

FENDT 800 Vario S4

FENDT 822 Vario S4

839 .. 1001-

FENDT 824 Vario S4

840 .. 1001-

FENDT 826 Vario S4

841 .. 1001-

FENDT 828 Vario S4

842 .. 1001-



Subject to changes and additions

IMPORTANT:

This document is valid from the chassis number noted. The last valid chassis number could not be determined at the time of creation. Use AGCONET or contact FENDT technical service to make sure whether a current wiring diagram set is available with an updated chassis number range.

Due to further developments to the vehicle, the content of this document is subject to change.

The relevant accident prevention regulations must be observed, as must as any generally acknowledged safety, industrial medicine and traffic regulations. The manufacturer does not accept liability for damage resulting from unauthorized modifications to the machine.

Property of AGCO GmbH.

Any disclosure to third parties—either in return for payment or free of charge—is prohibited.

FENDT 800 Vario S4

1 Overall system/tractor	1-1
1.1 General	1-3
1.1.1 Notes on documentation	1-3
1.1.2 Safety instructions and measures	1-4
1.1.3 Importance of and position of the safety decals	1-7
1.1.4 Note on hydraulics	1-18
1.1.5 Assignment table FENDT T types to the EU Type Approval Number	1-18
1.1.6 Support points for jack and support stands	1-19
1.1.7 Location of the identification plates	1-20
1.1.8 Biodegradable hydraulic oil	1-23
1.1.9 Tightening torque for screws with a galvanized surface	1-24
1.1.10 Tightening torque for screws and bolts with VDA coating	1-25
1.2 Technical specification	1-27
1.2.1 Technical data: 0000 general	1-27
1.2.2 Technical data: 1000 - Transmission	1-28
1.2.3 Technical data: 2000 - Diesel engine	1-34
1.2.4 Technical data: 3000 front axle	1-42
1.2.5 Technical data: 5500 air conditioning system/8100 cab/8600 EPC control valve	1-44
1.2.6 Technical data: 8800 compressed air system / 9000 electrical system / 9200 front power lift	1-45
1.2.7 Technical data: 9600 hydraulic equipment	1-46
1.3 Fault code tables 800 / 900 Vario S4	2-1
1.3.1 Fault code tables	2-3
1.3.1.1 Confirming, calling up, deleting fault codes	2-3
1.3.1.2 Fault code 00.0.00	2-5
1.3.1.3 Fault code 01.0.00	2-8
1.3.1.4 Fault code 02.1.00	2-14
1.3.1.5 Error code 03.1.00	2-16
1.3.1.6 Fault code 04.1.00	2-18
1.3.1.7 Fault code 05.1.00	2-31
1.3.1.8 Fault code 06.1.00	2-36
1.3.1.9 Fault code 07.1.00	2-41
1.3.1.10 Fault code 08.1.00	2-43
1.3.1.11 Fault code 09.1.00	2-49
1.3.1.12 Fault code 0A.1.00	2-54
1.3.1.13 Fault code 0B.1.00	2-73
1.3.1.14 Fault code 0D.1.00	2-76
1.3.1.15 Fault code 0E.1.00	2-79
1.3.1.16 Error code 0F.1.00	2-84
1.3.1.17 Fault code 10.1.00	2-88
1.3.1.18 Fault code 12.1.00	2-89
1.3.1.19 Fault code 15.1.00	2-97
1.3.1.20 Fault code 17.1.00	2-98
1.3.1.21 Fault code 18.01.00	2-99
1.3.1.22 Fault code 1D.1.00	2-102
1.3.1.23 Fault code 1F.1.00	2-115
1.3.1.24 Fault code 20.1.00	2-116
1.3.1.25 Calibration fault codes	2-121
1.4 Component position	1-131
1.4.1 Electrical/electronic components - A	1-131

1.4.2	Electrical/electronic components - B	1-137
1.4.3	Electrical/electronic components - E	1-149
1.4.4	Electrical/electronic components - F	1-160
1.4.5	Electrical/electronic components - G	1-160
1.4.6	Electrical/electronic components - H	1-161
1.4.7	Electrical/electronic components - K	1-162
1.4.8	Electrical/electronic components - M	1-165
1.4.9	Electrical/electronic components - R	1-168
1.4.10	Electrical/electronic components - S	1-170
1.4.11	Electrical/electronic components - U	1-177
1.4.12	Electrical/electronic components - X (001–1000)	1-178
1.4.13	Electrical/electronic components - X (1001–2000)	1-184
1.4.14	Electrical/electronic components - X (2001–4000)	1-190
1.4.15	Electrical/electronic components - X (4001–6000)	1-193
1.4.16	Electrical/electronic components - Y	1-225
1.4.17	Hydraulic components	1-233
1.5	Calibrations	1-266
1.5.1	Adjustments — General	1-266
1.5.1.1	Calibration notes	1-266
1.5.2	Adjustments — Gearbox	1-266
1.5.2.1	Calibration 4001 clutch pedal	1-266
1.5.2.2	Calibration 4002: Hand throttle	1-269
1.5.2.3	Calibration 4003: Travel range selector	1-272
1.5.2.4	Calibration 4005 driving pedal	1-276
1.5.2.5	Calibration 4007: Transmission ratio characteristic	1-278
1.5.2.6	Calibration 4009: Turbo-clutch function	1-282
1.5.2.7	Calibration 4010 driving pedal resolution	1-286
1.5.3	Adjustments — Sensors and functions	1-289
1.5.3.1	Calibration 1001 crossgate lever	1-289
1.5.3.2	Calibration 1003/1004/1005/1006 Linear modules	1-295
1.5.3.3	Calibration 2401 steering angle sensor	1-299
1.5.3.4	Calibration 2401 - checking the calibration accuracy	1-303
1.5.3.5	Calibration 2403: Steering valve, when required.	1-305
1.5.3.6	Calibration 6034: Rear PTO clutch	1-309
1.5.3.7	Calibration 7034 front PTO clutch	1-312
1.5.3.8	Calibration 7666: Front axle suspension	1-315
1.5.3.9	Calibration 8001 rear EPC - depth control	1-318
1.5.3.10	Calibration 8002: Rear EPC - position control	1-321
1.5.3.11	Calibration 9001 front EPC - depth control	1-325
1.5.3.12	Calibration 9002 front EPC - position control	1-328
1.5.3.13	Heating valve calibration - automatic air-conditioning system	1-331
1.5.3.14	Speed display calibration	1-333
3	Gearbox	3-1
3.1	Gearbox control	3-3
3.1.1	Transmission control system functional sequence	3-3
3.1.2	Gearbox hydraulics wiring diagram — 842.100.000.002	3-7
3.1.3	Transmission function diagram	3-10
3.1.4	Position of transmission components	3-16
3.1.5	Hydraulic pressure measuring points on transmission and comfort controls	3-23
3.1.6	Measuring transmission pressure	3-26
3.1.7	Transmission pressure measurement (fax template)	3-26
3.1.8	Transmission comfort control functions pressure measurement report: Fax template.	3-28
3.1.9	Test the clutch/turbo-clutch valve	3-29
3.2	Differential unit	3-32
3.2.1	Dismantling differential	3-32

3.2.2 Assemble the differential	3-37
3.2.3 Dismantling the pinion shaft	3-43
3.2.4 Adjusting and fitting the pinion shaft	3-47
3.2.5 Install differential and set backlash	3-55
3.3 Final drive axle	3-61
3.3.1 Remove final drive axle	3-61
3.3.2 Install final drive axle	3-65
3.3.3 Dismantling and reassembling final drive axle	3-69
3.3.4 Technical drawing of drive axle with TPMS	3-84
3.4 Brake system	3-86
3.4.1 Warning	3-86
3.4.2 Hydraulic brake system: single-circuit brake, 1 pedal	3-87
3.4.3 Hydraulic brake system: single-circuit brake, 2 pedals	3-90
3.4.4 Hydraulic brake system: dual-circuit, 1 pedal	3-93
3.4.5 Connection assignment on the brake valve block for the trailer spool valve	3-96
3.4.6 Hand brake emergency release	3-99
3.4.7 Check hydraulic brake system	3-100
3.4.8 Technical drawing of rear wheel brake	3-103
3.4.9 Component location - Brake	3-104
3.4.10 Dismantle rear wheel brake	3-108
3.4.11 Install rear wheel brake	3-110
3.4.12 Bleed the hydraulic brake system	3-114
3.4.13 Adjust the S105/106 brake switch	3-116
3.4.14 Check the pilot control for the pneumatic trailer brake	3-118
3.5 Vario insert	3-119
3.5.1 Remove the Vario insert	3-119
3.5.2 Fit the Vario insert	3-129
3.5.3 Top up the transmission oil	3-139
3.5.4 Remove actuator shaft	3-140
3.5.5 Fit actuator shaft	3-142
3.5.6 Remove connecting rod	3-146
3.5.7 Fit coupling rod	3-148
3.5.8 Dismantle control housing	3-151
3.5.9 Fit control housing	3-153
3.5.10 Install B014 hydrostatic collecting shaft sensor	3-155
3.5.11 Install B015 bevel pinion sensor	3-158
3.6 Cardan brake	3-161
3.6.1 Technical drawing of Cardan shaft brake	3-161
3.6.2 Remove cardan shaft brake	3-163
3.6.3 Installing cardan shaft brake	3-167
3.7 Front PTO	3-178
3.7.1 Front PTO valve block	3-178
3.7.2 Front PTO transmission	3-179
3.7.3 Front PTO drive	3-180
3.7.4 Remove front PTO clutch	3-182
3.7.5 Fit the front PTO clutch	3-190
3.7.6 Remove front PTO pump	3-197
3.7.7 Install front PTO pump	3-199
3.7.8 Remove front PTO stub shaft	3-201
3.7.9 Install front PTO stub shaft	3-203
3.8 Rear PTO	3-204
3.8.1 Technical drawing of rear PTO	3-204
3.8.2 Remove of rear PTO clutch	3-207
3.8.3 Install rear PTO clutch	3-215
3.8.4 Remove and dismantle rear PTO transmission	3-224
3.8.5 Install rear PTO transmission	3-229
3.9 Front wheel drive	3-235

