

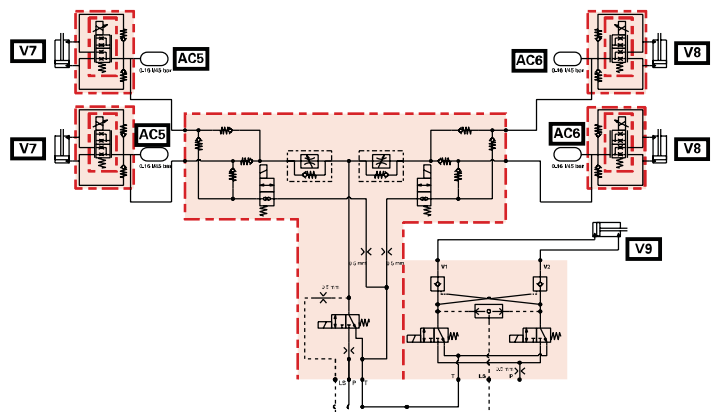
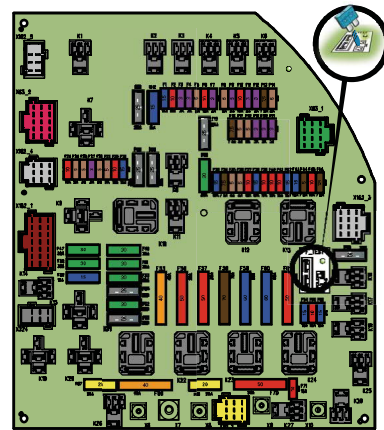
Workshop Service Manual

Technician Service Book -

MF 8600 T4i

HA260
ML260

Electrical and hydraulics diagrams



Technician Service Book - MF 8600 T4i

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A - General

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1 General specifications - MF 8600 T4i

Model MF 8650

Engine	
Brand	AGCO Power
Type	84 AWI-4V
Nominal power (ISO TR14396) at 2200 rpm	240 hp
Maximum power (ISO TR14396) at 2000 rpm	270 hp
Maximum torque (ISO TR14396)	1195 Nm
Maximum PTO power (OECD) at PTO 1000 rpm	225 hp
Idle speed with ParkLock engaged	700 rpm
Normal idle speed	1000 rpm
Maximum speed	2230 rpm
Engine weight	1000 kg
Number of cylinders	6
Engine displacement (in litres)	8.4
Piston travel	145 mm
Piston diameter	111 mm
Compression ratio	16,7 bar ± 0,5 bar
Compression pressure	24 bar
Injection pump brand	Bosch
Injection pump type	Common rail CP4.2
Firing order	1-5-3-6-2-4
Maximum pressure in the high-pressure system	1800 bar
Injector brand	Bosch
Injector type	CRIN 3/8 holes
Charge pump type	Manual
Fuel prefilter filtration capacity	25 µ
Main fuel filter filtration capacity	5 µ
Low-pressure system pressure at minimum speed	0,5 bar to 8,5 bar
Low-pressure system pressure at maximum speed	0,5 bar to 8,5 bar
Recommended oil:	API CJ4 or ACEA E9
Maximum operating tilt (precautions)	25° pitch
	20° roll
Oil/fuel consumption	Maximum 0.1%
Lubrication system	Gear pump at the bottom of the timing
Oil cooling system	Cooler integrated into the engine (left side)
Oil pressure at minimum speed	1 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	24
Valve clearance value	0,35 mm (inlet and exhaust)
Engine cooling system	Coolant
Fan type	Vistronic fan

Engine	
Thermostat begins to open at	82 °C
Coolant temperature	-35 °C to 108 °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	Accessory kit available
Urea preheater	Tank and gauge: coolant Pump module and supply lines: electric
Exhaust fumes recirculation system	DOC + SCR system
DOC + SCR system (AdBlue™ or DEF injection)	DOC with metal substrate (exhaust fumes oxidation catalyser) SCR with ceramic substrate (exhaust fume treatment)
Safety system	NOx sensors at exhaust inlet and outlet
Device brand	Bosch Denox 2.2
Type of control	Engine controller EEM4
Urea solidification temperature	-11 °C
Oil vapour recirculation system	Closed system breather (CCV)
Belt: air conditioning compressor/left-hand alternator/air compressor (2 dimensions: with or without air compressor)	Poly V 6 rib belt
Belt: fan/right-hand alternator/air compressor (2 dimensions: a different fan pulley is used depending on the power)	Poly V 12 rib belt

