



Operator's Manual

T2 Series

Versu

About this manual

This operator's manual is for Valtra T2 Series Versu tractors. The T2 Versu models are T132 V, T152 V, T162e V, T172 V, T182 V and T202 V.

The manual is meant for agricultural tractors only. If the tractor is used for other applications, it is the owner's responsibility to ensure compliance with local regulations. In this case, always contact your dealer first.

The purpose of this manual is to enable the owner and operator to use the tractor in a proper manner. Providing that the instructions are followed carefully, the tractor will provide years of service in the tradition of Valtra.

IMPORTANT: When using the tractor, always follow all valid laws and regulations even if they are not specifically pointed out in this manual.

The manual contains detailed instructions for operating, servicing and maintaining the tractor.

Alternative equipment in the manual refers to equipment that can be selected when ordering the tractor.

Extra equipment refers to equipment which can be bought and installed on the tractor later.

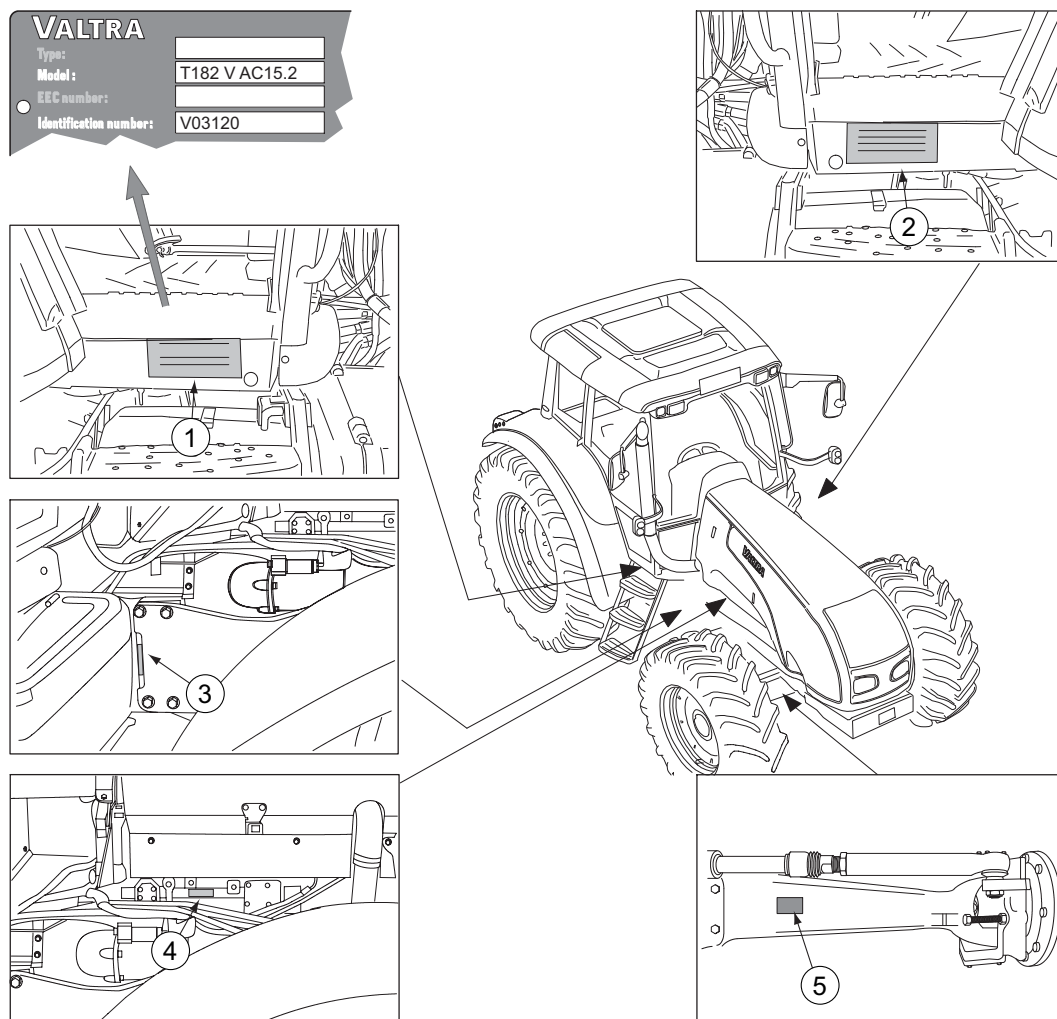
Due to the continual development of the products, the content of this manual may not always correspond to the new product. Therefore, we retain the right to make alterations without prior notification.

Maintenance, repairs and adjustments which are not described in this manual require special tools and exact technical data. For such work contact your dealer who has specially trained personnel to help you.

Valtra Inc.

Tractor serial numbers

When ordering spare parts or service, give the model indication and serial numbers and, in some cases, the engine, front axle, cab and transmission numbers.



