SERVICE MANUAL

MC22 / MC28 / MC35

Commercial Mower

Print No. 604.55.081.00

NEW HOLLAND AGRICULTURE

MidWestTech | New Holland MC22, MC28, MC35 Commercial Mower Service Manual | Publication 6045508100

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

SECTION 00 - GENERAL INFORMATION

Chapter 1 - General Information

CONTENTS

Section	Description	Page
	Introduction	00-2
	Precautionary Statements	00-3
	Technical Information	00-4
	Safety Precautions	00-5
	Decals	00-12
	Safety Decals	00-13
	Instruction Decals	00-14
	International Symbols	00-17
	Specifications	00-18
	Minimum Hardware Tightening Torques	00-25
	Special Tools	00-27
	Torque Applications	00-28
00 400	Lubricants	00-29
	Touch-Up Paint	00-30
00 100	Pre-Season and Predelivery Service	00-31

MidWestTech | New Holland MC22, MC28, MC35 Commercial Mower Service Manual |... Order the manual at mid-west-tech.com >

SECTION 10 - ENGINE AND FUEL SYSTEMS

Chapter 1 - Engine and Fuel Systems

CONTENTS

Section	Description	Page
	Specifications	10-3
	Torque Specifications	10-14
	Special Tools	10-15
	Engine	10-16
	Description of Operation	10-16
	Troubleshooting	10-20
	Compression Test	10-24
	Engine Overhaul	10-26
10 012	Engine Removal	10-26
	Engine Disassembly	10-31
10 106	Engine Gears and Camshaft Removal	10-37
10 102	Oil Pan and Pick-up Removal	10-38
10 102	Connecting Rods, Bearings, and Piston Removal	10-39
	Disassembly, Inspection, and Assembly of Engine Components	10-41
10 101	Cylinder Head	10-41
10 001	Cylinder Block	10-48
10 105	Pistons, Piston Rings, and Connecting Rods - Disassembly and Inspection	10-49
	Pistons, Rings, and Connecting Rod Assembly	10-56
10 103	Crankshaft	10-57
10 304	Oil Pump Port Block	10-64
	Camshaft and Timing Gears	10-65
10 103	Flywheel	10-68
	Timing Gear Housing	10-68
	Engine Assembly	10-69
10 102	Oil Pick-up and Pan Installation	10-71
10 102	Oil Pump, Idler Gear, and Injection Timing	10-72
10 101	Cylinder Head Assembly	10-73
	Engine Installation	10-77
	Lubrication System Specifications	10-83
10 304	Engine Lubrication System	10-84
10 206	Oil Filter	10-87
	Oil Pump	10-87

MidWestTech | New Holland MC22, MC28, MC35 Commercial Mower Service Manual |... Order the manual at mid-west-tech.com >

CONTENTS (continued)

	Engine Oil Pressure Check	10-89
	Engine Oil Relief Valve	10-90
	Oil Consumption	10-90
	Cooling System	10-91
10 400	Description of Operation	10-92
	Maintenance	10-94
	Coolant	10-94
	Radiator Cap	10-94
10 402	Thermostat	10-95
	Cooling System Overhaul	10-97
10 406	Radiator	10-97
10 402	Water Pump	10-102
10 402	Thermostat	10-108
	Fuel System	10-111
	Special Tools	10-112
	Description of Operation	10-113
10 242	Injection Pump (MC22)	10-113
	Description of Operation	10-119
10 242	Injection Pump (MC28 and MC35)	10-119
	Pumping Elements	10-124
	Delivery Valves	10-126
	Governor	10-128
10 230	Description of Operation	10-128
	Fuel Injectors	10-130
10 218	Description of Operatio	10-130
	Troubleshooting	10-132
	Fuel System Repair	10-137
10 230	Governor Disassembly	10-146
10 218	Fuel Injectors	10-154

MidWestTech | New Holland MC22, MC28, MC35 Commercial Mower Service Manual |... Order the manual at mid-west-tech.com >

PUSHROD SPECIFICATIONS

Tractor Model	MC 22	MC 28	MC 35
Engine Model	S773	J843	N843L
Length	157 mm (6.18 in.)	196 mm (7.6 in.)	196 mm (7.6 in.)
Diameter	6.3 mm (0.248 in.)	6.3 mm (0.248 in.)	6.3 mm (0.248 in.)