3.9.1	Technical drawing: Front-wheel drive shaft	3-235
3.9.2	Removing and dismantling the front wheel drive clutch	3-237
3.9.3	Fit the front wheel drive clutch	3-241
3.10	Hydrodamp	3-249
3.10.1	Remove the hydrodamp	3-249
3.10.2	Fit the hydrodamp	3-251
4	Engine	4-1
4.1	Engine	4-3
4.1.1	Faults on the Common Rail diesel engine (without fault code)	4-3
4.1.2	Special tools for diesel engines (Deutz)	4-7
4.1.3	Fax template for determining the specific engine lubricating oil consumption	4-33
4.1.4	Determining engine power - comparison of standards and directives	4-37
4.1.5	Calculating the fuel consumption of a diesel engine	4-38
4.1.6	PTO power measurement	4-46
4.1.7	General description of the common rail system	4-48
4.1.8	Emergency operation (emergency function)	4-51
4.1.9	Deutz TCD/TTCD diesel engines: Automatic system calibration	4-52
4.1.10	A099 - engine control unit	4-71
4.1.11	B055 - foot throttle sensor	4-75
4.1.12	B085 camshaft speed sensor	4-76
4.1.13	B086 rail pressure sensor	4-78
4.1.14	B087 fuel low pressure sensor	4-80
4.1.15	B088 - sensor, crankshaft speed	4-81
4.1.16	B089 engine temperature sensor (Deutz)	4-82
4.1.17	B090 oil pressure sensor	4-83
4.1.18	B091 - water in fuel sensor	4-83
4.1.19	B092 charge air pressure/temperature sensor	4-85
4.1.20	Starter control	4-86
4.2	Cylinder head	4-88
4.2.1	Adjust the valves	4-88
4.2.2	Remove and install the injector and injector sleeve	4-98
4.3	Cooling system	4-125
4.3.1	Coolant circuit TTCD 6.1	4-125
4.4	Fuel system	4-127
4.4.1	Fuel system	4-127
4.4.2	Pressure checking (Deutz TCD 4.1/6.1/7.8) common rail system "High-pressure system 1600/2000 bar operating pressure", test injector, Y091 dispensing unit, test high-pressure pump	4-128
4.4.3	Water sedimentor (pre-filter)	4-192
4.4.4	Fuel pump	4-193
4.4.5	Y091 - dispensing unit (fuel)	4-193
4.4.6	High-pressure pump (PF 45)	4-197
4.4.7	High-pressure accumulator: Common rail	4-198
4.4.8	Design and function of the high-pressure relief valve	4-199
4.4.9	Y095 to Y101 - Injectors 1 to 6	4-200
4.4.10	Measuring fuel return pressure	4-204
4.4.11	Measuring low fuel pressure	4-211
4.4.12	Measuring low fuel pressure at the Y091 dispensing unit	4-215
4.4.13	Removing and installing the high-pressure limiting valve and rail pressure sensor	4-217
4.4.14	Bleeding air from the fuel system	4-220
4.5	Exhaust gas system	4-222
4.5.1	Charge air system and exhaust gas after-treatment	4-222
4.5.2	CSF particulate filter for reducing soot particles	4-228
4.5.3	SCR catalytic converter	4-233
4.5.4	Components of the exhaust after-treatment system	4-238

4.5.5	Fault analysis on A084 supply module / Y120 "AdBlue" (read faults / flush / check SCR system)	4-243
4.5.6	AdBlue dosing system diagnostics using the FENDIAS diagnostics program (Deutz-Serdia)	4-281
4.5.7	AdBlue dosing system: AdBlue consumption and fuel consumption	4-300
5	Overall system/front axle	5-1
5.1	Suspension	5-3
5.1.1	Functional plans	5-3
5.1.2	Disassemble and reassemble suspension cylinder	5-10
5.2	Cardan shaft	5-12
5.2.1	Technical drawing: Front-wheel drive shaft	5-12
6	Steering	6-1
6.1	Steering	6-3
6.1.1	Steering hydraulics	6-3
6.1.2	Steering hydraulics	6-4
6.1.3	Steering monitoring	6-8
6.1.4	Remove the steering servo unit.	6-10
6.1.5	Install the steering servo unit	6-13
6.1.6	Remove the RÜFA steering servo unit	6-16
7	Vehicle layout	7-1
7.1	Layout	7-3
7.1.1	Remove, install and repair turntable from operator's seat (Rüfa)	7-3
8	Overall system/air conditioning system	8-1
8.1	Air-conditioning system	8-3
8.1.1	Diagram: Automatic air conditioning system	8-3
8.1.2	Air conditioning unit service hatch	8-6
8.1.3	Removing the air conditioning unit (HVAC)	8-8
8.1.4	Installing the air conditioning unit (HVAC)	8-13
8.1.5	Removing the air box (B071, M015, M016)	8-18
8.1.6	Installing the air box	8-20
8.1.7	Assembly and disassembly of the dryer module for the air conditioning condenser	8-23
9	Cab	9-1
9.1	Cab	9-3
9.1.1	Reverse drive control function and operation	9-3
9.1.2	Remove the cab	9-7
9.1.3	Attaching the cab	9-15
9.1.4	Glue in the front windscreen	9-22
9.1.5	Tightening torques of the door furniture	9-28
10	Power lift/EPC electro-hydraulic control	10-1
10.1	Power lift/EPC electro-hydraulic control	10-3
10.1.1	Slip control system operation and function	10-3
10.1.2	Functional description of B031/B032 - draft sensing pin left/right	10-4
10.1.3	EPC valves	10-8
10.1.4	Functional plans	10-13
10.1.5	Lower link stabilizer functional plan	10-25
10.1.6	Remove the rear EPC valve	10-26
10.1.7	Fit the rear EPC valve	10-29
10.1.8	Dismantle the rear pressure relief valve DW Y062	10-34
10.1.9	Assemble the rear pressure relief valve DW Y062	10-35

10.2 Power lift control	10-36
10.2.1 Technical drawing of the hydr. lower linkage support	10-36
10.2.2 Remove the lower linkage stabilizer solenoid valve Y082/Y083	10-40
10.2.3 Install the Y082/Y083 lower link stabilizer solenoid valves	10-41
11 Overall system/compressed air system	11-1
11.1 Compressed air system	11-3
11.1.1 Compressed air system (area: trailer brake)	11-3
11.1.2 Compressed air system diagram – 842.880.000.001_b	11-10
11.1.3 Compressed air system diagram - 842.880.000.002	11-13
11.1.4 Tightening torques for compressed-air connection system	11-15
11.1.5 "VarioGrip" tire pressure monitoring system, function and layout	11-17
12 Electrical system	12-1
12.1 Electrical system	12-5
12.1.1 Circuit diagrams for A050 - basic control ECU	12-5
12.2 Measure and test - A components	12-12
12.2.1 A007 - instrument panel	12-12
12.2.2 A009 - actuator unit	12-24
12.2.3 Installing A009 actuator unit	12-32
12.2.4 A011 - radar sensor	12-38
12.2.5 A013 - circuit board, microfuses	12-41
12.2.6 A036 - "dashboard" control panel	12-47
12.2.7 A038 - relay; +supply; K BUS	12-51
12.2.8 A038 - head light, side light, direction indicator	12-62
12.2.9 A038 - horn, rotating beacon, wide vehicle marker	12-68
12.2.10 A038 - work lights	12-70
12.2.11 A038 - interior lighting	12-73
12.2.12 A038 - mirror heating, rear window heating, windscreen heating; windscreen wipers	12-75
12.2.13 A038 - automatic air conditioning system (heating, air conditioning, ventilation)	12-79
12.2.14 A038 - sockets	12-85
12.2.15 A038 - Starter and tank pump	12-94
12.2.16 A038 - reverse drive control (Rüfa)	12-97
12.2.17 A038 Work light activation	12-103
12.2.18 Test A038 with 160-pin adapter box	12-111
12.2.19 A050 - basic control unit ECU	12-114
12.2.20 A050 - CAN BUS (K BUS, G BUS, V BUS, ISO BUS)	12-118
12.2.21 Test A050 with 160-pin adapter box	12-126
12.2.22 A077 - immobilizer ECU: Functional description	12-128
12.2.23 A077 - immobilizer ECU	12-129
12.2.24 A082 - nitrogen oxide NOx sensor 1, upstream of SCR (Not G3)	12-131
12.2.25 A083 - nitrogen oxide NOx sensor 2, downstream of SCR (Not G3)	12-132
12.2.26 A084 - AdBlue module (Not G3)	12-133
12.2.27 A087 - tire pressure monitoring system (TPMS)	12-135
12.2.28 A099 - ECU engine control unit (EDC 17)	12-137
12.2.29 Test A099 with 160-pin adapter box	12-143
12.2.30 A100 - MFA, multifunction armrest	12-145
12.2.31 Test A100 with 160-pin adapter box	12-152
12.2.32 A133 - air intake throttle ECU	12-154
12.2.33 A134 - exhaust gas recirculation ECU	12-155
12.2.34 A136 - wastegate ECU	12-157
12.2.35 A177 - AGCO Connectivity Module (ACM)	12-158
12.3 Measure and test - B components	12-160
12.3.1 B002 - front PTO speed sensor	12-160
12.3.2 B003 - front axle suspension position sensor	12-161
12.3.3 B004 - vacuum switch (air filter)	12-162

12.3.4	B007 - fuel level sensor	12-164
12.3.5	B008 - High pressure sensor 1	12-166
12.3.6	B009 - discharge temperature sensor	12-168
12.3.7	B013 - hydraulic oil temperature sensor	12-169
12.3.8	B014 - Collecting shaft speed sensor	12-171
12.3.9	B015 - bevel pinion sensor	12-172
12.3.10	B016 - travel speed range detection sensor	12-174
12.3.11	B017 - clutch pedal sensor	12-175
12.3.12	B020 - rear PTO (stub shaft) speed sensor	12-176
12.3.13	B021 - rear PTO clutch speed sensor	12-177
12.3.14	B031 - right draft sensing pin	12-179
12.3.15	B032 left-hand draft sensing pin sensor	12-180
12.3.16	B039 - high pressure sensor 2	12-182
12.3.17	B040 - Front power lift position sensor	12-184
12.3.18	B055 - foot throttle sensor	12-185
12.3.19	B060 compressed air supply sensor	12-186
12.3.20	B071 - output temperature sensor	12-188
12.3.21	B073 - Solar thermal radiation sensor	12-189
12.3.22	B074 - interior temperature sensor	12-191
12.3.23	B076 - exterior temperature sensor	12-193
12.3.24	B081 - steering wheel sensor (360°)	12-195
12.3.25	B084 - hydraulic oil level sensor	12-197
12.3.26	B085 - camshaft speed sensor	12-199
12.3.27	B086 - rail pressure sensor	12-202
12.3.28	B087 - low fuel pressure sensor	12-205
12.3.29	B088 - sensor, crankshaft speed	12-207
12.3.30	B089 - engine temperature sensor (Deutz)	12-210
12.3.31	B090 - oil pressure sensor	12-213
12.3.32	B091 - water in fuel sensor	12-215
12.3.33	B092 - boost pressure/charge air temperature sensor	12-216
12.3.34	B097 - brake pressure sensor	12-219
12.3.35	B102 - AdBlue temperature and level sensor	12-222
12.3.36	B105 - Exhaust gas temperature sensor upstream of SCR (Not G3)	12-225
12.3.37	B145 - rear power lift position sensor	12-227
12.3.38	B168 - steering angle sensor	12-228
12.3.39	B187 - evaporator temperature sensor	12-229
12.3.40	B191 - Exhaust gas pressure sensor upstream of turbo	12-231
12.3.41	B192 - CSF differential pressure sensor (Not G3)	12-232
12.3.42	B193 - exhaust temperature upstream of CSF sensor (Not G3)	12-234
12.3.43	B194 - pressure downstream of CSF sensor (Not G3)	12-236
12.3.44	B217 - temperature sensor downstream of venturi (Not G3)	12-237
12.3.45	B218 - venturi differential pressure sensor (Not G3)	12-239
12.3.46	B283 - Supply pressure monitoring sensor 2	12-240
12.3.47	B284 - Supply pressure monitoring sensor 1	12-242
12.3.48	B290 - Brake pedal lock sensor	12-244
12.4	Measure and test - CAN bus	12-246
12.4.1	Measure the CAN bus	12-246
12.5	Measure and test - E components	12-249
12.5.1	E050 to E280 - work lights	12-249
12.5.2	E063 - air-dryer heater element (temperature-controlled)	12-249
12.5.3	E216 - AdBlue heater suction and return line and E217 - AdBlue heater pressure line	12-251
12.6	Measure and test - G components	12-253
12.6.1	G001 - battery	12-253
12.6.2	G002/G004 - right/left alternators	12-254
12.7	Measure and test - H components	12-257
12.7.1	H011 - horn	12-257

