| | Either specific gravity of electrolyte or voltage of battery is low | | | | | | | | | | ● | | | | | |
| | Speed does not change when operation of certain cylinders is stopped | | | | | | | | | | | ● | | | | |
| | When check is made using delivery method, injection timing is found to be incorrect | | | | | | | | | | | | ● | | | |
| | When control rack is pushed, it is found to be heavy or does not return (when blind cover at rear of pump is removed, it can be seen that plunger control sleeve does not move) | | | | | | | | | | | | | | ● | |
| | When fuel tank cap is inspected directly, it is found to be clogged | | | | | | | | | | | | | | | ● |
| | Remedy | Replace | Correct | Clean | Clean | Clean | Replace | Replace | Replace | Replace | Replace | Adjust | Replace | Correct | Clean | |

PREVIEW ONLY YOUFIXTHIS.COM



Download full manual at youfixthis.com

# ELECTRICAL SYSTEM

## STARTING AND CHARGING SYSTEM ELECTRICAL CIRCUIT DIAGRAM



Blurred on purpose. The manual you buy has this page in full quality.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

# SAFETY
## SAFETY NOTICE

### IMPORTANT SAFETY NOTICE

Proper service and repair is extremely important for safe machine operation. The service and repair techniques recommended by Komatsu and described in this manual are both effective and safe. Some of these techniques require the use of tools specially designed by Komatsu for the specific purpose.

To prevent injury to workers, the symbol ⚠ is used to mark safety precautions in this manual. The cautions accompanying these symbols should always be followed carefully. If any dangerous situation arises or may possibly arise, first consider safety, and take the necessary actions to deal with the situation.

#### GENERAL PRECAUTIONS

Mistakes in operation are extremely dangerous. Read the Operation and Maintenance Manual carefully BEFORE operating the machine.

1. Before carrying out any greasing or repairs, read all the precautions given on the decals which are fixed to the machine.
2. When carrying out any operation, always wear safety shoes and helmet. Do not wear loose work clothes, or clothes with buttons missing.
   - Always wear safety glasses when hitting parts with a hammer.
   - Always wear safety glasses when grinding parts with a grinder, etc.
3. If welding repairs are needed, always have a trained, experienced welder carry out the work. When carrying out welding work, always wear welding gloves, apron, hand shield, cap and other clothes suited for welding work.
4. When carrying out any operation with two or more workers, always agree on the operating procedure before starting. Always inform your fellow workers before starting any step of the operation. Before starting work, hang UNDER REPAIR signs on the controls in the operator's compartment.
5. Keep all tools in good condition and learn the correct way to use them.
6. Decide a place in the repair workshop to keep tools and removed parts. Always keep the tools and parts in their correct places. Always keep the work area clean and make sure that there is no dirt or oil on the floor. Smoke only in the areas provided for smoking. Never smoke while working.

#### PREPARATIONS FOR WORK

7. Before adding oil or making any repairs, park the machine on hard, level ground, and block the wheels or tracks to prevent the machine from moving.
8. Before starting work, lower blade, ripper, bucket or any other work equipment to the ground. If this is not possible, insert the safety pin or use blocks to prevent the work equipment from falling. In addition, be sure to lock all the control levers and hang warning signs on them.
9. When disassembling or assembling, support the machine with blocks, jacks or stands before starting work.
10. Remove all mud and oil from the steps or other places used to get on and off the machine. Always use the handrails, ladders or steps when getting on or off the machine. Never jump on or off the machine. If it is impossible to use the handrails, ladders or steps, use a stand to provide safe footing.



PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

# FOREWORD
## GENERAL

This shop manual has been prepared as an aid to improve the quality of repairs by giving the serviceman an accurate understanding of the product and by showing him the correct way to perform repairs and make judgements. Make sure you understand the contents of this manual and use it to full effect at every opportunity.

