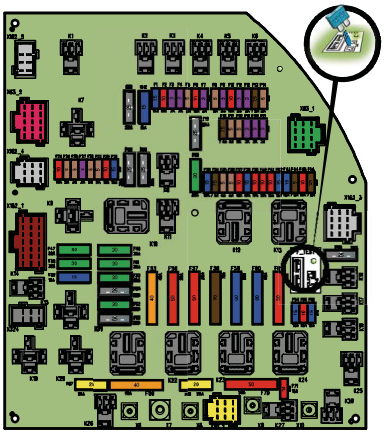
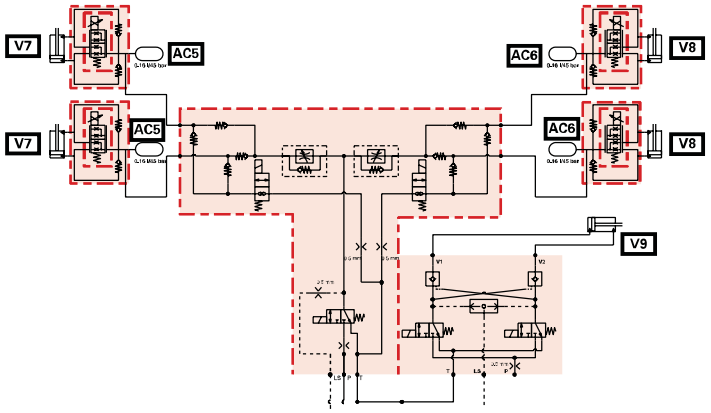
Workshop Service Manual

Technician Service Book - MF 7600

GBA15
GBA25
GPA20
GPA40
HA130
HA160
ML130
ML160

Electrical and hydraulics diagrams





May 2015
No. 4373228M4
7600 Dyna-4
7600 Dyna-6
7600 Dyna-VT
EAME - English

Technician Service Book - MF 7600

1 - General

A - General specifications

1 Model MF 7614 Dyna-4

Engine	
Brand	AGCO Power
Type	66 AWI - 4V
Nominal power (ISO TR14396) at 2100 rpm	130 hp (96 kW)
Maximum power (ISO TR14396) at 1950 rpm	140 hp (103 kW)
EPM (Engine Power Management): Maximum power (ISO TR14396) at 2100 rpm	155 hp (114 kW)
EPM: Maximum torque (ISO TR14396)	660 Nm
Idle speed, Power Control lever in neutral or main brakes engaged	700 rpm
Normal idle speed	1000 rpm
Nominal speed	2100 rpm
Maximum speed	2160 rpm
Engine weight	960 kg
Number of cylinders	6
Engine displacement in litres	6.6
Piston travel	120 mm
Piston diameter	108 mm
Compression ratio	17.4
Compression pressure	-
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	CRIN3 / 8 holes
Charge pump type	Manual
Fuel prefilter filtration capacity	10 µ
Main fuel filter filtration capacity	5 µ
Low-pressure system pressure at minimum speed	0.5 bar - 8.5 bar
Low-pressure system pressure at maximum speed	0.5 bar - 8.5 bar
Recommended oil:	API CJ4 / ACEA E9
Maximum operating tilt (precautions)	20° roll 25° pitch
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	1.5 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	24 (4 per cylinder)
Valve clearance value	0.35 mm (inlet and exhaust)
Engine cooling system	Coolant

Engine	
Fan type	Viscostatic
Thermostat begins to open at	83°C
Liquid temperature from - to	-35°C to 106°C
Air compressor brand for the brake system	Knorr Bremse
Type of compressor	Pistons
Pressure range:	6.5 bar to 8 bar
Type and brand of air conditioning compressor	SD7H15 - Sanden
Air conditioning compressor displacement (cm^3)	150
Refrigerant	R134a
Block preheater	110 or 220 volts
Fuel preheater	Options
Urea preheater	Coolant (tank) Electric (supply module and urea lines)
Exhaust fumes recirculation system	DOC (diesel oxidation catalyst) + SCR (selective catalytic reduction) systems
DOC (diesel oxidation catalyst) system	DOC (diesel oxidation catalyst) with metal substrate (exhaust fumes oxidation catalyst)
SCR system (AdBlue™ or DEF injection)	SCR with 2 ceramic substrates in silencer (exhaust fume treatment)
Safety system	NOx sensors at exhaust inlet and outlet
Device brand	Bosch Denox 2.2
Type of control	Engine controller EEM4
Tank strainer filtration capacity	70 µm
Main filter filtration capacity	20 µm
Filtration capacity of pump module inlet connector	100 µm
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 10 rib belt

