SERVICE MANUAL

S40-65XM (D187)



FORM 897663 Rev. 03/04

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SERVICE MANUAL CONTENTS

Section	SRM Number	Rev Date
FRAME	0100 SRM 0505	11/03
MAZDA M4-2.0G, M4-2.2G ENGINE	0600 SRM 0496	02/01
GM ENGINE REPAIR GM 3.0 LITER ENGINE	0600 SRM 1020	11/03
COOLING SYSTEM	0700 SRM 0626	11/01
LPG FUEL SYSTEM-GM (except AISAN)	0900 SRM 0498	01/96
GASOLINE FUEL SYSTEM (MAZDA)	0900 SRM 0502	01/01
LPG FUEL SYSTEM-MAZDA (except AISAN)	0900 SRM 0523	01/96
DUAL FUEL-GM 3.0L	0900 SRM 0614	04/96
DUAL FUEL-MAZDA	0900 SRM 0615	04/96
LPG FUEL SYSTEM (AISAN OPEN LOOP SYSTEM)	0900 SRM 0925	08/02
LPG FUEL SYSTEM (AISAN CLOSED LOOP SYSTEM)	0900 SRM 0948	02/04
ELECTRONIC CONTROLLED LPG/GASOLINE FUEL SYSTEM GM 3.0L	0900 SRM 1088	03/04
& 4.3L EPA COMPLIANT ENGINE	0900 SRM 1088	03/04
SINGLE-SPD POWERSHIFT TRANS-DESCR & OPER	1300 SRM 0500	08/03
SINGLE-SPD POWERSHIFT TRANSMISSION-REPAIR	1300 SRM 0501	08/03
DRIVE AXLE	1400 SRM 0499	01/96
STEERING AXLE	1600 SRM 0258	11/03
STEERING HOUSING and CONTROL UNIT	1600 SRM 0720	11/03
BRAKE SYSTEM	1800 SRM 0506	12/03
HYDRAULIC SYSTEM and GEAR PUMP	1900 SRM 0513	12/95
MAIN CONTROL VALVE	2000 SRM 0516	11/95
TILT CYLINDERS	2100 SRM 0103	10/03
ALTERNATOR	2200 SRM 0002	10/03
STARTER	2200 SRM 0106	02/01
HIGH ENERGY IGNITION SYSTEM	2200 SRM 0107	03/02
INSTRUMENT CLUSTER	2200 SRM 0514	01/04
ELECTRICAL SYSTEM (MAZDA)	2200 SRM 0524	02/01
MSTS-GM 3.0L (EARLY CONTROL MODULES)	2200 SRM 0603	01/96
MSTS-GM 3.0L (LATER CONTROL MODULES)	2200 SRM 0765	11/01
GM 3.0L ENG CONTROL-DESC/OPER (EARLY MODULES)	2200 SRM 0612	01/96
GM 3.0L ENGINE CONTROL-REPAIR (EARLY MODULES)	2200 SRM 0611	02/96
GM 3.0L ENG CONTROL-DESC/OPER (LATER MODULES)	2200 SRM 0781	01/00
GM 3.0L ENGINE CONTROL-REPAIR (LATER MODULES)	2200 SRM 0782	03/00
ELECTRONIC CONTROL MODULE (ECM) DIAGNOSTIC TRBLESHT	2200 SRM 1090	01/04
GM 3.0L & 4.3L EPA COMPLIANT ENGINES	2200 SRM 1090	01/04
MAST-DESCRIPTION	4000 SRM 0521	11/03

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MAST-REPAIR	4000 SRM 0522	11/03
METRIC AND INCH (SAE) FASTENERS	8000 SRM 0231	03/03
PERIODIC MAINTENANCE	8000 SRM 0707	12/03
CAPACITIES and SPECIFICATIONS	8000 SRM 0708	01/03
DIAGRAMS	8000 SRM 0807	12/03

