

# Information and Instructions

This shop manual contains several sections each covering a specific group of wheel type tractors. The Tab Index on the preceding page can be used to locate the section pertaining to each group of tractors. Each section contains the necessary specifications and the brief but terse procedural data needed by a mechanic when repairing a tractor on which he has had no previous actual experience.

Within each section, the material is arranged in a systematic order beginning with an index which is followed immediately by a Table of Condensed Service Specifications. These specifications include dimensions, fits, clearances and timing instructions. Next in order of arrangement is the procedures paragraphs.

In the procedures paragraphs, the order of presentation starts with the front axle system and steering and proceeding toward the rear axle. The last paragraphs are devoted to the power take-off and power lift systems. Interspersed where needed are additional tabular specifications pertaining to wear limits, torquing, etc.

## HOW TO USE THE INDEX

Suppose you want to know the procedure for R&R (remove and reinstall) of the engine camshaft. Your first step is to look in the index under the main heading of ENGINE until you find the entry "Camshaft." Now read to the right where under the column covering the tractor you are repairing, you will find a number which indicates the beginning paragraph pertaining to the camshaft. To locate this wanted paragraph in the manual, turn the pages until the running index appearing on the top outside corner of each page contains the number you are seeking. In this paragraph you will find the information concerning the removal of the camshaft.

# SHOP MANUAL

# MASSEY-FERGUSON

## MODEL MF 65

Tractor serial number stamped on instrument panel name plate.  
 Engine serial number stamped on side of engine.

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# CONDENSED SERVICE DATA

GENERAL	NON-DIESEL	DIESEL	
Engine Make .....	Cont'l	Perkins	Perkins
Engine Model .....	G176	4A-203	AD4-203
No. Cylinders .....	4	4	4
Bore—Inches .....	3.58	3.6	3.6
Stroke—Inches .....	4.38	5.0	5.0
Displacement—Cubic Inches .....	176	203.5	203.5
Compression Ratio, Gasoline .....	7.1:1	.....	.....
Compression Ratio, LP-Gas .....	8.1:1	.....	.....
Compression Ratio, Diesel .....	.....	17.4:1	18.5:1
Pistons Removed From? .....	Above	Above	Above
Main Bearings, Number of? .....	3	5	5
Cylinder Sleeves .....	Wet	Dry	Dry
Forward Speeds, No. of? .....	6*	6	12
Reverse Speeds, No. of? .....	2*	2	4
Generator & Starter Make .....	D-R	D-R	D-R

\*12 forward, 4 reverse; if equipped with "Multi-Power" transmission.

### TUNE-UP

	NON-DIESEL	1-3-4-2	1-3-4-2
Firing Order .....	1-3-4-2	1-3-4-2	1-3-4-2
Intake Valve Tappet .....			
Gap (Hot) .....	0.016	0.010	0.010
Exhaust Valve Tappet .....			
Gap (Hot) .....	0.018	0.010	0.010
Inlet Valve Face Angle .....	30°	44°	44°
Inlet Valve Seat Angle .....	30°	45°	45°
Exhaust Valve Face Angle .....	44°	44°	44°
Exhaust Valve Seat Angle .....	45°	45°	45°
Ignition Distributor Model .....	1112583	.....	.....
Breaker Contact Gap .....	0.022	.....	.....
Plug Electrode Gap .....	0.025-0.027	.....	.....
Carburetor, Gasoline .....	M-S, TSX695	.....	.....
Carburetor, LP-Gas .....	Zenith	.....	.....
Float Setting, M-S .....	1/4-inch	.....	.....
Injection Pump Make .....	.....	C.A.V.	C.A.V.
Injection Pump Model .....	.....	DPA	DPA

### TUNE-UP (Cont.)

	NON-DIESEL	DIESEL	
Injection Pump Timing .....	.....	18°BTC	24°BTC
Injector Nozzle Make .....	.....	C.A.V.	C.A.V.
Engine Low Idle Rpm .....	450	500	600
Engine Load Rpm .....	2000	2000	2000
Engine High Idle Rpm .....	2150	2200	2175
Pto Load Rpm .....	720*	720	636
Pto No Load Rpm .....	774*	792	691

\*Loaded rpm 636; no-load rpm 684, if equipped with "Multi-Power" transmission.

