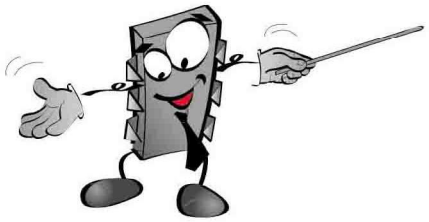
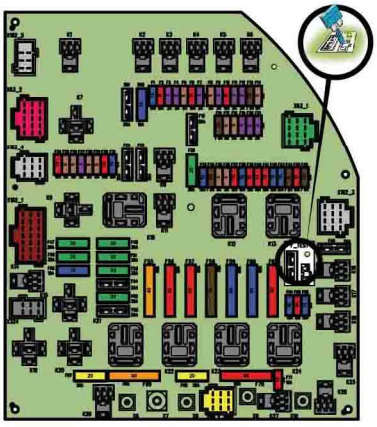
Workshop Service Manual

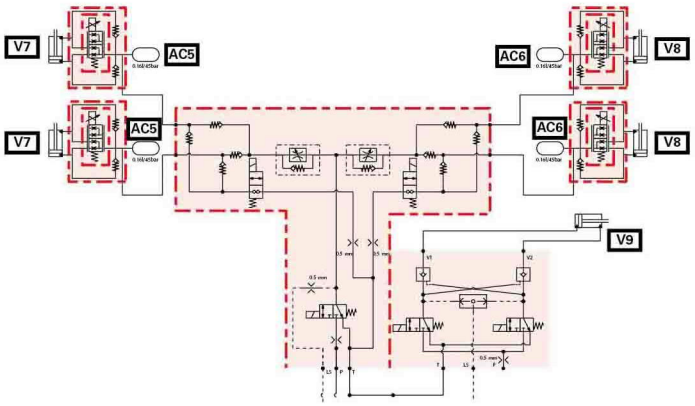
MASSEY FERGUSON

Technician Service Book - MF 5700 SL

Schémas électriques et hydrauliques







Beauvais
AGCO S.A.S. - 41 avenue Blaise Pascal - 60000
Beauvais - France - RC B562 104 539

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Technician Service Book - MF 5700 SL

1. General

1.1 General specifications

1.1.1 Models MF 5700 SL

Engine				
Model	**MF 5710 SL**	**MF 5711 SL**	**MF 5712 SL**	**MF 5713 SL**
Brand	AGCO Power			
Type	44 AWFC			
Nominal power hp ISO (kW) at an engine speed of 2200 rpm	95 (70)	105 (77)	115 (85)	125 (92)
Maximum power hp ISO (kW) at an engine speed of 2000 rpm	100 (74)	110 (81)	120 (88)	130 (96)
Maximum PTO power HP SAE (kW) at an engine speed of 2000 rpm	81 (60)	90 (66)	101 (75)	109 (80)
Maximum torque, Nm	420 Nm	468 Nm	502 Nm	545 Nm
Displacement in liters	4.4			
Piston travel	120 mm			
Piston diameter	108 mm			
Compression ratio	17,4 bar: 1 bar			
Number of cylinders	4			
Idle speed, hand brake engaged	750 rpm			
Idle speed, hand brake disengaged	850 rpm			
Nominal speed	2100 rpm			
Maximum speed	2260 rpm			
Engine weight	430 kg			
High-pressure pump brand	Bosch			
High-pressure pump type	CB18			
Firing order	1-2-4-3			
Maximum pressure in the high-pressure system	1800 bar			
Injector brand	Bosch			
Injector type	CRI 2.2			
Charge pump type	Manual			
Fuel prefilter filtration capacity	10 µ			
Main fuel filter filtration capacity	5 µ			

Engine				
Model	**MF 5710 SL**	**MF 5711 SL**	**MF 5712 SL**	**MF 5713 SL**
Low-pressure system pressure at minimum speed	0,5 bar to 1 bar			
Low-pressure system pressure at maximum speed	0,5 bar to 1 bar			
Recommended oil:	API CJ4 or ACEA E9			
Maximum operating tilt (precautions)	25° pitch			
	20° roll			
Oil/fuel consumption	Maximum 0.2%			
Lubrication system	Gear pump			
Oil cooling system	Oil/water heat exchanger			
Oil pressure at minimum speed	1,5 bar			
Oil pressure at maximum speed	2,5 bar at 5 bar depending on the temperature			
Relief valve adjustment pressure	5 bar (spring pressure)			
Air suction type	Turbocharged with air/air intercooler			
Air preheating type	Grid heater with relay controlled by the ECU			
Number of valves	16			
Valve clearance value	0,35 mm (inlet and exhaust)			
Engine cooling system	Coolant			
Fan type	Vistronic			
Thermostat begins to open at	83 °C			
Coolant temperature	-35 °C to 106 °C			
Air compressor brand for the brake system	Knorr Bremse			
Type of compressor	Piston			
Pressure range:	6,5 bar to 8 bar			
Block preheater	110 or 220 volts			
Fuel preheater	Not available			
Urea preheater	Tank: coolant			
Exhaust fumes recirculation system	Pump module and supply lines: electric			
DOC + SCR system (DEF or AdBlue™ injection)	DOC with metal substrate (exhaust fumes oxidation catalyzer)			
	SCR Technology with ceramic substrate (exhaust fume treatment)			
Safety system	NOx sensors at exhaust inlet and outlet			