1. Type plate EEC

- Model = model indication used by service/spare part department
- Identification number = tractor serial number

2. Cab number

3. Tractor serial number

4. Engine number

5. Front axle number

Contents

About this manual.....	1
Tractor serial numbers.....	2
1 Safety precautions.....	13
1.1 Hazard statements.....	13
1.2 Safety rules.....	13
1.2.1 Replacing safety and information signs.....	13
1.2.2 Maintaining hardware safety.....	14
1.2.3 Using tractor safety features.....	15
1.2.4 Safe operation.....	15
1.2.4.1 Following safe operating practices.....	15
1.2.4.2 Driving on public roads.....	17
1.2.4.3 Controlling the driving speed.....	18
1.2.4.4 Driving downhill.....	18
1.2.4.5 Operating with implements.....	18
1.2.4.6 Running with power take-off driven implements or machines.....	18
1.2.4.7 Using ballast weights.....	19
1.2.4.8 Towing.....	19
1.2.4.9 Ensuring personal safety of other people.....	20
1.2.4.10 Fire hazards.....	20
1.2.4.11 Handling viton seals subjected to high temperatures.....	20
2 Instruments and controls.....	21
2.1 Pedals.....	21
2.2 Dashboard.....	22
2.2.1 Proline instrument panel	22
2.2.2 Symbols on the Proline instrument panel display.....	23
2.2.3 Indicator lights on the left side of the display.....	24
2.2.4 Indicator lights on the right side of the display.....	25
2.3 Controls on the right-hand side.....	26
2.3.1 Tractor terminal.....	26
2.3.2 Driving controls.....	27
2.3.3 Linkage.....	28
2.3.4 Power take-off.....	29
2.3.5 Auxiliary hydraulics.....	31
2.3.6 Other controls.....	32
2.4 Controls on the rear side.....	33
2.4.1 Rear window opening device.....	33
2.4.2 Reverse drive system controls.....	34
2.5 Controls on the left-hand side.....	35
2.6 Controls on the front roof console	35
2.7 Controls on the right-hand side roof console.....	36
2.8 Controls on the forest equipment right-hand side roof console.....	37
2.9 Controls on the left-hand side roof console.....	37
2.10 Controls on the forest equipment left-hand side roof console.....	38
2.11 Air conditioning controls.....	38
2.11.1 Manual air conditioning controls	38
2.11.2 Automatic air conditioning controls	39
2.12 Driver's seat.....	40
2.13 Air suspended driver's seat	41
2.14 Valtra Evolution driver's seat.....	42
2.15 Controls on the rear mudguard.....	43
2.16 Controls on the bonnet.....	43
2.17 Rear controls and connections outside the cab.....	44

3	Operation.....	45
3.1	Running the tractor in.....	45
3.2	Preparing for use.....	45
3.2.1	Adjusting the driver's seat.....	45
3.2.2	Adjusting the air-suspended driver's seat.....	47
3.2.3	Adjusting the Valtra Evolution driver's seat.....	50
3.2.4	Adjusting the right-side armrest.....	54
3.2.5	Adjusting the steering wheel.....	55
3.2.6	Adjusting standard mirrors.....	56
3.2.7	Adjusting optional mirrors.....	56
3.2.8	Heating mirrors.....	57
3.2.9	Using the windscreen wiper and washer.....	57
3.2.10	Using the rear window wiper.....	58
3.2.11	Using the rear window washer.....	58
3.2.12	Power shuttle lever.....	59
3.2.13	Using the main switch.....	59
3.2.14	Control stop.....	60
3.2.15	Using the control stop.....	61
3.2.16	Using the ignition switch.....	61
3.3	Starting the tractor.....	63
3.3.1	Starting under normal conditions.....	63
3.3.2	Starting under cold conditions.....	64
3.3.3	Starting with an auxiliary battery.....	65
3.4	Using lights.....	66
3.4.1	Using headlights.....	66
3.4.2	Using upper headlights.....	67
3.4.3	Using working lights.....	67
3.4.4	Using the trailer hitch light.....	68
3.4.5	Using the cab light.....	69
3.5	Using notification devices.....	70
3.5.1	Using the direction indicators.....	70
3.5.2	Using the horn.....	70
3.5.3	Using the rotating warning light.....	71
3.5.4	Using hazard warning flashers	71
3.6	Heating and ventilation.....	72
3.6.1	Using the heater.....	72
3.6.2	Controlling ventilation nozzles and air recirculation.....	73
3.6.3	Using the manual air conditioning.....	74
3.6.4	Automatic air conditioning.....	75
3.6.4.1	Air conditioning control panel.....	75
3.6.4.2	Activating air conditioning when the battery has been disconnected.....	76
3.6.4.3	Air conditioning control.....	76
3.6.4.4	Controlling the fan.....	77
3.6.4.5	Automatic air conditioning system on/off button.....	78
3.6.4.6	Temperature view.....	78
3.6.4.7	Temperature control.....	78
3.6.4.8	Defrosting.....	79
3.6.4.9	Selecting air recirculation.....	80
3.7	Power outlets.....	81
3.7.1	Lighter.....	81
3.7.2	Using the two-pin power socket and power switch.....	81
3.7.3	Three-pin power socket.....	82
3.7.4	Trailer socket.....	83
3.7.5	Two-pin power socket on the bonnet.....	84
3.8	Driving the tractor.....	84
3.8.1	Steering.....	84
3.8.2	Power shuttle.....	84
3.8.3	Using the power shuttle lever.....	85

