

Operator's Manual



# Rubber Track Tractor

**938 Vario MT**

AGCF09xxxLxxx1001-

**940 Vario MT**

**943 Vario MT**



# Rubber Track Tractor

<b>1</b>	<b>Safety</b>	<b>17</b>
<b>1.1</b>	<b>Safety instructions</b>	<b>19</b>
1.1.1	Operator Manual	19
1.1.2	Safety symbol	19
1.1.3	Safety messages	19
1.1.4	Information messages	19
1.1.5	Safety signs	20
1.1.6	Important safety information	20
1.1.7	General safety instruction	21
1.1.8	Pressurized air	22
1.1.9	Asbestos information	22
1.1.10	Electrical storm injury prevention	22
1.1.11	Mount and dismount the machine	22
1.1.12	Before you start the engine	23
1.1.13	Start the engine	23
1.1.14	Before operation	23
1.1.15	Operating procedures	24
1.1.16	Parking	24
1.1.17	Prevent contact with power lines	25
1.1.18	Operator station	25
1.1.19	Cut and crush prevention	25
1.1.20	Rollover protective structure	26
1.1.21	Burn prevention	26
1.1.22	Coolant	26
1.1.23	Oils	27
1.1.24	High pressure lines	27
1.1.25	Fluid penetration	27
1.1.26	Batteries	28
1.1.27	Exhaust fumes	29
1.1.28	Noise prevention	29
1.1.29	Fire and explosion prevention	29
1.1.30	Fire extinguisher	30
1.1.31	Public road transportation	30
<b>1.2</b>	<b>Safety signs and labels</b>	<b>32</b>
<b>1.3</b>	<b>Engine safety signs</b>	<b>33</b>
1.3.1	Engine oil sign	34
1.3.2	Engine oil filter	34
1.3.3	Engine air cleaner	34
1.3.4	Separator filter	34
1.3.5	Fuel filter	35
1.3.6	Run-over hazard	35
1.3.7	Entanglement	35
1.3.8	Entanglement	35
1.3.9	High pressure hazard	36
1.3.10	Hot surface	36
1.3.11	Hot pressurized liquid hazard	36
1.3.12	Fuel filter	37
1.3.13	Separator filter	37
1.3.14	Engine oil filter	37
1.3.15	Belt routing	37
1.3.16	Air conditioning	38
1.3.17	Explosion hazard	38

1.3.18	Engine	38
<b>1.4</b>	<b>Chassis safety signs</b>	<b>39</b>
1.4.1	Filter decal	40
1.4.2	PIN plate	40
1.4.3	Riding hazard	40
1.4.4	No step	41
1.4.5	Torque	41
1.4.6	Torque	41
1.4.7	Crush warning	41
1.4.8	Torque	42
1.4.9	Fall off hazard	42
1.4.10	Radiation hazard	42
1.4.11	Tie down	42
1.4.12	Lift point	43
1.4.13	Engine cover support crush hazard	43
1.4.14	Run over hazard	43
1.4.15	Ultra low sulfur diesel	43
1.4.16	Jack points	44
<b>1.5</b>	<b>Cab safety signs</b>	<b>45</b>
1.5.1	Window exit	46
1.5.2	Park brake	46
1.5.3	Break glass - exit	46
1.5.4	Operators manual	46
1.5.5	Bystander notification	47
1.5.6	Roll-over hazard	47
1.5.7	Run-over hazard	47
1.5.8	California Proposition 65	47
<b>1.6</b>	<b>Cab safety signs</b>	<b>48</b>
1.6.1	Passenger seat	48
1.6.2	Category 2 filter	48
<b>1.7</b>	<b>Hydraulic safety signs</b>	<b>49</b>
1.7.1	Oil level	50
1.7.2	High pressure fluid	50
1.7.3	Pressurized fluid	50
<b>1.8</b>	<b>Electrical safety signs</b>	<b>51</b>
1.8.1	Battery disconnect relay	52
1.8.2	12 volt	52
1.8.3	Battery explosion	52
1.8.4	Electrical hazard	52
1.8.5	Relay	53
1.8.6	Fuse	53
1.8.7	Relay	53
1.8.8	Engine start switch	53
<b>1.9</b>	<b>3-Point linkage safety signs (optional)</b>	<b>54</b>
1.9.1	Power take off	54
1.9.2	Rear rollover	55
1.9.3	Tie down	55
1.9.4	Do not step	55
1.9.5	3-Point linkage lubrication points	55
<b>2</b>	<b>Introduction</b>	<b>57</b>
<b>2.1</b>	<b>Machine identification information</b>	<b>59</b>
2.1.1	Serial number definition	60
2.1.2	Machine serial plate	61
<b>2.2</b>	<b>Intended use</b>	<b>62</b>
<b>2.3</b>	<b>Proper disposal of waste</b>	<b>63</b>

<b>2.4</b>	<b>Pre-Delivery</b> .....	<b>64</b>
2.4.1	Pre-delivery checklist .....	64
<b>3</b>	<b>Operation</b> .....	<b>65</b>
<b>3.1</b>	<b>General inspection</b> .....	<b>73</b>
3.1.1	Walk-around inspection .....	73
<b>3.2</b>	<b>Seats</b> .....	<b>75</b>
3.2.1	Basic seat .....	75
3.2.2	Deluxe seat .....	76
3.2.3	Instructor's seat .....	78
<b>3.3</b>	<b>Mirrors</b> .....	<b>79</b>
3.3.1	Adjust the mirrors .....	79
<b>3.4</b>	<b>Console features and controls</b> .....	<b>80</b>
3.4.1	Steering wheel controls, if equipped .....	80
3.4.2	Adjust the steering wheel position .....	80
3.4.3	Pedals .....	80
3.4.4	Multi-function lever .....	81
3.4.5	Instrument panel .....	81
3.4.6	Operating status display .....	83
3.4.7	Multiple display .....	84
3.4.8	Machine calibration/service codes .....	87
3.4.9	Calibrate the machine by code .....	88
3.4.10	Heating and ventilation control panel .....	89
3.4.11	Lighting control panel .....	90
3.4.12	Lamp options .....	90
<b>3.5</b>	<b>Heating and ventilation system</b> .....	<b>92</b>
3.5.1	Function indicators in the multiple display .....	92
3.5.2	Fan setting .....	92
3.5.3	Defrost/defog mode .....	93
3.5.4	Cool mode .....	93
3.5.5	Automatic mode .....	93
3.5.6	Ventilation .....	94
<b>3.6</b>	<b>Multifunction armrest features</b> .....	<b>95</b>
3.6.1	Multifunction armrest keypad .....	95
3.6.2	Parking brake operation .....	96
3.6.3	Joystick .....	97
3.6.4	Adjust the multifunction armrest .....	99
3.6.5	Power take-off and 3-point linkage control .....	99
3.6.6	Crossgate lever .....	101
3.6.7	Hydraulic levers .....	101
3.6.8	Throttle .....	102
3.6.9	Foot throttle adjustment .....	102
<b>3.7</b>	<b>Cab features and controls</b> .....	<b>103</b>
3.7.1	Interior lamps .....	103
3.7.2	Come home lighting .....	103
3.7.3	Bluetooth microphone .....	103
3.7.4	Pair a Bluetooth component .....	104
3.7.5	Radio options .....	104
3.7.6	Roof electrical connections .....	105
3.7.7	Electrical connections .....	105
3.7.8	Power ports .....	105
3.7.9	Audio jack .....	106
3.7.10	Secondary brake lever .....	107
3.7.11	Operate the secondary brake .....	107
3.7.12	Cab filters .....	108
3.7.13	Auxiliary mounting bar .....	108
3.7.14	Headliner service door .....	109

