

ISUZU

2008-2014MY N-SERIES

WORKSHOP MANUAL

ENGINE

(4HG1 model)



This Workshop Manual deals only with the screen toned section(s) in the table below.

Section		Sub Section	
0	GENERAL INFORMATION	0A	General Information
1	ENGINE	1A	Engine Control System
		1B	Engine Mechanical
		1C	Engine Cooling
		1D	Engine Fuel
		1E	Engine Electrical
		1F	Emission Control
		1G	Engine Exhaust
		1H	Engine Lubrication
		1I	Engine Speed Control System
		1J	Induction
		1K	Pre-Heating System
2	SUSPENSION	2B	Front Suspension
		2C	Rear Suspension
		2D	Wheel and Tire System
3	DRIVELINE/AXLE	3A1	Front Differential
		3A2	Rear Differential
		3C1	Propeller Shaft
		3C2	Front Axle
		3C3	Rear Axle
		3D1	Transfer Case (Part Time)
4	BRAKES	4B	Brake
		4C1	Anti-Lock Brake (ABS)/Anti-Slip Regulator (ASR)
		4D	Parking Brake
		4E	Hill Start Aid (HSA)
5	TRANSMISSION/TRANSAXLE	5A	Transmission Control System
		5B	Automatic Transmission
		5C	Manual Transmission
		5E	Clutch
		5G1	Side Power Take-Off
6	STEERING	6B	Power Steering
7	HVAC	7A	Heating and Ventilation
		7B	Manual Air Conditioning
		7C	Automatic Air Conditioning
8	RESTRAINTS	8A	Seat Belt
		8B	Supplemental Restraint System (SRS)
		8C	SRS Control System
9	BODY, CAB AND ACCESSORIES	9A	Lighting System
		9B	Wiper/Washer System
		9C	Entertainment
		9D	Wiring System
		9E	Instrumentation/Driver Info.
		9F	Body Structure
		9G	Cab
		9H	Seats
		9I	Security and Lock
		9K	Exterior/Interior Trim
9L	Cab Mounting		
10	CONTROL SYSTEMS	10B	Vehicle Control
11	FRAME	11A	Frame

ENGINE

Engine Mechanical (4HG1)

TABLE OF CONTENTS

General Description	1B-3	Quick-On-Start II System	1B-44
Cylinder Head	1B-3	Primary Specifications	1B-45
Cylinder Block	1B-4	Special Tools	1B-48
Piston, Connecting Rod and Crankshaft	1B-4	Special Tools	1B-48
Valve Train	1B-5	Engine Assembly	1B-50
Fuel System	1B-6	Component	1B-50
Intake and Exhaust Systems	1B-6	Removal	1B-55
Lubrication System	1B-7	Installation	1B-57
Cooling System	1B-7	Engine Assembly (Bus Model)	1B-65
Important Operations	1B-8	Component	1B-65
Troubleshooting	1B-9	Removal	1B-70
Hard Starting	1B-9	Installation	1B-72
Unstable Idling	1B-15	Engine Mount (RH,LH)	1B-78
Insufficient Power	1B-16	Component	1B-78
Excessive Fuel Consumption	1B-17	Removal	1B-78
Excessive Oil Consumption	1B-17	Installation	1B-78
Overheating	1B-17	List of Tightening Torques	1B-79
White Exhaust Smoke	1B-18	Cylinder Head Cover	1B-80
Dark Exhaust Smoke	1B-18	Component	1B-80
Oil Pressure Does Not Rise	1B-18	Removal	1B-80
Abnormal Engine Noise	1B-19	Installation	1B-80
Engine Cooling Trouble	1B-20	Inlet Cover / Inlet Case	1B-82
Starter Motor Does Not Stop	1B-21	Component	1B-82
Service Standard	1B-22	Removal	1B-82
Engine	1B-22	Installation	1B-86
Cylinder Head	1B-22	Exhaust Manifold (4HG1)	1B-91
Camshaft	1B-22	Component	1B-91
Rocker Arm and Rocker Arm Shaft	1B-23	Removal	1B-91
Valve	1B-23	Installation	1B-92
Cylinder Block	1B-24	List of Tightening Torques	1B-94
Crankshaft	1B-26	Exhaust Manifold (4HG1-T)	1B-95
Piston	1B-27	Component	1B-95
Piston Pin	1B-28	Removal	1B-95
Piston Ring	1B-28	Installation	1B-96
Connecting Rod	1B-28	List of Tightening Torques	1B-100
Flywheel	1B-29	Timing Gear Replacement	1B-101
Gear Train	1B-29	Component	1B-101
Lubrication System	1B-30	Removal	1B-102
Cooling System	1B-30	Inspection	1B-106
Fuel System	1B-31	Installation	1B-107
Engine Electrical	1B-32	List of Tightening Torques	1B-113
Servicing	1B-34	Valve Guide Seal & Valve Spring	1B-114
Model Identification	1B-34	Component	1B-114
Air Cleaner	1B-34	Removal	1B-114
Lubricating System	1B-35	Installation	1B-116
Fuel System	1B-37	Valve Spring, Valve Guide Oil Seal, Valve,	
Engine Control	1B-39	Valve Guide	1B-118
Accelerator Control	1B-40	Component	1B-118
Engine Stop Control	1B-40	Disassembly	1B-118
Valve Clearance Adjustment	1B-41	Inspection and Repair	1B-119
Injection Timing Adjustment	1B-42	Reassembly	1B-124
Compression Pressure Measurement	1B-43	Rocker Arm Shaft Assembly	1B-126