3.8.4	Adjusting the power shuttle engagement speed	86
3.8.5	Using the parking brake.....	86
3.8.6	Using the clutch pedal.....	88
3.8.7	Adjusting the clutch pedal engagement position.....	89
3.8.8	Braking.....	90
3.8.9	Using the emergency brake.....	90
3.8.10	Starting to drive.....	91
3.8.11	Transmission system.....	92
3.8.11.1	Speed matching.....	92
3.8.11.2	Selecting the speed range.....	92
3.8.11.3	Selecting the creeper speed range.....	94
3.8.11.4	Using Powershift.....	94
3.8.11.5	Preprogramming gear for driving direction changing.....	95
3.8.11.6	Using the shifting automatics.....	96
3.8.11.7	Programming shifting automatics.....	97
3.8.11.8	Programming automatic shifting between speed ranges C and D.....	99
3.8.12	Parking the tractor.....	100
3.8.13	Cruise control.....	100
3.8.13.1	Cruise control switches.....	101
3.8.13.2	Programming the driving speed cruise control.....	101
3.8.13.3	Activating and deactivating the driving speed cruise control	102
3.8.13.4	Programming the engine speed cruise control.....	103
3.8.13.5	Activating and deactivating the engine speed cruise control.....	103
3.8.13.6	Decreasing the cruise control setting.....	104
3.8.13.7	Increasing the cruise control setting.....	105
3.8.14	Automatic traction control.....	106
3.8.15	Using the automatic traction control.....	106
3.8.16	Selecting the engine speed range.....	108
3.8.17	Front axle air suspension.....	108
3.8.18	Disengaging the front axle air suspension.....	109
3.8.19	AutoComfort cab suspension.....	110
3.8.19.1	Adjusting AutoComfort cab suspension.....	111
3.8.19.2	Calibrating AutoComfort cab suspension.....	111
3.8.20	Differential lock.....	113
3.8.21	Engaging and disengaging the differential lock.....	113
3.8.22	Four-wheel drive.....	114
3.8.23	Engaging and disengaging the four-wheel drive.....	115
3.8.24	Driving start automatics.....	115
3.8.25	Setting the driving start automatics.....	116
3.8.26	Reverse drive system.....	116
3.8.27	Permitted driving inclinations for driving the tractor on a slope.....	117
3.9	Proline instrument panel display.....	118
3.9.1	Fixed views.....	118
3.9.2	Selecting a view.....	118
3.9.3	Top and middle row views.....	119
3.9.3.1	Working time view.....	120
3.9.3.2	Cruise control view.....	120
3.9.3.3	Driving speed view.....	121
3.9.3.4	Wheel slip view.....	121
3.9.3.5	Rear power take-off speed view.....	122
3.9.3.6	Front power take-off speed view.....	122
3.9.3.7	Engine speed view.....	122
3.9.3.8	Fuel consumption views.....	123
3.9.3.9	Rear lower links' position view.....	124
3.9.3.10	Front lower links' position view.....	124
3.9.3.11	Sigma Power view.....	125
3.9.3.12	Gearbox temperature view.....	125

3.9.3.13	Travel distance view.....	126
3.9.3.14	Surface area view.....	126
3.9.4	Periodical maintenance view.....	127
3.9.5	Resetting views.....	127
3.9.6	Enlarging the middle row.....	128
3.9.7	Changing parameters.....	128
3.9.7.1	Activating and exiting the setting mode.....	128
3.9.7.2	Changing the parameter value.....	129
3.9.7.3	Setting the display backlight level.....	130
3.9.7.4	Setting the implement width.....	130
3.9.7.5	Changing the hour display.....	130
3.9.7.6	Changing the minute display.....	131
3.9.7.7	Changing the clock mode.....	131
3.9.7.8	Activating the direction indicator buzzer.....	131
3.9.7.9	Changing the temperature unit.....	132
3.9.7.10	Changing the length unit.....	132
3.9.7.11	Changing the volume unit.....	133
3.9.7.12	Activating and deactivating the front power take-off speed view.....	133
3.9.7.13	Activating and deactivating the front lower links' position view.....	133
3.9.7.14	Adjusting the display contrast.....	134
3.10	A-pillar display.....	134
3.10.1	Power shuttle section.....	135
3.10.2	Transmission section.....	136
3.10.3	General information section.....	137
3.10.4	Changing general information section views.....	138
3.11	Tractor terminal.....	138
3.11.1	Tractor terminal control button functions.....	139
3.11.2	Entering menus.....	139
3.11.3	Power shuttle related drive view symbols.....	140
3.11.4	Transmission related drive view symbols.....	141
3.11.5	General information drive view symbols.....	142
3.11.6	Pop-up views.....	144
3.11.7	Entering the large drive view.....	145
3.11.8	Split drive view.....	145
3.11.9	Entering the split drive view.....	145
3.11.10	Changing the lower field views.....	146
3.11.11	Lower field views.....	146
3.11.11.1	Power take-off speed views.....	147
3.11.11.2	Engine speed view.....	148
3.11.11.3	Rear hydraulic valve settings view.....	148
3.11.11.4	Front hydraulic valve settings view.....	148
3.11.11.5	Gearbox temperature view.....	149
3.11.11.6	Working hydraulics oil temperature view.....	149
3.11.11.7	Rear lower links' position view.....	149
3.11.11.8	Wheel slip view.....	150
3.11.11.9	Sigma Power view.....	150
3.11.11.10	Working time view.....	150
3.11.11.11	Travel distance view.....	151
3.11.11.12	Surface area view.....	151
3.11.11.13	Fuel consumption views.....	152
3.11.11.14	Cruise control view.....	153
3.11.12	Entering the hydraulics settings view.....	153
3.11.13	Hydraulics view symbols.....	154
3.11.14	Adjusting the display brightness.....	155
3.11.15	Changing units.....	155
3.11.16	Changing parameters.....	156
3.11.16.1	Setting the implement width.....	156
3.11.16.2	Resetting counters.....	156