### SIZES—CAPACITIES—CLEARANCES

(Clearances in thousandths)	NON-DIESEL	DIESEL	
Crankshaft Journal Diameter .....	2.375	2.749	2.749
Crankpin Diameter .....	2.062	2.249	2.249
Camshaft Journal Diameter:			
Front .....	1.937	1.870	1.870
Center .....	1.750	1.860	1.860
Rear .....	1.687	1.840	1.840
Piston Pin Diameter .....	1.125	1.250	1.250
Piston Ring Width:			
Compression .....	0.125	0.093	0.093
Oil .....	0.188	0.250	0.250
Main Bearing, Diameter .....			
Clearance .....	0.5-2.7	2.5-4.5	3.0-5.0
Rod Bearing, Diameter .....			
Clearance .....	0.7-2.7	2-3.5	2.5-4.0
Crankshaft End Play .....	4-8	2-10	2-14
Camshaft Bearing, Diameter .....			
Clearance .....	3-4.5	4-8	4-8
Camshaft End Play .....	3-7	3-6	3-6
Cooling System—Quarts .....	10.5	10	10
Crankcase Oil—Quarts .....	5	6	7
Transmission, Differential and Hydraulic Lift—Gallons ..	8	8	8
Power Steering Reservoir—			
Quarts .....	2 2/3	1 2/3	1 2/3
Steering Gear Housing—Pint	2	2	2

# SHOP MANUAL

# MASSEY-FERGUSON

**MODELS MF85-MF88-MF Super 90-MF Super 90 WR**

**Tractor serial number stamped on name plate on right side of battery box. Engine serial number stamped on engine name plate or on side of block.**

## INDEX (By Starting Paragraph)

	MF85-MF88	MF Super 90 MF Super 90WR		MF85-MF88	MF Super 90 MF Super 90WR
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<b>BRAKES</b>			<b>ENGINE (Diesel) Cont.</b>		
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R&R and Overhaul.....	176	176	Injection timing .....	78A	124
<b>CARBURETOR (Gasoline)</b> .....	36	36	Main bearings .....	71	104
<b>CARBURETOR (LP-Gas)</b> .....	42	42	Oil pump .....	73	111
<b>CLUTCH (Engine Except Multipower)</b> .....	132	132	Pistons and rings.....	66	101
(Multipower Clutch) .....		148	Piston pins .....	67	102
<b>CLUTCH (PTO)</b> .....	183	183	Relief valve .....	74	112
<b>COOLING SYSTEM (Non-Diesel)</b>			Rear oil seal.....	72	109
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Water Pump .....	49	49	Valve guides .....	57	87
<b>COOLING SYSTEM (Diesel)</b>			Valves & seats.....	56	86
Radiator .....	81	129	Valve springs .....	58	88
Water Pump .....	80	128	<b>FINAL DRIVE</b>		
<b>DIESEL FUEL SYSTEM</b>			Bevel Gears .....	166	166
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Testing .....	77	116	Steering spindles .....	2	2
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Crankshaft and bearings.....	71	104	Trouble shooting .....	7	7
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Remove and reinstall.....	138	138	Planetary unit .....		158
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Top cover .....	139	139	Reverse idler .....		157
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## CONDENSED SERVICE DATA