Rear axle transmission	
Gearbox type	Continuous variation
Transmission type	ML 260
Number of ranges	2 ranges (high speed range (Hare) and low speed range (Tortoise))
Maximum speed	40 km/h or 50 km/h
Number of creeper gears	No creeper gears
Rear axle type	HA 260 F
Number of pinion/ring gear teeth	12/43
Rear axle ratio (crownwheel and pinion)	32.967
4WD ratio	0.68
Final drive type	Epicyclic
Final drive reduction ratio	9.2 (123+15/15)
Maximum 4WD clutch torque	350 daNm
Number of 4WD discs	7 discs
Main brake type	10" oil-immersed disc
Number of discs	6 discs
Braking pressure	0 to 60 bar
Parking brake type	ParkLock (electrical/hydraulic)
Trailer brake type	Hydraulic and pneumatic with built-in antifreeze pump

Rear axle transmission	
Pneumatic trailer braking pressure	6,5 bar to 8 bar
Hydraulic trailer braking pressure	0 to 150 bar
Maximum operating tilt	25° pitch (front/rear)
	25° roll (right/left)
	17° combined
Transmission preheater	110 volts/150 watt
Total loaded weight supported by rear axle	11500 kg

Front axle	
Front axle brand	DANA
Axle type	Suspended or fixed
Supplier reference	Fixed: – 770/504 (standard) – 770/510 (option)
	Suspended: – 770/618 (standard) – 770/624 (option)
Rotational direction	Clockwise
Front axle weight	Fixed: – 770/504: 770 kg – 770/510: 830 kg
	Suspended: – 770/618: 1077 kg – 770/624: 1230 kg
Total loaded weight supported by front axle	9000 kg
Recommended oil type (beam and final drive)	SAE 85 W 90 (API GL4)
Total ratio for front axle	16.862
Number of teeth on final drive	14 x 35 x 85
Final drive ratio	7.071
Number of pinion/ring gear teeth	13/31
Number of differential discs	15 discs
Maximum steering angle	55°
Oscillation angle	± 9°
Type of oscillation stop	Mechanical
Steering ram diameter	90 mm x 45 mm (front axles 770/504 and 770/618)
	110 mm x 60 mm (front axles 770/510 and 770/624)
Steering ram stroke	2 x 143,5 mm (front axles 770/504 and 770/618)
	2 x 146 mm (front axles 770/510 and 770/624)
Suspension type	Hydraulics
Suspension ram diameter	90 mm x 100 mm
Suspension ram stroke	100 mm
Hydraulic control unit brand	Husco
Hydraulic control unit nominal pressure	200 bar
Number of accumulators	2
Accumulator pressure	Left 1 l : 10 bar
	Right 1,4 l : 50 bar

Front axle	
Suspension sensor type	Angular potentiometer.
Steering sensor type	Angular potentiometer.
Brake type	Combined with the rear brake
Factor K	1.331

Electrohydraulic	
System type	Load Sensing
Flow rate	180 l/min
High-pressure pump type	Sauer Danfoss piston pump
High-pressure pump displacement	75 cm ³
High-pressure pump rotational speed	2200 rpm
High-pressure pump maximum flow rate	200 l/min
High-pressure pump maximum pressure	200 bar
Maximum quantity of oil to add for heavy implements	16 l
Maximum exportable oil quantity (without adding oil)	42 l continuous
	64 l temporary (example: emptying a bucket)
Maximum exportable oil quantity (adding oil)	58 l continuous
	80 l temporary (example: emptying a bucket)
Charge pump type	Gravity
Main relief valve adjustment pressure	200 bar ± 10 bar
Number of spool valves (maximum)	8
Number of front "push-pull" connectors	4 connectors i.e. 2 spool valves
Number of rear "push-pull" connectors	12 connectors i.e. 6 spool valves
Maximum flow rate per spool valve	100 l/min
Spool valve control type	Electric
Recommended oil:	According to MF CMS M1145 specification