3.11.17	Transmission settings view.....	157
3.12	Rear linkage.....	158
3.12.1	Diagnose light.....	158
3.12.2	Activating the linkage.....	159
3.12.3	Using the lift/stop/lower switch.....	159
3.12.4	Using the position control knob.....	160
3.12.5	Using the linkage floating position.....	160
3.12.6	Using the lift/lower push buttons.....	161
3.12.7	Lift/lower indicator lights	162
3.12.8	Setting the lowering speed.....	163
3.12.9	Limiting the lifting height.....	163
3.12.10	Draft control.....	164
3.12.11	Activating and deactivating the draft control.....	164
3.12.12	Passing the position set by the position control knob.....	165
3.12.13	Passing the height set by the lifting height selector.....	165
3.12.14	Using the drive balance control	166
3.12.15	Slip control.....	167
3.12.16	Using the slip control.....	168
3.13	Three-point linkage.....	169
3.13.1	Attaching implements.....	170
3.13.2	Adjusting lifting links	172
3.13.3	Adjusting lower links.....	172
3.13.4	Adjusting check links.....	173
3.13.4.1	Adjusting the check links' length.....	173
3.13.4.2	Adjusting the check links' support.....	173
3.13.5	Automatic check links	174
3.13.5.1	Adjusting thread-adjustable check links.....	174
3.13.5.2	Adjusting pin-adjustable check links.....	176
3.13.5.3	Using the floating position of automatic check links.....	176
3.13.6	Using quick couplings for lower links	177
3.13.6.1	Setting the release cable for lower link quick couplings	178
3.14	Auxiliary hydraulics.....	180
3.14.1	Auxiliary hydraulic controls and functions.....	181
3.14.2	Activating and deactivating the auxiliary hydraulics.....	182
3.14.3	Selecting joystick functions for auxiliary hydraulics.....	182
3.14.4	Controlling the auxiliary hydraulics rear valves 1 and 2 and front valves 1F and 2F.....	183
3.14.5	Controlling the rear valve 1 from rear mudguard push buttons.....	184
3.14.6	Controlling the auxiliary hydraulics rear valves 3, 4 and 5 and the front valve 3F.....	185
3.14.7	Selecting predefined settings for auxiliary hydraulics valves	185
3.14.7.1	Factory settings for auxiliary hydraulics.....	185
3.14.7.2	Defining user settings for auxiliary hydraulics.....	186
3.14.8	Activating and deactivating the position locking.....	187
3.14.9	Activating and deactivating the floating position	188
3.14.10	Using a hydraulic valve as a single-action valve.....	189
3.14.11	Using the auxiliary hydraulics on/off valves.....	189
3.14.12	Using quick-action couplings	190
3.14.13	Using Power Beyond couplings.....	191
3.14.14	Connecting an external hydraulic motor to the auxiliary hydraulics.....	192
3.15	Using the front linkage.....	193
3.15.1	Setting front linkage lifting link positions.....	194
3.15.2	Pressure accumulators for the front linkage.....	195
3.16	Using the Valtra front loader.....	195
3.16.1	Using the Valtra Quick front loader coupling plate.....	197
3.16.2	Softdrive.....	197
3.16.3	Locking the equipment.....	198
3.16.4	Controlling the extra cylinder with the change valve.....	199
3.17	Power take-off.....	199
3.17.1	Attaching implements to the power take-off.....	199