Rear axle transmission	
Gearbox type	GBA25
Transmission type	Dyna-4
Number of ratios	4
Number of ranges	4
Number of gears	16/16
Creeper gears	4/1
Number of gears with creeper gears	24/24
Super creeper gears	14/1
Number of gears with super creeper gears	32/32
Maximum speed	40 kph
Rear axle type	GPA23
Number of pinion/ring gear teeth	8/39

Rear axle transmission	
Rear axle ratio (crownwheel and pinion)	27.161
4WD ratio	0.830
Final drive type	Super Heavy Duty
Final drive reduction ratio	(64+14)/14
Maximum 4WD clutch torque	206 daNm
Number of 4WD discs	6
Main brake type	Disc
Number of discs	1 per side
Braking pressure	-
Parking brake type	Hand brake
Trailer brake type	Hydraulic and/or 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 - pitch (front/rear)	15° (> 15 kph) 22° (< or = 15 kph)
Maximum operating tilt - roll (right/left)	15° (> 15 kph) 22° (< or = 15 kph)
Maximum operating tilt - combined	15° (> 15 kph) 22° (< or = 15 kph)
Transmission preheater	110 V and 240 V accessory kits
Total loaded weight supported by rear axle - 40 kph	6900 kg

Front axle	
Front axle brand	DANA
Axle type	Fixed or suspended
Supplier reference - fixed front axle	735/530
Supplier reference - suspended front axle	735/613
Rotational direction	Anti-clockwise
Fixed front axle weight	347 kg
Suspended front axle weight	587 kg
Total loaded weight supported by front axle (maximum load on road)	5400 kg
Recommended oil type (beam and final drive)	SAE85W90 (API GL4-MIL L-2105)
Total ratio for fixed front axle	17.000
Total ratio for suspended front axle	17.000
Number of teeth on final drive	–
Ratio for fixed axle final drive	6
Ratio for suspended axle final drive	6
Number of fixed axle pinion/ring gear teeth	12/34
Number of suspended axle pinion/ring gear teeth	12/34
Differential type	Multidisc
Number of differential discs	12
Maximum steering angle	55°
Oscillation angle	± 9°
Type of oscillation stop	Mechanical

Front axle	
Steering ram diameter	68 mm x 32 mm
Steering ram stroke	2 x 129 mm
Suspension type	Hydraulics
Suspension ram diameter	65 mm x 60 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-hand 0.5 l = 10 bar Right-hand 0.75 l = 50 bar
Suspension sensor type	Angular potentiometer.
Steering sensor type	Angular potentiometer.
Brake type	Combined with the rear brake
Factor K	1.326

Electrohydraulic	
System type	Open centre (OC) 57 l/min or 100 l/min Closed Centre 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	2200 rpm
High-pressure pump maximum flow rate	57 l/min or 98 l/min (OC) 117 l/min (CCLS)
High-pressure pump maximum pressure	200 bar
Maximum quantity of oil to add for heavy implements	10 l
Maximum exportable oil quantity (without adding oil)	32 l
Maximum exportable oil quantity (adding oil)	42 l
Charge pump type	Suction (OC) Gear pump 71 cm3 (CCLS 110 l/min)
Main relief valve adjustment pressure	195 bar ± 5 bar (OC) 230 bar ± 5 bar (CCLS)
Number of spool valves (maximum)	4
Number of front "push-pull" connectors (maximum)	4
Number of rear "push-pull" connectors (maximum)	8
Maximum flow rate per spool valve	57 l/min or 98 l/min (OC) 100 l/min (CCLS)
Spool valve control type	Mechanical (OC) Electrohydraulic (CCLS)
Recommended oil:	According to MF CMS M 1145 specification

Steering	
Steering type	Hydrostatic
Type of control	Steering wheel
Steering unit displacement	160 cm3
Steering ram diameter	68 mm x 32 mm
Steering ram stroke	2 x 129 mm
Working pressure	175 bar ± 5 bar
Pressure relief valve adjustment pressure	175 bar ± 5 bar
Shock valve adjustment pressure	240 bar
Oil recommended for steering	According to MF CMS M1145 specification

Linkage	
Rear lift ram diameter	75 mm
Rear linkage travel	728 mm (CAT 2) 718 mm (CAT 3)
Maximum lifting capacity at ball joints (rear)	7100 kg
Operating pressure (rear)	180 bar
3-point linkage category (rear)	CAT 2 or CAT 3
Front lift ram diameter	80 mm (3.2 t) 90 mm (4 t)
Front linkage travel	684 mm (3.2 t) 750 mm (4 t)
Maximum lifting capacity at ball joints (front)	3200 kg or 4000 kg
Operating pressure (front)	180 bar
3-point linkage category (front)	CAT 2