3.7.15	Step options	109
<b>3.8</b>	<b>Terminal basics</b>	<b>110</b>
3.8.1	Varioterminal display	110
3.8.2	External control panel	110
3.8.3	Page layout and screen allocation	111
3.8.4	Navigation - quick jumps	112
3.8.5	Navigation - control by touch	112
3.8.6	Navigation - control with external control panel	113
3.8.7	Clean the terminal	113
<b>3.9</b>	<b>Terminal settings</b>	<b>115</b>
3.9.1	Set the language	116
3.9.2	Set the date and time	118
3.9.3	Set the audio level	118
3.9.4	Set the screen brightness	120
3.9.5	Day and night mode	121
3.9.6	Calibrate the touch screen	122
3.9.7	Do a touch test	122
3.9.8	ISOBUS information	123
3.9.9	Call up the On-board computer	124
3.9.10	Adjust the triggers (tractor)	125
3.9.11	Adjust the triggers (implement)	125
<b>3.10</b>	<b>Overview terminal screens</b>	<b>127</b>
3.10.1	Menu overview of Tracktractor info screen	127
3.10.2	Menu overview of Tracktractor main menu screen part 1	128
3.10.3	Menu overview of Tracktractor main menu screen part 2	130
3.10.4	Menu overview of Management screen	132
3.10.5	On-board computer menu	134
<b>3.11</b>	<b>Info+</b>	<b>136</b>
3.11.1	Info+ feature	136
3.11.2	Info+ positioning	136
3.11.3	3-point Hitch Info+ screen	136
3.11.4	Hydraulic Valves settings Info+ screen	137
3.11.5	Fuel Consumption Info+ screen	137
3.11.6	Create a Quick jump in the Info+ screen	138
3.11.7	Invalid Quick jump target	139
<b>3.12</b>	<b>Overview of the individual pages</b>	<b>140</b>
3.12.1	Tractor info	140
3.12.2	Tractor main	141
3.12.2.1	Rear 3-pt hitch	143
3.12.2.2	Rear 3-pt hitch details	144
3.12.2.3	Rear hydraulic valve settings	144
3.12.2.4	Assignment control elements	145
3.12.2.5	Further hydraulic functions screen	145
3.12.2.6	Proportional oil flow deployment (POFD)	146
3.12.2.7	Trailer steering	147
3.12.3	Engine and transmission	148
3.12.3.1	TMS	149
3.12.3.2	Fuel consumption	150
3.12.3.3	Exhaust after-treatment	151
3.12.3.4	Load limit control	152
3.12.4	Variotronic TI	152
3.12.4.1	Overview	153
3.12.4.2	Manual configuration	155
3.12.4.3	General function - Variotronic TI	155
3.12.4.4	Function groups, functions and triggers	156
3.12.4.5	Call up and activate Variotronic TI	158
3.12.4.6	Joystick assignment	159

3.12.4.7	Record an operational sequence . . . . .	159
3.12.4.8	Start an operational sequence . . . . .	164
3.12.4.9	Step mode . . . . .	165
3.12.4.10	Record sequence (RECORD) . . . . .	166
3.12.4.11	Play sequence (PLAY) . . . . .	170
3.12.4.12	Play sequence (manual mode/step mode) . . . . .	172
3.12.5	Diagnostics . . . . .	174
3.12.6	Varioterminal . . . . .	174
3.12.6.1	Varioterminal Main Menu . . . . .	175
3.12.6.2	Data exchange . . . . .	176
<b>3.13</b>	<b>Implement settings . . . . .</b>	<b>177</b>
3.13.1	Install a rear-mounted implement . . . . .	178
3.13.2	Find the implement settings . . . . .	180
3.13.3	Set the working width . . . . .	181
3.13.4	Rear-mounted implement settings . . . . .	184
3.13.5	Set the coupling length . . . . .	184
3.13.6	Set the center of the rear-mounted implement . . . . .	186
3.13.7	Rear-mounted implement trigger settings . . . . .	189
3.13.8	Load the implement settings . . . . .	189
3.13.9	Save the implement settings . . . . .	190
3.13.10	Settings that can be saved . . . . .	191
<b>3.14</b>	<b>Data exchange (via USB) . . . . .</b>	<b>193</b>
3.14.1	Plug in the USB stick and call up data exchange . . . . .	195
3.14.2	Call up the data exchange . . . . .	195
3.14.3	Data exchange information . . . . .	196
3.14.4	Select and transfer individual data to the USB stick . . . . .	197
3.14.5	Select and transfer all data to the USB stick . . . . .	198
3.14.6	Select and transfer individual data from the USB stick . . . . .	200
3.14.7	Select and transfer all data from the USB stick . . . . .	201
<b>3.15</b>	<b>Tractor Management System . . . . .</b>	<b>203</b>
3.15.1	Store engine speeds . . . . .	203
3.15.2	General tractor management . . . . .	203
3.15.3	Tractor management system (TMS) . . . . .	204
3.15.4	Accelerator pedal - operation . . . . .	205
3.15.5	Set TMS engine speed range . . . . .	206
3.15.6	Activate the Tractor Management Systems (TMS) . . . . .	206
3.15.7	Reversible fan . . . . .	207
3.15.8	Set the reversible fan intervals . . . . .	208
3.15.9	Manually activate the reversible fan . . . . .	209
<b>3.16</b>	<b>Valve settings . . . . .</b>	<b>211</b>
3.16.1	Locking individual valves . . . . .	211
3.16.2	Set the time function . . . . .	211
3.16.3	Priority function . . . . .	212
3.16.4	Set the valve response sensitivity . . . . .	213
3.16.5	Set the flow rate . . . . .	214
3.16.6	Activate the external valve operation . . . . .	214
3.16.7	Set the float position . . . . .	215
3.16.7.1	Set the float position on and off for the linear module valves . . . . .	216
<b>3.17</b>	<b>Terminal operations for the 3-point linkage . . . . .</b>	<b>217</b>
3.17.1	Call up the 3-point linkage menu . . . . .	217
3.17.2	Rear 3-pt hitch . . . . .	218
3.17.3	Rear 3-pt hitch details . . . . .	219
3.17.4	Power take-off and 3-point linkage control . . . . .	219
3.17.5	Lock and unlock the 3-point linkage . . . . .	220
3.17.6	Prioritize the 3-point linkage . . . . .	222
3.17.7	Set the lift height limit . . . . .	222
3.17.8	Set the raise/lower speed . . . . .	223

3.17.9	Shock load stabilizing system . . . . .	223
3.17.10	Set the shock load stabilizing system . . . . .	224
3.17.11	Set the position-tractive power-mix control . . . . .	224
3.17.12	Electronic slip control system (optional) . . . . .	224
3.17.13	Activate the slip control system . . . . .	225
3.17.14	Set the slip target value . . . . .	227
3.17.15	Set the sensitivity of the slip control system . . . . .	227
<b>3.18</b>	<b>Storage compartments . . . . .</b>	<b>228</b>
3.18.1	Literature holder . . . . .	229
<b>3.19</b>	<b>Windows . . . . .</b>	<b>230</b>
3.19.1	Sun visor . . . . .	230
3.19.2	Windshield wipers . . . . .	230
3.19.3	Windscreen washer tank . . . . .	231
3.19.4	Open the rear window . . . . .	232
3.19.5	Exit the cab in an emergency . . . . .	232
3.19.6	Rear window grommet . . . . .	233
<b>3.20</b>	<b>Rear electrical connections . . . . .</b>	<b>234</b>
3.20.1	Trailer connector . . . . .	234
3.20.2	ISO 11783 connector . . . . .	235
3.20.3	Implement electrical connector . . . . .	235
<b>3.21</b>	<b>Before starting the engine . . . . .</b>	<b>236</b>
3.21.1	Check the engine oil level . . . . .	236
3.21.2	Do a check of the hydraulic oil level . . . . .	237
3.21.3	Check the coolant level . . . . .	237
3.21.4	Do a check of the fan oil level . . . . .	238
3.21.5	Do a check of the transmission oil level . . . . .	238
3.21.6	Do a check of the final drive oil level . . . . .	239
3.21.7	Add diesel fuel . . . . .	240
3.21.8	Add diesel exhaust fluid AdBlue® . . . . .	241
3.21.9	Check the windscreen washer fluid level . . . . .	241
3.21.10	Leak-testing the compressed air system . . . . .	242
3.21.11	Drain the compressed air system . . . . .	242
<b>3.22</b>	<b>Starting . . . . .</b>	<b>243</b>
3.22.1	Pre-start checks . . . . .	243
3.22.2	Engine start switch . . . . .	243
3.22.3	Start the engine . . . . .	243
3.22.4	Start the engine with jumper cables . . . . .	244
3.22.5	Cold weather operation . . . . .	245
3.22.6	Set the terminal display - engine on - tractor stationary . . . . .	245
3.22.7	Set the terminal display - engine on - tractor moving . . . . .	247
<b>3.23</b>	<b>Stopping . . . . .</b>	<b>248</b>
3.23.1	Stop and park the machine . . . . .	248
3.23.2	Stop the engine . . . . .	248
3.23.3	Terminal display when the engine is turned off . . . . .	248
<b>3.24</b>	<b>Transportation and towing . . . . .</b>	<b>250</b>
3.24.1	Prepare to operate the machine on a road . . . . .	250
3.24.2	Operate the machine on a road with an implement attached to the 3 point linkage . . . . .	251
3.24.3	High speed road operation . . . . .	252
3.24.4	Release the parking brake for towing . . . . .	252
3.24.5	Tow the machine . . . . .	253
3.24.6	Tow a stuck machine . . . . .	254
3.24.7	Charge the service brake accumulator . . . . .	254
3.24.8	Transport the machine on a trailer . . . . .	255
<b>3.25</b>	<b>Transmission . . . . .</b>	<b>256</b>
3.25.1	Joystick . . . . .	256
3.25.2	Neutral position . . . . .	256