Engine				
Model	**MF 5710 SL**	**MF 5711 SL**	**MF 5712 SL**	**MF 5713 SL**
Device brand	Bosch Denox 2.2+			
Type of control	Engine controller EEM4			
Urea solidification temperature	-11 °C			
Oil vapor recirculation system	Closed system breather (CCV)			
Belt: Air conditioning compressor/ left-hand alternator	Poly V belt			
Belt: Fan/right-hand alternator	Poly V belt			
Belt: Air compressor	Poly V belt			

Rear axle transmission	
Gearbox type	Dyna-4 GBA25 or GBA25 Dyna-6
Number of ratios	4
Number of ranges	4 or 6
Number of gears	16/16 or 24/24
Super creeper gears	13.68/1
Number of gears with super creeper gears	32/32
Maximum speed	40 km/h
Rear axle type	GPA54
Number of pinion/crown wheel teeth	10/47
Rear axle ratio	25.179
4WD ratio	0.775
Final drive type	GPA54
Final drive reduction ratio	(61+14)/14
Maximum 4WD clutch torque	180 daNm
Number of 4WD disks	6 disks
Main brake type	Multidisc ball ramp
Number of disks per side	5
Braking pressure	-
Parking brake type	Hand brake
Trailer brake type	Hydraulic and/or pneumatic with built-in antifreeze pump
Pneumatic trailer braking pressure	6,9 bar to 8,3 bar

Rear axle transmission	
Hydraulic trailer braking pressure	0 to 150 bar
Maximum operating tilt - pitch (front/rear)	25°
Maximum operating tilt - roll (right/left)	22°
Maximum operating tilt - combined	22°
Total loaded weight supported by rear axle	4-wheel drive: 6400 kg
	2-wheel drive: 6000 kg

Two-wheel drive front axle	
Front axle brand	LODI 140 CP

Four-wheel drive front axle	
Brand	DANA
Supplier reference - suspended axle	730/563
Supplier reference - fixed axle	730/563
Suspended front axle weight	-
Fixed front axle weight	278 kg
Number of differential disks	-
Total ratio for fixed and suspended front axle	14.57
Axle type	Suspended or fixed
Total loaded weight supported by front axle	-
Rotational direction	Anti-clockwise
Recommended oil type (beam and final drive)	SAE85W90 (API GL4-MIL L-2105)
Ratio for fixed and suspended axle final drive	6
Number of pinion/crown wheel teeth	14/34
Maximum steering angle	4-wheel drive: 55°
	2-wheel drive: 52°
Oscillation angle	± 9°
Type of oscillation stop	Mechanical
Suspension type	Hydraulics
Suspension ram diameter	2 mm x 45 mm/35 mm
Suspension ram stroke	140 mm
Hydraulic control unit brand	Husco

Four-wheel drive front axle	
Hydraulic control unit nominal pressure	190 bar
Number of accumulators	2
Volume/pressure of accumulators	0,75 l: 70 bar
	2 l: 40 bar
Suspension sensor type	Angular potentiometer.
Steering sensor type	Angular potentiometer.
Brake type	Combined with the rear brake
Factor K	1.339