12.8 Measure and test - K components	12-258
12.8.1 K063 - Grid heater flange relay	12-258
12.8.2 K065 - starter relay	12-259
12.8.3 K083 - AdBlue relay	12-259
12.8.4 K090 - AdBlue module heater relay	12-260
12.8.5 K091 - AdBlue heating relay for suction and return line	12-261
12.8.6 K092 - AdBlue heating relay for pressure line	12-261
12.9 Measure and test - M components	12-262
12.9.1 M001 - starter	12-262
12.9.2 M003/M005 - front/rear screen washer pumps	12-266
12.9.3 M004 - rear wiper motor	12-267
12.9.4 M015/M016 - actuator motor for ventilation air flap	12-269
12.9.5 M017 - primary fan	12-271
12.9.6 M046/M047 - headlight actuator motor (headlight adjustment)	12-273
12.9.7 M048 - main fan	12-275
12.9.8 M049 - heater valve	12-277
12.9.9 M054 - cooling water pump	12-278
12.9.10 M055 - front wiper motor	12-279
12.10 Measure and test - S components	12-281
12.10.1 S017 - filter contamination switch	12-281
12.10.2 S019 - left external rear PTO button	12-282
12.10.3 S020 - right external rear PTO button	12-283
12.10.4 S021/S022 - external front power lift button	12-285
12.10.5 S025 - variable displacement pump pressure monitoring switch	12-286
12.10.6 S027/S028/S029/S030 - external (rear power lift) buttons	12-287
12.10.7 S034 - coolant level switch	12-289
12.10.8 S035 High & low-pressure switch for air conditioning system	12-290
12.10.9 S045 reverse drive switch	12-291
12.10.10 S047 - engine brake switch	12-293
12.10.11 S053 - driver seat switch	12-293
12.10.12 S067/S068 - external valve button	12-295
12.10.13 S074 - starter lockout switch	12-296
12.10.14 S075 - Wheel driven steering pump flow monitor switch	12-298
12.10.15 S080 - hand brake switch	12-299
12.10.16 S085 - reverse drive (RÜFA) actuation switch	12-300
12.10.17 S105/S106 - left/right brake switches	12-301
12.10.18 S119 - hydraulic oil filter contamination switch	12-302
12.10.19 S134 - auxiliary pump pressure monitor switch	12-303
12.10.20 S157 - forward/reverse shuttle switch	12-304
12.10.21 S174/175 - right-hand external valve actuation button	12-305
12.11 Measure and test - X components	12-308
12.11.1 X007 - "black" implement socket	12-308
12.11.2 X008 - counter input (onboard computer) "blue"	12-310
12.11.3 X015 - external control, rear EPC (external position sensor)	12-313
12.11.4 X015 external control (Area: 3rd and 4th hydraulic circuit)	12-315
12.11.5 X015 - external control socket (area: automatic steering axle mode)	12-316
12.11.6 X017 - front socket (with front power lift only)	12-322
12.11.7 X018 - trailer socket	12-323
12.11.8 X028 - cab ISO socket	12-324
12.11.9 X400 ISO BUS PCB (implement socket)	12-325
12.11.10 X1048 ABS socket (anti-lock system on trailer)	12-335
12.12 Measure and test - Y components	12-337
12.12.1 Y002 - travel speed range I solenoid valve	12-337
12.12.2 Y003 - travel speed range II solenoid valve	12-338
12.12.3 Y004 clutch/turbo-clutch solenoid valve	12-340
12.12.4 Y005 - Speed limiter solenoid valve	12-341
12.12.5 Y008 - rear PTO (clutch) solenoid valve	12-343

12.12.6	Y009 - 4WD solenoid valve	12-344
12.12.7	Y010 - differential lock solenoid valve	12-346
12.12.8	Y011 - front PTO (clutch) solenoid valve	12-347
12.12.9	Y012 - suspension loading/oil preheating solenoid valve	12-349
12.12.10	Y013 - Suspension lowering solenoid valve	12-350
12.12.11	Y021 - raise solenoid valve (standard front power lift)	12-352
12.12.12	Y021 - front pressure compensator lock valve	12-353
12.12.13	Y022 - standard front power lift lowering solenoid valve	12-355
12.12.14	Y026/Y027 - rear PTO stage I/II selection solenoid valve	12-356
12.12.15	Y032 - control pressure solenoid valve	12-358
12.12.16	Y055 - rear pressure compensator lock valve	12-359
12.12.17	Y060 - hydraulic oil preheater solenoid valve	12-361
12.12.18	Y062 - rear field pressure control solenoid valve	12-362
12.12.19	Y063 - wobble stabilizer solenoid valve	12-364
12.12.20	Y065 - Suspension raising solenoid valve	12-365
12.12.21	Y067 - Suspension locking solenoid valve	12-367
12.12.22	Y082/Y083 - lock and release lower link stabilizer solenoid valve	12-368
12.12.23	Y084 - power beyond solenoid valve	12-370
12.12.24	Y091 - fuel dispensing unit	12-371
12.12.25	Y092/Y093 - reverse drive (RÜFA) rotation solenoid valves	12-372
12.12.26	Y095 to Y098, Y100, Y101 - injectors 1 to 6	12-374
12.12.27	Y120 - AdBlue metering valve	12-378
12.12.28	Y168 - front ground pressure control solenoid valve	12-380
12.12.29	Y169 - AdBlue tank heater solenoid valve	12-382
12.12.30	Y170 - engine brake solenoid valve	12-384
12.12.31	Y176-Y185	12-385
12.12.32	Y209 - reversible fan (Hägele)	12-387
12.12.33	Y222 - Visco fan (Viscotronic)	12-391
12.12.34	Y241 - Air dryer solenoid valve	12-393
13	Hydraulic pump installation	13-1
	13.1 Hydraulic pump installation	13-3
	13.1.1 Fit wheel-driven emergency steering pump	13-3
14	Hydraulic pipes	14-1
	14.1 Hydraulic trailer brake	14-3
	14.1.1 Function of the hydraulic trailer brake (French and Italian versions)	14-3
	14.2 Reverse operation	14-27
	14.2.1 Technical drawing of the turntable (reverse drive)	14-27
	14.2.2 Seal the turntable	14-33
15	Overall system/hydraulic equipment	15-1
	15.1 Hydraulic equipment	15-3
	15.1.1 Pressure control — PR (LS pump)	15-3
	15.1.2 Pressure measuring points overview	15-6
	15.1.3 External pressure rise (Power Beyond)	15-7
	15.1.4 Test report, fax template	15-8
	15.1.5 SB 33 EHS 1 RD spool valves	15-11
	15.1.6 Central control block	15-12
16	Electronics	16-1
	16.1 Electronics	16-3
	16.1.1 Fendt 800 Vario Tier IIIb electronics concept	16-3
	16.1.2 Functional description of the A050 basic control ECU	16-9
17	Service	17-1
	17.1 Special tools	17-3

17.1.1 Special tools	17-3
17.2 FENDIAS	17-4
17.2.1 EOL programming	17-4
17.2.2 Programming the immobilizer - introduction	17-10
17.2.3 Teaching in the vehicle key	17-12
17.2.4 Create activation package	17-16
17.2.5 Apply activation package	17-19
17.2.6 Replace components	17-22

1. Overall system/tractor

1.1 General	1-3
1.1.1 Notes on documentation	1-3
1.1.2 Safety instructions and measures	1-4
1.1.3 Importance of and position of the safety decals	1-7
1.1.4 Note on hydraulics	1-18
1.1.5 Assignment table FENDT T types to the EU Type Approval Number	1-18
1.1.6 Support points for jack and support stands	1-19
1.1.7 Location of the identification plates	1-20
1.1.8 Biodegradable hydraulic oil	1-23
1.1.9 Tightening torque for screws with a galvanized surface	1-24
1.1.10 Tightening torque for screws and bolts with VDA coating	1-25
1.2 Technical specification	1-27
1.2.1 Technical data: 0000 general	1-27
1.2.2 Technical data: 1000 - Transmission	1-28
1.2.3 Technical data: 2000 - Diesel engine	1-34
1.2.4 Technical data: 3000 front axle	1-42
1.2.5 Technical data: 5500 air conditioning system/8100 cab/8600 EPC control valve	1-44
1.2.6 Technical data: 8800 compressed air system / 9000 electrical system / 9200 front power lift	1-45
1.2.7 Technical data: 9600 hydraulic equipment	1-46
1.3 Fault code tables 800 / 900 Vario S4	2-1
1.3.1 Fault code tables	2-3
1.3.1.1 Confirming, calling up, deleting fault codes	2-3
1.3.1.2 Fault code 00.0.00	2-5
1.3.1.3 Fault code 01.0.00	2-8
1.3.1.4 Fault code 02.1.00	2-14
1.3.1.5 Error code 03.1.00	2-16
1.3.1.6 Fault code 04.1.00	2-18
1.3.1.7 Fault code 05.1.00	2-31
1.3.1.8 Fault code 06.1.00	2-36
1.3.1.9 Fault code 07.1.00	2-41
1.3.1.10 Fault code 08.1.00	2-43
1.3.1.11 Fault code 09.1.00	2-49
1.3.1.12 Fault code 0A.1.00	2-54
1.3.1.13 Fault code 0B.1.00	2-73
1.3.1.14 Fault code 0D.1.00	2-76
1.3.1.15 Fault code 0E.1.00	2-79
1.3.1.16 Error code 0F.1.00	2-84
1.3.1.17 Fault code 10.1.00	2-88
1.3.1.18 Fault code 12.1.00	2-89
1.3.1.19 Fault code 15.1.00	2-97
1.3.1.20 Fault code 17.1.00	2-98
1.3.1.21 Fault code 18.01.00	2-99
1.3.1.22 Fault code 1D.1.00	2-102
1.3.1.23 Fault code 1F.1.00	2-115
1.3.1.24 Fault code 20.1.00	2-116
1.3.1.25 Calibration fault codes	2-121
1.4 Component position	1-131
1.4.1 Electrical/electronic components - A	1-131

1.4.2	Electrical/electronic components - B	1-137
1.4.3	Electrical/electronic components - E	1-149
1.4.4	Electrical/electronic components - F	1-160
1.4.5	Electrical/electronic components - G	1-160
1.4.6	Electrical/electronic components - H	1-161
1.4.7	Electrical/electronic components - K	1-162
1.4.8	Electrical/electronic components - M	1-165
1.4.9	Electrical/electronic components - R	1-168
1.4.10	Electrical/electronic components - S	1-170
1.4.11	Electrical/electronic components - U	1-177
1.4.12	Electrical/electronic components - X (001–1000)	1-178
1.4.13	Electrical/electronic components - X (1001–2000)	1-184
1.4.14	Electrical/electronic components - X (2001–4000)	1-190
1.4.15	Electrical/electronic components - X (4001–6000)	1-193
1.4.16	Electrical/electronic components - Y	1-225
1.4.17	Hydraulic components	1-233
1.5	Calibrations	1-266
1.5.1	Adjustments — General	1-266
1.5.1.1	Calibration notes	1-266
1.5.2	Adjustments — Gearbox	1-266
1.5.2.1	Calibration 4001 clutch pedal	1-266
1.5.2.2	Calibration 4002: Hand throttle	1-269
1.5.2.3	Calibration 4003: Travel range selector	1-272
1.5.2.4	Calibration 4005 driving pedal	1-276
1.5.2.5	Calibration 4007: Transmission ratio characteristic	1-278
1.5.2.6	Calibration 4009: Turbo-clutch function	1-282
1.5.2.7	Calibration 4010 driving pedal resolution	1-286
1.5.3	Adjustments — Sensors and functions	1-289
1.5.3.1	Calibration 1001 crossgate lever	1-289
1.5.3.2	Calibration 1003/1004/1005/1006 Linear modules	1-295
1.5.3.3	Calibration 2401 steering angle sensor	1-299
1.5.3.4	Calibration 2401 - checking the calibration accuracy	1-303
1.5.3.5	Calibration 2403: Steering valve, when required.	1-305
1.5.3.6	Calibration 6034: Rear PTO clutch	1-309
1.5.3.7	Calibration 7034 front PTO clutch	1-312
1.5.3.8	Calibration 7666: Front axle suspension	1-315
1.5.3.9	Calibration 8001 rear EPC - depth control	1-318
1.5.3.10	Calibration 8002: Rear EPC - position control	1-321
1.5.3.11	Calibration 9001 front EPC - depth control	1-325
1.5.3.12	Calibration 9002 front EPC - position control	1-328
1.5.3.13	Heating valve calibration - automatic air-conditioning system	1-331
1.5.3.14	Speed display calibration	1-333

1.1 General

1.1.1 Notes on documentation

To ensure that the information is structured in a user-friendly manner, the service documentation is divided into the operator's manual and the workshop manual.