3.25.3	Acceleration/Deceleration rate . . . . .	257
3.25.4	Set the acceleration rate . . . . .	258
3.25.5	Move forward from a stop . . . . .	259
3.25.6	Move in reverse from a stop . . . . .	260
3.25.7	Turboclutch function . . . . .	260
3.25.8	Deactivate/Activate the turboclutch function . . . . .	261
3.25.9	Change the direction of travel . . . . .	262
3.25.10	Program the change in direction of travel speeds . . . . .	263
3.25.11	Calibrate the speed display . . . . .	264
<b>3.26</b>	<b>Cruise control . . . . .</b>	<b>267</b>
3.26.1	Program the cruise control speed . . . . .	267
3.26.2	Activate the cruise control . . . . .	268
<b>3.27</b>	<b>Load limit control . . . . .</b>	<b>270</b>
3.27.1	Set the load limit control . . . . .	270
<b>3.28</b>	<b>3-Point linkage . . . . .</b>	<b>271</b>
3.28.1	Remove the quick hitch (if equipped) . . . . .	271
3.28.2	Install the quick hitch (if equipped) . . . . .	272
3.28.3	Set the 3-point linkage height . . . . .	273
3.28.4	Adjust the draft arm . . . . .	274
3.28.5	Adjust the top link position . . . . .	274
3.28.6	Adjust the top link length . . . . .	275
3.28.7	Adjust the sway blocks . . . . .	275
3.28.8	Prevent side-sway in the 3-point linkage . . . . .	276
3.28.9	Set the side-sway in the 3-point linkage . . . . .	277
3.28.10	Lubricate the lift linkage . . . . .	277
3.28.11	Operate the hydraulic top-link . . . . .	278
3.28.12	Operate the 3-point linkage . . . . .	278
3.28.13	Operate the 3-point linkage with the external switches . . . . .	279
3.28.14	Automatic power lift function . . . . .	279
3.28.15	Connect an implement to the 3-point linkage . . . . .	281
3.28.16	Connect an implement to the quick hitch . . . . .	282
3.28.17	Disconnect an implement from the 3-point linkage . . . . .	282
3.28.18	Disconnect an implement from the quick hitch . . . . .	283
<b>3.29</b>	<b>Drawbar and mechanical hitch couplings . . . . .</b>	<b>284</b>
3.29.1	General . . . . .	284
3.29.2	Calculation of towing capacity . . . . .	284
3.29.3	Technical data of towing equipment . . . . .	286
3.29.4	Drawbar features . . . . .	287
3.29.5	Replace the wear plates and the rubber stops on the standard drawbar . . . . .	289
3.29.6	Connect category four drawbar implements . . . . .	290
3.29.7	Adjust the drawbar position . . . . .	291
3.29.8	Safety chain . . . . .	293
<b>3.30</b>	<b>Power Take-Off (PTO) . . . . .</b>	<b>294</b>
3.30.1	Connect the PTO shaft to the PTO drive . . . . .	295
3.30.2	Operate the PTO . . . . .	295
3.30.3	Stationary PTO . . . . .	297
3.30.4	Activate the stationary PTO . . . . .	297
3.30.5	Automatic PTO function . . . . .	297
3.30.6	PTO automatic mode with power lift . . . . .	298
3.30.7	Modify the standard settings for rear automatic mode . . . . .	299
3.30.8	Restore the standard setting for rear automatic mode . . . . .	302
3.30.9	Calibrate the PTO clutch . . . . .	303
<b>3.31</b>	<b>Hydraulic control valves . . . . .</b>	<b>305</b>
3.31.1	Adjust the hydraulic control valves . . . . .	306
3.31.2	Hydraulic motors . . . . .	308
3.31.3	Hydraulic valve lock . . . . .	308
3.31.4	Lock a specific hydraulic valve . . . . .	309



3.31.5	Drive the machine on a road with an implement . . . . .	309
3.31.6	Connect a hydraulic hose to a coupler . . . . .	310
3.31.7	Disconnect a hydraulic hose from a coupler . . . . .	310
3.31.8	Manual operation of the EHS valves in emergency mode . . . . .	311
3.31.8.1	Lower the hitch in an emergency . . . . .	313
<b>3.32</b>	<b>Common hydraulic connections . . . . .</b>	<b>315</b>
3.32.1	Connect a single acting cylinder . . . . .	315
3.32.2	Connect a double acting cylinder . . . . .	315
3.32.3	Connect a hydraulic motor . . . . .	316
3.32.4	Connect a hydraulic motor with a flow control valve . . . . .	316
3.32.5	Connect a grain cart with an auger motor . . . . .	317
3.32.6	Connect a semi-mounted vacuum planter with lift-assist wheels . . . . .	317
3.32.7	Connect a vacuum planter . . . . .	319
3.32.8	Connect an air seeder or grain drill . . . . .	320
3.32.9	Connect the auxiliary implement controls . . . . .	321
3.32.10	Connect the spray system pump . . . . .	321
3.32.11	Connect a hydraulic motor to power beyond . . . . .	321
3.32.12	Hydraulic power beyond . . . . .	322
3.32.13	Connect the auxiliary implement control valve with load sensing . . . . .	322
3.32.14	Connect the auxiliary implement control valve without load sensing . . . . .	323
<b>3.33</b>	<b>Brake requirements . . . . .</b>	<b>324</b>
3.33.1	Foot brake (service brake) . . . . .	324
3.33.2	Towing (trailing implement or trailer) . . . . .	324
3.33.3	Machine serial plate . . . . .	325
<b>3.34</b>	<b>Hydraulic trailer brake . . . . .</b>	<b>327</b>
3.34.1	Hydraulic trailer brake . . . . .	327
3.34.2	Connect the hydraulic trailer brake . . . . .	327
3.34.3	Disconnect the hydraulic trailer brake . . . . .	328
<b>3.35</b>	<b>Air system . . . . .</b>	<b>329</b>
3.35.1	Connect the air trailer brakes . . . . .	329
3.35.2	Disconnect the air trailer brakes . . . . .	330
3.35.3	Air coupler . . . . .	331
3.35.4	Leak-testing the compressed air system . . . . .	332
3.35.5	Drain the compressed air system . . . . .	332
3.35.6	Change the desiccant cartridge . . . . .	332
<b>3.36</b>	<b>Performance recommendations . . . . .</b>	<b>334</b>
3.36.1	Machine performance . . . . .	334
<b>3.37</b>	<b>Tracks . . . . .</b>	<b>335</b>
3.37.1	Track selection . . . . .	335
3.37.2	General ag tracks . . . . .	335
3.37.3	Extreme ag tracks . . . . .	335
3.37.4	Extreme application tracks . . . . .	335
3.37.5	Width of track . . . . .	336
3.37.6	Debris deflectors . . . . .	336
3.37.7	Gauge width settings . . . . .	337
<b>3.38</b>	<b>Machine ballasting . . . . .</b>	<b>339</b>
3.38.1	Levels of ballasting . . . . .	340
3.38.2	Adjust the ballast . . . . .	340
3.38.3	Maximum machine weight . . . . .	341
3.38.4	Weights . . . . .	342
3.38.5	Install front weights . . . . .	343
3.38.6	Combinations of idler weights . . . . .	344
3.38.7	Install auxiliary idler weight . . . . .	346
<b>3.39</b>	<b>Track system . . . . .</b>	<b>347</b>
3.39.1	Undercarriage . . . . .	347
3.39.2	Turning performance . . . . .	348

<b>3.40</b>	<b>Moldboard plough applications</b>	<b>349</b>
3.40.1	Moldboard plough applications	349
3.40.2	Rollover ploughs	349
<b>3.41</b>	<b>Camera settings</b>	<b>350</b>
3.41.1	Position the camera image	350
3.41.2	Change cameras	350
3.41.3	Display the camera image while reversing	351
3.41.4	Change the camera to and from full-screen	352
3.41.5	Adjust the brightness	352
3.41.6	Adjust the contrast	353
3.41.7	Adjust the color saturation	354
<b>4</b>	<b>Engine operation</b>	<b>355</b>
<b>4.1</b>	<b>Safety instructions</b>	<b>357</b>
<b>4.2</b>	<b>To the user</b>	<b>358</b>
4.2.1	Instructions to the end user of the Stage V engine	358
4.2.2	Engine type designations	359
4.2.3	Location of the engine serial number	359
4.2.4	Contents of the engine type plate	360
4.2.5	Format of the engine serial number	361
4.2.6	Additional information label	361
4.2.7	Type plate of the electronic control unit	363
<b>4.3</b>	<b>Technical data</b>	<b>364</b>
4.3.1	Principal dimensions and data	364
4.3.2	Fuel system	364
4.3.3	Lubrication system	364
4.3.4	Cooling system	364
4.3.5	Selective Catalyst Reduction (SCR) system technical data	365
4.3.6	Diesel Particulate Filter (DPF) technical data	366
<b>4.4</b>	<b>Warning system for emission related error codes</b>	<b>369</b>
<b>4.5</b>	<b>Engine overview</b>	<b>370</b>
<b>4.6</b>	<b>Air control system</b>	<b>372</b>
4.6.1	2 stage turbocharging	373
4.6.2	Cooling of inlet air	373
4.6.3	Interstage charge air cooling	373
4.6.4	Throttle valve	373
4.6.5	Exhaust gas recirculation system	373
<b>4.7</b>	<b>Fuel system</b>	<b>375</b>
<b>4.8</b>	<b>Engine control system</b>	<b>377</b>
<b>4.9</b>	<b>Lubrication system</b>	<b>378</b>
4.9.1	Oil pressure regulating valve	379
4.9.2	Oil filter and oil cooler	380
<b>4.10</b>	<b>Cooling system</b>	<b>381</b>
4.10.1	Engine heater	381
<b>4.11</b>	<b>Electrical system</b>	<b>382</b>
<b>4.12</b>	<b>SCR system</b>	<b>383</b>
4.12.1	Selective Catalyst Reduction (SCR) system overview	383
4.12.2	Selective Catalyst Reduction (SCR) system components and their functions	384
<b>4.13</b>	<b>Diesel Particulate Filter (DPF)</b>	<b>386</b>
4.13.1	Diesel Particulate Filter (DPF) overview	386
<b>4.14</b>	<b>Operation and driving</b>	<b>388</b>
<b>4.15</b>	<b>Daily pre-start check</b>	<b>389</b>
<b>4.16</b>	<b>Starting the engine</b>	<b>390</b>
4.16.1	Break in the engine	390