GENERAL	MF85-MF88		MF Super 90 MF Super 90WR		TUNE-UP (Cont.)	MF85-MF88		MF Super 90 MF Super 90WR	
	Non-Diesel	Diesel	Non-Diesel	Diesel		Non-Diesel	Diesel	Non-Diesel	Diesel
Engine Make .....	Cont'l.	Cont'l.	Cont'l.	Perkins	Carburetor Model				
Engine Model .....	E242	HD277	E242	4A 300	Gasoline (M-S) .....	TSX 644	.....	TSX 644	.....
Number of Cylinders.....	4	4	4	4	LP-Gas (Zenith) .....	A818-29	.....	.....	.....
Bore—Inches .....	3 $\frac{3}{8}$	4	3 $\frac{3}{8}$	4 $\frac{1}{2}$	Float Setting .....	$\frac{1}{4}$ -In.	.....	$\frac{1}{4}$ -In.	.....
Stroke—Inches .....	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	4 $\frac{3}{4}$	Engine Low Idle RPM....	450	650	450	600
Displacement—Cu. In. ...	242	276.5	242	302.2	Engine High Idle RPM...	2200	2275	2200	2175
Compression Ratio					Engine Loaded RPM.....	2000	2000	2000	2000
Gasoline .....	7.31:1	.....	7.31:1	.....	PTO No Load RPM.....	804	830	804	795
LP-Gas .....	8.1:1	.....	.....	.....	PTO Loaded RPM.....	731	731	731	731
Diesel .....	.....	15.2:1	.....	16:1					
Main Bearings (Number)..	3	3	3	5	<b>SIZES—CAPACITIES—CLEARANCES</b>				
Cylinder Sleeves (Type)..	Wet	Wet	Wet	Dry	(Clearances in Thousandths)				
Generator & Starter					Crankshaft Journal				
(Make) .....	Delco-Remy				Diameter .....	2.624	2.873	2.624	2.999
Battery Terminal					Crankpin Diameter .....	2.248	2.498	2.248	2.749
Grounded .....	Negative	Negative	Negative	Negative*	Camshaft Journal Diameter				
*MF Super 90 Diesel tractors use two 12V batteries connected in parallel.					Outboard Bearing .....	0.996	0.996	0.996	.....
<b>TUNE-UP</b>					Front Bearing .....	1.996	1.996	1.996	2.057
Firing Order .....	1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2	Center Bearing .....	1.746	1.746	1.746	1.967
Inlet Valve Tappet					Rear Bearing .....	1.684	1.684	1.684	1.906
Gap (Hot) .....	0.016	0.014	0.016	0.010	Piston Pin Diameter.....	1.109	1.250	1.109	1.4375
Exhaust Valve Tappet					Main Bearing (diametral clearance) .....	0.5-2.7	1.5-3.5	0.5-2.7	3.0-5.5
Gap (Hot) .....	0.018	0.014	0.018	0.010	Rod Bearing (diametral clearance) .....	1.4-2.4	1.3-3.8	1.4-2.4	2.8-4.5
Inlet Valve Face Angle...	30°	44°	30°	44°	Piston Skirt Clearance....	2.5-3.5	3.5	2.5-3.5	(See Text)
Exhaust Valve Face					Crankshaft End Play.....	6-8	5-8	6-8	8.5-15.5
Angle .....	45°	44°	45°	44°	Camshaft Bearing (diametral clearance) .....	2.5-4	See Text	2.5-4	See Text
Inlet Valve Seat Angle...	30°	45°	30°	45°	Camshaft End Play.....	6-9	5-9	6-9	4-16
Exhaust Valve Seat					Cooling System—Qts. ....	15	22	15	15
Angle .....	45°	45°	45°	45°	Crankcase Oil—Qts. ....	7	7	7	10 $\frac{1}{2}$
Ignition Distributor					Transmission, Differential				
Make .....	AL or DR	.....	DR	.....	Hydraulic Lift, Power				
Injection Pump Make.....	.....	Roosa	.....	C.A.V.	Steering—Qts. ....	46	46	46	46
Ignition Timing (Static)...	* *	.....	* *	.....	Final Drive Unit,				
Injection Timing .....	.....	20° BTC	.....	16° BTC	Each—Pts.				
Distributor Point Gap....	0.022	.....	0.022	.....	High Clearance .....	2	2	2	2
Distributor Cam Angle...	See Text	.....	25°-34°	.....	Standard Clearance ...	1	1	1	1
Injector Nozzle Make.....	.....	C.A.V.	.....	C.A.V.					
Nozzle Opening Pressure. ....	.....	1900 psi	.....	2500 psi					

\*\*Gasoline, 5° BTC. LPG, 4° BTC



# SHOP MANUAL

# MASSEY-FERGUSON

## MODELS MF1080 - MF1085

Tractor serial number stamped on instrument panel name plate. Engine serial number stamped on right hand side of engine block.