Rear power take-off (PTO)	
Number of selections possible for rear PTO	540/1000 540/540E/1000/1000E with GSPTO option
Maximum permissible power 540/540E in 1"3/8 (6 and 21 splines)	540 = 74 kW 540E = 40 kW
Maximum permissible power 540/540E in 1"3/4 (20 splines)	540 = 74 kW 540E = 40 kW
Maximum permissible power 1000/1000E in 1"3/8 (6 and 21 splines)	1000 = 93 kW 1000E = 40 kW
Maximum permissible power 1000/1000E in 1"3/4 (20 splines)	1000 = 93 kW 1000E = 40 kW
Engine speed if PTO 540	1980 rpm
Engine speed if PTO 540E	1533 rpm
Engine speed if PTO 1000	2030 rpm
Engine speed if PTO 1000E	1572 rpm
Rotational direction	Clockwise
Clutch type	Multidisc hydraulic
Number of clutch discs	5
Control pressure	21 bar
Splined shaft type	6 or 21 in 1"3/8 or 20 in 1"3/4

Front power take-off	
Number of selections possible for front PTO	1000 rpm
Maximum permissible power - clockwise	100 kW
Maximum permissible power - anti-clockwise	110 kW
Maximum permissible torque - clockwise	497 Nm
Maximum permissible torque - anti-clockwise	549 Nm
Rotational direction	2 directions of rotation: Clockwise or anti-clockwise
Engine speed if PTO 1000	1920 rpm
Ratio	1.92
Clutch type	Multidisc hydraulic
Splined shaft type	6 or 21 in 1"3/8

Electric	
Battery brand	TAB
Battery specifications (2 batteries)	12V 66 A/H
Maximum current at start-up (IEC standard)	840 A
Starter type	12 V
Starter power	3.2 KW
Alternator type	1 x 175 A or 2 x 120 A
Current available on ISOBUS connector	50 A
Hazard warning light unit	HELLA
Interior light, left-hand door	2 x 5 W
Roof light	-
Type of bulb for side light indicators on hand rail	12 V 21 W / 12 V 10 W
Type of bulb for brake lights, side lights on fenders	12 V 21 W / 12 V 5 W
Type of bulb for main beams on lighting bar at front of bonnet	H4 - 12 V 60/55 W
Type of bulb for dipped lights and side lights on lighting bar at front of bonnet	H7 - 12 V 55 W + T4 - 12 V 4 W
Type of bulb for main beams on hand rail	H4 - 12 V 60/55 W
Type of bulb for main beams on hand rail, low position	H3 - 12 V 55 W
Type of bulb for work lights on hand rail	H3 - 12 V 55 W
Type of bulb for work lights on roof	H3 - 12 V 55 W
Type of bulb for work lights on step	-
Type of bulb for number plate lights on roof	H3 - 12 V 55 W
Type of bulb for reversing lights	12 V 21 W
Type of bulb for rotary beacon	H1 - 12 V 55 W

Electronics	
Function of each controller	
DCC3	Instrument panel
EXT Lite	-
CAN levers and armrest	-

Electronics	
AUTOTRONIC 5 DC	3 Autotronic 5 DC: – 1 for linkage – 1 for transmission – 1 TECU (without VIN code) suspended front axle
SB23 valves	-
Lights module	Linkage/rear electrohydraulic power take-off/user lights interface
Lighting controller	-
EEM4 (ECM Tier 4 AGCO Power)	Engine/Denoxtronic module
NOx ECU	2 NOx ECU: converters of NOx sensor signals to EEM4 via CAN
Danfoss Orbitrol valve	-
TopDock aerial	-
Datatronic CCD	-
Automatic air conditioning module	-
CAN switches key pad	-
LIN switches key pad	Controls for: – main lighting – 4WD front axle, manual and automatic – manual and automatic differential lock – front axle suspension
AM50 unit	AgCommand™

Cab and fittings	
Type of cab suspension available	Mechanical, 2 points at rear
Type of rear-view mirror control available	Manual
Type of air conditioning control available	Manual
Type and brand of air conditioning compressor	SANDEN with axial pistons
Compressor displacement	154.9 cm3/rev.
Refrigerant	R134a
Noise level in cab with doors closed	70 dBA
Roof type	Standard or with hatch or high visibility