<b>4.17</b>	<b>Starting the engine in cold conditions</b>	392
4.17.1	Warming up the engine	392
<b>4.18</b>	<b>Start the engine with an auxiliary battery</b>	393
<b>4.19</b>	<b>Attention during operation</b>	394
<b>4.20</b>	<b>Stopping the engine</b>	395
<b>5</b>	<b>Maintenance</b>	397
<b>5.1</b>	<b>Lubricant viscosities and refill capacities</b>	401
5.1.1	Lubricant viscosities for ambient temperatures	401
5.1.2	Lubricant viscosities	401
5.1.3	Fluids and capacities	402
<b>5.2</b>	<b>Service intervals</b>	403
5.2.1	Maintenance schedule	403
<b>5.3</b>	<b>Periodical maintenance</b>	406
<b>5.4</b>	<b>Engine maintenance information</b>	407
5.4.1	Maintenance schedule	407
5.4.2	Maintenance to be made daily or at 10 hours intervals	408
5.4.2.1	Do a check for the engine oil level	408
5.4.2.2	Check coolant level	408
5.4.2.3	Check for leakages	409
5.4.3	Maintenance to be made weekly or at 100 hours interval	409
5.4.3.1	Clean cooling system (from outside)	409
5.4.3.2	Examining the condition of the belt	409
5.4.4	Maintenance to be made at 300 - 1000 hours intervals	410
5.4.4.1	Diesel Particulate Filter (DPF) standstill regeneration	410
5.4.4.2	Exhaust after-treatment	411
5.4.4.3	Change engine oil	412
5.4.4.4	Oil sump capacity	413
5.4.4.5	Change oil filter	413
5.4.4.6	Update the engine software	413
5.4.4.7	Change fuel filters	413
5.4.4.8	Bleed the fuel system	415
5.4.4.9	Engine with hydraulic lash adjusters	416
5.4.5	Maintenance to be made at 3000 - 4800 hours intervals	416
5.4.5.1	Diesel Particulate Filter (DPF) ash maintenance	416
5.4.5.2	Check turbocharger play and check that the intercooler cell is clean	417
5.4.6	Maintenance to be made once a year	417
5.4.6.1	Selective Catalyst Reduction (SCR) system maintenance	417
5.4.6.2	Replace the main filter and the inlet filter of the supply module	418
5.4.7	Maintenance to be made every two years	420
5.4.7.1	Change coolant	420
5.4.8	Additional maintenance instructions	421
5.4.8.1	Bleed the fuel system	421
5.4.8.2	Before the cold season	422
5.4.8.3	Tightening torques	422
5.4.8.4	Lubricating oil quality requirements	423
5.4.8.5	Coolant quality requirements	424
5.4.8.6	Fuel quality requirements	424
5.4.8.7	Air filter	427
<b>5.5</b>	<b>Electrical fuses and relays</b>	428
5.5.1	Rear terminal mini-fuse (RTMF) relay box	428
5.5.2	Power distribution module	429
5.5.3	Fuse and relay panel	431
<b>5.6</b>	<b>Engine</b>	437
5.6.1	Open the engine cover	437
5.6.2	Replace the engine air filter	437

5.6.3	Do a manual regeneration of the diesel particulate filter (DPF)	438
5.6.4	Check the engine oil level	442
5.6.5	Change the engine oil and oil filter	442
5.6.6	Examine the used filters	444
5.6.7	Engine oil sample port	445
5.6.8	Engine temperature	445
5.6.9	Engine belts	445
5.6.10	Remove the main serpentine belt	445
5.6.11	Install the main serpentine belt	446
5.6.12	Replace the accessory belt	447
5.6.13	Replace the water pump belt	448
<b>5.7</b>	<b>Fuel system</b>	<b>450</b>
5.7.1	Fuel cap	450
5.7.2	Add diesel fuel	450
5.7.3	Fuel shutoff valve	451
5.7.4	Drain water and sediment from the fuel tank	451
5.7.5	Drain water from the fuel-water separator	452
5.7.6	Prime the fuel system	452
5.7.7	Clean the fuel tank	453
5.7.8	Change the prefilter and the fuel filters	454
<b>5.8</b>	<b>Selective catalytic reduction (SCR) System</b>	<b>456</b>
5.8.1	Change the supply module filter	456
5.8.2	Add diesel exhaust fluid AdBlue <sup>®</sup>	457
5.8.3	Drain the diesel exhaust fluid ( AdBlue <sup>®</sup> ) tank	457
5.8.4	DEF storage and shelf life	458
<b>5.9</b>	<b>Cooling system</b>	<b>459</b>
5.9.1	Clean the cooling cores	459
5.9.2	Check the coolant level	460
5.9.3	Cooling system additives	460
5.9.4	Coolant sample	460
5.9.5	Coolant system fluid	461
5.9.6	Drain the engine coolant	461
5.9.7	Flush the cooling system	463
5.9.8	Refill the cooling system	463
<b>5.10</b>	<b>Hydraulics</b>	<b>464</b>
5.10.1	Do a check of the hydraulic oil level	464
5.10.2	Change the hydraulic system oil	464
5.10.3	Change the hydraulic filters	465
5.10.4	Do a check of the final drive oil level	466
5.10.5	Do a check of the transmission oil level	466
5.10.6	Change the transmission oil	467
5.10.7	Change the transmission filter	468
5.10.8	Change the filter cartridge for the transmission	469
5.10.9	Replace the filter for the implement case drain	469
5.10.10	Change the hydraulic fan filter	470
5.10.11	Change the reservoir breather	470
5.10.12	Change the hydraulic fan oil	471
<b>5.11</b>	<b>Cab filtration</b>	<b>472</b>
5.11.1	Cab filters	472
5.11.2	Recirculation filter	472
5.11.3	Filter maintenance	473
5.11.4	Clean the filter	473
5.11.5	Replace the recirculation filter	473
5.11.6	Replace the fresh air filter	474
<b>5.12</b>	<b>Wiper blades</b>	<b>476</b>
5.12.1	Change the wiper blades	476
5.12.2	Check the windscreen washer fluid level	476

<b>5.13</b>	<b>Undercarriage system</b>	<b>477</b>
5.13.1	Do a check of the oil level for the drive wheel hubs	477
5.13.2	Change the drive wheel hub oil	477
5.13.3	Do a check of the oil level for the idler wheel and the mid roller wheel hubs	478
5.13.4	Change the oil on the idler and the mid roller wheel hub	478
5.13.5	Track and undercarriage inspection	479
5.13.6	Gauge width settings	479
5.13.7	Adjust the gauge spacing	480
5.13.8	Measure the gauge spacing	485
5.13.9	Release the track tension	486
5.13.10	Release the pressure between the nipple and the filler valve	488
5.13.11	Add tension to the tracks	488
5.13.12	Replace a track	491
5.13.13	Track alignment	492
5.13.14	Check the alignment	493
5.13.15	Adjust the track alignment	493
5.13.16	Basic rules for maximizing track life	494
<b>5.14</b>	<b>Batteries</b>	<b>495</b>
5.14.1	Remove the batteries	495
5.14.2	Install the batteries	496
<b>5.15</b>	<b>Maintenance access</b>	<b>499</b>
5.15.1	Remove the guards	499
5.15.2	Install the guards	500
<b>5.16</b>	<b>Preparing for the cold season</b>	<b>501</b>
5.16.1	Cold season	501
5.16.2	Cold start checklist	501
<b>6</b>	<b>Troubleshooting</b>	<b>503</b>
<b>6.1</b>	<b>Heating and air conditioning troubleshooting</b>	<b>505</b>
<b>6.2</b>	<b>Electrical system troubleshooting</b>	<b>506</b>
<b>6.3</b>	<b>Brake troubleshooting</b>	<b>507</b>
<b>6.4</b>	<b>Engine troubleshooting</b>	<b>509</b>
6.4.1	Engine control system fault codes	513
6.4.2	Electronic diagnostic tool	514
6.4.2.1	EDT diagnostic terminal	514
6.4.2.2	Diagnostic terminal components	515
6.4.3	Troubleshooting of the engine	515
<b>6.5</b>	<b>Hydraulic troubleshooting</b>	<b>520</b>
<b>6.6</b>	<b>3-point linkage troubleshooting</b>	<b>522</b>
<b>6.7</b>	<b>Transmission troubleshooting</b>	<b>523</b>
<b>6.8</b>	<b>Steering system troubleshooting</b>	<b>524</b>
<b>6.9</b>	<b>Guidance troubleshooting</b>	<b>529</b>
6.9.1	VarioGuide ready indicator is not on	529
6.9.2	VarioGuide de-activates during operation	529
<b>6.10</b>	<b>Machine error codes</b>	<b>531</b>
6.10.1	Fault code 00.0.00 -	532
6.10.2	Fault code 01.1.00 -	536
6.10.3	Fault code 02.0.00 -	544
6.10.4	Fault code 03.1.00 -	546
6.10.5	Fault code 04.1.00 - gearbox	548
6.10.6	Fault code 05.1.00 - comfort hydraulics	566
6.10.7	Fault code 06.1.00 -	571
6.10.8	Fault code 08.1.00 - rear power lift (EPC)	577
6.10.9	Fault code 0A.1.00 -	583
6.10.10	Fault code 0B.1.00 - Variotronic TI	596