Steering	
Steering type	Hydrostatic
Type of control	Steering wheel (standard)
	Steering wheel + electrohydraulic spool valve (SpeedSteer and Auto-Guide™ options)
Orbitrol displacement	315 cm ³ (front axles 770/504 and 770/618)
	400 cm ³ (front axles 770/510 and 770/624)
Steering ram diameter	90 mm x 45 mm (front axles 770/504 and 770/618)
	110 mm x 60 mm (front axles 770/510 and 770/624)
Steering ram stroke	2 x 143,5 mm (front axles 770/504 and 770/618)
	2 x 146 mm (front axles 770/510 and 770/624)
Working pressure	175 bar ± 5 bar
Pressure relief valve adjustment pressure	175 bar ± 5 bar
Shock valve adjustment pressure	235 bar ± 10 bar
Oil recommended for steering	According to MF CMS M1145 specification

Linkage	
Rear lift ram diameter	105 mm
Rear linkage travel	788 mm or 860 mm
Maximum lifting capacity at ball joints (rear)	10000 kg
Operating pressure (rear)	180 bar
3-point linkage category (rear)	3
Front lift ram diameter	100 mm x 50 mm
Front linkage travel	826 mm
Maximum lifting capacity at ball joints (front)	5000 kg
Operating pressure (front)	180 bar
3-point linkage category (front)	3

Rear power take-off (PTO)	
Number of selections possible for rear PTO	540E/1000/1000E
Maximum permissible power 540E in 1"3/8 (21 splines)	100 hp
Maximum permissible power 540E in 1"3/4 (20 splines)	160 hp
Maximum permissible power 1000/1000E in 1"3/8 (6 and 21 splines)	180 hp
Maximum permissible power 1000/1000E in 1"3/4 (20 splines)	239 hp
Engine speed if PTO 540E/1000E	1600 rpm
Engine speed if PTO 1000	2030 rpm
Rotational direction	Clockwise
Clutch type	Hydraulics
Number of clutch discs	8 discs
Control pressure	18 bar
Splined shaft type	6 and 21 in 1"3/8 and 20 in 1"3/4

Front power take-off	
Number of selections possible for front PTO	1000 rpm
Maximum permissible power	Clockwise: 143 hp
	Anti-clockwise: 214 hp
Maximum permissible torque	Clockwise: 507 Nm
	Anti-clockwise: 762 Nm
Rotational direction	2 directions of rotation
Engine speed if PTO 1000	2040 rpm
Ratio	2.04
Clutch type	Hydraulics
Splined shaft type	6 and 21 in 1"3/8

Electric	
Battery brand	TAB
Battery specifications (2 batteries)	12 V - 105 A/H
Maximum current at start-up (IEC standard)	1010 A

Electric	
Starter type	12 V noseless
Starter power	4.2 kW
Alternator type	2 x 14 V/80 A (160 A) or 2 x 14 V/120 A (240 A)
Current available on ISOBUS connector	50 A

Electronics	
Function of each controller	
instrument panel	Instrument panel
EXT Lite	Transmission, ParkLock function and front axle suspension
3 Autotronic 5 DC	Linkage/Electrohydraulic spool valves/Arm-rest/Semi-active cab
PVG 32 valves	Electrohydraulic spool valves
Lights module	User interface for lights
Lighting controller	Lighting control
1 EEM4 (ECM Tier 4i AGCO Power)	Engine and SCR Denox 2.2 system
1 Orbitrol Danfoss valve	Orbitrol for the Auto-Guide™/SpeedSteer function
Datatronic CCD	Onboard computer
Automatic air conditioning module	Air conditioning
CAN switches key pad	Controls for several tractor functions, such as 4WD, differential lock, suspension, and Auto-Guide™.
AM50 unit	AGCOMMAND (telemetry)