ROCKER ARM SPECIFICATIONS

Tractor Model	MC 22	MC 28	MC 35
Engine Model	S773	J843	N843L
Shaft Diameter Standard Minimum	 11.65 - 11.67 mm (0.4587 - 0.4594 in.) 11.57 mm (0.456 in.)	 11.65 - 11.67 mm (0.4587 - 0.4594 in.) 11.57 mm (0.456 in.)	 11.65 - 11.67 mm (0.4587 - 0.4594 in.) 11.57 mm (0.456 in.)
Shaft-to-Rocker Clearance Standard Maximum	 0.032 - 0.068 mm (0.00126 - 0.00268 in.) 0.2 mm (0.008 in.)	 0.032 - 0.068 mm (0.00126 - 0.00268 in.) 0.2 mm (0.008 in.)	 0.032 - 0.068 mm (0.00126 - 0.00268 in.) 0.2 mm (0.008 in.)

FUEL SYSTEM SPECIFICATIONS

Tractor Model	MC 22	MC 28	MC 35
Engine Model	S773	J843	N843L
Injection Pump Manufacturer	Nippondenso	Zexel	Zexel
Injection Pump Model Number	094500-3610	104134-3050	104134-3050
Injection Pump Type	Inline	Inline	Inline
Injection Pump Timing (Before TDC)	20° - 22°	18° - 20°	18° - 20°
Piston Height at Injection (Start BTDC)	2.850 - 3.440 mm (0.1122 - 0.1354 in.)	2.590 - 3.187 mm (0.1019 - 0.1254 in.)	3.195 - 3.932 mm (0.1258 - 0.1548 in.
Injection Nozzle Type	Throttle	Throttle	Throttle
Injection Nozzle Needle Valve Diameter	0.6mm (0.236in.)	0.4 mm (0.157 in.)	0.4 mm (0.157 in.)
Injection Nozzle Pintle Diameter	1.0 mm (0.040 in.)	1.0 mm (0.039 in.)	1.0 mm (0.039 in.)
Injector Spray Angle	4°	4°	4°
Service Adjustment Idle Speed	1000 rpm	1000 rpm	1000 rpm
Service Adjustment Maximum No-Load Speed	2850 - 2900 rpm	2875 - 2925 rpm	2875 - 2925 rpm
Injector Pressure Setting	121 bar (1750 psi)	152 bar (2200 psi)	152 bar (2200 psi)

MidWestTech | New Holland MC22, MC28, MC35 Commercial Mower Service Manual |... Order the manual at mid-west-tech.com >

TROUBLESHOOTING

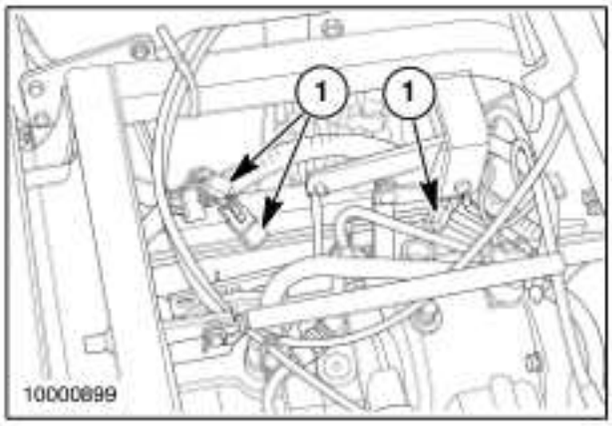
CONDITION	POSSIBLE CAUSE	CORRECTION
Implement fails to lift when lift control lever is in raised position	Relief valve setting too low	Perform system relief valve pressure test
	O ring failure (lift control valve, lift control valve cover, relief valve)	Repair as required
	Excessive oil leakage past lift cylinder piston seal	Replace seal, piston, or cylinder as required
	Restricted suction filter	Replace filter
	Poppet valve remains open	Check poppet valve and operation
Lift arms move up or down when lever is in neutral position	Weight transfer valve improperly adjusted or faulty	Adjust weight transfer valve, repair as needed
	Faulty O rings (lift control valve, valve cover, lift cylinder)	Inspect and repair as required
	Relief valve out of adjustment or faulty	Perform system relief valve pressure test. Repair or replace as needed.
Implement settles too fast when engine is stopped	Faulty lift control valve	Replace valve
Implement rises too slowly	Restricted suction filter	Replace filter
	Pump capacity too low	Perform flow test and replace pump as required
	Faulty relief valve	Repair or replace as required
	Excessive leakage past piston seal	Inspect cylinder and piston. Repair as required.
	Faulty lift control valve	Repair or replace as required
	Leaking O rings (lift control valve, valve cover, lift cylinder)	Repair as required
	Extreme cold weather operation	Change hydraulic fluid to F200
Implement will not lower	Weight transfer valve not properly adjusted	Adjust weight transfer valve
Hydraulic fluid overheats	Faulty pump	Replace pump
	Restricted suction filter	Replace filter