---

6.10.11	Fault code 0D.1.00 -	600
6.10.12	Fault code 0E.1.00 -	603
6.10.13	Fault code 0F.1.00 - central electrical system (ZE)	608
6.10.14	Fault code 10.1.00 - air conditioning system (HVAC)	613
6.10.15	Fault code 17.1.00 -	614
6.10.16	Fault code 18.1.00 - differential steering	615
6.10.17	Fault code 1D.1.00 - diesel engine	620
6.10.18	Fault code 1F.1.00 -	633
6.10.19	Fault code 20.1.00 -	634
6.10.20	Fault code 34.1.00 - parking brake	640
6.10.21	Fault code 35.0.00 - track	642
6.10.22	Fault code 36.1.00 - steerable hitch	643
<b>7</b>	<b>Specifications</b>	<b>647</b>
7.1	<b>Engine specifications</b>	<b>649</b>
7.2	<b>Torque specifications</b>	<b>650</b>
7.2.1	Constant torque hose clamps	650
7.3	<b>General dimensions</b>	<b>651</b>
7.3.1	Rear view dimensions	652
7.4	<b>Shipping weights</b>	<b>653</b>
7.5	<b>Machine specifications</b>	<b>655</b>
7.6	<b>Machine components</b>	<b>657</b>
7.7	<b>Noise vibration level</b>	<b>658</b>
<b>8</b>	<b>Index</b>	<b>659</b>

# 1 Safety

<b>1.1</b>	<b>Safety instructions</b>	<b>19</b>
1.1.1	Operator Manual	19
1.1.2	Safety symbol	19
1.1.3	Safety messages	19
1.1.4	Information messages	19
1.1.5	Safety signs	20
1.1.6	Important safety information	20
1.1.7	General safety instruction	21
1.1.8	Pressurized air	22
1.1.9	Asbestos information	22
1.1.10	Electrical storm injury prevention	22
1.1.11	Mount and dismount the machine	22
1.1.12	Before you start the engine	23
1.1.13	Start the engine	23
1.1.14	Before operation	23
1.1.15	Operating procedures	24
1.1.16	Parking	24
1.1.17	Prevent contact with power lines	25
1.1.18	Operator station	25
1.1.19	Cut and crush prevention	25
1.1.20	Rollover protective structure	26
1.1.21	Burn prevention	26
1.1.22	Coolant	26
1.1.23	Oils	27
1.1.24	High pressure lines	27
1.1.25	Fluid penetration	27
1.1.26	Batteries	28
1.1.27	Exhaust fumes	29
1.1.28	Noise prevention	29
1.1.29	Fire and explosion prevention	29
1.1.30	Fire extinguisher	30
1.1.31	Public road transportation	30
<b>1.2</b>	<b>Safety signs and labels</b>	<b>32</b>
<b>1.3</b>	<b>Engine safety signs</b>	<b>33</b>
1.3.1	Engine oil sign	34
1.3.2	Engine oil filter	34
1.3.3	Engine air cleaner	34
1.3.4	Separator filter	34
1.3.5	Fuel filter	35
1.3.6	Run-over hazard	35
1.3.7	Entanglement	35
1.3.8	Entanglement	35
1.3.9	High pressure hazard	36
1.3.10	Hot surface	36
1.3.11	Hot pressurized liquid hazard	36
1.3.12	Fuel filter	37
1.3.13	Separator filter	37
1.3.14	Engine oil filter	37
1.3.15	Belt routing	37
1.3.16	Air conditioning	38
1.3.17	Explosion hazard	38

1.3.18	Engine	38
<b>1.4</b>	<b>Chassis safety signs</b>	<b>39</b>
1.4.1	Filter decal	40
1.4.2	PIN plate	40
1.4.3	Riding hazard	40
1.4.4	No step	41
1.4.5	Torque	41
1.4.6	Torque	41
1.4.7	Crush warning	41
1.4.8	Torque	42
1.4.9	Fall off hazard	42
1.4.10	Radiation hazard	42
1.4.11	Tie down	42
1.4.12	Lift point	43
1.4.13	Engine cover support crush hazard	43
1.4.14	Run over hazard	43
1.4.15	Ultra low sulfur diesel	43
1.4.16	Jack points	44
<b>1.5</b>	<b>Cab safety signs</b>	<b>45</b>
1.5.1	Window exit	46
1.5.2	Park brake	46
1.5.3	Break glass - exit	46
1.5.4	Operators manual	46
1.5.5	Bystander notification	47
1.5.6	Roll-over hazard	47
1.5.7	Run-over hazard	47
1.5.8	California Proposition 65	47
<b>1.6</b>	<b>Cab safety signs</b>	<b>48</b>
1.6.1	Passenger seat	48
1.6.2	Category 2 filter	48
<b>1.7</b>	<b>Hydraulic safety signs</b>	<b>49</b>
1.7.1	Oil level	50
1.7.2	High pressure fluid	50
1.7.3	Pressurized fluid	50
<b>1.8</b>	<b>Electrical safety signs</b>	<b>51</b>
1.8.1	Battery disconnect relay	52
1.8.2	12 volt	52
1.8.3	Battery explosion	52
1.8.4	Electrical hazard	52
1.8.5	Relay	53
1.8.6	Fuse	53
1.8.7	Relay	53
1.8.8	Engine start switch	53
<b>1.9</b>	<b>3-Point linkage safety signs (optional)</b>	<b>54</b>
1.9.1	Power take off	54
1.9.2	Rear rollover	55
1.9.3	Tie down	55
1.9.4	Do not step	55
1.9.5	3-Point linkage lubrication points	55



## 1.1 Safety instructions

### 1.1.1 Operator Manual

This operator manual uses the latest information available at the time of publication. Read the operator manual carefully before operating the machine.

Right-hand and left-hand, as used in the operator manual, is determined by facing the direction that the machine travels when in use.

Photos, illustrations, and data used in the operator manual were current at the time of publishing. Because of possible production changes, each machine can vary. Manufacturer reserves the right to redesign and change the machine as necessary without notification.

### 1.1.2 Safety symbol

The safety symbol tells you about a potentially hazardous area!


Look for the safety symbol in this manual and on the machine. The safety symbols tell you that there is important safety instructions in the manual.




Fig. 1

### 1.1.3 Safety messages

The words DANGER, WARNING or CAUTION are used with the safety symbol. Learn these safety messages and obey the recommended precautions and safety instructions.

 **DANGER:**  
If you do not obey the recommended precautions and safety instructions, DEATH OR INJURY will occur.

 **WARNING:**  
If you do not obey the recommended precautions and safety instructions, DEATH OR INJURY can occur.


 **CAUTION:**  
If you do not obey the recommended precautions and safety instructions, INJURY can possibly occur.



Fig. 2

### 1.1.4 Information messages

The words important and note are not related to personal safety, and are used to give information about the operation and servicing of the machine.

**IMPORTANT:** Identifies special instructions or procedures which, if not followed, can cause damage to the machine, the process, or the area around the machine.

**NOTE:** *Information to make procedures easier.*

---

### 1.1.5 Safety signs

---



**WARNING:**

**Do not remove the safety signs. Replace safety signs that you cannot read, are damaged, or are missing.**

Clean the machine surface with a weak soap and water solution before you replace the safety signs. Replacement safety signs are available from your dealer.

Always make sure that safety signs are in the correct locations and that you can read the safety signs. Illustrations of safety sign locations are in this section.

