SERVICE MANUAL

H30-60H (E003)



FORM 599842 Rev. 12/03

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SERVICE MANUAL CONTENTS

Section	SRM Number	Rev Date
FRAME	0100 SRM 0042	01/97
GM ENGINE	0600 SRM 0003	08/03
PERKINS ENGINE 4.2032	0600 SRM 0169	01/85
COOLING SYSTEM	0700 SRM 0626	11/01
ROCHESTER CARBURETOR	0900 SRM 0011	02/97
LPG FUEL SYSTEM	0900 SRM 0015	09/93
OIL CLUTCH	1200 SRM 0018	02/97
SINGLE-SPEED PS TRANSMISSION-REPAIR	1300 SRM 0043	10/82
OIL CLUTCH TRANSMISSION	1300 SRM 0059	03/97
DRIVE AXLE	1400 SRM 0049	09/03
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PISTONS

Piston diameter (see gauge points in Figure 27)	
Clearance at top of cylinder	
– Production Limit	0.0635 to 0.0838 mm (0.0025 to 0.0033 in.)
Clearance at bottom of cylinder	
– Production Limit	0.043 to 0.104 mm (0.0017 to 0.0041 in.)
Clearance in cylinder (service limit for top and bottom of cylinder)	0.76 mm (0.030 in.)
Piston ring to groove clearance for piston rings (see Figure 28)	
Compression rings No. 1 and No. 2	
– Production Limit	0.0381 to 0.0889 mm (0.0015 to 0.0035 in.)
– Service Limit	0.1143 mm (0.0045 in.)
Oil ring to groove clearance	
– Production Limit	0.127 to 0.1397 mm (0.005 to 0.0055 in.)
– Service Limit	0.1651 mm (0.0065 in.)
Piston ring end clearance (see Figure 29)	
Piston ring No. 1 and No. 2	
– Production Limit	0.254 to 0.559 mm (0.010 to 0.022 in.)
– Service Limit	0.813 mm (0.032 in.)
– Oil control ring	0.381 to 1.397 mm (0.015 to 0.055 in.)
– Service Limit	1.65 mm (0.065 in.)
Piston pin to piston clearance	
– Production Limit	0.0076 to 0.0127 mm (0.0003 to 0.0005 in.)
– Service Limit	0.0254 mm (0.001 in.)
Piston pin to connecting rod clearance	Press fit

CYLINDER BORE

Out-of-round (see Figure 25)	
– Production Limit	0.254 mm (0.001 in.)
– Service Limit	0.0508 mm (0.002 in.)
Taper (see Figure 26)	
– Production Limit	0.0127 mm (0.0005 in.)
– Service Limit	0.127 mm (0.005 in.)

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Stator Windings Check

To check the stator windings for electrical ground, connect an ohmmeter as shown in Figure 17. There must be no continuity between any of the stator terminals and the metal housing.

To check the stator for open circuits, connect the ohmmeter or test lamp between each pair of wires to the stator as shown in Figure 17. If the test lamp does not illuminate or the meter reading is high, the windings have an open circuit.

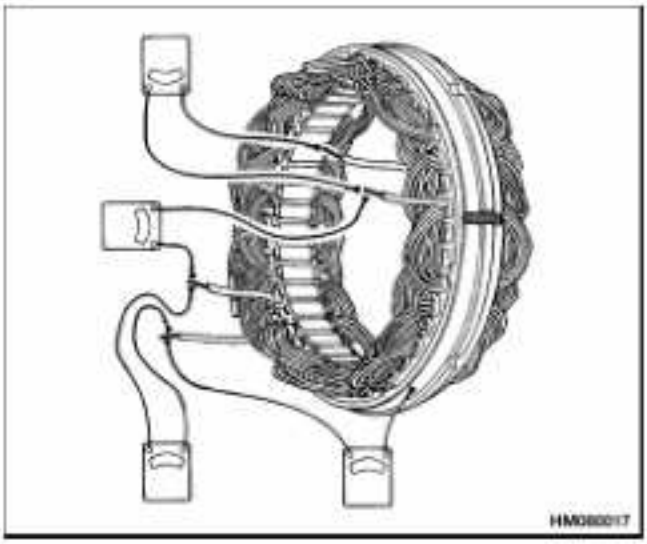


Figure 17. Stator Checks

Voltage Regulator Check

Use a voltage regulator test device. Do not use an ohmmeter. If the voltage regulator has damage, replace the voltage regulator.

Troubleshooting

PROBLEM	POSSIBLE CAUSE	PROCEDURE OR ACTION
Battery is charged above normal.	Alternator is not charging correctly.	Repair or install new parts.
	Electrical ground in wire to brush or clip.	Repair or install new parts.
	High resistance in the circuit.	Repair or install new parts.
Battery uses more water than normal.	Battery is charging more than normal.	Replace voltage regulator.
	Alternator has damage in the field windings, diodes, diode bridge, or stator.	Install new parts.
	Battery has damage or is too old.	Replace battery.

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Troubleshooting

PROBLEM	POSSIBLE CAUSE	PROCEDURE OR ACTION
The starter will not turn; no noise at the solenoid.	Battery is discharged or has damage.	Recharge or replace battery.
	A fuse is burned out.	Replace fuse.
	A wire in the control circuit is disconnected.	Connect wire.
	The key switch has damage.	Install new parts.
	The neutral start switch has damage.	Install new parts.
	The cable connections are bad.	Install new parts.
	The solenoid has damage.	Replace solenoid.
	The starter brushes are worn or dirty.	Replace brushes.
	The solenoid switch has damage.	Replace switch.
The starter will not turn; the solenoid makes noise.	The battery is discharged or has damage.	Recharge or replace battery.
	The starter brushes are worn or dirty.	Replace brushes.
	The contacts in the solenoid are worn.	Install new parts.
	The armature circuit has damage.	Repair or install new parts.
	The cable connections have too much resistance.	Clean or install new parts.
The starter will not turn. The ammeter indicates a large current draw.	The control circuit has a short circuit.	Check wiring for damage and repair.
	The pinion is not engaging the ring gear.	Check the clutch on the starter for damage and repair.
	The solenoid has damage.	Replace solenoid.

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