2 Model MF 7615 Dyna-4

Engine	
Brand	AGCO Power
Type	66 AWI - 4V
Nominal power (ISO TR14396) at 2100 rpm	140 hp (103 kW)
Maximum power (ISO TR14396) at 1950 rpm	150 hp (110 kW)
EPM (Engine Power Management): Maximum power (ISO TR14396) at 2100 rpm	165 hp (121 kW)
EPM: Maximum torque (ISO TR14396)	677 Nm
Idle speed, Power Control lever in neutral or main brakes engaged	700 rpm
Normal idle speed	1000 rpm
Nominal speed	2100 rpm
Maximum speed	2160 rpm
Engine weight	960 kg
Number of cylinders	6
Engine displacement in litres	6.6
Piston travel	120 mm
Piston diameter	108 mm
Compression ratio	17.4
Compression pressure	-
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	CRIN3 / 8 holes
Charge pump type	Manual
Fuel prefilter filtration capacity	10 µ
Main fuel filter filtration capacity	5 µ
Low-pressure system pressure at minimum speed	0.5 bar - 8.5 bar
Low-pressure system pressure at maximum speed	0.5 bar - 8.5 bar
Recommended oil:	API CJ4 / ACEA E9
Maximum operating tilt (precautions)	20° roll 25° pitch
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	1.5 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	24 (4 per cylinder)
Valve clearance value	0.35 mm (inlet and exhaust)
Engine cooling system	Coolant

Engine	
Fan type	Viscostatic
Thermostat begins to open at	83°C
Liquid temperature from - to	-35°C to 106°C
Air compressor brand for the brake system	Knorr Bremse
Type of compressor	Pistons
Pressure range:	6.5 bar to 8 bar
Type and brand of air conditioning compressor	SD7H15 - Sanden
Air conditioning compressor displacement (cm^3)	150
Refrigerant	R134a
Block preheater	110 or 220 volts
Fuel preheater	Options
Urea preheater	Coolant (tank) Electric (supply module and urea lines)
Exhaust fumes recirculation system	DOC (diesel oxidation catalyst) + SCR (selective catalytic reduction) systems
DOC (diesel oxidation catalyst) system	DOC (diesel oxidation catalyst) with metal substrate (exhaust fumes oxidation catalyst)
SCR system (AdBlue™ or DEF injection)	SCR with 2 ceramic substrates in silencer (exhaust fume treatment)
Safety system	NOx sensors at exhaust inlet and outlet
Device brand	Bosch Denox 2.2
Type of control	Engine controller EEM4
Tank strainer filtration capacity	70 µm
Main filter filtration capacity	20 µm
Filtration capacity of pump module inlet connector	100 µm
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 10 rib belt

Rear axle transmission	
Gearbox type	GBA25
Transmission type	Dyna-4
Number of ratios	4
Number of ranges	4
Number of gears	16/16
Creeper gears	4/1
Number of gears with creeper gears	24/24
Super creeper gears	14/1
Number of gears with super creeper gears	32/32
Maximum speed	40 kph
Rear axle type	GPA23
Number of pinion/ring gear teeth	8/39

Rear axle transmission	
Rear axle ratio (crownwheel and pinion)	27.161
4WD ratio	0.830
Final drive type	Super Heavy Duty
Final drive reduction ratio	(64+14)/14
Maximum 4WD clutch torque	206 daNm
Number of 4WD discs	6
Main brake type	Disc
Number of discs	1 per side
Braking pressure	-
Parking brake type	Hand brake
Trailer brake type	Hydraulic and/or 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 - pitch (front/rear)	15° (> 15 kph) 22° (< or = 15 kph)
Maximum operating tilt - roll (right/left)	15° (> 15 kph) 22° (< or = 15 kph)
Maximum operating tilt - combined	15° (> 15 kph) 22° (< or = 15 kph)
Transmission preheater	110 V and 240 V accessory kits
Total loaded weight supported by rear axle - 40 kph	6900 kg

Front axle	
Front axle brand	DANA
Axle type	Fixed or suspended
Supplier reference - fixed front axle	740/553
Supplier reference - suspended front axle	740/614
Rotational direction	Anti-clockwise
Fixed front axle weight	380 kg
Suspended front axle weight	620 kg
Total loaded weight supported by front axle (maximum load on road)	5400 kg
Recommended oil type (beam and final drive)	SAE85W90 (API GL4-MIL L-2105)
Total ratio for fixed front axle	17.000
Total ratio for suspended front axle	17.000
Number of teeth on final drive	–
Ratio for fixed axle final drive	6
Ratio for suspended axle final drive	6
Number of fixed axle pinion/ring gear teeth	12/34
Number of suspended axle pinion/ring gear teeth	12/34
Differential type	Multidisc
Number of differential discs	12
Maximum steering angle	55°
Oscillation angle	± 9°
Type of oscillation stop	Mechanical