Keep the safety signs clean. If necessary, use a weak soap and water solution.

---

### 1.1.6 Important safety information

---

**IMPORTANT:** *Any Modifications to the machine or systems not authorized by AGCO will void the AGCO Warranty. This includes, but is not limited to hitches.*



**WARNING:**

**When replacement parts are required for this product, AGCO recommends using AGCO replacement parts or parts with equivalent specifications including, but not limited to, physical dimensions, type, strength and material. Failure to heed this warning can get untimely failures, product damage, personal injury or death.**

Failure to obey basic safety rules and precautions can cause personal injuries during product operation, maintenance, or repair. Know dangerous situations before an injury occurs.

A person must be alert to possible dangers. This person must also have the necessary training, skills and tools to do these operations correctly.

Incorrect operation, lubrication, maintenance or repair of this product can be dangerous and can result in injury or death.

Read and understand all the information about the operation, lubrication, maintenance, and repair before operating on this machine.

The product and this manual give safety precautions and warnings. Bodily injury or death can occur to you or to other persons if all warnings are not heeded.

Not every possible circumstance that can involve a potential danger can be anticipated. The warnings in this publication and on the product are, thus, not all inclusive. If a tool or procedure, not recommended by AGCO, is used, make sure they are safe for everyone.

An operator must make sure the product will not be dangerous or damaged by the operation, lubrication, maintenance or repair procedures selected. Information, specifications, and illustrations in this publication come from information available at the time of publication production.

Specifications, torques, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can change the service that is given to the product. Get the complete and most current information before starting a job. AGCO dealers have the most current information available.

## 1.1.7 General safety instruction



**CAUTION:**  
**Carefully read the operator manual before operating the machine. See all instructions and safety rules when operating or doing maintenance.**



Fig. 3

Do not start the engine until the area is free of personnel. Honk the horn two times to tell others. This will help prevent personal injury because machine movement can occur.

Know the width of the equipment to keep the correct clearance when operating near fences or near boundary blockage.

Wear a hard hat, protective glasses, and other protective equipment, as necessary.

Do not wear loose clothing or jewelry that can catch on controls or on other parts of the machine.

Make sure that all protective guards and all covers are attached in position on the machine.



Fig. 4

Keep the machine free from unwanted material. Remove unwanted material, oil, tools, and other items from the deck, from walkways, and from steps.

Make sure lunch boxes, tools, and other loose items that are not a part of the machine are attached.

Know the applicable work location hand signals and the personnel that are approved to give the hand signals. Get hand signals from one person only.

Do not put maintenance fluids into glass containers. Drain all liquids into an approved container.

Discard all drained fluids and discard all filters. Refer to local regulations.

Use all cleaning solutions with precaution.

Record all necessary repairs.

Do not let untrained or not approved personnel on the machine.

Do not smoke when doing work an air conditioner. Also, if there is refrigerant gas around, do not smoke. Breathing the fumes that are released from a flame that touches air conditioner refrigerant can cause bodily injury or death.

Breathing gas from air conditioner refrigerant through a lighted cigarette can cause bodily injury or death.

Do the following before completing maintenance unless receiving other instructions:

- Parked the machine on level ground.
- Lower the implements to the ground.
- Park the machine.

## 1. Safety

---

- Stop the engine.
- Remove the switch key.
- Cool the machine.

Use other precautions if the conditions and environment make it necessary.

### **For operating this machine in forestry or loader operations:**

This machine does not have a falling-object protective structure and must not be used in forestry or loader operations.

---

### **1.1.8 Pressurized air**

Air under pressure can cause personal injury. When pressurized air is used for cleaning, wear a protective face shield, protective clothing and protective shoes.

The maximum air pressure for cleaning purposes must be below 205 kPa (30 psi).

---

### **1.1.9 Asbestos information**

AGCO equipment and replacement parts are asbestos free. AGCO recommends the use of only correct AGCO replacement parts.

---

### **1.1.10 Electrical storm injury prevention**

When lightning is striking in the vicinity of the machine, the operator should not attempt to dismount or mount the machine.

If you are in the operator's station during an electrical storm, stay in the operator's station. If you are on the ground during an electrical storm, stay away from the machine.

---

### **1.1.11 Mount and dismount the machine**

Mount the machine and dismount the machine only at locations that have steps and/or hand holds. Before mounting the machine, clean the steps and the hand holds. Inspect the stairs and hand holds. Make any necessary repairs.

When dismounting the machine, descend the steps backwards, and maintain a three-point contact with the steps and hand holds. Three-point contact is two feet and one hand or one foot and two hands.

Never mount a moving machine. Never dismount a moving machine. Never jump off the machine except in an emergency.

Do not carry tools or supplies when you try to mount the machine or when you try to dismount the machine. Use a hand line to pull equipment onto the platform.

Do not use any controls as hand holds when you enter the operator compartment or when you exit the operator compartment.

### 1.1.12 Before you start the engine

Start the engine only from the operator compartment. Never short across the starter terminals or batteries. Shorting can damage electrical system or cause unexpected machine movement.

Adjust the seat so full pedal travel can be achieved with operator's back against seat back.

Make sure the machine is equipped with a lighting system sufficient for job conditions. Make sure all machine lights are working properly.

Before starting the engine or moving the machine, make sure no one is under, around or on machine. Make sure area is free of personnel.

To honk horn the key must be turned to "run" to enable the horn. As a warning honk horn twice, to alert others.



Fig. 5

### 1.1.13 Start the engine

Move all hydraulic controls to the hold position before you start the engine.

Make sure the machine is in park.

Press the clutch pedal before you turn the ignition key. The starter will not operate until the clutch has been pressed. To stop the starter, turn the key to off or release the clutch pedal.

Diesel engine exhaust contains material of combustion which can be dangerous. Always operate the engine in an open area. If in a closed in area, send the exhaust out.



**WARNING:**

**If you turn the steering wheel with the transmission in the neutral position and the engine at idle speed, the machine will turn.**



**WARNING:**

**Do not use ether. Ether will cause engine damage and/or personal injury.**

Do not start the engine until the area is free of personnel to prevent personal injury because of unexpected machine movement.

### 1.1.14 Before operation

Clear all personnel from around the machine and the area.

Clear all obstacles from machine's path. Be careful of dangers, (electrical power lines, ditches, etc).

Make sure all the windows are clean and attached in the closed position.

Adjust the rearview mirrors for best visibility near the machine. Make sure the horn, backup alarm (if equipped) and all other warning devices are working correctly.

On the drawbar-towed implements, fasten a transport chain of sufficient capacity between the machine drawbar support and implement. Give only enough slack in the chain to permit turning.

Only one instructor must be permitted to ride in the machine cab. Instructor must be seated in the instructor seat with the seat belt fastened.

---

### 1.1.15 Operating procedures

---

The machine will turn with the transmission control lever in the neutral position when the engine is operating and the steering wheel is turned.

Only operate the machine while in the operator's seat. Securely connect the seat belt while operating the machine. Only operate the controls while the engine is operating.

Do a check for the correct operation of all the controls and the protective devices.

As a warning operate the horn two times to tell others in the area to prevent personal injury because of machine movement.

During operation of the machine, record damage and make necessary repairs.

A rollover of the machine can occur when doing work on hills, banks, or slopes. A rollover of the machine can also occur when operating across ditches, ridges, or other unanticipated blockages.

Hold the implement approximately 40 cm (16 in) above the ground level while operating the machine. Do not operate the machine near an overhang, near the edge of a cliff, or near edge of an excavation.

If the machine starts to sideslip on a grade, immediately decrease the load and turn machine downhill.

Be careful to prevent ground conditions which will cause the machine to rollover.

Keep the machine in control. Do not overload the machine more than the capacity.

Make sure the towing devices are sufficient for the work.

Make sure the components on the 3-point linkage are sufficient for the work.

Connect the trailing equipment only to a drawbar or hitch.

Do not straddle a wire cable.

When maneuvering to connect equipment, make sure no personnel are between machine and trailing equipment. Hold up the hitch of trailing equipment to align equipment with drawbar.

Know the maximum dimensions of the machine.

When operating on icy or muddy roads, decrease the travel speed to prevent the loss of control of machine.

After operating in muddy conditions, let sufficient time for tracks to reject unwanted material and moisture before making high speed maneuvers. Belts that are wet and belts that are muddy can impede machine's steering.

Decrease travel speed if the stability of the machine is noticeably reduced.

Slow the machine to a speed that controls the machine when declining a hill.

Use the service brakes if necessary, to control machine speed. Do not coast down a hill with transmission in neutral.

Do not steer machine when crossing ditches. Ditches that are wide and/or ditches that are deep can let the guide blocks sag below midwheels. This can cause the belt to come off.

Do not let passengers anywhere on the machine but on an approved passenger seat. Instructors must have the instructor seatbelt securely connected during all operation.