3.17.2	Rear power take-off.....	201
3.17.2.1	Recommended rear power take-off shafts.....	203
3.17.2.2	Activating rear power take-off.....	204
3.17.2.3	Starting rear power take-off.....	205
3.17.2.4	Stopping rear power take-off temporarily.....	206
3.17.2.5	Deactivating rear power take-off.....	206
3.17.2.6	Stopping the rear power take-off in emergency.....	207
3.17.2.7	Using the rear power take-off automatic stop.....	208
3.17.2.8	Proportional ground speed power take-off.....	209
3.17.2.9	Adjusting the rear power take-off engagement.....	210
3.17.3	Front power take-off.....	211
3.17.3.1	Activating and deactivating front power take-off.....	212
3.18	U-Pilot headland automatics.....	212
3.18.1	U-Pilot operating requirements.....	213
3.18.2	U-Pilot switches.....	213
3.18.3	U-Pilot view.....	214
3.18.4	U-Pilot view symbols.....	215
3.18.5	Recording a U-Pilot programme.....	217
3.18.6	U-Pilot recording examples.....	218
3.18.7	Running the recorded U-Pilot programme.....	219
3.18.8	U-Pilot error codes.....	221
3.19	Implement signal connection.....	222
3.19.1	Resetting the implement signal connection.....	223
3.20	Valtra ISOBUS.....	223
3.20.1	ISOBUS implement connector.....	225
3.20.2	ISOBUS terminal connector.....	225
3.20.3	Bus extension connectors.....	226
3.20.4	Resetting the ISOBUS connection.....	227
3.21	Auto-Guide.....	227
3.22	Towing devices.....	228
3.22.1	Trailer hitch.....	228
3.22.1.1	Unlatching the trailer hitch equipped with mechanical unlatching system.....	228
3.22.1.2	Unlatching the trailer hitch equipped with hydraulic unlatching system.....	229
3.22.1.3	Latching the trailer hitch.....	231
3.22.2	Agricultural drawbar.....	232
3.22.3	Scharmüller towing device.....	233
3.22.3.1	Adjusting the jaw height.....	233
3.22.3.2	Attaching to the mechanical jaw.....	235
3.22.3.3	Attaching to the automatic jaw.....	235
3.22.4	Euro trailer hitch.....	237
3.22.5	Euro trailer hitch with hydraulic extension.....	238
3.22.5.1	Unlatching the hydraulically extended Euro trailer hitch.....	238
3.22.5.2	Extending the Euro trailer hitch.....	239
3.22.5.3	Latching the hydraulically extended Euro trailer hitch.....	240
3.22.5.4	Changing the trailer hitch/draw.....	243
3.23	Air pressure system.....	243
3.24	Trailer.....	245
3.24.1	Trailer air pressure brakes.....	246
3.24.2	Trailer fluid brake valve.....	247
4	Maintenance.....	248
4.1	Maintenance schedule.....	248
4.2	Service inspection.....	248
4.3	Performing maintenance tasks.....	249
4.3.1	Greasing lubricating points fitted with grease nipples.....	250
4.3.2	Cleaning the tractor.....	250
4.3.2.1	Cleaning the engine compartment.....	251
4.3.2.2	Cleaning front axle suspension bellows.....	251

4.3.2.3	Cleaning polycarbonate windows.....	252
4.4	Recommended fuel and lubricants.....	252
4.4.1	Fuel.....	252
4.4.1.1	Quality requirements for engine fuel.....	253
4.4.1.2	Storing fuel.....	253
4.4.1.3	Fuel filter system.....	253
4.4.1.4	Biodiesel fuel.....	254
4.4.2	Grease.....	254
4.4.2.1	Valtra Grease - NLGI2 universal grease.....	254
4.4.2.2	Valtra Calsium LF - NLGI2 calsium grease LF.....	254
4.4.2.3	Valtra Grease Moly - NLGI2 moly grease.....	255
4.5	Storing the tractor.....	255
4.5.1	Storing the tractor for a period shorter than two months.....	255
4.5.2	Storing the tractor for a period longer than two months.....	255
4.6	Running the tractor in after storage.....	256
4.6.1	Running the tractor in after a storing period shorter than two months.....	256
4.6.2	Running the tractor in after a storing period longer than two months.....	256
4.7	Periodical maintenance.....	257
4.7.1	Periodical maintenance chart.....	257
4.7.2	Daily maintenance.....	259
4.7.2.1	Checking the engine oil level.....	259
4.7.2.2	Checking the oil level in the transmission system.....	260
4.7.2.3	Checking the oil level in the hydraulic system.....	260
4.7.2.4	Checking the coolant level.....	262
4.7.2.5	Cleaning radiators.....	263
4.7.3	Weekly maintenance.....	264
4.7.3.1	Greasing the three-point linkage.....	264
4.7.3.2	Checking the trailer hitch.....	264
4.7.3.3	Greasing the trailer hitch.....	265
4.7.3.4	Maintaining the front linkage.....	266
4.7.3.5	Checking the front power take-off.....	267
4.7.3.6	Greasing the brake cam.....	267
4.7.3.7	Greasing front axle mounting bearings.....	267
4.7.3.8	Greasing air-suspended front axle mounting bearings.....	269
4.7.3.9	Greasing flexible front mudguards.....	270
4.7.3.10	Checking belts' tension.....	270
4.7.3.11	Adjusting the air conditioning compressor belt.....	271
4.7.3.12	Adjusting the air compressor belt.....	271
4.7.3.13	Changing the air conditioning compressor belt.....	272
4.7.3.14	Changing the multi-grooved fan belt and the air compressor belt.....	272
4.7.3.15	Checking the fuel system prefilter and sediment bowl.....	274
4.7.3.16	Checking the electrolyte level in the battery.....	275
4.7.3.17	Checking the tyre pressure.....	277
4.7.3.18	Checking the emergency brake.....	277
4.7.3.19	Windscreen washer fluid reservoir.....	278
4.7.4	Maintenance every 500 hours.....	278
4.7.4.1	Greasing door hinges.....	278
4.7.4.2	Changing the engine oil and the oil filter.....	278
4.7.4.3	Checking the breather pipe.....	280
4.7.4.4	Checking the brake fluid level.....	280
4.7.4.5	Cleaning the cab ventilation air filter.....	281
4.7.4.6	Checking wheel nuts' tightness.....	282
4.7.4.7	Checking the brake pedal free travel.....	282
4.7.4.8	Adjusting brake pedals' travel when the tractor is equipped with unboosted brakes.....	282
4.7.4.9	Adjusting brake pedals' travel when the tractor is equipped with boosted brakes.....	283
4.7.4.10	Checking the parking brake.....	284
4.7.4.11	Adjusting the parking brake.....	285

