KM-925E-04

Engine Manual

S16R

HITACHI

MidWestTech | Hitachi S16R Engine Service Manual | Publication KM-925E-04 Order the manual at mid-west-tech.com >

GENERAL

1. Outline 1-2
1.1 External View 1-2
1.2 Outline of Fuel System 1-3
1.3 Outline of Lubrication System 1-3
1.4 Outline of Cooling System 1-4
1.5 Outline of Inlet and Exhaust System 1-4
1.6 Outline of Electrical System 1-5
1.7 Engine Serial Number Location 1-6
1.8 Engine Model Code Identification 1-6

2. Main specification 1-7

3. Tips on Disassembly and Reassembly 1-10
3.1 Disassembly 1-10
3.2 Reassembly 1-10

MidWestTech | Hitachi S16R Engine Service Manual | Publication KM-925E-04 Order the manual at mid-west-tech.com >

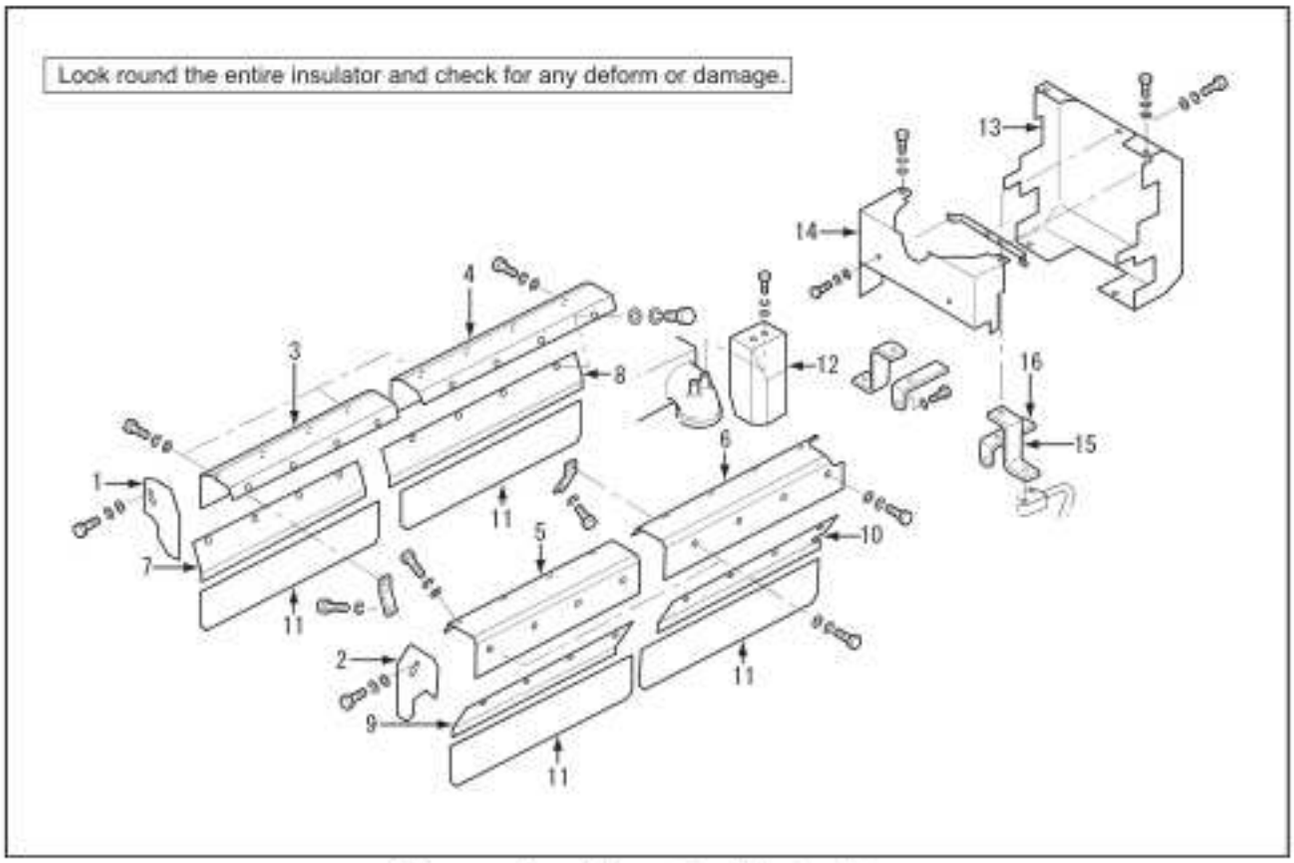
Table 1-1 Main specification(3 / 3)