The operator's manual includes a general description as well as instructions for all necessary maintenance work.

Knowledge of the owner's manual is essential to understand the workshop manual. This is particularly important for safety instructions. The workshop manual describes repairs to assemblies and components that will require more effort and suitably qualified specialists to carry out.

Note

This workshop manual provides notes for trained technicians to maintain our tractors. Read and observe the information in this documentation. This will help you prevent accidents and safeguard the manufacturer's warranty.

The respective accident prevention rules as well as other generally recognized safety and occupational health rules must be observed.

The tractor is built solely for the purpose defined by the implement manufacturer. Any other type of use is considered unauthorized. The manufacturer bears no liability for any damage resulting from improper use. The user bears this risk alone. Intended use includes maintaining operating, service and maintenance conditions as specified by the manufacturer.

Operation, maintenance and repair of the tractor may only be carried out by people who are familiar with this equipment and aware of the associated dangers. Ensure that this documentation is available to and understood by everyone involved in operation, maintenance and repair. Not observing this documentation can lead to faults, damage and personal injury, for which the manufacturer assumes no liability. The prerequisite for the tractor being correctly serviced and maintained is the perfect condition and availability of all necessary equipment, standard tools and general workshop equipment as well as special tools. Special tools must only be used where absolutely necessary. The tools are displayed where they need to be used in each case.

The machine must be maintained according to its proper use. Always replace parts with genuine FENDT spare parts! When ordering parts, please provide the chassis number as per the most up-to-date spare parts documentation.

Only parts approved by the manufacturer for that specific purpose may be used for any alterations. The manufacturer will not accept liability for any damage resulting from unauthorized modifications to the tractor. Non-compliance invalidates the warranty!

Workshops should also refer to documentation on maintenance work and technical data. Once maintenance is complete, take a test drive to ensure the vehicle's correct operation and road safety.

We reserve the right to make design changes in light of technical developments.

Notes on repairs

The assembly/disassembly instructions shown correspond to the design status at the time the workshop manual was drawn up.

Further technical development of the product and additions related to different versions may require alternative working processes that do not pose too many difficulties to trained and qualified specialists.

These assembly/disassembly instructions shall be invalidated upon issue of the next version of this document.

1.1.2 Safety instructions and measures

Important notes on work safety

The statutory accident prevention regulations (available from professional associations or specialist shops) must be observed. These depend on the operating site, operating mode and fuels and lubricants used. Special protective measures dependent on the respective procedures are specified in the corresponding repair guidelines and highlighted.

This handbook uses the following safety tips



DANGER: Indicates an impending dangerous situation that will lead to serious injury or death if not avoided.



WARNING: Indicates a potentially dangerous situation that could lead to serious injury or death if not avoided.



CAUTION: Indicates a potentially dangerous situation that could lead to minor injury if not avoided.

Please observe the following when carrying out maintenance or service work to the tractor:

Only the documentation associated with the vehicle (workshop manual and operator's manual) must be used to complete any pending work.

1. General

- Only briefed personnel may operate the tractor or carry out maintenance work.
- Only use qualified specialists to carry out repairs or service work.
- Nobody may be in the cab while work is being carried out under the jacked-up tractor.
- Relieve pressure from implement lines, e.g. to the front loader.
- All people should keep clear of a lifted, unsecured load (e.g. tilted cab etc.).
- Never open or remove any safety devices while the engine is running.
- Pressurized fluids (fuel or hydraulic oil) escaping under high pressure can penetrate the skin and cause severe injuries. If this should occur, seek medical advice immediately to avoid the risk of serious infection.
- Keep at a safe distance from hot areas.
- Pressure accumulator and connected pipes are highly pressurized. Only remove and repair in accordance with instructions provided in the workshop manual.
- To avoid eye injury, do not look directly at the surface of the activated radar sensor.
- Dispose of oil, fuel and filters properly!
- Specialist knowledge and special fitting tools are required to fit tires.
- Run the tractor for a short time, then retighten all wheel nuts and bolts and check them regularly.

For correct torque values refer to TECHNICAL DATA.

- Before working on the electrical system, always remove the earth strap from the battery. Observe the following when carrying out electric welding. Before carrying out welding work on tractor or mounted implements, ensure that both battery terminals are disconnected. Attach the welding appliance's earth terminal as close to the welding spot as possible.
- Caution is required when dealing with brake fluid and battery acid as these are toxic and corrosive!
- Only use genuine FENDT spare parts.

2. Working on the front-axle suspension

- The front axle suspension pressure lines between the central control block (ZSB) and the suspension cylinders, and

- the cased ASPL, ASPR and ZSP pressure accumulators



DANGER: are under 200 bar pressure, even when the engine is switched off and the suspension is lowered (= locked).

Safety measures:

Prior to each repair and after releasing or opening in this area, the pressure must be released manually.

NOTE:

The "Lock suspension/lower suspension" command has no effect!

*Even externally energizing the solenoid valves **Y013** - lower suspension solenoid valve and **Y065** - suspension raising solenoid valve has no effect!*

(There are hydraulic pilot-operated non-return valves built in)

To release pressure:

- Screw in the knurled-head screw on the **MVFS [Y013]** - Suspension lowering solenoid valve; the chassis may be lowered
- Screw in the knurled-head screw on the **MVFH [Y065]** - Suspension raising solenoid valve; the rebound accumulator will be relieved



Fig. 1

Check:

As the oil temperature rises, the emptying accumulator will make a flowing sound (barely audible in winter).

3. Working on the brake system



DANGER: The brake system hydraulic lines remain under pressure even when the engine has been switched off!

Safety measures:

Before each repair to the brake system or when removing the cab, the pressure must be relieved manually.

To release pressure:

1. Engine must be off
2. Secure the tractor to prevent it from rolling away.
3. With the hand brake applied, press the foot brake 50 times
4. Apply the hand brake 20 times

General notes:



Fig. 2

- Always check the brakes before driving.
- Adjustments and repairs to the brake system must be carried out in specialist workshops or by approved brake repair technicians.
- It must not be possible to brake individual wheels when driving (lock pedals)!

4. Working on the engine

- After switching the engine off, wait 30 seconds before carrying out any work on the fuel system.
- Only start the engine once all safety guards have been attached and nobody is standing in the danger area.
- Never let the engine run in enclosed spaces with no exhaust gas suction system.
- Cleaning, maintenance and repair work may only be carried out once the engine is switched off and secured to prevent it starting.
- Injection pipes and high-pressure lines must not be deformed.
- Any damaged injection pipe or high-pressure line must be replaced.
- Do not loosen any injection pipes for high-pressure fuel lines while the engine is running.
- Before carrying out checks to the running engine, always perform a visual check of all high-pressure components. Suitable protective clothing (e.g. protective goggles) should be worn while doing this. Leaks indicate potential sources of danger for workshop personnel.
- In the event of leaks to the high-pressure fuel system, always remain out of range of any possible fuel spray to avoid serious injury.
- Even when no leaks to the high-pressure fuel system can be detected, workshop personnel should avoid the immediate danger area and wear suitable protective clothing (such as protective goggles) when carrying out checks to the running engine and during the first test run.
- Smoking is forbidden while carrying out work to the fuel system.
- Do not work in the proximity of sparks or naked flames.
- Never disconnect an injector while the engine is running.

5. Working on the PTO

- Always switch off the engine before fitting or removing the drive shaft. PTO in "0" position!
- When working on the PTO, allow no-one in the vicinity of the rotating PTO or drive shaft.
- Make sure drive shaft and PTO are equipped with shield pipes and protective funnels.
- After deactivating the PTO, it is possible that parts on the mounted implement may continue to run. In this case, do not get too close to the implement. Work may only be carried out to the implement when nothing is moving!
- When the drive shaft is removed, cover the PTO shaft with its protective cap.
- Nobody should be in the cab when installing and removing the drive shaft.

Operation of controls for the tractor and mounted implements by people in the cab, especially children, may result in severe or fatal injury.

6. Working on the front loader

- Before undertaking maintenance work, lower the front loader to the ground, switch off the engine and remove the ignition key.
- In the event of a collapsed pipe rupture feature, support the load before starting repair work, and slowly retract the cylinder.
- Check hydraulic hoses and pipes for signs of damage and aging regularly and replace with genuine spare parts in good time.
- Following installation and repairs, operate the tractor for a short time, then retighten all nuts and bolts and check them regularly.
- Retighten eccentric bolt for front loader attachment, if necessary.

Disposal

The work described in the operator's manual and workshop manual includes replacing parts, fuel and lubricants. These renewed parts/fuel/lubricants must be stored, transported and disposed of in accordance

with regulations. The repairing workshop bears responsibility for this. The disposal encompasses the recycling and final disposal of parts, fuel and lubricants with recycling having the higher priority. Details about disposal and monitoring are specified in regional, national and international laws and directives, the observation of which is the sole responsibility of the repairing workshops.

1.1.3 Importance of and position of the safety decals

The position and importance of the safety decals on the vehicle are explained below:

Position: Left C-pillar, cab interior

743.810.090.050



WARNING:
Serious injury or death caused by inadequate compliance with the Operator's Manual
Inadequate compliance with the Operator's Manual can cause damage, injuries and in serious cases death. Before operation, make sure that this Operator's Manual is available on the vehicle in legible form. The owner is responsible for providing adequate training to those personnel who are entrusted with the vehicle and for ensuring they are familiar with the instructions in the Operator's Manual and, where applicable, the service manual. The same applies to those persons who are both owner and operator.
Observe all safety notes and instructions, and execute all measures correctly and completely at all times.

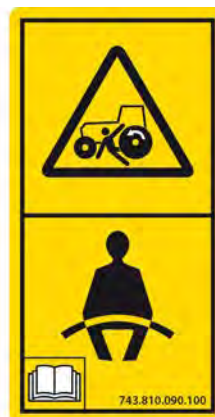


Position: Left B-pillar, cab interior

743.810.090.100



WARNING:
Serious injury or death caused by being ejected from the cab
When driving, an improperly closed door can open. Vehicle occupants not strapped in or not properly strapped in can be ejected from the vehicle and run over. This can cause serious injury and even death.
Make sure that, during travel, all vehicle passengers are properly strapped in at all times.



Position: Left C-pillar, cab interior

743.810.090.060



WARNING:
Serious injury or death caused by being ejected from the cab
If the vehicle tips over, the door can open. Vehicle occupants not strapped in or not properly strapped in can be ejected from the vehicle. This can cause serious injury and even death.
Make sure that, during travel, all vehicle passengers are properly strapped in at all times.



Position: Left C-pillar, cab interior

842.810.090.040



WARNING:
Unusual driving behavior in reverse drive mode can cause serious injury and even death
 In reverse drive mode, steering the vehicle backwards can cause it to veer out at the rear and alter the driving behavior. This can cause serious injury and even death.
Reverse drive mode is prohibited on public roads. When not on public roads, travel in reverse drive mode with the utmost caution.
The Operator's Manual contains all important information.