4.7.4.12	Changing transmission oil filters.....	286
4.7.4.13	Changing hydraulic system oil filters.....	287
4.7.4.14	Checking the oil level in the front axle differential.....	287
4.7.4.15	Checking the oil level in front axle hubs.....	288
4.7.4.16	Changing front PTO housing oil and washing oil filter.....	289
4.7.4.17	Checking front PTO rubber couplings.....	290
4.7.4.18	Checking and greasing the trailer air-pressure brake system.....	290
4.7.4.19	Checking the air pressure system's automatic water draining.....	290
4.7.5	Maintenance every 1000 hours or yearly.....	291
4.7.5.1	Changing oil in the hydraulic system.....	291
4.7.5.2	Changing oil in the front axle differential.....	293
4.7.5.3	Changing oil in the front axle hubs.....	294
4.7.5.4	Changing the cab ventilation air filter.....	295
4.7.5.5	Changing the recirculation filter.....	296
4.7.5.6	Changing the fuel filter.....	296
4.7.5.7	Changing the fuel prefilter.....	297
4.7.5.8	Changing engine air filters.....	299
4.7.5.9	Greasing the flywheel ring gear.....	301
4.7.5.10	Checking the front wheel toe-in.....	301
4.7.5.11	Adjusting toe-in of front wheels.....	302
4.7.5.12	Adjusting engine valves.....	302
4.7.5.13	Changing the hydraulics breather.....	302
4.7.5.14	Checking the power shuttle operation.....	303
4.7.5.15	Tightening frame nuts and bolts.....	303
4.7.6	Maintenance every 2000 hours or every other year.....	303
4.7.6.1	Changing oil in the transmission system.....	303
4.7.6.2	Changing the transmission breather.....	305
4.7.6.3	Changing the brake fluid in unboosted brake system	306
4.7.6.4	Bleeding the unboosted brake system.....	307
4.7.6.5	Changing oil in boosted brake system.....	309
4.7.6.6	Bleeding the brake system when the tractor is equipped with boosted brakes.....	309
4.7.6.7	Changing oil in the front axle brake system.....	311
4.7.6.8	Cleaning the cooling system.....	311
4.7.6.9	Checking the engine vibration damper.....	314
4.7.6.10	Maintaining the air conditioning.....	315
4.7.6.11	Checking the refrigerant condition.....	316
4.8	Checks and adjustments.....	317
4.8.1	Changing tyres.....	317
4.8.1.1	Setting the tyre parameter.....	317
4.8.1.2	Tyre parameters.....	318
4.8.1.3	Calibrating speed sensors.....	319
4.8.2	Track widths.....	321
4.8.2.1	Agricultural front axle track widths.....	321
4.8.2.2	Industrial front axle track widths.....	322
4.8.2.3	Rear axle track widths.....	323
4.8.3	Using chains.....	323
4.8.4	Using twin-mounted wheels.....	324
4.8.5	Engine.....	324
4.8.5.1	Bleeding the fuel system.....	324
4.8.6	Electrical system.....	325
4.8.6.1	Safety precautions for the electrical system.....	325
4.8.6.2	Checking the battery.....	325
4.8.6.3	Alternator.....	326
4.8.6.4	Protecting the electrical system before welding.....	326
4.8.6.5	Fuses and relays.....	327
4.8.6.6	Fuses and relays in the electric centre.....	328
4.8.6.7	Engine induction air preheater fuse.....	330