Front axle	
Steering ram diameter	72 mm x 38 mm
Steering ram stroke	2 x 128 mm
Suspension type	Hydraulics
Suspension ram diameter	65 mm x 60 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-hand 0.5 l = 10 bar Right-hand 0.75 l = 50 bar
Suspension sensor type	Angular potentiometer.
Steering sensor type	Angular potentiometer.
Brake type	Combined with the rear brake
Factor K	1.326

Electrohydraulic	
System type	Open centre (OC) 57 l/min or 100 l/min Closed Centre 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	2200 rpm
High-pressure pump maximum flow rate	57 l/min or 98 l/min (OC) 117 l/min (CCLS)
High-pressure pump maximum pressure	200 bar
Maximum quantity of oil to add for heavy implements	10 l
Maximum exportable oil quantity (without adding oil)	32 l
Maximum exportable oil quantity (adding oil)	42 l
Charge pump type	Suction (OC) Gear pump 71 cm3 (CCLS 110 l/min)
Main relief valve adjustment pressure	195 bar ± 5 bar (OC) 230 bar ± 5 bar (CCLS)
Number of spool valves (maximum)	4
Number of front "push-pull" connectors (maximum)	4
Number of rear "push-pull" connectors (maximum)	8
Maximum flow rate per spool valve	57 l/min or 98 l/min (OC) 100 l/min (CCLS)
Spool valve control type	Mechanical (OC) Electrohydraulic (CCLS)
Recommended oil:	According to MF CMS M 1145 specification

Steering	
Steering type	Hydrostatic
Type of control	Steering wheel
Steering unit displacement	160 cm3
Steering ram diameter	72 mm x 38 mm
Steering ram stroke	2 x 128 mm
Working pressure	175 bar ± 5 bar
Pressure relief valve adjustment pressure	175 bar ± 5 bar
Shock valve adjustment pressure	240 bar
Oil recommended for steering	According to MF CMS M1145 specification

Linkage	
Rear lift ram diameter	75 mm
Rear linkage travel	728 mm (CAT 2) 718 mm (CAT 3)
Maximum lifting capacity at ball joints (rear)	7100 kg
Operating pressure (rear)	180 bar
3-point linkage category (rear)	CAT 2 or CAT 3
Front lift ram diameter	80 mm (3.2 t) 90 mm (4 t)
Front linkage travel	684 mm (3.2 t) 750 mm (4 t)
Maximum lifting capacity at ball joints (front)	3200 kg or 4000 kg
Operating pressure (front)	180 bar
3-point linkage category (front)	CAT 2

Rear power take-off (PTO)	
Number of selections possible for rear PTO	540/1000 540/540E/1000/1000E with GSPTO option
Maximum permissible power 540/540E in 1"3/8 (6 and 21 splines)	540 = 74 kW 540E = 40 kW
Maximum permissible power 540/540E in 1"3/4 (20 splines)	540 = 74 kW 540E = 40 kW
Maximum permissible power 1000/1000E in 1"3/8 (6 and 21 splines)	1000 = 93 kW 1000E = 40 kW
Maximum permissible power 1000/1000E in 1"3/4 (20 splines)	1000 = 93 kW 1000E = 40 kW
Engine speed if PTO 540	1980 rpm
Engine speed if PTO 540E	1533 rpm
Engine speed if PTO 1000	2030 rpm
Engine speed if PTO 1000E	1572 rpm
Rotational direction	Clockwise
Clutch type	Multidisc hydraulic
Number of clutch discs	5
Control pressure	21 bar
Splined shaft type	6 or 21 in 1"3/8 or 20 in 1"3/4

Front power take-off	
Number of selections possible for front PTO	1000 rpm
Maximum permissible power - clockwise	100 kW
Maximum permissible power - anti-clockwise	110 kW
Maximum permissible torque - clockwise	497 Nm
Maximum permissible torque - anti-clockwise	549 Nm
Rotational direction	2 directions of rotation: Clockwise or anti-clockwise
Engine speed if PTO 1000	1920 rpm
Ratio	1.92
Clutch type	Multidisc hydraulic
Splined shaft type	6 or 21 in 1"3/8

Electric	
Battery brand	TAB
Battery specifications (2 batteries)	12V 66 A/H
Maximum current at start-up (IEC standard)	840 A
Starter type	12 V
Starter power	3.2 KW
Alternator type	1 x 175 A or 2 x 120 A
Current available on ISOBUS connector	50 A
Hazard warning light unit	HELLA
Interior light, left-hand door	2 x 5 W
Roof light	-
Type of bulb for side light indicators on hand rail	12 V 21 W / 12 V 10 W
Type of bulb for brake lights, side lights on fenders	12 V 21 W / 12 V 5 W
Type of bulb for main beams on lighting bar at front of bonnet	H4 - 12 V 60/55 W
Type of bulb for dipped lights and side lights on lighting bar at front of bonnet	H7 - 12 V 55 W + T4 - 12 V 4 W
Type of bulb for main beams on hand rail	H4 - 12 V 60/55 W
Type of bulb for main beams on hand rail, low position	H3 - 12 V 55 W
Type of bulb for work lights on hand rail	H3 - 12 V 55 W
Type of bulb for work lights on roof	H3 - 12 V 55 W
Type of bulb for work lights on step	-
Type of bulb for number plate lights on roof	H3 - 12 V 55 W
Type of bulb for reversing lights	12 V 21 W
Type of bulb for rotary beacon	H1 - 12 V 55 W

