

VALVES (Continued)

Valve Timing	
Clearance for Checking Valve Timing - Intake and Exhaust (Cold)	0.010
Intake Opens	10° BTDC
Intake Closes	54° ABDC
Exhaust Opens	54° BBDC
Exhaust Closes	10° ATDC
Valve Clearance (Cold Setting)	
Intake	0.008
Exhaust	0.010

VALVE GUIDES

Bore	0.3145-0.3154
Outside Diameter	0.5523-0.5527
Maximum Clearance between Valve Stem and Guide	0.00589

VALVE SPRINGS

Number per Valve	1
Valve Spring Specifications	
Free Length	1.941
Test Length (50-54 lb. load)	1.653
Test Length (134-149 lb. load)	1.161

VALVE LIFTERS

Diameter	1.0606-1.0614
Running Clearance	0.0016-0.0037

VIBRATION DAMPER

Diameter of Weights Journals	1.3748-1.3754
Diameter of Half-bearing Bores in Weights Housing	1.5207-1.5215
Thickness of Half-bearings	0.071-0.072
Running Clearance of Supplementary Weights Journals	0.002-0.0037
ID of Weights Gears	1.1811-1.1819
Diameter of Gear Pins	1.1827-1.1835
Interference Fit of Pins in Gears	0.0008-0.0024
Thickness of Shims Inserted between Crankcase and Weights Housing	0.004-0.006
Backlash of Driving Weights Gears with Oil Pump Drive Gear	0.002-0.005
Backlash of Weights Gears	0.0012-0.005

The driving weights gear and driven weights gear differ from each other in the position of the key seat with respect to the gear teeth; do not exchange gears with weights shaft at assembly.

TORQUE VALUES IN FOOT POUNDS (OILED)

Cylinder Head Cap Screws	166-173
Main Bearing Cap Screws	98-105
Connecting Rod Cap Screws	91-97

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TORQUE VALUES IN FOOT POUNDS (OILED) (Continued)

Rocker Arm Shaft Bracket Cap Screws	34-38, 3
Flywheel Cap Screws	65-72
Alternator and Fan Drive Pulley Cap Screw	210-224
Oil Pump Body Mounting Cap Screws	17
Oil Pressure Relief Valve	43-52
Damper Weights Box to Crankcase	34, 7-38, 3

FUEL SYSTEM

AIR CLEANER

Type	Dry with centrifugal, self-cleaning pre-cleaner
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INJECTOR NOZZLES

Opening Pressure (psi)	2418-2560
Spray Orifices	4

FUEL INJECTION PUMP

Make	FIAT (Bosch License)	
Governor		
Idle Speed	650	
Rated Speed	2100	
High No-Load Speed	2250-2270	
Static Timing	22°-23°	
Transfer Pump Pressure - Test Stand	<u>Engine RPM</u>	<u>PSI</u>
	650	22, 7-25, 6

ELECTRICAL SYSTEM

ALTERNATOR

Cut-in Speed @ 12-V (68° F)	950-1050 rpm
Current Output to Battery @ 14-V, 5000 rpm and Operating Temperature	42 Amp
Maximum Current (Approximately)	53 Amp
Field Resistance @ 68° F. (across collector rings)	4, 1-4, 5 Ohms

REGULATOR

Core-Armature Gap	0, 057-0, 061
2nd Stage Contact Gap	0, 014-0, 022

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STARTING MOTOR

Type	Marelli MT 38RA
Voltage	12 V
Nominal Power Output	4 HP
Rotation (Looking from Drive End)	CW
Pinion and Gear Ratio	9/130
Poles	4
Excitation (Windings)	In series - in parallel
Engagement	Armature axial drive
Control	Solenoid

DATA FOR TEST BENCH

Performance Test Under Load (68° F.)	
Current	Less than 850 amp
Speed	1200-1800 rpm
Voltage	8.5 V
Torque Output	16.6 ft-lbs
Stall Test (68° F.)	
Current	Less than 2000 amp
Voltage	5.5 V
Torque Output	32.5 ft-lbs
Total Internal Resistance	0.0035-0.0042 Ohms
No-Load Test (68° F.)	
Current	Less than 130 amp
Voltage	12 V
Speed	900-1600 rpm
Resistances (68° F.)	
Main Field Winding	0.0001-0.0007 Ohms
Auxiliary Parallel Winding	0.20-0.22 Ohms
Auxiliary Series Winding	0.126-0.154 Ohms

MECHANICAL SPECIFICATIONS TEST

Spring Pressure on Brushes	1.8-2.4 lb
Mica Undercutting	0.032
Diameter of Commutator	1.8835-1.8898
Wear Limit	1.858
Max. Throw	0.0012

WARNING LIGHT SWITCH

Winding Resistance	27-31 Ohms
Contact Opening Voltage	5.3-5.7 V

COOLING SYSTEM

Thermostat Opening Temperature	
Beginning	162°
Full	185°

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CLUTCH – ENGINE AND POWER TAKE-OFF

GENERAL

Prior to disassembly, mark clutch cover and pressure plates so that they can be positioned in their original locations during reassembly.

DIMENSIONS

Clutch Plate (Ferodo)	
Type	2 dry single disc clutches
Diameter of Clutch Disc Linings	
Outside Diameter	12
Inside Diameter	6.8897
Total Thickness of Clutch Discs	0.3504-0.3661
Minimum Thickness Due to Wear	0.2953
Clutch Spring	Dished Spring
Gap between Release Collar and Levers	0.098
Clearance between Universal Fixture Gauge Block and Lever Tips	0.004
Engine Clutch Pedal Free Travel	1-3/16
PTO Clutch Hand Lever Free Travel	1-37/64

TRANSMISSION

Speeds	
Forward	7
Reverse	2
Safety Device	Clutch controlled safety switch available in package form
Gears	Spur-type
Gear Tooth Backlash	
Gearbox, range Selector, and Bevel Gears	0.006-0.010
Differential Gears and Pinions	0.008-0.012
Splined Shafts and Gears	0.0004-0.0035
Thickness of:	
Differential Pinions Thrust Washers	0.0299-0.0331
Differential Gears Thrust Washers	0.0575-0.0606
Range Selector Driven Gear Thrust Washer	0.311-0.313
Lubricant	
Type	20W-40 motor oil
Quantity	
With Standard Version Hydraulic Lift	6 gal.
With Optional Version, Hydraulic Lift Tapping Transmission Oil	8.1 gal.
Standard PTO (540 rpm)	
Tooth Backlash of PTO Shaft Splined	0.0004-0.0041
Thickness of PTO Shaft Rear Bearing Thrust Washer	0.2342-0.2362
Belt Pulley	
Bevel Pinion Train Tooth Backlash	0.006,0.014,
Thickness of Driven Pinion Adjustment Shims	0.008,0.012,
	0.020,0.035,
	0.008,0.020,0.035,
Thickness of Driving Pinion Adjustment Shims	0.040,0.043,0.047