PART NO. 897663 Rev ■ 03/04

Rev. Unknown

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Troubleshooting

PROBLEM	POSSIBLE CAUSE	PROCEDURE OR ACTION
Coolant leaks.	There is a leak in the radiator.	Repair radiator.
	There is a leak in a radiator hose or coolant hose.	Install new hoses.
	There is a leak from a plug or sensor in the engine block.	Check sensors and plugs, and repair leaks.
	Water pump leaks.	Install new water pump.
	Thermostat housing leaks.	Install new thermostat housing. Check for correct installation of thermostat.
	Cylinder head gasket is damaged.	Install new head gasket.
	Cylinder head is cracked.	Install new cylinder head.
	Engine block is cracked.	Install new cylinder block.
The engine is too hot during operation.	There is not enough coolant in the cooling system.	Check coolant level in radiator and coolant recovery bottle. Add coolant to correct level.
	The radiator is dirty.	Drain and clean radiator. Clean radiator fins with low pressure air or water in reverse direction of normal air flow. Be careful not to bend fins. Refill with clean coolant.
	The drive belt for water pump is not adjusted correctly, worn, or broken.	Check water pump drive belt. Adjust or install new belt as required.
	The thermostat is wrong heat range or does not operate correctly.	Check heat range. Install new thermostat.
	The cooling system has restrictions.	Drain and back-flush engine and radiator. Refill with clean coolant.
	The water pump is worn or damaged.	Install new water pump.
	The exhaust system has restrictions.	Check exhaust system. Remove restrictions.
	Ignition timing is not correct.	Check and adjust timing.
Exhaust leaks into coolant.	Head gasket(s) leaks.	Install new gasket(s).
	Cylinder head is damaged.	Install new cylinder head.

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Torque Specifications

FRAME

Overhead Guard Mount
66 N•m (49 lbf ft)

Operator Compartment Mount
53 N•m (39 lbf ft)

Cowl-to-Overhead Guard Legs
66 N•m (49 lbf ft)

Counterweight
555 N•m (409 lbf ft)

BRAKE SYSTEM

Wheel Cylinder Capscrews
18 to 27 N•m (159 to 239 lbf in)

Back Plate-to-Axle Mount Capscrews
S2.00-3.20XM (S40-65XM) 255 N•m (188 lbf ft)
H2.00-3.20XM (H45-65XM) 225 N•m (166 lbf ft)

MAST

Lift Cylinder Mount Bolts
53 N•m (40 lbf ft)

Mast Pivot Capscrews
90 N•m (66 lbf ft)

STEERING SYSTEM

Axle Mount Capscrews
88 N•m (65 lbf ft)

Steering Cylinder Mount
S2.00-3.20XM (S40-65XM) 121 N•m (89 lbf ft)
H2.00-3.20XM (H45-65XM) 225 N•m (166 lbf ft)

Tie Rods S2.00-3.20XM (S40-65XM) Only
163 N•m (120 lbf ft)

Lower Spindle Cap S2.00-3.20XM (S40-65XM) Only
44 N•m (32 lbf ft)

Kingpin Nut H2.00-3.20XM (H45-65XM) Only
90 N•m (66 lbf ft) initial
34 N•m (25 lbf ft) final

Wheel Bearings
200 N•m (150 lbf ft) initial
34 N•m (25 lbf ft) final

Wheel Nuts H2.00-3.20XM (H45-65XM) Only
Two-Piece Wheels 610 to 680 N•m (450 to 500 lbf ft)
Three-Piece Wheels 155 N•m (115 lbf ft)

DRIVE AXLE

Back Plate-to-Axle Mount Capscrews
S2.00-3.20XM (S40-65XM) 255 N•m (188 lbf ft)
H2.00-3.20XM (H45-65XM) 225 N•m (166 lbf ft)

Axle Mounts S2.00-3.20XM (S40-65XM)
Torque Wrench on Head of Bolt 780 N•m (575 lbf ft)
Torque Wrench on Nut of Bolt 715 N•m (527 lbf ft)

Axle Mounts H2.00-3.20XM (S40-65XM)
Torque Wrench on Head of Bolt 540 N•m (400 lbf ft)
Torque Wrench on Nut of Bolt 473 N•m (350 lbf ft)

Spindle-to-Differential Housing Capscrews
H2.00-3.20XM (H45-65XM) Only 66 N•m (50 lbf ft)

Axle Housings to Differential Housing
S2.00-3.20XM (S40-65XM) Only 90 N•m (66 lbf ft)

Differential Housing to Differential Adaptor Housing
S2.00-3.20XM (S40-65XM) Only 38 N•m (28 lbf ft)

Axle Shaft Capscrews
S2.00-3.20XM (S40-65XM) 90 N•m (66 lbf ft)
H2.00-3.20XM (H45-65XM) 98 N•m (72 lbf ft)