Electronics	
Function of each controller	
DCC3	Instrument panel
EXT Lite	-
CAN levers and armrest	-

Electronics	
AUTOTRONIC 5 DC	3 Autotronic 5 DC: – 1 for linkage – 1 for transmission – 1 TECU (without VIN code) suspended front axle
SB23 valves	-
Lights module	Linkage/rear electrohydraulic power take-off/user lights interface
Lighting controller	-
EEM4 (ECM Tier 4 AGCO Power)	Engine/Denoxtronic module
NOx ECU	2 NOx ECU: converters of NOx sensor signals to EEM4 via CAN
Danfoss Orbitrol valve	-
TopDock aerial	-
Datatronic CCD	-
Automatic air conditioning module	-
CAN switches key pad	-
LIN switches key pad	Controls for: – main lighting – 4WD front axle, manual and automatic – manual and automatic differential lock – front axle suspension
AM50 unit	AgCommand™

Cab and fittings	
Type of cab suspension available	Mechanical, 2 points at rear
Type of rear-view mirror control available	Manual
Type of air conditioning control available	Manual
Type and brand of air conditioning compressor	SANDEN with axial pistons
Compressor displacement	154.9 cm3/rev.
Refrigerant	R134a
Noise level in cab with doors closed	70 dBA
Roof type	Standard or with hatch or high visibility

3 Model MF 7615 Dyna-6

Engine	
Brand	AGCO Power
Type	66 AWI - 4V
Nominal power (ISO TR14396) at 2100 rpm	140 hp (103 kW)
Maximum power (ISO TR14396) at 1950 rpm	150 hp (110 kW)
EPM (Engine Power Management): Maximum power (ISO TR14396) at 2100 rpm	175 hp (129 kW)
EPM: Maximum torque (ISO TR14396)	745 Nm
Idle speed, Power Control lever in neutral or main brakes engaged	700 rpm
Normal idle speed	1000 rpm
Nominal speed	2100 rpm
Maximum speed	2160 rpm
Engine weight	960 kg
Number of cylinders	6
Engine displacement in litres	6.6
Piston travel	120 mm
Piston diameter	108 mm
Compression ratio	17.4
Compression pressure	-
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	CRIN3 / 8 holes
Charge pump type	Manual
Fuel prefilter filtration capacity	10 µ
Main fuel filter filtration capacity	5 µ
Low-pressure system pressure at minimum speed	0.5 bar - 8.5 bar
Low-pressure system pressure at maximum speed	0.5 bar - 8.5 bar
Recommended oil:	API CJ4 / ACEA E9
Maximum operating tilt (precautions)	20° roll 25° pitch
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	1.5 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	24 (4 per cylinder)
Valve clearance value	0.35 mm (inlet and exhaust)
Engine cooling system	Coolant

Engine	
Fan type	Vistronic fan
Thermostat begins to open at	83°C
Liquid temperature from - to	-35°C to 106°C
Air compressor brand for the brake system	Knorr Bremse
Type of compressor	Pistons
Pressure range:	6.5 bar to 8 bar
Type and brand of air conditioning compressor	SD7H15 - Sanden
Air conditioning compressor displacement (cm^3)	150
Refrigerant	R134a
Block preheater	110 or 220 volts
Fuel preheater	Options
Urea preheater	Coolant (tank) Electric (supply module and urea lines)
Exhaust fumes recirculation system	DOC (diesel oxidation catalyst) + SCR (selective catalytic reduction) systems
DOC (diesel oxidation catalyst) system	DOC (diesel oxidation catalyst) with metal substrate (exhaust fumes oxidation catalyst)
SCR system (AdBlue™ or DEF injection)	SCR with 2 ceramic substrates in silencer (exhaust fume treatment)
Safety system	NOx sensors at exhaust inlet and outlet
Device brand	Bosch Denox 2.2
Type of control	Engine controller EEM4
Tank strainer filtration capacity	70 µm
Main filter filtration capacity	20 µm
Filtration capacity of pump module inlet connector	100 µm
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 10 rib belt