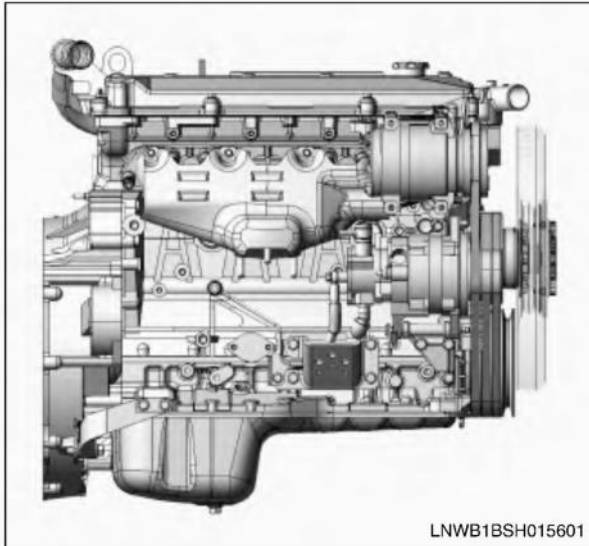
1B-2 Engine Mechanical (4HG1)

Component	1B-126
Removal	1B-126
Disassembly	1B-126
Inspection and Repair.....	1B-127
Reassembly	1B-129
Installation	1B-131
Camshaft Assembly	1B-133
Component	1B-133
Removal	1B-133
Disassembly	1B-134
Inspection and Repair.....	1B-134
Reassembly	1B-136
Installation	1B-136
Cylinder Head (4HG1).....	1B-138
Component	1B-138
Removal	1B-141
Disassembly	1B-144
Inspection and Repair.....	1B-146
Reassembly	1B-147
Installation	1B-148
List of Tightening Torques	1B-157
Cylinder Head (4HG1-T)	1B-158
Component	1B-158
Removal	1B-161
Disassembly	1B-165
Inspection and Repair.....	1B-166
Reassembly	1B-167
Installation	1B-168
List of Tightening Torques	1B-178
Flywheel and Pilot Bearing.....	1B-179
Component	1B-179
Removal	1B-179
Inspection and Repair.....	1B-180
Installation	1B-181
Crankshaft Front Oil Seal	1B-184
Component	1B-184
Removal	1B-184
Installation	1B-186
Crankshaft Rear Oil Seal	1B-190
Component	1B-190
Removal	1B-190
Installation	1B-191
Piston and Connecting Rod	1B-195
Component	1B-195
Disassembly	1B-195
Inspection and Repair.....	1B-197
Reassembly	1B-199
Crankshaft.....	1B-203
Component	1B-203
Removal	1B-204
Disassembly	1B-208
Inspection and Repair.....	1B-208
Reassembly	1B-216
Installation	1B-216
List of Tightening Torques	1B-225
Cylinder Block	1B-226
Component	1B-226
Removal	1B-227
Inspection and Repair.....	1B-234
Installation	1B-238