4.8.6.8	Cab power supply fuse.....	331
4.8.6.9	Adjusting headlights.....	331
4.8.7	Power transmission system.....	332
4.8.7.1	Changing the rear power take-off shaft.....	332
4.8.7.2	Checking the transmission ratio of a power take-off driven trailer.....	333
4.8.8	Steering system.....	333
4.8.8.1	Adjusting the steering angle.....	333
4.8.9	Cab and shields.....	334
4.8.9.1	Adjusting the steps for driving off-road.....	334
4.8.9.2	Limiting the door opening.....	335
4.8.9.3	Checking and adjusting front mudguards.....	336
4.8.9.4	Adjusting flexible front mudguards.....	336
4.8.10	Hydraulic system.....	337
4.8.10.1	Adjusting lifting links of the trailer hitch.....	337
4.8.10.2	Maintaining the automatic jaw of the wagon towing device.....	338
5	Faults and remedial actions.....	339
5.1	Handling error situations.....	339
5.2	Errors indicated by the indicator lights.....	339
5.2.1	Cleaning the main engine air filter.....	340
5.2.2	Identifying a blocked transmission or hydraulic system filter.....	341
5.3	Warning symbols on the Proline instrument panel display.....	343
5.3.1	Low fuel pressure warning.....	343
5.3.2	Hydraulic oil temperature warning.....	344
5.3.3	Hydraulic oil level low warning.....	345
5.3.4	Transmission speed warning.....	345
5.3.5	Power take-off speed warning.....	346
5.4	Viewing service codes.....	346
5.5	Service codes.....	347
5.6	Steering system malfunctions.....	349
5.7	Towing the tractor.....	350
5.7.1	Towing the tractor when the engine is running.....	350
5.7.2	Towing the tractor when the engine is not running.....	350
6	Technical specifications.....	352
6.1	Dimensions.....	352
6.2	Weights.....	352
6.3	Maximum permissible axle loading.....	352
6.4	Tyres.....	353
6.4.1	Wheel nuts tightening torque.....	353
6.4.2	Front axle tyre loadings and pressures.....	354
6.4.3	Rear axle tyre loadings and pressures.....	354
6.5	Stud dimensions and spacing for wheel discs.....	356
6.6	Track widths.....	357
6.6.1	Rear track widths.....	357
6.6.2	Front track widths.....	357
6.7	Engine.....	358
6.7.1	Engine lubrication system.....	359
6.7.2	Fuel system.....	359
6.7.3	Air cleaner.....	359
6.7.4	Cooling system.....	359
6.8	Electrical system.....	359
6.9	Power transmission.....	360
6.9.1	Power shuttle.....	360
6.9.2	Clutch.....	360
6.9.3	Gearbox.....	360
6.9.4	Rear axle differential lock.....	361
6.9.5	Rear power take-off.....	361
6.9.5.1	Rear power take-off alternatives.....	361

6.9.5.2	Rear power take-off ratios.....	361
6.9.5.3	Rear power take-off shafts.....	362
6.9.5.4	Lower link end distance from rear power take-off shaft.....	362
6.9.5.5	Proportional ground speed.....	362
6.9.5.6	Maximum power take-off output.....	363
6.9.6	Front power take-off.....	363
6.9.6.1	Front power take-off ratios.....	363
6.9.6.2	Front power take-off shafts.....	363
6.10	Brake system.....	363
6.11	Steering system.....	364
6.11.1	Powered front axle.....	364
6.11.2	Turning circle radius.....	365
6.11.3	Front air suspension.....	365
6.12	Cab and shields.....	365
6.12.1	Cab filter capacity.....	365
6.12.2	Windscreen washer.....	366
6.12.3	Air conditioning system.....	366
6.13	Hydraulic system.....	366
6.13.1	Low pressure circuit.....	366
6.13.2	Steering hydraulic circuit.....	366
6.13.3	Working hydraulic circuit.....	366
6.13.3.1	Valves for auxiliary hydraulics.....	367
6.13.3.2	Counter pressure when using the return connection for auxiliary hydraulics.....	368
6.13.4	Rear linkage.....	368
6.13.4.1	Maximum lifting force on the whole lifting area.....	368
6.13.4.2	Lifting range at the end of the lower links.....	369
6.13.5	Front linkage.....	369
6.13.6	Trailer hitches and towing devices.....	370
Alphabetical index.....		374

1 Safety precautions

Always follow the safety precautions given when working with the tractor.

The regulations given do not release the operator from statutory and other national regulations as regards traffic safety and occupational health and safety.

In addition to the precautions given in this manual, always follow the safety regulations applicable to different types of working sites and existing road traffic laws.

1.1 Hazard statements

Five symbols are used in the documentation.



DANGER: Indicates an imminently hazardous situation that, if not avoided, results in death or very serious injury.



WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.



CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor injury.

IMPORTANT: Indicates special instructions or procedures which, if not strictly observed, could result in damage to, or destruction of the machine, process or its surroundings.