Rear axle transmission	
Gearbox type	GBA25
Transmission type	Dyna-6
Number of ratios	6
Number of ranges	4
Number of gears	24/24
Creeper gears	4/1
Number of gears with creeper gears	36/36
Super creeper gears	14/1
Number of gears with super creeper gears	48/48
Maximum speed	40 kph or 50 kph(1)
Rear axle type	GPA23
Number of pinion/ring gear teeth	8/39

Rear axle transmission	
Rear axle ratio (crownwheel and pinion)	27.161
4WD ratio	0.830
Final drive type	Super Heavy Duty
Final drive reduction ratio	(64+14)/14
Maximum 4WD clutch torque	206 daNm
Number of 4WD discs	6
Main brake type	Disc
Number of discs	1 per side
Braking pressure	-
Parking brake type	Hand brake
Trailer brake type	Hydraulic and/or 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 - pitch (front/rear)	15° (> 15 kph) 22° (< or = 15 kph)
Maximum operating tilt - roll (right/left)	15° (> 15 kph) 22° (< or = 15 kph)
Maximum operating tilt - combined	15° (> 15 kph) 22° (< or = 15 kph)
Transmission preheater	110 V and 240 V accessory kits
Total loaded weight supported by rear axle - 40 kph or 50 kph(1	6900 kg (40 kph and 50 kph) 8300 kg (40 kph with high-pressure braking option)

1. depending on the market or legislation

Front axle	
Front axle brand	DANA
Axle type	Fixed or suspended
Supplier reference - fixed front axle	735/530
Supplier reference - suspended front axle	735/613
Rotational direction	Anti-clockwise
Fixed front axle weight	347 kg
Suspended front axle weight	587 kg
Total loaded weight supported by front axle (maximum load on road)	5400 kg
Recommended oil type (beam and final drive)	SAE85W90 (API GL4-MIL L-2105)
Total ratio for fixed front axle	17.000
Total ratio for suspended front axle	17.000
Number of teeth on final drive	–
Ratio for fixed axle final drive	6
Ratio for suspended axle final drive	6
Number of fixed axle pinion/ring gear teeth	12/34
Number of suspended axle pinion/ring gear teeth	12/34
Differential type	Multidisc
Number of differential discs	12
Maximum steering angle	55°
Oscillation angle	± 9°

Front axle	
Type of oscillation stop	Mechanical
Steering ram diameter	68 mm x 32 mm
Steering ram stroke	2 x 129 mm
Suspension type	Hydraulics
Suspension ram diameter	65 mm x 60 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-hand 0.5 l = 10 bar Right-hand 0.75 l = 50 bar
Suspension sensor type	Angular potentiometer.
Steering sensor type	Angular potentiometer.
Brake type	Combined with the rear brake
Factor K	1.326

Electrohydraulic	
System type	Open centre (OC) 57 l/min or 100 l/min Closed Centre 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	2200 rpm
High-pressure pump maximum flow rate	57 l/min or 98 l/min (OC) 117 l/min (CCLS)
High-pressure pump maximum pressure	200 bar
Maximum quantity of oil to add for heavy implements	10 l
Maximum exportable oil quantity (without adding oil)	32 l
Maximum exportable oil quantity (adding oil)	42 l
Charge pump type	Suction (OC) Gear pump 71 cm3 (CCLS 110 l/min)
Main relief valve adjustment pressure	195 bar ± 5 bar (OC) 230 bar ± 5 bar (CCLS)
Number of spool valves (maximum)	4
Number of front "push-pull" connectors (maximum)	4
Number of rear "push-pull" connectors (maximum)	8
Maximum flow rate per spool valve	57 l/min or 98 l/min (OC) 100 l/min (CCLS)
Spool valve control type	Mechanical (OC) Electrohydraulic (CCLS)
Recommended oil:	According to MF CMS M 1145 specification

Steering	
Steering type	Hydrostatic
Type of control	Steering wheel or steering wheel + electrohydraulic spool valve
Steering unit displacement	160 cm3
Steering ram diameter	68 mm x 32 mm
Steering ram stroke	2 x 129 mm
Working pressure	175 bar ± 5 bar
Pressure relief valve adjustment pressure	175 bar ± 5 bar
Shock valve adjustment pressure	240 bar
Oil recommended for steering	According to MF CMS M1145 specification

Linkage	
Rear lift ram diameter	75 mm
Rear linkage travel	728 mm (CAT 2) 718 mm (CAT 3)
Maximum lifting capacity at ball joints (rear)	7100 kg
Operating pressure (rear)	180 bar
3-point linkage category (rear)	CAT 2 or CAT 3
Front lift ram diameter	80 mm (3.2 t) 90 mm (4 t)
Front linkage travel	684 mm (3.2 t) 750 mm (4 t)
Maximum lifting capacity at ball joints (front)	3200 kg or 4000 kg
Operating pressure (front)	180 bar
3-point linkage category (front)	CAT 2