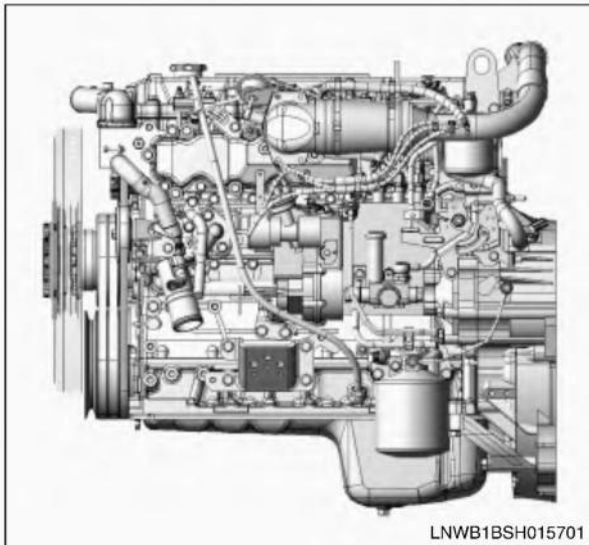
General Description

The engine is a four-cycle, four-cylinder, in-line, direct fuel injection type diesel engine with the piston displacement of 4.570 L (278.9 cu-in). It features a gear driven OHC (overhead camshaft) timing train and the unique mechanisms and systems designed for outstanding cleanness, economy and durability. Its torque characteristics promise dynamic ride at high speed, high power at low speed, and smooth and continuous torque at medium to high ranges.

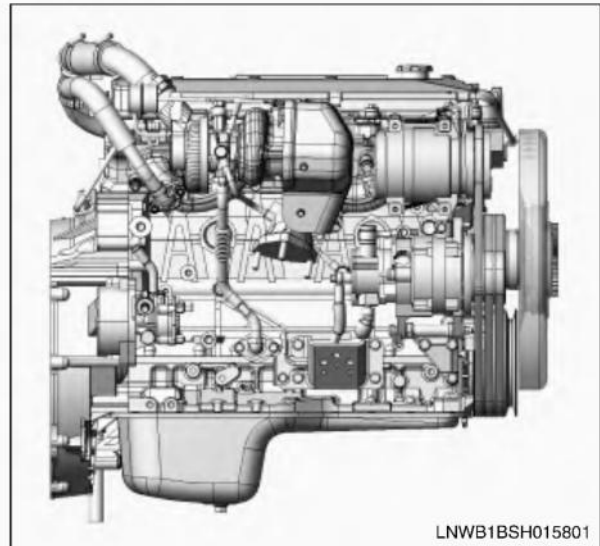
For 4HG1



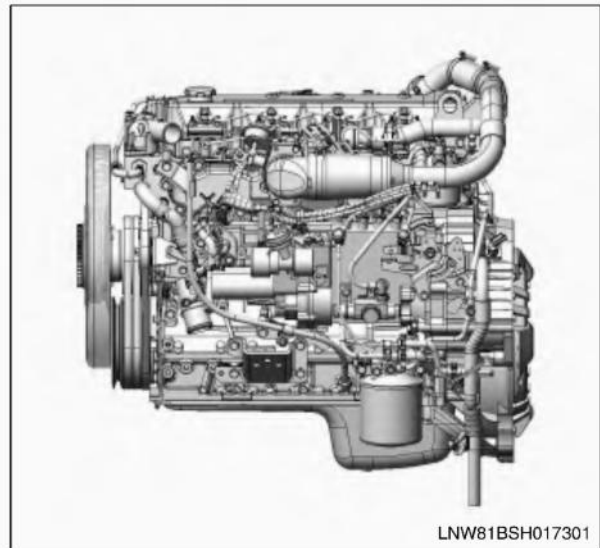
For 4HG1



For 4HG1-T



For 4HG1-T



Cylinder Head

- The cylinder head is made of cast iron and has a crossflow layout with the intake system in the left side and the exhaust system in the right side, designed to reduce resistance in the intake and exhaust systems.
- The valve diameter is increased to offset the mass of the valve operating system reduced by the introduction of the OHC mechanism. In addition, the intake and exhaust ports are put in a smoother and less resistant layout to enhance intake and exhaust efficiency.
- The cylinder head gasket is of the laminated steel of least fatigue in combination with the angular cylinder head bolt tightening method, equally designed to increase reliability against gas and water

It's a preview. You can download the full file by clicking the link below.

<https://shopservicemanual.com/>

Service Manuals from 2\$