Cab and fittings	
Type of cab suspension available	Semi-active
Type of rear-view mirror control available	Manual or automatic
Type of air conditioning control available	Manual or automatic
Type and brand of air conditioning compressor	SANDEN with axial pistons
Compressor displacement	154.9 cm ³ /rev.
Refrigerant	R134a
Cab noise level	71 DBA
Roof type	Standard or with window

Model MF 8660

Engine	
Brand	AGCO Power
Type	84 AWI-4V
Nominal power (ISO TR14396) at 2200 rpm	265 hp
Maximum power (ISO TR14396) at 2000 rpm	295 hp
Maximum torque (ISO TR14396)	1310 Nm
Maximum PTO power (OECD) at PTO 1000 rpm	250 hp
Idle speed with ParkLock engaged	700 rpm
Normal idle speed	1000 rpm
Maximum speed	2230 rpm
Engine weight	1000 kg
Number of cylinders	6

Engine	
Engine displacement (in litres)	8.4
Piston travel	145 mm
Piston diameter	111 mm
Compression ratio	16,7 bar ± 0,5 bar
Compression pressure	24 bar
Injection pump brand	Bosch
Injection pump type	Common rail CP 4.2
Firing order	1-5-3-6-2-4
Maximum pressure in the high-pressure system	1800 bar
Injector brand	Bosch
Injector type	CRIN 3/8 holes
Charge pump type	Manual
Fuel prefilter filtration capacity	25 µ
Main fuel filter filtration capacity	5 µ
Low-pressure system pressure at minimum speed	0,5 bar to 8,5 bar
Low-pressure system pressure at maximum speed	0,5 bar to 8,5 bar
Recommended oil:	API CJ4 or ACEA E9
Maximum operating tilt (precautions)	25° Pitch
	20° Roll
Oil/fuel consumption	Maximum 0.1%
Lubrication system	Gear pump at the bottom of the timing
Oil cooling system	Cooler integrated into the engine (left side)
Oil pressure at minimum speed	1 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	24
Valve clearance value	0,35 mm (inlet and exhaust)
Engine cooling system	Coolant
Fan type	Vistronic fan
Thermostat begins to open at	82 °C
Liquid temperature of coolant	-35 °C to 108 °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	Accessory kit available
Urea preheater	Tank and gauge: coolant
	Pump module and supply lines: electric
Exhaust fumes recirculation system	DOC + SCR system
DOC + SCR system (AdBlue™ or DEF injection)	DOC with metal substrate (exhaust fumes oxidation catalyser)
	SCR with ceramic substrate (exhaust fume treatment)

Engine	
Safety system	NOx sensors at exhaust inlet and outlet
Device brand	Bosch Denox 2.2
Type of control	Engine controller EEM4
Urea solidification temperature	-11 °C
Oil vapour recirculation system	Closed system breather (CCV)
Belt: air conditioning compressor/left-hand alternator/air compressor (2 dimensions: with or without air compressor)	Poly V 6 rib belt
Belt: fan/right-hand alternator/air compressor (2 dimensions: a different fan pulley is used depending on the power)	Poly V 12 rib belt

Rear axle transmission	
Gearbox type	Continuous variation
Transmission type	ML 260
Number of ranges	2 ranges (high speed range (Hare) and low speed range (Tortoise))
Maximum speed	40 km/h or 50 km/h
Number of creeper gears	No creeper gears
Rear axle type	HA 260 F
Number of pinion/ring gear teeth	12/43
Rear axle ratio (crownwheel and pinion)	32.967
4WD ratio	0.68
Final drive type	Epicyclic
Final drive reduction ratio	9.2 (123+15/15)
Maximum 4WD clutch torque	350 daNm
Number of 4WD discs	7 discs
Main brake type	10" oil-immersed disc
Number of discs	6 discs
Braking pressure	0 to 60 bar
Parking brake type	ParkLock (electrical/hydraulic)
Trailer brake type	Hydraulic and pneumatic with built-in antifreeze pump
Pneumatic trailer braking pressure	6,5 bar to 8 bar
Hydraulic trailer braking pressure	0 to 150 bar
Maximum operating tilt	25° pitch (front/rear) 25° roll (right/left) 17° combined
Transmission preheater	110 volts/150 watt
Total loaded weight supported by rear axle	11500 kg