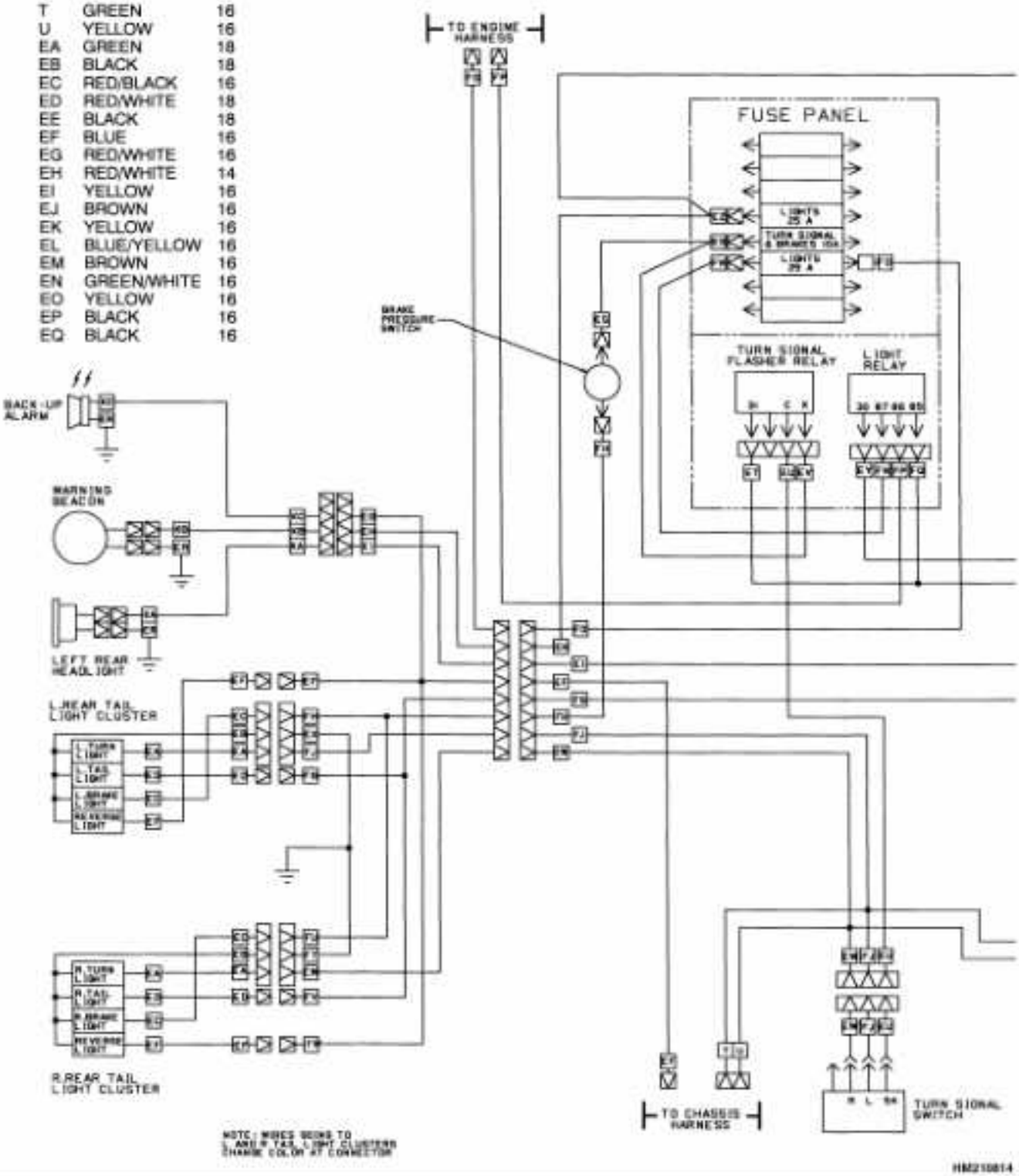
Wheel Nuts
S2.00-3.20XM (S40-65XM) 237 to 305 N•m (175 to 225 lbf ft)
H2.00-3.20XM (H45-65XM) 610 to 680 N•m (450 to 500 lbf ft)

Wheel Bearing Lock Nuts
H2.00-3.20XM (H45-65XM) 205 N•m (150 lbf ft) initial
H2.00-3.20XM (H45-65XM) 35 N•m (25 lbf ft) final
S2.00-3.20XM (S40-65XM) 205 N•m (150 lbf ft) initial
S2.00-3.20XM (S40-65XM) 35 N•m (25 lbf ft) final
S2.00-3.20XM (S40-65XM Newer Models) 68 N•m (50 lbf ft) initial
S2.00-3.20XM (S40-65XM Newer Models) 3 N•m (27 lbf in) final

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ELECTRICAL WIRE CODES

WIRE	COLOR	GAUGE
T	GREEN	16
U	YELLOW	16
EA	GREEN	18
EB	BLACK	18
EC	RED/BLACK	16
ED	RED/WHITE	18
EE	BLACK	18
EF	BLUE	16
EG	RED/WHITE	16
EH	RED/WHITE	14
EI	YELLOW	16
EJ	BROWN	16
EK	YELLOW	16
EL	BLUE/YELLOW	16
EM	BROWN	16
EN	GREEN/WHITE	16
EO	YELLOW	16
EP	BLACK	16
EQ	BLACK	16



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