---

### 1.1.16 Parking

---

Make sure to park the machine on a solid, level surface. Move the drive lever to the neutral position. Wait a time for the park brake to automatically engage or press the park brake switch on the multifunction armrest. Lower all implements to the ground. Move the throttle control lever to low idle and wait a time to let the turbocharger cool. Stop the engine and take the key with you.

### 1.1.17 Prevent contact with power lines

Prevent Contact with Power Lines - When operating the machine prevent contact with low hanging power lines. Rural areas can have areas where power supply lines can touch part of the machine during usual operation. If a power line touches the machine, move the machine away. If the machine is disabled, make a call for aid. **DO NOT EXIT THE MACHINE UNTIL THE POWER IS DISCONNECTED.**

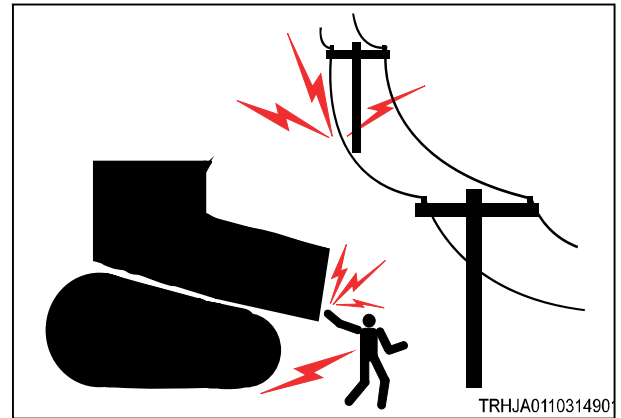


Fig. 6

### 1.1.18 Operator station

Do not drill holes or weld on the cab rollover protective structure. (ROPS)

Any modifications to the inner operator station must not extend into the operator space.

Any item brought into the cab must not extend into defined operator space. Secure loose items. Objects must not pose an impact hazard in rough terrain or if there is a rollover.

### 1.1.19 Cut and crush prevention

Support the equipment correctly when performing work below the equipment. Do not rely on the hydraulic cylinders to hold up the equipment. An implement can fall if a control lever is moved or if a hydraulic line breaks.

Never start the machine engine by shorting across the starter solenoid terminals. Machine movement can occur causing runovers .

Never make adjustments while the machine is moving or while the engine is operating.

Whenever there are attachment control linkages, the clearance in the linkage area will change with movement of the attachment.

Stay clear of all rotating parts and all moving parts.

Keep objects away from moving fan blades. The fan blades will throw objects and the fan blades can cut.

Do not use a wire tow cable that is kinked or frayed. Wear gloves when touching wire cable.

When hitting a retainer pin, the retainer pin can fly out causing personal injury. Make sure that there are no people in the area when hitting a retainer pin. To prevent eye injury, wear protective glasses when hitting a retainer pin.

Chips or other debris can fly off objects when hitting the objects. Make sure that others are clear of the area before hitting any object.



### 1.1.20 Rollover protective structure

Do not make any modifications to the rollover protective structure (ROPS) as this will change protection provided. Do not change structure by welding, cutting, adding weight, or drilling holes into structure.

Any change not specifically authorized by AGCO invalidates AGCO certification for ROPS. The protection offered by ROPS will be impaired if ROPS has structural damage or alteration. Damage to structure can be caused by a turn over or by falling objects.

Do not mount items (fire extinguishers, first aid kits, work lights, etc.) by welding brackets or drilling holes in ROPS. See dealer for mounting guide lines.

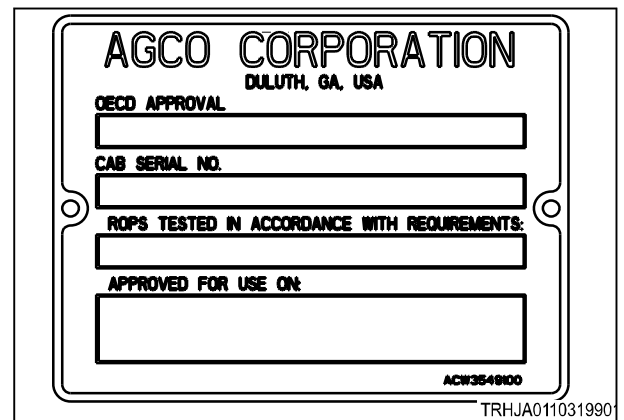


Fig. 7

### 1.1.21 Burn prevention

Do not touch any part of an operating engine. Other components such as the transmission, the axles and the oil reservoir can also be hot. Let the engine cool before performing any maintenance on the engine. Release all pressure in air, oil, lubrication, fuel and cooling systems before disconnecting any line fittings or related items.

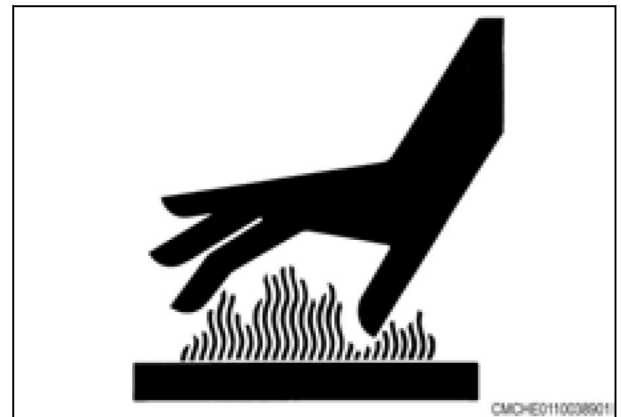


Fig. 8

### 1.1.22 Coolant

When the engine is at operating temperature, the engine coolant is hot. The coolant is also under pressure. The radiator and all the lines to the heater or engine contain hot coolant.

Any contact with hot coolant or with the steam can cause severe burns. Allow the cooling system components to cool before the cooling system is drained.

Check the coolant level only after the engine has been stopped.

Make sure the filler cap is cool before removing. The filler cap must be cool enough to touch with a bare hand. Remove the filler cap slowly to relieve the pressure.

The cooling system conditioner contains alkali. Alkali can cause personal injury.

Do not allow alkali to contact skin, eyes or mouth.

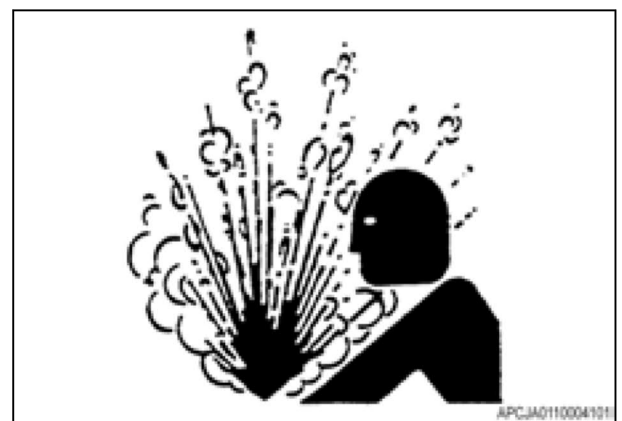


Fig. 9



---

### 1.1.23 Oils

---

Pressurized hot oil and hot components can cause personal injury. Do not allow hot oil to contact skin. Do not allow hot components to contact skin.

Remove the hydraulic tank filler cap only after the engine has been stopped.

The filler cap must be cool enough to touch with a bare hand. Follow the standard procedure in this manual to remove the hydraulic tank and transmission filler caps.

---

### 1.1.24 High pressure lines

---

Do not bend or strike the high pressure lines. Do not install any lines that are bent or damaged.

Repair any loose or damaged lines. Leaks can cause fires. Consult your dealer for repair or for replacement parts.

**DANGER:**

**Diesel fuel or hydraulic fluid under pressure can penetrate the skin or eyes. This can cause serious personal injury, blindness, or death.**

---

### 1.1.25 Fluid penetration

---

Always use a board or cardboard when checking for a leak. Leaking fluid under pressure can penetrate the body tissue. Fluid penetration can cause serious injury and possible death. A pin hole leak can cause severe injury. If fluid is injected into the skin, get treatment immediately. Get treatment from a doctor familiar with this type of injury.

Check the lines, the tubes and the hoses carefully. Do not use your bare hand instead, use a board or cardboard to check for leaks. Tighten all connections to the recommended torque.

Replace the hose if any of the following conditions are present:

- End fittings are damaged or leaking.
- Outer coverings are rubbed or cut.
- Wires are showing.
- Outer coverings are ballooning.
- The flexible part of the hose has a kink.
- Outer coverings have embedded armoring.
- The end fittings are displaced.