### INDEX (By Starting Paragraph)

<p><b>BRAKES</b> Adjustment .....102 Overhaul .....103</p> <p><b>CLUTCH</b> Engine Clutch ..... 66 IPTO Clutch .....110</p> <p><b>COOLING SYSTEM</b> Radiator ..... 59 Thermostat ..... 60 Water Pump ..... 61</p> <p><b>DIESEL FUEL SYSTEM</b> Bleeding ..... 44 Filters ..... 43 Injection Nozzles ..... 47 Injection Pump ..... 54 Tank ..... 58 Timing ..... 56 Trouble Shooting ..... 46</p>	<p><b>DIFFERENTIAL</b> .....88</p> <p><b>DIFFERENTIAL LOCK</b> .....92</p> <p><b>ELECTRICAL SYSTEM</b> Alternator ..... 62 Circuit Description ..... 65 Regulator ..... 63 Starting Motor ..... 64</p> <p><b>ENGINE</b> Assembly R&amp;R ..... 13 Camshaft ..... 29 Connecting Rods &amp; Bearings ..... 33 Crankshaft ..... 34 Cylinder Head ..... 14 Cylinder Sleeves ..... 31 Engine Balancer ..... 35 Flywheel ..... 39 Oil Seals ..... 21, 38 Oil Pump ..... 41 Pistons &amp; Rings ..... 31</p>	<p><b>ENGINE CONT.</b> Rocker Arms ..... 19 Tappet Adjustment ..... 20 Timing Gears ..... 22 Valves ..... 15</p> <p><b>FINAL DRIVE</b> ..... 97</p> <p><b>FRONT SYSTEM</b> ..... 1</p> <p><b>HYDRAULIC SYSTEM</b> ..... 112</p> <p><b>INDEPENDENT POWER TAKE-OFF</b> ..... 104</p> <p><b>STEERING SYSTEM</b> ..... 3</p> <p><b>TRANSMISSION</b> Assembly Removal ..... 70 Multipower Controls ..... 73 Rear Planetary Unit ..... 77 Shaft &amp; Gears ..... 79</p>
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### CONDENSED SERVICE DATA

GENERAL	MF1080	MF1085
Engine Make .....	Perkins	Perkins
Engine Model .....	A4.318	A4.318
Number of Cylinders .....	4	4
Bore, Inches (mm) .....	4.5(114.3)	4.5(114.3)
Stroke, Inches (mm) .....	5.0(127)	5.0(127)
Displacement, Cu. In. ....	318	318
Compression Ratio .....	17.5:1	17.5:1
Main Bearings, No. of .....	5	5
Cylinder Sleeves .....	Dry	Dry
Forward Speeds .....	6 or 12	8 or 12
Reverse Speeds .....	2 or 4	2 or 4
<b>TUNE-UP</b>		
Firing Order .....	1-3-4-2	1-3-4-2
Valve Tappet Gap—		
Cold—Inch (mm) .....	0.012(0.30)	0.012(0.30)
Hot—Inch (mm) .....	0.010(0.25)	0.010(0.25)
Valve Face Angle .....	45°	45°
Valve Seat Angle .....	45°	45°
Injection Timing BTDC .....	28° BTDC	20° STATIC
Timing Mark Location .....	Crankshaft Pulley*	
*Some Early 1080 models Used Flywheel Timing Marks.		

# SHOP MANUAL

# MASSEY FERGUSON

## MODELS MF1100 - MF1130

**Tractor serial number stamped on instrument panel name plate.  
Engine serial number stamped on side of engine.**

### INDEX (By Starting Paragraph)

	DIESEL	GASOLINE	LP-GAS		DIESEL	GASOLINE	LP-GAS
<b>BRAKES</b>				<b>FINAL DRIVE</b>			
Adjustment & Bleeding .....	115	115	115	Differential & bevel gear .....	107	107	107
Brake valve .....	155	155	155	Differential lock valve .....	166	166	166
Overhaul .....	117	117	117	Overhaul .....	113	113	113
				Remove & reinstall .....	112	112	112
<b>CLUTCH</b>				<b>FRONT SYSTEM</b>			
Adjustment .....	92	92	92	Axle .....	1	1	1
Overhaul .....	94	94	94	Steering gear .....	3	3	3
Tractor split .....	93	93	93	Tie rods & toe in .....	2	2	2
<b>COOLING SYSTEM</b>				<b>FUEL SYSTEM</b>			
Radiator .....	84	84	84	Carburetor .....	...	58	64
Thermostat .....	85	85	85	Converter .....	...	...	63
Water pump .....	86	86	86	Fuel filters & lines .....	65	...	62
<b>ELECTRICAL SYSTEM</b>				Fuel tank .....	81	81	62
Alternator & regulator .....	89	89	89	Injection pump .....	76	...	...
Distributor .....	...	87	87	Injector nozzles .....	68	...	...
Starting motor .....	91	91	91	Turbocharger .....	79	...	...
<b>ENGINE</b>				Governor .....	...	82	82
Assembly R&R .....	33	10	10	<b>HYDRAULIC SYSTEM</b>			
Cam followers .....	38	17	17	Auxiliary valve (early) .....	183	183	183
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Connecting rods & bearings ...	50	25	25	Charging pump .....	147	147	147
Crankshaft & bearings .....	51	26	26	Brake valve .....	155	155	155
Cylinder head .....	34	11	11	Differential lock valve .....	166	166	166
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Flywheel .....	53	28	28	Lubrication, tests & adjustment..	126	126	126
Oil pan .....	55	29	29	Main pump .....	141	141	141
Oil pump .....	56	30	30	Multi-Power valve .....	158	158	158
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Pistons, rings & cylinders .....	48	23	23	PTO valve .....	158	158	158
Piston pins .....	49	24	24	Priority valve .....	152	152	152
Rear oil seal .....	52	27	27	Regulating valve .....	150	150	150
Rocker arms .....	39	18	18	Seat hydraulics .....	161	161	161
Timing gear cover .....	42	19	19	Sensing linkage .....	182	182	182
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## CONDENSED SERVICE DATA