Rear power take-off (PTO)	
Number of selections possible for rear PTO	540/1000 540/540E/1000/1000E with GSPTO option
Maximum permissible power 540/540E in 1"3/8 (6 and 21 splines)	540 = 74 kW 540E = 40 kW
Maximum permissible power 540/540E in 1"3/4 (20 splines)	540 = 74 kW 540E = 40 kW
Maximum permissible power 1000/1000E in 1"3/8 (6 and 21 splines)	1000 = 93 kW 1000E = 40 kW
Maximum permissible power 1000/1000E in 1"3/4 (20 splines)	1000 = 93 kW 1000E = 40 kW
Engine speed if PTO 540	1980 rpm
Engine speed if PTO 540E	1533 rpm
Engine speed if PTO 1000	2030 rpm
Engine speed if PTO 1000E	1572 rpm
Rotational direction	Clockwise
Clutch type	Multidisc hydraulic
Number of clutch discs	5
Control pressure	21 bar
Splined shaft type	6 or 21 in 1"3/8 or 20 in 1"3/4

Front power take-off	
Number of selections possible for front PTO	1000 rpm
Maximum permissible power - clockwise	100 kW
Maximum permissible power - anti-clockwise	110 kW
Maximum permissible torque - clockwise	497 Nm
Maximum permissible torque - anti-clockwise	549 Nm
Rotational direction	2 directions of rotation: Clockwise or anti-clockwise
Engine speed if PTO 1000	1920 rpm
Ratio	1.92
Clutch type	Multidisc hydraulic
Splined shaft type	6 or 21 in 1"3/8

Electric	
Battery brand	TAB
Battery specifications (2 batteries)	12V 66 A/H
Maximum current at start-up (IEC standard)	840 A
Starter type	12 V
Starter power	3.2 KW
Alternator type	1 x 175 A or 2 x 120 A
Current available on ISOBUS connector	50 A
Hazard warning light unit	HELLA
Interior light, left-hand door	2 x 5 W
Roof light	-
Type of bulb for side light indicators on hand rail	12 V 21 W / 12 V 10 W
Type of bulb for brake lights, side lights on fenders	12 V 21 W / 12 V 5 W
Type of bulb for main beams on lighting bar at front of bonnet	H4 - 12 V 60/55 W
Type of bulb for dipped lights and side lights on lighting bar at front of bonnet	H7 - 12 V 55 W + T4 - 12 V 4 W
Type of bulb for main beams on hand rail	H4 - 12 V 60/55 W
Type of bulb for main beams on hand rail, low position	H3 - 12 V 55 W
Type of bulb for work lights on hand rail	H3 - 12 V 55 W
Type of bulb for work lights on roof	H3 - 12 V 55 W
Type of bulb for work lights on step	-
Type of bulb for number plate lights on roof	H3 - 12 V 55 W
Type of bulb for reversing lights	12 V 21 W
Type of bulb for rotary beacon	H1 - 12 V 55 W

Electronics	
Function of each controller	
DCC3	Instrument panel
EXT Lite	-

Electronics	
CAN levers and armrest	On tractors with multifunction armrest, controls for: – transmission (ranges, reverse shuttle, SV1/SV2, PTO) – linkage – hydraulic – Headland Management – Engine memory A – ...
AUTOTRONIC 5 DC	On tractors with multifunction armrest, 4 Autotronic 5 DC: – 1 for linkage/auxiliary hydraulic spool valves – 2 for transmission – 1 TECU for VIN code/suspended front axle/suspended cab On tractors without multifunction armrest, 4 Autotronic 5 DC: – 1 for linkage – 2 for transmission – 1 TECU (without VIN code) suspended front axle
SB23 valves	On tractors with multifunction armrest: – Electrohydraulic spool valves
Lights module	On tractors with multifunction armrest: – User interface for lights On tractors without multifunction armrest: – Linkage/rear electrohydraulic power take-off/user lights interface
Lighting controller	-
EEM4 (ECM Tier 4 AGCO Power)	Engine/Denoxtronic module
NOx ECU	2 NOx ECU: converters of NOx sensor signals to EEM4 via CAN
Danfoss Orbitrol valve	Orbitrol for the Auto-Guide™ function
TopDock aerial	Satellite signal receiver for the Auto-Guide™ function
Datatronic CCD	On tractors with multifunction armrest: – Onboard computer
Automatic air conditioning module	On tractors with multifunction armrest: – Air conditioning

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