Position: Left B-pillar, cab interior

743.810.090.130



WARNING:
Serious injury or even death caused by critical driving situations due to the operator's seat lateral suspension being activated
 When the lateral suspension is activated, critical driving situations can occur during road travel if the vehicle becomes difficult to operate. This can cause serious injury and even death.
Deactivate the lateral suspension when travelling on public roads. When not on public roads, do not drive too fast when the lateral suspension is activated.



Position: Left B-pillar, cab interior

743.810.090.090



WARNING:
Serious injury or death caused by running over persons when leaving the vehicle
 The vehicle can start rolling due to non-activation of the parking brake before leaving the vehicle, in which persons in the area of the vehicle can be caught and run over.
Activate the parking brake before leaving the vehicle and remove the vehicle key.



Position: Left B-pillar, cab interior

743.810.090.150



DANGER:
Danger of inhaling hazardous substances. Refer to Operator's Manual for safety instructions and the correct settings for the ventilation system.



Position: Under the engine cover, next to the coolant expansion tank

743.500.410.080



DANGER:
Scalding caused by hot coolant vapor
After the vehicle has been operated, the cooling circuit contains pressurized, hot coolant. When the coolant reservoir or circuit is opened, the coolant escapes in the form of hot vapor and can cause scalding if allowed to come into direct contact with the skin.
Before opening the coolant reservoir or circuit, switch off the engine and allow sufficient time for the coolant to cool down.
The maintenance manual contains all important information.



Position: Right-hand side of engine cover, also on the right and left of the radiator

743.500.410.060



Position: Battery box, right side of vehicle

743.500.410.030



WARNING:

Burns caused by explosive flames and chemical burns caused by battery electrolyte

Direct contact with escaping battery electrolyte causes chemical burns to the eyes. Escaping battery electrolyte can react with the ambient air to form an explosive mixture.

Avoid direct contact with battery electrolyte and always wear gloves and goggles when working with an open battery. During such work, do not use naked flames and avoid spark formation.

The Operator's Manual contains all important information.



Position: Right and left at radiator

743.500.410.070



DANGER:

Danger of body parts being torn off! Switch the engine off and remove the ignition key before maintenance and repair work.



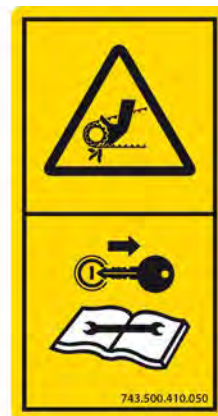
Position: Right and left at radiator

743.500.410.050



DANGER:

Danger of body parts being crushed or pulled into the machine! Switch the engine off and remove the ignition key before maintenance and repair work.



Position: On the hydraulic pressure accumulators

X655.505.700.000



Position: Left side of engine, at the front above the front axle

743.810.090.030



WARNING:

Serious injuries or death during incorrect work on the PTO. When working on the PTO, a rotating PTO can cause crushing, shearing and impact injuries.

Before removing safety devices and performing other work on the PTO, remove the ignition key and make sure that the PTO cannot be reactivated until a safe state has been restored. The maintenance manual contains all important information.



Position: Left side of engine, at the front above the front axle

737.500.410.030



WARNING:

Serious injury caused by incorrect power lift actuation. When the rear power lift is actuated via the external pressure switch, any persons standing between the vehicle and the implement can be crushed as the implement is raised and positioned.

Make sure, when actuating the external pressure switch of the rear power lift, that nobody is standing between the vehicle and the implement.



Position: Cover of PTO stub

743.500.410.110



DANGER:
 Danger of slipping and of serious injury. Do not use the PTO cover or rear linkage components as a step.

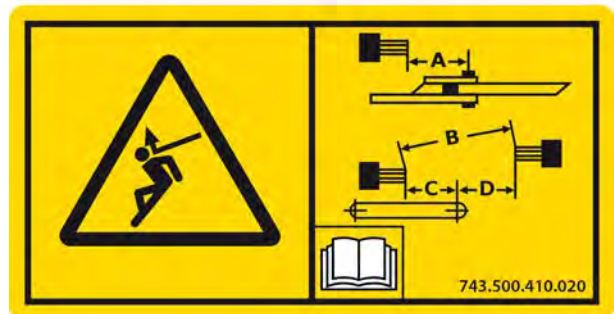


Position: Cover of PTO stub

743.500.410.020



DANGER:
 Danger due to parts being flung around if transmission shafts or implements are installed improperly. Observe the safety instructions in the Operator's Manual.



Position: Left and right at the front axle

743.500.410.040



DANGER:
 Danger of body parts being crushed. Switch the engine off and remove the ignition key before maintenance and repair work.



Position: Left / right rear left mudguard, rear

954,810,090,030





WARNING:

Serious injuries or death during incorrect work on the PTO. When working on the PTO, a rotating PTO can cause crushing, shearing and impact injuries.

Before removing safety devices and performing other work on the PTO, remove the ignition key and make sure that the PTO cannot be reactivated until a safe state has been restored.

The maintenance manual contains all important information.



WARNING:

Serious injury or death caused by the vehicle tipping over. Exceeding the maximum permissible hitch load on the towing hitch can result in critical driving conditions through the front wheels being raised. In the worst case, the vehicle can tip over. This can cause serious injury and even death.

Always respect the maximum hitch load indicated on the sign plate of your vehicle.



WARNING:

Serious injury caused by incorrect power lift actuation

When the rear power lift is actuated via the external pressure switch, any persons standing between the vehicle and the implement can be crushed as the implement is raised and positioned.

Make sure, when actuating the external pressure switch of the rear power lift, that nobody is standing between the vehicle and the implement.

Position: Left/right bottom link lift rod, rear

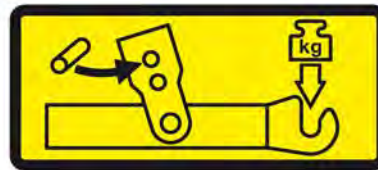
835.870.030.060



CAUTION:

Damage to the bottom link lift rod due to incorrect bottom link floatation. If the lift rod bolt is incorrectly set to floatation, the lift rod can become damaged.

Always set the lift rod bolt to the "top" position if a bottom link floatation is not required to operate the implement.



835.870.030.060

Position: Below the rear window and on the roof hatch, cab interior

530.811.090.040

NOTE:

Emergency exit from the cab when the cab door will not open. If the cab door will not open, use the roof hatch or the rear window as an emergency exit.



530.811.090.040

Position: Right C-pillar, cab interior

743.810.090.110



CAUTION:
Damage caused by incorrect electric welding
 Improper welding can damage electronic components and interfere with their operation.
 Always disconnect the battery before welding. Position the welder ground clamp as close as possible to the welding point. Pay attention to temperature-sensitive parts.
 The maintenance manual contains all important information.



Position: Right C-pillar, cab interior

743.810.090.080



CAUTION:
Damage caused by incorrect towing
 Towing in a gear position other than the towing position will damage the gearbox.
 Before towing, ensure that the gearbox is in the towing position.
 The Operator's Manual contains all important information.



Position: Front of vehicle, on air-conditioning condenser

650,503,410,360

NOTE:
 System contains the prescribed air conditioning medium R134a
 Use only the legally prescribed air conditioning medium R134a (1,1,1,2-Tetrafluorethane).

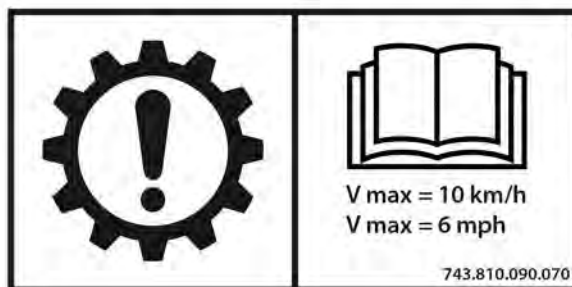


Position: Right mudguard, cab interior

743.810.090.070



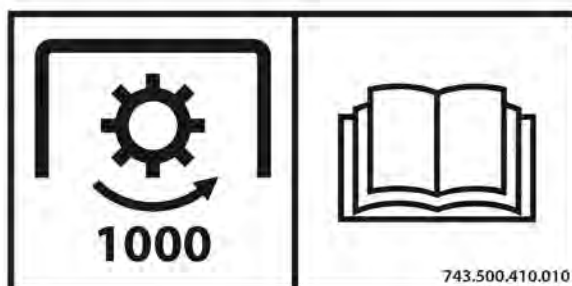
CAUTION:
Damage caused by incorrect towing
To prevent transmission damage being caused by incorrect towing, always observe all important information in the towing instructions in the Operator's Manual.
Specifically, the vehicle should be towed only over a limited distance and at a speed of below 10 km/h or 6 mph.



Position: PTO stub shaft protection

743,500,410,010

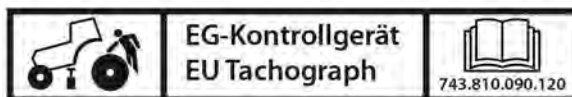
NOTE: Note the speed and rotational direction of the PTO. Refer to the Operator's Manual when mounting or connecting implements.



Position: Roof lining, centre right

743.810.090.120

NOTE:
 Recalibration of the tachograph after a tire change
 Always calibrate the tachograph after a rear tire change. Failure to do so can cause incorrect tachograph recordings.
 The Operator's Manual contains all important information.



Position: Rear of vehicle, left-hand side of ball holder

743,500,410,130

NOTE: Refer to the Operator's Manual when mounting implements on the rear power lift.



Position: Engine block

411.201.010.010

NOTE:

*Do not re-tighten the cylinder head bolts
During initial setup and after repair work, the
cylinder head bolts are tightened in accordance with
the relevant instruction sheet and must not be re-
tightened.*

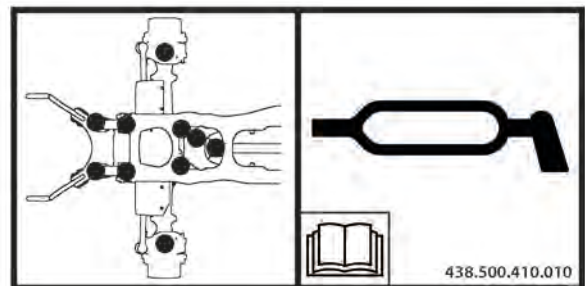


411.201.010.010

Position: Left side of engine, at the front above the front axle

438,500,410,010

Front lubrication points, see maintenance instructions

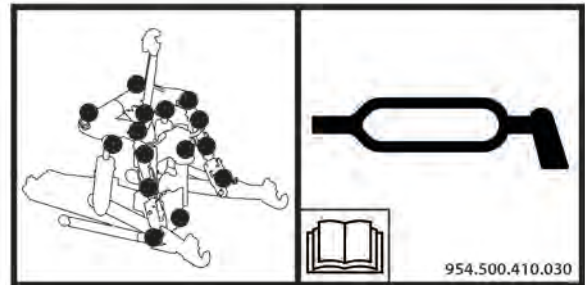


438.500.410.010

Position: On the right at the back on inside of mudguard

954,500,410,030

Rear lubrication points, see maintenance instructions

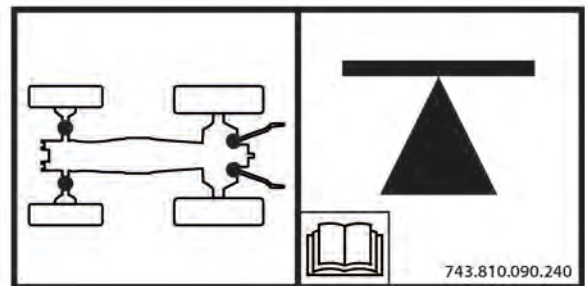


954.500.410.030

Position: Left entrance step

743,810,090,240

Jack points, see maintenance instructions



743.810.090.240

1.1.4 Note on hydraulics

If work has been carried out on the hydraulic system on the vehicle, in particular the steering, the hydraulic system must be checked in line with the test report.