<b>GENERAL</b>	MF1100 Gasoline & LP Gas	MF1100 Diesel	MF1130 Diesel
Engine Make .....	Waukesha	Perkins	Perkins
Engine Model .....	F320-G	A6.354	AT6.354
Number of Cylinders .....	6	6	6
Bore—Inches .....	4½	3¾	3¾
Stroke—Inches .....	4	5	5
Displacement—Cu. In. ....	320	354	354
Compression Ratio .....	8:1	16:1	16:1
Main Bearings, No. of .....	4	7	7
Cylinder Sleeves .....	None	Dry	Dry
Forward Speeds .....	—————	6 or 12	—————
Reverse Speeds .....	—————	2 or 4	—————

<b>TUNE-UP</b>			
Firing Order .....	—————	1-5-3-6-2-4	—————
Valve Tappet Gap (Cold)			
Intake .....	0.012	0.012	0.012
Exhaust .....	0.022	0.012	0.012
Compression Pressure			
@ Cranking Speed .....	.....	.....	.....
Valve Face Angle .....	45°	44°	44°
Valve Seat Angle .....	45°	45°	45°
Timing (Ign or Inj)			
Static .....	See Par. 87	22° BTC	28° BTC
High Idle .....	See Par. 87	.....	.....
Timing Location .....	—————	Flywheel	—————
Battery			
Volts .....	12	12	12
Capacity Amp/Hr .....	95	95*	95*
Ground Polarity .....	Negative	Negative	Negative

\*Each Battery—Two Batteries Used, Connected in Parallel.

Distributor Contact Gap .....	0.016	.....	.....
Spark Plug Size .....	18mm	.....	.....
Electrode Gap .....	0.025	.....	.....
Injectors			
Opening Pressure .....	.....	2500 psi	2795 psi
Spray Hole Dia. ....	.....	0.011	0.011

	MF1100 Gasoline & LP Gas	MF1100 Diesel	MF1130 Diesel
<b>TUNE-UP (Cont'd.)</b>			
Governed Speeds Engine			
Low Idle .....	750-800 rpm	—	800-850 rpm —
High Idle .....	2450 rpm	—	2400 rpm —
Loaded .....	2200 rpm	—	2200 rpm —
1000 rpm PTO			
High Idle .....	1225 rpm	—	1200 rpm —
Loaded .....	1100 rpm	—	1100 rpm —
540 rpm PTO			
High Idle .....	661 rpm	—	654 rpm —
Loaded .....	594 rpm	—	594 rpm —
Horsepower @ PTO Shaft ....	89*	93.5	120.5
*Gasoline Tractor, Mfr's Rating—	Diesel Models, According To Nebraska Test.		
Hydraulic System			
Maximum Pressure .....	—————	2550 psi	—————
Rated Delivery .....	—————	20 gpm	—————

### SIZES—CAPACITIES—CLEARANCES

(Clearances in Thousandths)			
Crankshaft Journal Diameter ..	2.625	2.999	2.999
Crankpin Diameter .....	2.625	2.499	2.499
Camshaft Journal Diameter			
Front .....	1.750	1.997	1.997
2nd .....	1.749	1.987	1.987
3rd .....	1.749	1.977	1.977
Rear .....	1.749	1.967	1.967
Crankshaft Bearing Clearance			
Main Bearings .....	1.5-4.5	2.5-4.5	2.5-4.5
Crankpin .....	0.5-3.0	1.5-3.0	1.5-3.0
Crankshaft End Play .....	4.5-8.5	2-14	2-14
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# SHOP MANUAL

# MASSEY FERGUSON

MODEL  
MF 1150

Tractor serial number stamped on instrument panel name plate.  
Engine serial number stamped on side of engine.

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# SHOP MANUAL

# MASSEY-FERGUSON

MF1105                      MODELS                      MF1155  
                                 MF1135

Tractor serial number is stamped on instrument panel name plate.  
Engine serial number is stamped on side of engine.

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