Engine type				S16R-Y1TAA1,S16R-Y1TAA2
Fuel system	Injection pump	Type		PS8
		Manufacturer		Mitsubishi Heavy Industries
		Plunger diameter		17 mm [0.67 in.]
		Plunger lead		Left-hand coil, both-sided 35 mm [1.38 in.] lead
		Cam lift		15 mm [0.59 in.]
	Feed pump	Type		Bosch KD22Z
		Manufacturer		Bosch Automotive Systems Corporation
		Cam lift		12 mm [0.47 in.]
	Governor	Speed control system		Woodward PROACT-1
	Injection nozzle	Type		Hole type
		Manufacturer		Bosch Automotive Systems Corporation
		No. of spray holes		10
		Spray hole diameter - spray angle		ø 0.295 mm [0.01162 in.] - 158°
		Valve opening pressure	T type	34.3 to 34.8 MPa (350 to 355 kgf/cm^2) [4979 to 5050 psi]
			S type	30.4 to 30.9 MPa (310 to 315 kgf/cm^2) [4410 to 4481 psi]
	Filter	Type		Paper-element type (spin on)
Electrical system	Voltage - polarity			24 V - ground
	Starter	Manufacturer		Nikko Electric Industry
		Pinion mesh type		Pinion shift (Reduction type)
		Output		24 V-11 kW
		No. of starters		3
		No. of pinion tooth/ring gear tooth		15/193
	Alternator	Type		3-phase alternating generator, Internal IC regulator
		Manufacturer		Mitsubishi Electric
		Output		24 V-150 A
		Rated output generated speed		5000 min^{-1} (at 27 V, 143 A)
		Regulated voltage		28.5±0.5 V
	Alternator drive belt	Model		Ribbed V-belt (8PK875) RG1482
		Outside circumference		955 mm [37.60 in.]

MidWestTech | Hitachi S16R Engine Service Manual | Publication KM-925E-04 Order the manual at mid-west-tech.com >

2. Insulator

2.1 Disassembly and Inspection of Insulator



Disassembly and inspection of the insulator

Disassembly sequence

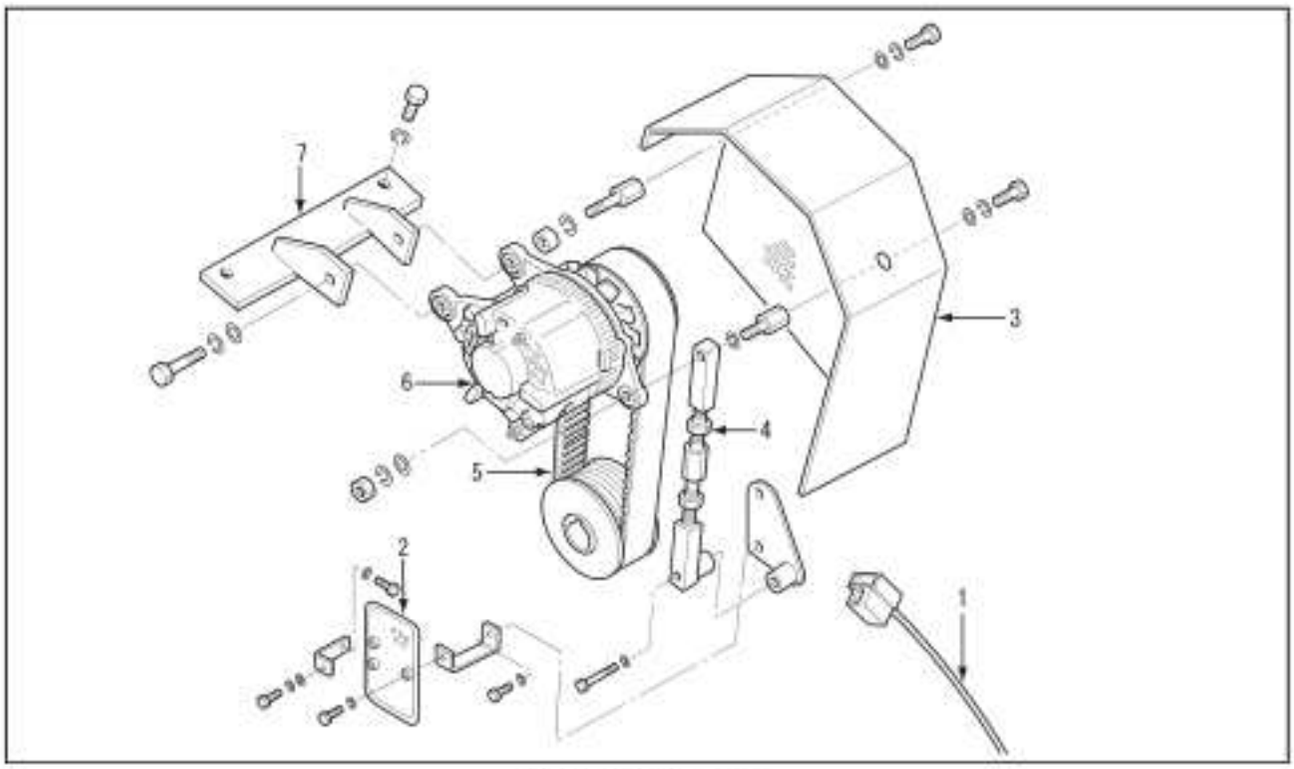
1 Front insulator (right side)
2 Front insulator (left side)
3 Front insulator (right side)
4 Rear insulator (right side)
5 Front insulator (left side)
6 Rear insulator (left side)
7 Front insulator (right side)
8 Rear insulator (right side)
9 Front insulator (left side)
10 Rear insulator (left side)
11 Long insulator
12 Insulator
13 Turbocharger insulator
14 Turbocharger front insulator
15 Insulator stay
16 Plate

2.2 Reassembly of Insulator

To reassemble, follow the disassembly sequence in reverse.