This shop manual mainly contains the necessary technical information for operations performed in a service workshop. For ease of understanding, the manual is divided into the following chapters; these chapters are further divided into the each main group of components.

**STRUCTURE, FUNCTION AND MAINTENANCE STANDARD**

This section explains the structure and function of each component. It serves not only to give an understanding of the structure, but also serves as reference material for troubleshooting.
In addition, this section may contain hydraulic circuit diagrams, electric circuit diagrams, and maintenance standards.

**TESTING AND ADJUSTING**

This section explains checks to be made before and after performing repairs, as well as adjustments to be made at completion of the checks and repairs.
Troubleshooting charts correlating "Problems" with "Causes" are also included in this section.

**DISASSEMBLY AND ASSEMBLY**

This section explains the procedures for removing, installing, disassembling and assembling each component, as well as precautions for them.

**PERAIR AND REPLACEMENT OF PARTS**

**NOTICE**

The specifications contained in this shop manual are subject to change at any time and without any advance notice. Use the specifications given in the book with the latest date.

PREVIEW - YOUFIXTHIS.COM



Download full manual at youfixthis.com

## S4D95LE-3 [For FD40ZY-10, FD35Y-10, FD40Y-10, FD45Y-10, FD50AY-10]

Rated output: 61.5 kW {82.4 HP}/2,350 rpm (Gross)
Max. torque: 291 Nm {29.7 kgm}/1,600 rpm (Gross)



PREVIEW - YOUFIXTHIS.COM

Blurred on purpose. The manual you buy has this page in full quality.

Download full manual at youfixthis.com



Blurred on purpose. The manual you buy has this page in full quality.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

# 12 TESTING AND ADJUSTING

PREVIEW - YOUFIXTHIS.COM

⚠ When carrying out testing and adjusting, or troubleshooting, stop the machine on level ground, fit lock pins, block the wheels, and apply the parking brake.

⚠ When carrying out operations with two or more workers, always use signals, and do not allow any unauthorized person near the machine.

⚠ When checking the water level, if the radiator cap is removed when the engine is hot, boiling water will spurt out and may cause burns, so always wait for the engine to cool down before checking the water level.

⚠ Be extremely careful not to touch any hot parts.

⚠ Be extremely careful not to get caught in the fan or any other rotating parts.

⚠ When removing the plugs or caps from places under hydraulic pressure, water pressure, or air pressure, release the internal pressure first. Fit the measuring tools securely before carrying out any testing, adjusting, or troubleshooting.

★ When using the standard values table for judgement in testing, adjusting, or troubleshooting, it is necessary to be careful of the following points.

1. The standard values for the new machines in the standard values table are values given as reference from the standards for new machines and machines shipped from the factory. They should be used as values for estimating wear during operation or as target values when carrying out repairs.
2. The failure judgement standard values in the standard values table are values using estimated values based on the results of various tests and standard values for machines shipped from the factory. Use these values for reference together with the repair and operation history of the machine when judging failures.
3. Do not use this standard values table as a standard for judging claims.



Download full manual at youfixthis.com

## S-6 Engine lacks output (no power)

General causes why engine lacks output
- Insufficient intake of air
- Insufficient supply of fuel
- Improper condition of fuel injection
- Improper fuel used
  (if non-specified fuel is used, output drops)
- Lack of output due to overheating
  - ★ If there is overheating and insufficient output, carry out troubleshooting for overheating.