1.1.5 Assignment table FENDT T types to the EU Type Approval Number

The EU type approval number consists of the lower case letter "e" followed by the code letter or number of the member state granting the EU type approval. The FENDT T-type designation classifies the relevant series and forms part of the 17-digit vehicle identification number.

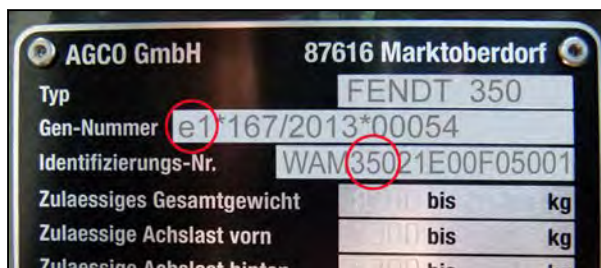


Fig. 3 Exemplary illustration

Series	FENDT 200 Vario V/F/P	FENDT 200 Vario	FENDT 300 Vario
Type approval number	e1*167/2013*00053		e1*167/2013*00054
Chassis numbers	T232	T300	T347
	T233	T301	T348
	T234	T302	T349
	T235	T303	T350
	T236	T304	
	T239		
	T240		
	T241		
	T242		
	T243		
	T251		
	T252		
	T253		

Series	FENDT 500 Vario	FENDT 700 Vario	FENDT 800 Vario
Type approval number	e1*167/2013*00042	e1*167/2013*00049	e1*167/2013*00047
Chassis numbers	T435	T738	T839
	T436	T739	T840
	T437	T740	T841
	T438	T741	T842
		T742	
		T743	

Series	FENDT 900 Vario	FENDT 1000 Vario
Type approval number	e1*167/2013*00056	e1*167/2013*00055
Chassis numbers	T950	T527
	T951	T528
	T952	T529
	T953	T530
	T954	

1.1.6 Support points for jack and support stands

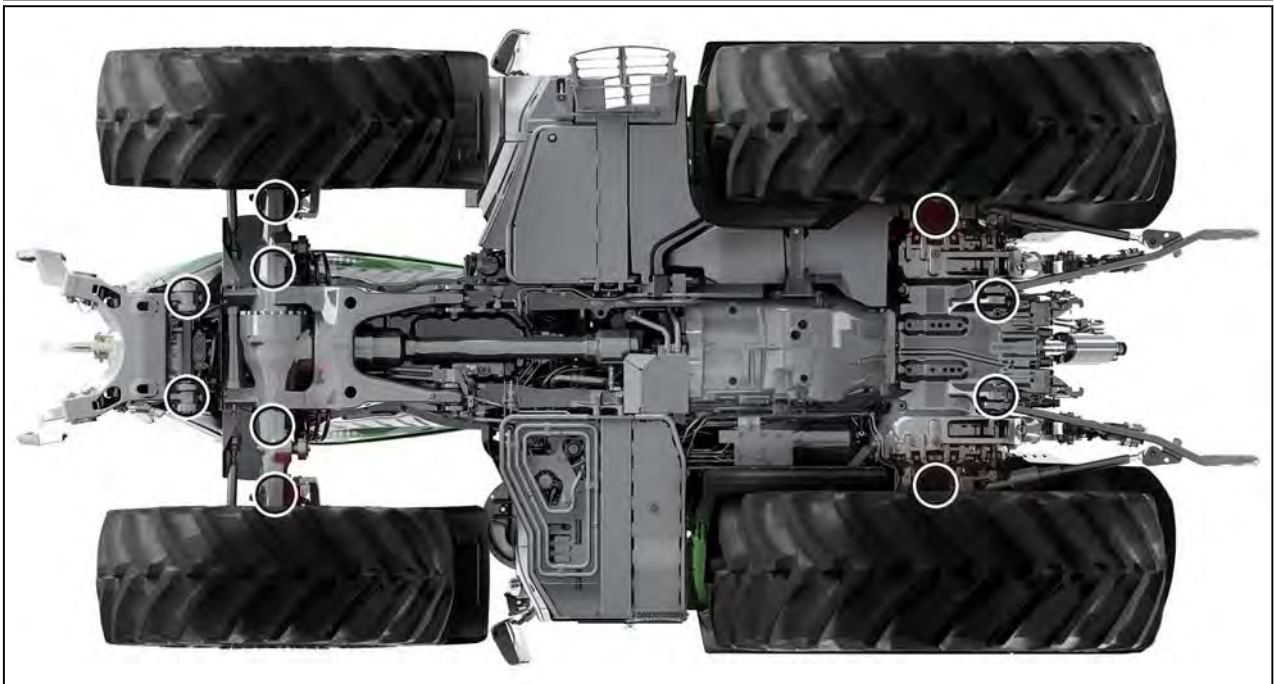


Fig. 4

In addition to the illustrated support points, support stands can also be placed under the rear axle trumpet housings.

Marking on tractor

Some of these suitable support points are marked on the tractor and are also indicated by this decal at the cab entrance.

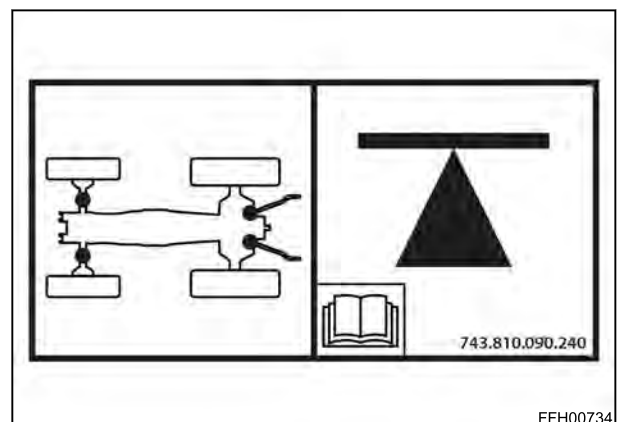


Fig. 5

1.1.7 Location of the identification plates

Location of the identification plates

Vehicle rating plate

Stamped chassis number



Right side, front, on frame



Fig. 6

Front axle rating plate



Right-hand side, on front axle



Fig. 7

Diesel engine rating plate



Top, on valve cover and
right side, on crankcase



Fig. 8

Transmission rating plate



right side on transmission housing

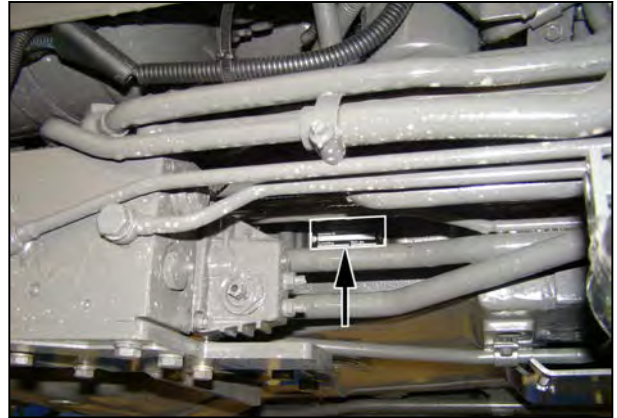


Fig. 9

Vario transmission insert rating plate



on top of Vario transmission insert



Remove cab, remove transmission cover



Fig. 10

Cab rating plate



in rear of cab

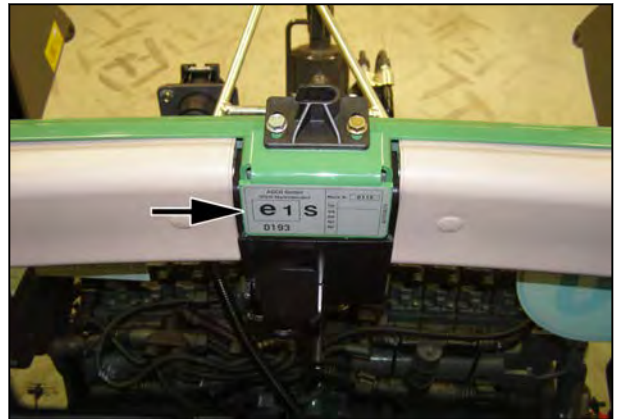


Fig. 11

Trailer frame rating plate

NOTE:

See also: *Operating Manual*



right side, on trailer frame

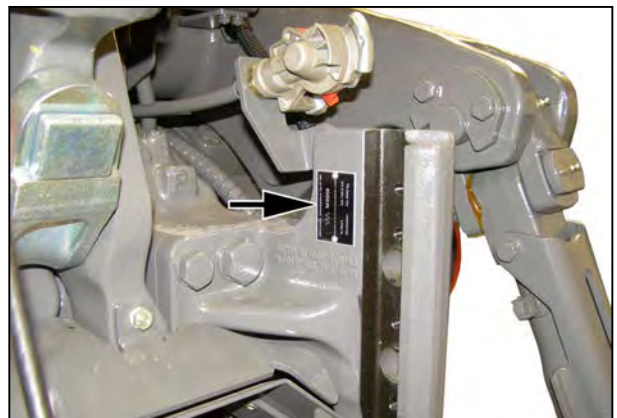


Fig. 12

Automatic trailer hitch rating plate

NOTE:

See also: *Operating Manual*



on trailer hitch

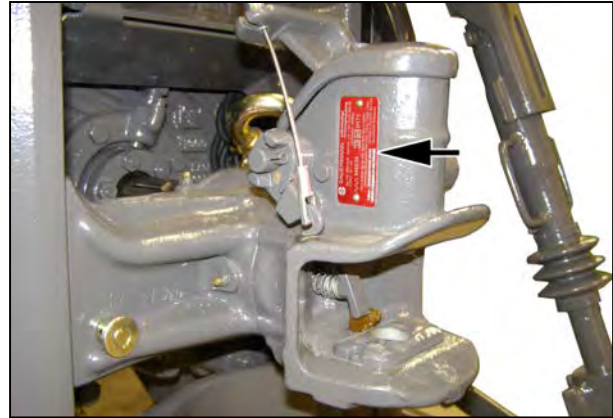


Fig. 13

Ball-type coupling (height adjustable) rating plate

NOTE:

See also: *Operating Manual*



on ball-type coupling

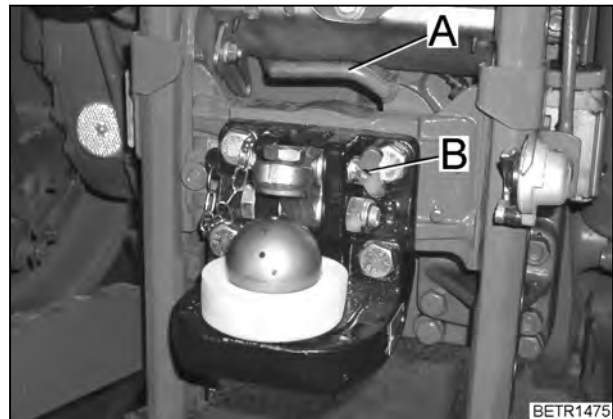


Fig. 14

Ball-type coupling rating plate

NOTE:

See also: *Operating Manual*



on ball-type coupling



Fig. 15

Draw bar rating plate

NOTE:

See also: *Operating Manual*



on draw bar

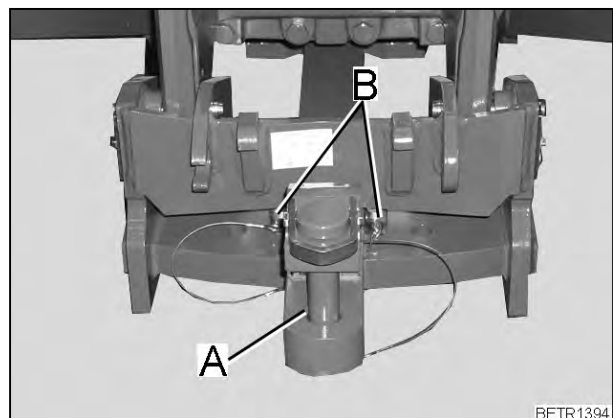


Fig. 16

Piton Fix rating plate

NOTE:

See also: *Operating Manual*



on Piton Fix



Fig. 17

Hydraulic hitch rating plate

NOTE:

See also: *Operating Manual*



on hydraulic hitch

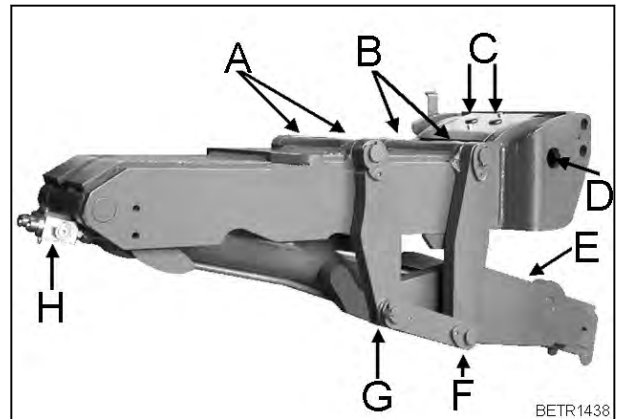


Fig. 18

1.1.8 Biodegradable hydraulic oil

Oil quality

Use biodegradable hydraulic oil of type HEES with a rapeseed oil and synthetic base of viscosity ISO VG 32 or ISO VG 46.

NOTE:

Polyglycol-based synthetic oils cannot be used.

Instructions for use

Biodegradable hydraulic oil is suitable for winter temperatures down to approx. -15 °C.

Vegetable-based hydraulic oil may thicken in ambient temperatures below -15 °C or if the machine is not used for long periods of time. After a cold start, allow a short warm-up time at medium engine speed to ensure safe operation of the hydraulic steering and linkage. In extremely low temperatures, it may be necessary to warm up the entire tractor.

Avoid mixing with mineral oils, such as with any oil remaining in the system or by connecting and operating an external implement. This may affect the positive environmental properties of the fluid, and will make it more difficult to dispose of; it should then be considered as hazardous waste.

Current legislation and the instructions of the oil manufacturer must be observed when disposing of oil.

A mixture containing more than 20% may result in alterations in viscosity and may lead to problems with the hydraulic valves.

Maintenance intervals

The oil and oil filter need to be changed every 1000 running hours or every year, whichever occurs first.

When switching to biodegradable hydraulic oil, change the hydraulic oil filter after approx. 50 to 100 running hours. Since biodegradable hydraulic oil acts as a solvent, any oil residue may block the filter.

Specific features

Biodegradable hydraulic oil is more easily biodegradable and has less of an effect on the ground and groundwater in the event of accidental spills.

IMPORTANT:

In spite of the high environmental compatibility of biodegradable hydraulic oil, accidental spills must always be reported.

1.1.9 Tightening torque for screws with a galvanized surface

Choose the correct friction coefficient

To ensure that the tightening torque and preload value can be accurately determined, it is essential to know the **friction coefficient (μ_{total})**. Varying surface properties and lubrication conditions give rise to a wide range of friction coefficients. If not otherwise specified, tightening torques can be calculated based on their friction coefficient using the table below.

NOTE:

Locking screws with retaining ridges on the screw head contact surface have a greater friction coefficient.

Tightening torques in relation to the friction coefficient

Metric thread with a friction coefficient of $\mu_{total} = 0.14$								
Size	6.9		8.8		10.9		12.9	
	Nm	kpm	Nm	kpm	Nm	kpm	Nm	kpm
M6	8.4	0.85	9.8	1	13.7	1.4	16.7	1.7
M8	20.6	2.1	24.5	2.5	34.3	3.5	40.2	4.1
M10	40.2	4.1	48.1	4.9	67.7	6.9	81.4	8.3
M12	70.6	7.2	84.4	8.6	117.7	12	142.2	14.5
M14	112.8	11.5	132.4	13.5	186.4	19	225.6	23
M16	176.6	18	206	21	289.4	29.5	348.2	35.5
M18	240.3	24.5	284.5	29	392.4	40	475.8	48.5
M20	338.4	34.5	402.2	41	569	58	676.9	69
M22	456.2	46.5	539.5	55	765.2	78	912.3	93
M24	588.6	60	696.5	71	981	100	1177.2	120
M27	873.1	89	1030	105	1471.5	150	1765.8	180
M30	1177.2	120	1422.4	145	1962	200	2354.4	240

Metric fine thread with a friction coefficient of $\mu_{\text{total}} = 0.14$								
Size	6.9		8.8		10.9		12.9	
	Nm	kpm	Nm	kpm	Nm	kpm	Nm	kpm
M8x1	22.6	2.3	26.5	2.7	37.3	3.8	44.1	4.5
M10x1,25	42.2	4.4	51	5.2	71.6	7.3	86.3	8.8
M12x1,25	78.5	8	93.2	9.5	132.4	13.5	157	16
M12x1,5	74.5	7.6	88.3	9	122.6	12.5	147.1	15
M14x1,5	122.6	12.5	147.1	15	206	21	245.2	25
M16x1,5	186.4	19	220.7	22.5	309	31.5	372.8	38
M18x1,5	296.8	27.5	318.8	32.5	451.3	46	539.5	55
M20x1,5	377.7	38.5	451.3	46	627.8	64	755.4	77
M22x1,5	510.1	52	598.4	61	843.7	86	1030	105
M24x2	637.6	65	765.2	78	1079.1	110	1275.3	130
M27x2	951.6	97	1128.1	115	1569.6	160	1912.9	195
M30x2	1324.4	135	1569.6	160	2207.2	225	2648.7	270

1.1.10 Tightening torque for screws and bolts with VDA coating

These tightening torques apply for threads with a VDA coating (VDA10, VDA30, VDA42).

NOTE: For detailed information, please refer to Service Bulletin 51/2016 or spare parts information no. 63-2016

Size	Nominal torque by strength class		
	8.8	10.9	12.9
M4	2,6 Nm	3,9 Nm	4,5 Nm
M5	5,2 Nm	7,6 Nm	8,9 Nm
M6	9,0 Nm	13,2 Nm	15,4 Nm
M8	21,6 Nm	31,8 Nm	37,2 Nm
M10	43 Nm	63 Nm	73 Nm
M12	73 Nm	108 Nm	126 Nm
M14	117 Nm	172 Nm	201 Nm
M16	180 Nm	264 Nm	309 Nm
M18	259 Nm	369 Nm	432 Nm
M20	363 Nm	517 Nm	605 Nm
M22	495 Nm	704 Nm	824 Nm

Friction coefficient of μ = 0.10	Nominal torque by strength class		
	8.8	10.9	12.9
Size			
M24	625 Nm	890 Nm	1041 Nm
M27	915 Nm	1304 Nm	1526 Nm
M30	1246 Nm	1775 Nm	2077 Nm

1.2 Technical specification

1.2.1 Technical data: 0000 general

Technical data: Dimensions and weights					
Tractor type		822 Vario	824 Vario	826 Vario	828 Vario
Chassis number		839/..	840/..	841/..	842/..
Weights					
Unladen weight	kg	9890		9980	
Permissible overall weight	kg	14,000			
Permissible overall weight with dual-circuit brake system and max. 50 km/h	kg	16,000			
Max. permissible front axle load 40 km/h (vehicle licensing regulations)	kg	6500			
Max. permissible front axle load, 8 km/h	kg	8500			
Max. permissible rear axle load	kg	10,500			
Permissible vertical load on trailer coupling	kg	2000			
Permissible vertical drawbar load for a pick up hitch	kg	3000			
Dimensions					
Front tires	-	540/65/R30		540/65/R34	
Rear tires	-	650/65R42		650/85R38	
Overall length	mm	5275			
Overall width:	mm	2550			
Overall height with cab	mm	3220		3280	
Ground clearance	mm	517		567	
Wheelbase	mm	2950			
Turning radius without steering brake	mm	5450			5700
Front axle flange width	mm	1955			
Rear axle flange width	mm	1888			

Technical data: Dimensions and weights					
Tractor type		822 Vario	824 Vario	826 Vario	828 Vario
Chassis number		839/.. /	840/.. /	841/.. /	842/.. /
Standard track front	mm	2000			
Standard track rear	mm	1970			
Front bolt pitch-circle diameter	mm	335			
Front axle bolt and thread	-	10 units M20x1.5			
Rear bolt pitch-circle diameter	mm	335			
Rear axle bolt and thread	-	10 units M22x1.5			
Rear axle ratio	i	29.0895			
Front axle ratio	i	15.149			
Tightening torques					
Front wheel nut	Nm	450			
Rear wheel nuts	Nm	580			

1.2.2 Technical data: 1000 - Transmission

NOTE:

Specification applies to: 839/.. /...to - 842/.. /....

Transmission oil (Vario transmission - rear axle) (combined oil supply)		
Oil grade	-	FENDT Extra Trans 10W-40 or STOU SAE 10W-40 STOU SAE 15W-40
Transmission, initial fill	l	Approx. 145
Transmission, subsequent fills	l	Approx. 123
Oil quantity between Min. and Max. marks	l	approx. 3
Oil change interval	Op. hrs / years	2000 / 2

Vario: continuously variable transmission

Model	-	ML 220
Travel range	-	I (Field)
		II (Road)

Vario: continuously variable transmission		
Speed (forwards)		
Speed range I (Field)	km/h	0.02 ... 35
Speed range II (Road)	km/h	0.02 ... 60
Speed (backwards)		
Speed range I (field)	km/h	0.02 ... 20
Speed range II (road)	km/h	0.02 ... 33
Acceleration rate I (if the joystick is touched once at rated engine speed)	km/h	0.02 ... 0.5 (adjustable)
Acceleration rate II (if the joystick is touched once at rated engine speed)	km/h	0.5
Acceleration rate III (if the joystick is touched once at rated engine speed)	km/h	1.0
Acceleration rate IV (if the joystick is touched once at rated engine speed)	km/h	2.0
Transmission pressures with transmission oil temperature greater than 40 °C NOTE: See also Workshop Manual (Chapter 1005 Reg. E – Measuring transmission pressure)		
Servo pressure at 2000 rpm engine speed (measuring point PU)	bar	28 +5
System pressure at 2000 rpm engine speed (measuring point P)	bar	27 +5
Feed pressure at 2000 rpm engine speed (measuring point ES)	bar	24 ± 2.5
Outlet pressure at 2000 rpm engine speed (measuring point AS)	bar	15.5 ± 2.5
Lubrication pressure at 2000 rpm engine speed (measuring point SM)	bar	4.7 ± 0.5
Transmission pressures with transmission oil temperature greater than 80 °C NOTE: See also Workshop Manual (Chapter 1005 Reg. E – Measuring transmission pressure)		
Servo pressure at 2000 rpm engine speed (measuring point PU)	bar	26 + 5
System pressure at 2000 rpm engine speed (measuring point P)	bar	25 + 5
Feed pressure at 2000 rpm engine speed (measuring point ES)	bar	15 ± 2.5