MidWestTech | New Holland MC22, MC28, MC35 Commercial Mower Service Manual |... Order the manual at mid-west-tech.com >

DIODES

Description

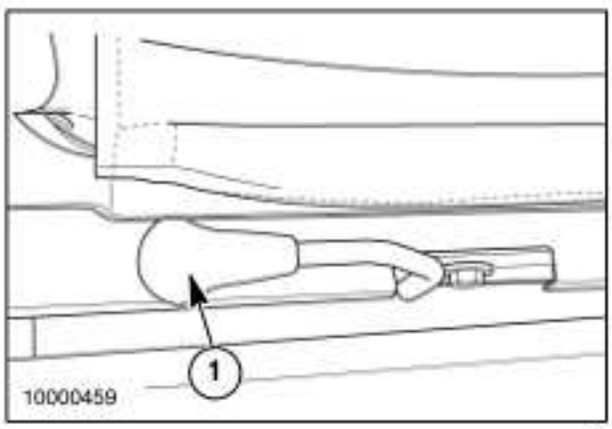
The diodes, 1, are located underneath the seat deck of the tractor, attached to the tractor wiring harness. Diodes are electrical devices which current is allowed to pass in one direction, directing current within a circuit. Diodes allow the use of one wire within multiple circuits to control current flow to electrical components such as relays. The MC 22, MC 28, and MC 35 utilize five (5) diodes to direct current. Four of the five diodes are paired together in a single case. The remaining diode is housed alone.



86

Diode Testing

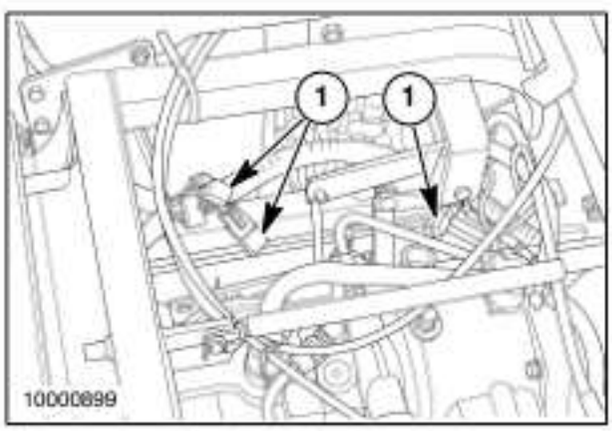
1. Disconnect the negative (-) battery cable from the battery.
2. Raise the seat deck by pulling up on the deck lever, 1, located behind the operator's seat.



87

3. Disconnect the diode, 1, from the wiring harness of the tractor.

NOTE: *For this test, an electrical multimeter with diode test capabilities may be used in place of an ohmmeter. If a multimeter with diode testing capabilities is unavailable, use an ohmmeter to test as described below.*



88

MidWestTech | New Holland MC22, MC28, MC35 Commercial Mower Service Manual |... Order the manual at mid-west-tech.com >