**IMPORTANT:** *Take care to contain fluids during the performance of the inspection, the maintenance, the testing, the adjusting, and the repair of the machine. Have a suitable container large enough ready to collect the fluid before opening any compartment or disassembling any component containing fluids. See the local regulations and mandates when discarding fluids.*

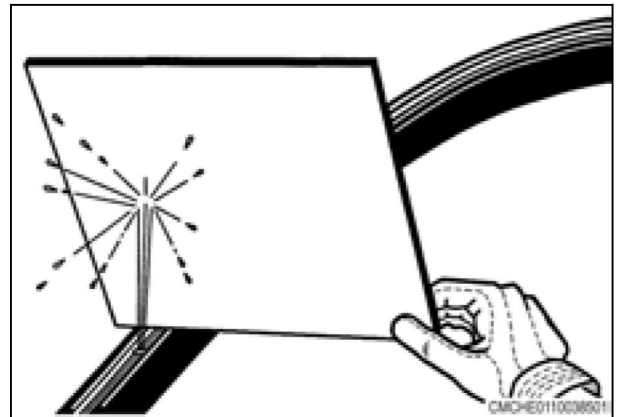


Fig. 10

### 1.1.26 Batteries

A lead acid battery generates flammable and explosive gases. Keep sparks and flames away from the battery.



**WARNING: Sulfuric acid in battery electrolyte is poisonous.**

**The acid is strong enough to burn skin, eat holes in clothing and cause blindness if got into eyes.**

**If acid contacts skin or clothing, flush with water immediately. If acid contacts eyes get immediate medical aid.**

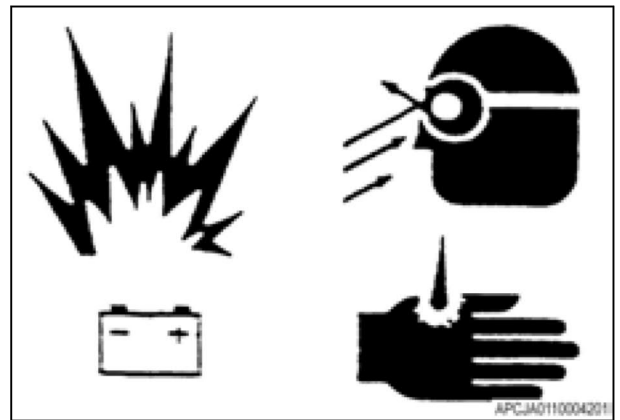


Fig. 11

Wash hands after touching batteries and connectors.



**WARNING: Batteries contain electrolyte which is an acid that can cause personal injury.**

**Do not let the electrolyte contact the skin or eyes.**

**Always wear protective glasses for servicing batteries.**



Fig. 12

Never check battery charge by placing a metal object across the terminal posts. Use a voltmeter or a hydrometer.



**WARNING: Gases from a battery can explode.**

**Incorrect jumper cable connections can cause an explosion causing an injury.**

**Keep open flames or sparks away from the top of the battery. Do not smoke in the battery charging areas. To prevent an explosion, never charge a frozen battery.**



Fig. 13

### 1.1.27 Exhaust fumes

Always work in a correct ventilated area.

Engine exhaust fumes can cause sickness or death. If necessary to run engine in a closed area, use correct equipment to safely remove exhaust fumes from area.

Always open the doors and get outside air into area.



Fig. 14

### 1.1.28 Noise prevention

Wear proper hearing protective devices such as earmuffs or earplugs to prevent loss of hearing due to high noise levels.

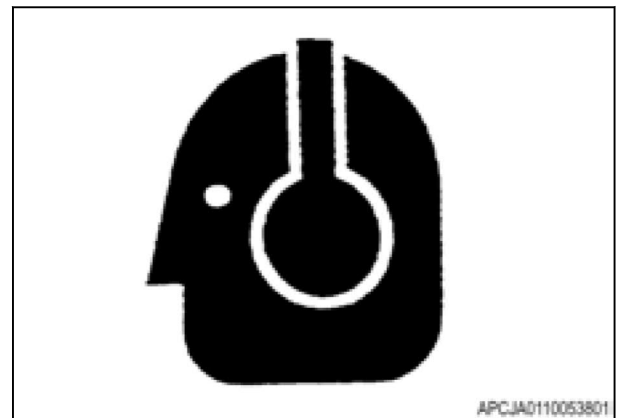


Fig. 15

### 1.1.29 Fire and explosion prevention

Use caution when refueling a machine. Do not smoke while refueling and do not refuel near open flames or sparks. Always stop engine before refueling. Fill fuel tank outdoors.

All fuels, most lubricants, and some coolant mixtures are flammable.

Flammable fluids leaking or spilled onto hot surfaces or electrical components can cause a fire.

Fire may cause personal injury and property damage.

Remove all flammable materials such as fuel, oil, and debris from machine.

Do not let any flammable materials to accumulate on machine.

Store fuels and lubricants in correctly identified containers away from not approved persons. Store rags with oil and any flammable materials in protective containers.

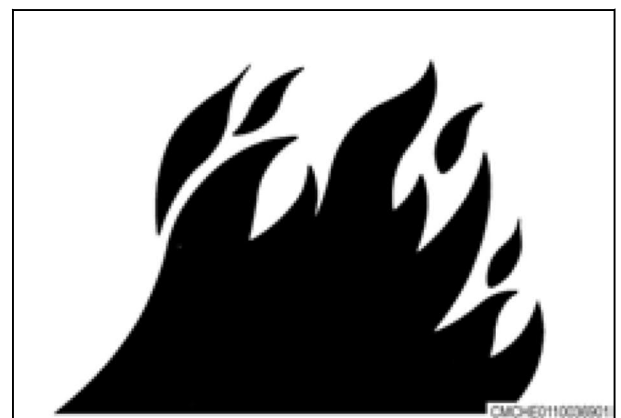


Fig. 16

## 1. Safety

Do not smoke in areas used for storing flammable materials.

Do not operate machine near any flame.

Do not weld on lines or tanks that contain flammable fluids. Do not flame cut lines or tanks containing flammable fluid. Clean any such lines or tanks fully with a nonflammable solvent before welding or flame cutting.

Check all electrical wires daily. Repair any wires loose or frayed before operating machine. Clean and tighten all electrical connections.

Dust generated from repairing nonmetallic hoods or nonmetallic fenders can be flammable and/or explosive. Repair such components in a well ventilated area away from open flames or sparks.

Inspect all lines and hoses for wear or for deterioration and replace if necessary.

Route hoses correctly. Lines and hoses must have sufficient support and secure clamps. Tighten all connections to recommended torque.

### 1.1.30 Fire extinguisher

An optional (1) bracket can be installed on the right front frame rail. The bracket holds a 4.5 kg fire extinguisher. Make sure that all clamps, guards, and heat shields are installed correctly. Correct installation prevents vibration, abrasions and too much heat during the machine operation.

Do not weld the bracket onto the cab ROPS frame to install the fire extinguisher. Do not drill holes in the cab ROPS frame to attach the fire extinguisher.

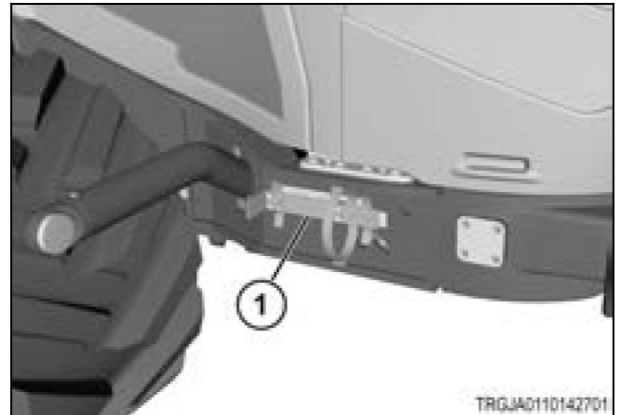


Fig. 17

Make sure that a fire extinguisher (1) is available and know the operation. Examine and service the fire extinguisher regularly. Obey the recommendations on the instruction plate.

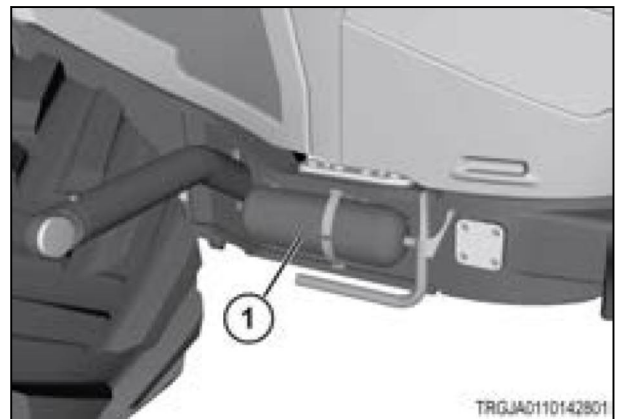


Fig. 18

### 1.1.31 Public road transportation

Always walk around and visually examine the machine before moving on a public road. As a warning to others in the area, honk the horn two times before starting engine. Do a check for damage and/or defective components that can make a dangerous condition. Make sure all machine systems operate correctly including (but not limited to):

- front road lamps
- tail and brake lamps
- amber hazard lights

Thank you so much for reading.  
Please click the “Buy Now!”  
button below to download the  
complete manual.



After you pay.

You can download the most  
perfect and complete manual in  
the world immediately.

Our support email:

[ebooklibonline@outlook.com](mailto:ebooklibonline@outlook.com)