Front axle	
Front axle brand	DANA
Axle type	Suspended or fixed
Supplier reference	Fixed: – 770/504 (standard) – 770/510 (option)
	Suspended: – 770/618 (standard) – 770/624 (option)
Rotational direction	Clockwise
Front axle weight	Fixed: – 770/504: 770 kg – 770/510: 830 kg
	Suspended: – 770/618: 1077 kg – 770/624: 1230 kg
Total loaded weight supported by front axle	9000 kg
Recommended oil type (beam and final drive)	SAE 85 W 90 (API GL4)
Total ratio for front axle	16.862
Number of teeth on final drive	14 x 35 x 85
Final drive ratio	7.071
Number of pinion/ring gear teeth	13/31
Number of differential discs	15 discs
Maximum steering angle	55°
Oscillation angle	± 9°
Type of oscillation stop	Mechanical
Steering ram diameter	90 mm x 45 mm (front axles 770/504 and 770/618)
	110 mm x 60 mm (front axles 770/510 and 770/624)
Steering ram stroke	2 x 143,5 mm (front axles 770/504 and 770/618)
	2 x 146 mm (front axles 770/510 and 770/624)
Suspension type	Hydraulics
Suspension ram diameter	90 mm x 100 mm
Suspension ram stroke	100 mm
Hydraulic control unit brand	Husco
Hydraulic control unit nominal pressure	200 bar
Number of accumulators	2
Accumulator pressure	Left 1 l : 10 bar
	Right 1,4 l : 50 bar
Suspension sensor type	Angular potentiometer.
Steering sensor type	Angular potentiometer.
Brake type	Combined with the rear brake
Factor K	1.331

Electrohydraulic	
System type	Load Sensing
Flow rate	180 l/min
High-pressure pump type	Sauer Danfoss piston pump

Electrohydraulic	
High-pressure pump displacement	75 cm ³
High-pressure pump rotational speed	2200 rpm
High-pressure pump maximum flow rate	200 l/min
High-pressure pump maximum pressure	200 bar
Maximum quantity of oil to add for heavy implements	16 l
Maximum exportable oil quantity (without adding oil)	42 l continuous
	64 l temporary (example: emptying a bucket)
Maximum exportable oil quantity (adding oil)	58 l continuous
	80 l temporary (example: emptying a bucket)
Charge pump type	Gravity
Main relief valve adjustment pressure	200 bar ± 10 bar
Number of spool valves (maximum)	8
Number of front "push-pull" connectors	4 connectors i.e. 2 spool valves
Number of rear "push-pull" connectors	12 connectors i.e. 6 spool valves
Maximum flow rate per spool valve	100 l/min
Spool valve control type	Electric
Recommended oil:	According to MF CMS M1145 specification

Steering	
Steering type	Hydrostatic
Type of control	Steering wheel (standard)
	Steering wheel + electrohydraulic spool valve (SpeedSteer and Auto-Guide™ options)
Orbitrol displacement	315 cm ³ (front axles 770/504 and 770/618)
	400 cm ³ (front axles 770/510 and 770/624)
Steering ram diameter	90 mm x 45 mm (front axles 770/504 and 770/618)
	110 mm x 60 mm (front axles 770/510 and 770/624)
Steering ram stroke	2 x 143,5 mm (front axles 770/504 and 770/618)
	2 x 146 mm (front axles 770/510 and 770/624)
Working pressure	175 bar ± 5 bar
Pressure relief valve adjustment pressure	175 bar ± 5 bar
Shock valve adjustment pressure	235 bar ± 10 bar
Oil recommended for steering	According to MF CMS M1145 specification