Legend
○ : Possible causes (judging from Questions and check items)
◎ : Most probable causes (judging from Questions and Check items)
△ : Possible causes due to length of use (used for a long period)
● : Items to confirm the cause.

| | | | Causes: Clogged air cleaner element | Seized turbocharger, interference | Worn piston ring, cylinder liner | Clogged fuel filter, strainer | Clogged feed pump strainer | Seized fuel injection nozzle, defective spray | Improper fuel injection pump plunger | Improper valve clearance | Defective contact of valve and valve seat | Bent fuel control linkage, defective adjustment | Clogged, leaking fuel piping | Clogged air breather hole in fuel tank cap |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Questions | Confirm recent repair history | | | | | | | | | | | | | |
| | Degree of use of machine | Operated for long period | △ | | △ | △ | △ | | | △ | | | | |
| | Power was lost | Suddenly | | ◎ | | | | | | | | | | |
| | | Gradually | ○ | | ○ | ○ | ○ | ○ | | | ○ | | | |
| | Engine oil must be added more frequently | | | | ◎ | | | | | | | | | |
| | Replacement of filters has not been carried out according to Operation Manual | | ◎ | | | ◎ | ◎ | | | | | | | |
| | Non-specified fuel is being used | | | | | ◎ | ◎ | ◎ | ◎ | | | | | |
| Check items | Dust indicator is red | | ◎ | | | | | | | | | | | |
| | Color of exhaust gas | Black | ◎ | ◎ | | | | | | | | | | |
| | | Blue under light load | | | ◎ | | | | | | | | | |
| | Noise of interference is heard from around turbocharger | | | ◎ | | | | | | | | | | |
| | Blow-by gas is excessive | | | | ◎ | | | | | | | | | |
| | Engine pickup is poor and combustion is irregular | | | ◎ | | | | ○ | | | | | ○ | ○ |
| | High idling speed is normal, but speed suddenly drops when load is applied | | | | | ◎ | ◎ | | | | | | | ○ |
| | When exhaust manifold is touched immediately after starting engine, temperature of some cylinders is low | | | | | | | ◎ | ○ | | | | | |
| | There is hunting from engine (rotation is irregular) | | | | | ○ | ○ | | | | | | ○ | ○ |
| | Clanging sound is heard from around cylinder head | | | | | | | | | ◎ | | | | |
| | High idling speed of engine is low | | | | | | | ○ | | | ◎ | | | |
| | Leakage from fuel piping | | | | | | | | | | | ◎ | | |
| Troubleshooting | When air cleaner element is inspected directly, it is found to be clogged | | ● | | | | | | | | | | | |
| | When turbocharger is rotated by hand, it is found to be heavy | | | ● | | | | | | | | | | |
| | When compression pressure is measured, it is found to be low | | | | ● | | | | | | ● | | | |
| | When fuel filter, strainer are inspected directly, they are found to be clogged | | | | | ● | | | | | | | | |
| | When feed pump strainer is inspected directly, it is found to be clogged | | | | | | ● | | | | | | | |
| | Speed does not change when operation of certain cylinders is stopped | | | | | | | ● | | | | | | |
| | When control rack is pushed, it is found to be heavy, or does not return | | | | | | | | ● | | | | | |
| | When valve clearance is checked directly, it is found to be outside standard value | | | | | | | | | ● | | | | |
| | When lever is placed at FULL position, it does not contact stopper | | | | | | | | | | ● | | | |
| | When feed pump is operated, operation is too light or too heavy | | | | | | | | | | | ● | | |
| | When fuel tank cap is inspected directly, it is found to be clogged | | | | | | | | | | | | | ● |
| | | Remedy | Clean | Replace | Replace | Clean | Clean | Correct | Replace | Adjust | Replace | Adjust | Correct | Clean |

PREVIEW - YOUFIXTHIS.COM



Download full manual at youfixthis.com

**26. Cylinder block assembly**

Sling cylinder block assembly (1), disconnect from repair stand **A** and lift off.

Cylinder block assembly : **70 kg**




PREVIEW - YOUFIXTHIS.COM



Download full manual at youfixthis.com

# PREVIEW ONLY

You're viewing 12 of 166 pages

## The full manual includes:

- All 166 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

**Komatsu S4D95LE-3, CX50, FD40ZY, FD35Y, FD40Y, FD45Y Service Manual**

**Scan or click anywhere**
**youfixthis.com**

*Click anywhere on this page to get the full manual*