MidWestTech | Hitachi S16R Engine Service Manual | Publication KM-925E-04 Order the manual at mid-west-tech.com >

1.3 Removal of alternator



Removal of alternator

Removal sequence

1 Harness
2 Belt cover
3 Belt cover
4 Belt adjusting turnbuckle
5 V belt
6 Alternator
7 Alternator bracket

MidWestTech | Hitachi S16R Engine Service Manual | Publication KM-925E-04 Order the manual at mid-west-tech.com >

⚠ Caution About Warning Labels

Always keep warning labels clean and legible

Make sure all warning labels are legible.

If the description and/or illustration on a warning label cannot be seen clearly, clean or replace the label.

To clean warning labels, use a cloth, water and soap. Do not use solvents, gasoline or other chemicals to clean warning labels. Cleaning with chemicals may cause the letters to fade away or the labels to peel off.

If warning labels are damaged or missing, replace with new labels.

If a part of the engine with warning label is replaced with new part, also attach new warning label to the new part.

To obtain replacement warning labels, contact a Mitsubishi dealer.



Warninh labeles

X

Order the manual at mid-west-tech.com >

4.3 Removal of piston

⚠ CAUTION

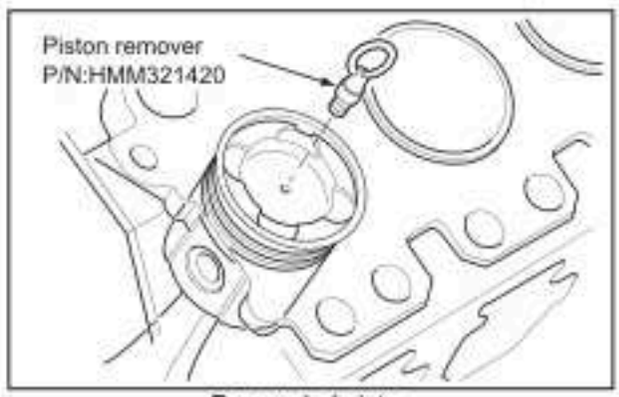
When pulling out the piston and the connecting rod from the cylinder liner, be careful not to damage the cylinder liner by the swing of the connecting rod. In case the connecting rod is held with hands to prevent swings, be careful with the position of hands so that the hands may not be injured by the swing of the connecting rod.

CAUTION

(a) When pulling out the piston, be careful not to drop the connecting rod bearing upper. If the connecting rod upper dropped, it will cause damage to the cylinder liner and the crankshaft.
(b) Be careful not to damage the inner surface of the cylinder with the connecting rod.
(c) When the number of the cylinders in which pistons are inserted decreases, there will be cases where the crankshaft revolves. Fix the crankshaft so that it may not revolve.

(1) Turn the crankshaft to bring the piston to be removed to approximately 50° after top dead center.
(2) Attach the piston remover to the top of the piston.
(3) Slowly lift the piston and connecting rod out of the cylinder liner.

Note: (a) Do not put the pistons, piston pins, connecting rods, and connecting rod caps on the ground directly, but put them on an underlay such as a pallet.
(b) The pistons, piston pins, connecting rods, and connecting rod caps should be stored as a set of each cylinder No. and the cylinder No. for which the parts were used should be marked on them. When they are reused, they should be used for the same cylinder and should not be used for other cylinders.



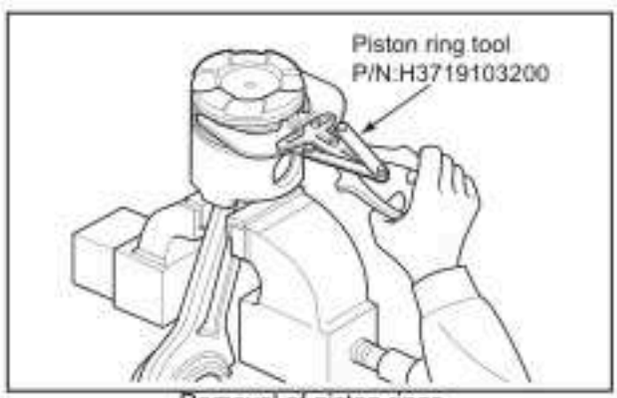
Removal of piston

4.4 Removal of piston rings

⚠ CAUTION

(a) When removing the piston ring, be careful not to get fingers caught in the cylinder because of the swing of the piston
(b) If the piston is forcibly moved and made to interfere with the connecting rod, it may cause damage to the piston. Be careful in moving the piston.

Fix the piston and the connecting rod with a vise, etc. and remove the piston ring using a piston ring tool.



Removal of piston rings

MidWestTech | Hitachi S16R Engine Service Manual | Publication KM-925E-04 Order the manual at mid-west-tech.com >