Spool valves	
System type	Open Center (OC) 57 l/min or 100 l/min Closed Center Load Sensing (CCLS) 110 l/min
Flow rate	57 l/min or 100 l/min (OC) 110 l/min (CCLS)
High-pressure pump type	Bosch Rexroth gear pump(s) (OC) Bosch Rexroth piston pump (CCLS)
High-pressure pump displacement	19 cm3 (OC 57 l/min) 19 cm3 + 14 cm3 (OC 100 l/min) 45 cm3 (CCLS)
High-pressure pump rotational speed	3042 rpm (OC)
	865 rpm (CCLS)
High-pressure pump maximum flow rate	57 l/min or 100 l/min (OC) 110 l/min (CCLS)
High-pressure pump maximum pressure	200 bar
Maximum quantity of oil to add for heavy implements	25 l
Maximum exportable oil quantity (without adding oil)	24 l
Maximum exportable oil quantity (adding oil)	49 l
Charge pump type	Suction (OC) 60 cm3 gear pump (CCLS 110 l/min)
Main relief valve adjustment pressure	195 bar ± 5 bar (OC) 197 bar ± 5 bar (CCLS)
Number of spool valves (maximum)	4

Spool valves	
Number of front "push-pull" connectors (maximum)	2
Number of rear "push-pull" connectors (maximum)	8
Maximum flow rate per spool valve	57 l/min or 100 l/min (OC) 100 l/min (CCLS)
Spool valve control type	Mechanical
Recommended oil:	According to MF CMS M 1145 specification

Steering	
Steering type	Hydrostatic
Type of control	Steering wheel
Orbitrol displacement	2-wheel drive: 80 cm3
	4-wheel drive: 125 cm3
Steering ram diameter	2-wheel drive: 63 mm x 36 mm
	4-wheel drive: 70 mm x 40 mm
Steering ram stroke	2-wheel drive: 2 x 80 mm
	4-wheel drive: 2 x 108 mm
Working pressure	170 bar - 175 bar
Pressure relief valve adjustment pressure	170 bar - 175 bar
Shock valve adjustment pressure	225 bar - 245 bar
Oil recommended for steering	According to MF CMS M1145 specification

Rear linkage	
Lift ram diameter	85 mm
Linkage travel	737 mm
Maximum lifting capacity at ball joints	4206 kg
Working pressure	180 bar
3-point linkage category	CAT3

Front linkage	
Lift ram diameter	80 mm x 40 mm
Linkage travel	695 mm
Maximum lifting capacity at ball joints	2236 kg
Working pressure	190 bar
3-point linkage category	CAT2

Live PTO	
Number of selections possible for rear PTO	540 540/540E 540/540E/1000
Maximum permissible power 540 in 1"3/8 (6 and 21 splines)	125 hp (92)
Maximum permissible power 540E in 1"3/8 (6 and 21 splines)	62.5 hp (46)
Maximum permissible power 1000 in 1"3/8 (6 and 21 splines)	125 hp (92)
Engine speed for 540 PTO	1920 rpm
Engine speed for 540E PTO	1560 rpm
Engine speed for 1000 PTO	1964 rpm
Rotational direction	Clockwise
Clutch type	Multidisc hydraulic
Number of clutch disks	4
Control pressure	21 bar
Splined shaft type	6 and 21 in 1"3/8

Front power take-off	
Number of selections possible for front PTO	1000 rpm
Maximum permissible power	Anti-clockwise: 128 hp (94 kW)
Maximum permissible input-output torque	Anti-clockwise: 449 Nm - 898 Nm
Rotational direction	anti-clockwise
Engine speed if PTO 1000	2000 rpm

Front power take-off	
Ratio	2
Clutch type	Multidisc hydraulic
Splined shaft type	6 or 21 in 1"3/8

Electric	
Battery brand	TAB
Battery specifications (1 battery)	12 V - 105 A/h Type L5
Maximum current at start-up (SAE standard)	505A
Starter type	12 V Iskra
Starter power	3.2 KW
Alternator type	1 x 120 A or 1 x 175 A
Current available on ISOBUS connector	Not available

Electronics	
Instrument panel	IC1
3 Autotronic 5 DC	Transmission/linkage/suspended front axle
Lighting/linkage controller	Management of the lighting and of the rear linkage
1 EEM4 (ECM Tier 4f AGCO Power)	Engine and SCR Denox 2.2+ system
1 Orbitrol Danfoss valve	Auto-Guide™/ functionSpeedSteer
Datatronic CCD	Onboard computer
Automatic air conditioning module	Air conditioning
CAN switches key pad	Controls for several tractor functions, such as 4WD, differential lock, high beam, Auto-Guide™, SpeedSteer.
AM50 unit	AgCommand™ (telemetry)

Cab and fittings	
Type of cab suspension available	Mechanical
Type of rear-view mirror control available	Manual or electric
Type of air conditioning control available	Manual or automatic
Type and brand of air conditioning compressor	SANDEN with axial pistons
Compressor displacement	154.9 cm3/rev.

Cab and fittings	
Refrigerant	R134a
Cab noise level	71 DBA
Roof type	Standard High-visibility Flat

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