Linkage	
Rear lift ram diameter	105 mm
Rear linkage travel	788 mm or 860 mm
Maximum lifting capacity at ball joints (rear)	10000 kg
Operating pressure (rear)	180 bar
3-point linkage category (rear)	3
Front lift ram diameter	100 mm x 50 mm
Front linkage travel	826 mm

Linkage	
Maximum lifting capacity at ball joints (front)	5000 kg
Operating pressure (front)	180 bar
3-point linkage category (front)	3

Rear power take-off (PTO)	
Number of selections possible for rear PTO	540E/1000/1000E
Maximum permissible power 540E in 1"3/8 (21 splines)	100 hp
Maximum permissible power 540E in 1"3/4 (20 splines)	160 hp
Maximum permissible power 1000/1000E in 1"3/8 (6 and 21 splines)	180 hp
Maximum permissible power 1000/1000E in 1"3/4 (20 splines)	262 hp
Engine speed if PTO 540E/1000E	1600 rpm
Engine speed if PTO 1000	2030 rpm
Rotational direction	Clockwise
Clutch type	Hydraulics
Number of clutch discs	8 discs
Control pressure	18 bar
Splined shaft type	6 and 21 in 1"3/8 and 20 in 1"3/4

Front power take-off	
Number of selections possible for front PTO	1000 rpm
Maximum permissible power	Clockwise: 143 hp
	Anti-clockwise: 214 hp
Maximum permissible torque	Clockwise: 507 Nm
	Anti-clockwise: 762 Nm
Rotational direction	2 directions of rotation
Engine speed if PTO 1000	2040 rpm
Ratio	2.04
Clutch type	Hydraulics
Splined shaft type	6 and 21 in 1"3/8

Electric	
Battery brand	TAB
Battery specifications (2 batteries)	12 V - 105 A/H
Maximum current at start-up (IEC standard)	1010 A
Starter type	12 V noseless
Starter power	4.2 kW
Alternator type	2 x 14 V/80 A (160 A) or 2 x 14 V/120 A (240 A)
Current available on ISOBUS connector	50 A

Electronics	
Function of each controller	
instrument panel	Instrument panel
EXT Lite	Transmission, ParkLock function and front axle suspension
3 Autotronic 5 DC	Linkage/Electrohydraulic spool valves/Arm-rest/Semi-active cab
PVG 32 valves	Electrohydraulic spool valves
Lights module	User interface for lights
Lighting controller	Lighting control
1 EEM4 (ECM Tier 4i AGCO Power)	Engine and SCR Denox 2.2 system
1 Orbitrol Danfoss valve	Orbitrol for the Auto-Guide™/SpeedSteer function
Datatronic CCD	Onboard computer
Automatic air conditioning module	Controls for several tractor functions, such as 4WD, differential lock, suspension, and Auto-Guide™.
AM50 unit	AGCOMMAND (telemetry)

Cab and fittings	
Type of cab suspension available	Semi-active
Type of rear-view mirror control available	Manual or automatic
Type of air conditioning control available	Manual or automatic
Type and brand of air conditioning compressor	SANDEN with axial pistons
Compressor displacement	154.9 cm ³ /rev.
Refrigerant	R134a
Cab noise level	71 DBA
Roof type	Standard or with window

Model MF 8670

Engine	
Brand	AGCO Power
Type	84 AWI-4V
Nominal power (ISO TR14396) at 2200 rpm	290 hp
Maximum power (ISO TR14396) at 2000 rpm	320 hp
Maximum torque (ISO TR14396)	1455 Nm
Maximum PTO power (OECD) at PTO 1000 rpm	275 hp
Idle speed with ParkLock engaged	700 rpm
Normal idle speed	1000 rpm
Maximum speed	2230 rpm
Engine weight	665 kg
Number of cylinders	6
Engine displacement (in litres)	8.4
Piston travel	145 mm
Piston diameter	111 mm
Compression ratio	16,7 bar ± 0,5 bar
Compression pressure	24 bar
Injection pump brand	Bosch
Injection pump type	Common rail CP4.2

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