Vario: continuously variable transmission		
Outlet pressure at 2000 rpm engine speed (measuring point AS)	bar	12 ± 2.5
Lubrication pressure at 2000 rpm engine speed (measuring point SM)	bar	3 ± 0.5
Tightening torques:		
"Forward" high-pressure valve (2V3)	Nm	250 +20
"Reverse" high-pressure valve (2V4)	Nm	250 +20
Flushing or "discharge" valve (2V5)	Nm	250 +20
Vario insert support shaft, M20 nuts (on both sides)	Nm	250
Securing bolts on the Vario insert support shaft	Nm	86
PTO drive fixing bolts (cover on the planetary carrier)	Nm	25
Fixing bolts for the transmission control unit (A009)	Nm	25
Locating screw for the actuator shaft	Nm	25
Valve block for transmission control system (tighten the screws in the specified sequence)	Nm	25

Clutch		
Electrically actuated	-	-

AWD		
hitch	-	Wet multiple disc clutch
Clutch actuation	-	electro. / hydraulic
Clutch pressure: Clutch disengaged	bar	25 + 2.0
Clutch engaged (Belleville spring force)	bar	0

Differential lock (rear)		
hitch	-	Wet multiple disc clutch
Clutch actuation	-	electro. / hydraulic
Clutch pressure: Differential lock disengaged	bar	0
Differential lock engaged	bar	25 + 2.0

Differential (rear axle)		
System	-	Bevel pinion shaft/crown-wheel
Number of bevel gears	Qty	4
Bevel pinion shaft/crown-wheel backlash	mm	0.2 +/-0.05
Adjust the rolling resistance of the bevel pinion shaft bearing	Nm (Ncm)	2.0 ... 4.0 (200 to 400)
Adjust the rolling resistance of the crown-wheel	Nm (Ncm)	2.5 ... 3.5 (250 to 350)
Tightening torques:		
Crown-wheel fixing bolts	Nm	120
Crown-wheel bearing flange	Nm	86

Rear wheel brake		
Type	-	Ring piston brake
Disks on each side	Qty	2 brake disks + 1 intermediate disk
Actuation	-	Hydraulic (transmission oil, servo pump)
Rear brake adjustment:	-	Self-adjusting brake return mechanism

Front axle service brake (Dual-circuit brakes only)		
Type	-	Wet multiple disk brake on the 4WD shaft
Inner/outer toothed disks	Qty	11/10
Actuation	-	Hydraulic

Hand brake		
Type	-	Integrated spring brake on the 4WD shaft
Inner/outer disks (single-circuit brake)	Qty	6/5
Inner/outer disks (dual-circuit brake)	Qty	11/10
Hand brake opening pressure	bar	90

Front PTO transmission		
1000 - standard or 540 - optional		
Front PTO transmission oil		FENDT Extra Trans 10W-40
Oil grade		or
		Universal tractor oil (STOU)
		SAE 10W - 40
		SAE 15W - 40
		acc. to API GL4
Oil quantity: transmission oil inc. pressure filter	l	approx. 3.5
Note: Oil level up to overflow at filler hole.		
PTO shaft profile	Inches	Splined shaft profile 1 3/8" x 6 splines
Rotational direction of the front PTO	-	Right (clockwise) viewed in the direction of travel
Engine speed for PTO rpm:		
1000 rpm (1000 PTO setting)	rpm	1939
540 rpm (540 PTO optional setting)	rpm	1954
PTO speed at engine rated speed (2100 rpm)		
1000 Setting	rpm	1083
540 Setting	rpm	580
Max. permissible torque in front PTO with		
1000 Setting	Nm	749
540 Setting	Nm	1695

Front PTO clutch		
System	-	Oil supply of front PTO transmission
		Appropriate oil pump for front PTO clutch
hitch	-	Wet multiple disk clutch with a brake disk
Clutch actuation	-	electr. / hydraulic

Front PTO clutch		
Front PTO disengaged		
System pressure	bar	approx. 3
Clutch pressure	bar	0
Front PTO engaged		
System pressure	bar	approx. 16
Clutch pressure	bar	approx. 16

Rear PTO transmission (540E/1000) or (1000/1000E)		
PTO shaft profile	Inches	Splined shaft profile* (standard) 1 3/8" x 6 splines
Flange PTO (standard)	* Only for implements with a max. power requirement of 103 kW / 140 HP	Involute profile* 1 3/8" x 21 splines
		Splined shaft profile 1 3/4" (6 splines)
		Involute profile 1 3/4" x 20 splines
Rotational direction of the rear PTO	-	Right (clockwise) viewed in the direction of travel
Engine speed for PTO rpm:		
750 rpm (540E PTO setting)	rpm	2190
540 rpm (540E PTO setting)	rpm	1580
1000 rpm (1000 PTO setting)	rpm	1882
1400 rpm (1000E PTO setting)	rpm	2210
1000 rpm (1000E PTO setting)	rpm	1580
PTO speed at engine rated speed (2100 rpm)		
540E setting	rpm	719
1000 Setting	rpm	1116

Rear PTO transmission (540E/1000) or (1000/1000E)		
1000E setting	rpm	1330
Max. permissible torque in rear PTO with 540E setting	Nm	2200
1000 Setting	Nm	1650
1000E setting	Nm	1200
Tightening torques:		
Rear PTO housing	Nm	295
PTO transmission housing (cover)	Nm	49
Fixing bolts for PTO flange	Nm	69

Rear PTO clutch		
hitch	-	Wet multiple disk clutch with a brake disk
Clutch actuation	-	electr. / hydraulic
Clutch pressure: Rear PTO disengaged:	bar	0
Rear PTO engaged:	bar	25 + 2.0
Tightening torques:		
Guide screws on the brake disk	Nm	69
Bearing flange for rear PTO clutch	Nm	86

1.2.3 Technical data: 2000 - Diesel engine

Diesel engine (general specifications)					
Tractor type		822	824	826	828
Chassis number		839/..	840/..	841/..	842/..
Engine type	-	Deutz TTCD 6.1 L06 4V			
Operating type:	-	4-stroke diesel - direct injection - water cooled			
Injection system	-	Deutz Common Rail (DCR) Electronic Engine Management EDC 17			
Fuel consumption at full load (approx. value)	l/hr	approx. 44	approx. 48	approx. 52	approx. 56
Consumption = (HP/10) x 2 l/hr in accordance with ECE R 24)					

Diesel engine (general specifications)					
Tractor type		822	824	826	828
Chassis number		839/..	840/..	841/..	842/..
Pollutants — emission levels	-	2005/13/EC Tier 4/EPA 4f			
Rotational direction when looking at the flywheel	-	rotation to left (counter-clockwise)			
Engine weight	approx. value without cooling system (kg)	450			
Rated power ECE R24 at 2100 rpm	kW/HP	147/200	162 / 220	176 / 240	191/260
Maximum power ECE R24 at 1900 rpm	kW/HP	162 / 220	178/242	191/260	208/283
Rated power EG 97/68 at 2100 rpm	kW/HP	166/226	181/247	195/265	211/287
Maximum power EG 97/68 at 1900 rpm	kW/HP	166/226	181/247	195/265	211/287
Maximum PTO power ECE R24 at 1800 rpm (engine speed)	kW/HP	144/196	159/216	172/235	187/255
Maximum torque ECE R24 at 1450 rpm	Nm	955	1040	1120	1210
Idle speed	rpm	780 ± 30	780 ± 30	780 ± 30	780 ± 30
Rated speed	rpm	2100	2100	2100	2100
No-load engine speed	rpm	2205 ± 30	2205 ± 30	2205 ± 30	2205 ± 30
Engine inclination Note: Ensure vehicle stability! Lengthwise in direction of travel high/low	degrees	25			
Across left/right in direction of travel	degrees	25			
External exhaust gas recirculation (EGR ex)	-	Yes			
Electronically controlled wastegate turbocharger	-	Yes			
Turbocharger 2 (booster)	-	Yes			
Common Rail injection system	-	Yes			

Diesel engine (general specifications)					
Tractor type		822	824	826	828
Chassis number		839/..	840/..	841/..	842/..
Fuel supply	l	505			
Engine cooling	-	Water			
Intercooler	-	Air/water			
Engine oil cooler	-	Water			
Cylinder	-	6 (in-line)			
Displacement	cc	6056			
Bore/stroke	mm	101/126			
Firing order (cylinder # 1 at flywheel)	-	1 - 5 - 3 - 6 - 2 - 4			
Number of valves	-	2 (intake)/2 (exhaust)			
Compression ratio	-	17 : 1			
Compression pressure	bar	43			
<p>Note:</p> <p>The compression pressure is dependent on the starter speed during the measuring process.</p> <p>The compression pressure is dependent on the height of the engine's installation location.</p> <p>Limits cannot be set exactly.</p> <p>The compression pressure measurement is recommended to serve only as a comparison of all the cylinders in an engine.</p> <p>Where there is more than a 15% deviation, the cause should be determined by the removal of the appropriate cylinder unit.</p>					

Cooling system		
Cooling type	-	Fan with Viscotronic coupling
Coolant quantity (engine content only, without radiator)	l	11.5
Proportion of cooling system protective inhibitor min./max.	Vol. %	35/45

Cooling system		
Permitted constant coolant temperature at engine outlet	°C	110
Cooling water pump	bar	
Delivery pressure		1.1
Flow rate	l/min	196
Power consumption	kW/HP	1.3/1.77
Engine speed/(viscous fan) hub speed ratio	i	1.76
Slip with fully engaged viscous fan	%	6 ... 8
Max. viscous fan speed at rated speed (2100 rpm)	rpm	3375

Specification applies to: 839/./...to - 842/./...

engine lubrication		
Oil quantity	l	15
Difference in oil volume between "Min" and "Max" marks on dipstick	l	approx. 3
Oil grade	-	FENDT Premium Extra Grade 10W-40
Max. oil temperature	°C	118
Minimum oil pressure at rated speed (2100 rpm) and oil temperature of 120°C	bar	2
Oil pump (oil pressure at engine speed)		
n = 1000 rpm	bar	3.5 +/- 0.4
From 1900 rpm onwards	bar	3.7 +/- 0.4

Specification applies to: 839/./...to - 842/./...

Fuel system		
Fuel	-	Diesel in accordance with DIN EN 590
Note: When using diesel containing more than 0.5% sulfur, the oil change interval must be halved. See also tractor's Operator's Manual.		
Fuel tank capacity	l	505
Adblue filling capacity	l	52

Fuel system		
fuel delivery pump Fuel primary pressure "low pressure" (overflow valve in the Y091 dispensing unit)	bar	Approx. 6
Fuel delivery rate (at rated engine speed: 2100 rpm) Note: The delivery rate is dependent on: - speed of the fuel delivery pump - fuel temperature - primary and counter pressure at the fuel delivery pump	l/min	5

Specification applies to: 839/./...to - 842/./...

Injection system		
System	-	Deutz Common Rail (DCR)
Electronic engine management	-	Bosch EDC 17
High-pressure pump	-	Bosch PF 45-20
Injector	-	Bosch CRIN 3.3
Mapping field of regulated rail pressure (min/max)	bar	350 to 1950
DBV - rail pressure limit (2-stage DBV) opening pressure/ holding pressure	bar	2300/400 to 980
Mapping field of regulated start of delivery (SD)	-	Bosch EDC 17
Mapping of dependent pre-injection	-	Bosch EDC 17

Specification applies to: 839/./...to - 842/./...

Valves		
Number of inlet valves	Units	2
Number of exhaust valves	Units	2
Valve clearance: inlet valve / exhaust valve with a cold engine (under 80°C)	degrees	75/120
Locknut on valve adjustment screw	Nm	20
Valve recess, inlet valve (measured from the valve head to the cylinder head sealing surface)	mm	0.9 +0.15/-0.1

This as a preview PDF file from best-manuals.com



Download full PDF manual at best-manuals.com