NOTE: Indicates points of particular interest for more efficient and convenient repair or operation.

1.2 Safety rules

1.2.1 Replacing safety and information signs

Replacement signs are available from your dealer in the event of loss or damage.

- Replace any danger, warning, caution or instruction signs that are not readable or are missing.



WARNING: Do not remove or obscure danger, warning, caution or instruction signs.

1.2.2 Maintaining hardware safety

To ensure maximum safety for the operator, maintain tractor hardware safety.

The owner is responsible for repairing any damage or wear which might endanger the safety of the tractor.

- **Cab**

Damages on the cab must be repaired without delay to ensure the cab's protective capability.



WARNING: If damage occurs to the cab, replace all parts affected with new ones. Do not attempt any repair work (welding, drilling, cutting, or grinding) without first consulting the manufacturer.

- **Tractor construction**

Do not change the tractor construction, such as maximum driving speed or maximum power.

The tractor is type approved to comply with construction and use regulations. Any changes to the tractor construction may reduce safety and durability and affect the warranty terms.

- **Brakes**

- Always check that the brakes are working before driving.
- Lock the brake pedals together whenever individual wheel brakes are not required and always when driving on the road.
- Extensive repairs to the braking system should be undertaken only by an authorised Valtra workshop.
- When implements or ballast weights are front-end mounted, the rear axle loading is decreased:
 - Check that the rear brakes are still effective.
 - Use appropriate ballast weights at rear as required.

- **Cleaning**

Keep the tractor clean to minimise risk of fire.

- **Lights**

- Make sure that lights and reflectors are clean and in working order.
- Make sure that the headlights are correctly adjusted.

- **Steps**

Keep the steps clean. Dirty steps can lead to falls and personal injury.

- **Quick couplings**



DANGER: Clean the quick couplings and ball joints before attaching an implement. There is risk that the implement is not attached properly.

- **Maintenance**

- Follow the maintenance instructions and safety precautions applicable to the tractor.
- Stop the engine and lower the implement before carrying out any maintenance work on the tractor or implement.

1.2.3 Using tractor safety features

The tractor has several features that contribute to the operator's safety.

- **Steering wheel and safety handles**



WARNING: Hold on to the steering wheel or safety handles in the cab if the tractor tips over. Never try to jump out.

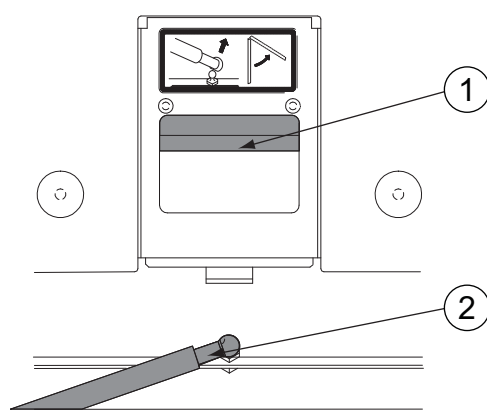
- **Safety belt (extra equipment)**

Always use the safety belt when using the tractor.

- **Emergency exits**

Familiarise yourself with the four emergency exits of the tractor cab, that is, the doors, the rear window and the roof hatch (extra equipment).

- **Roof hatch (extra equipment)**



1. Handle
2. Gas spring

- Open the hatch by pushing the handle forward and pushing the hatch upward.
- To open the hatch fully (for emergency exit), detach the upper end of the gas spring from its fastener and push the hatch fully open.



WARNING: When driving on ice, keep the roof hatch open.

1.2.4 Safe operation

1.2.4.1 Following safe operating practices

To operate the tractor safely, follow all the safety precautions and instructions.

- **Protect yourself against motor noise.**

Use hearing protectors to avoid noise injuries when you are working outside the cab near the engine.

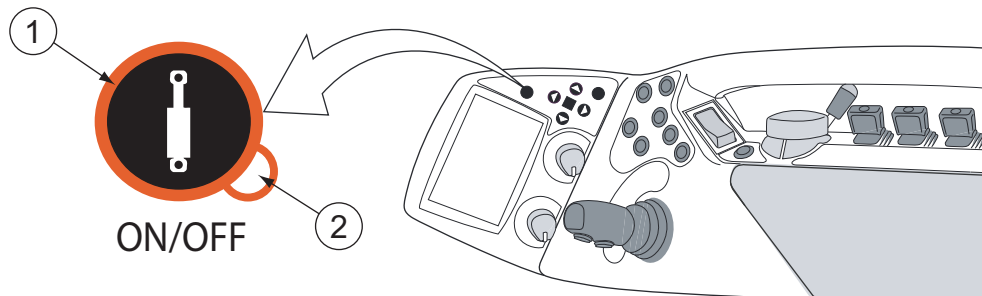
1. Safety precautions

- Avoid carbon monoxide poisoning.



WARNING: To avoid carbon monoxide poisoning, do not start the engine or run it indoors with the doors closed unless the exhaust is vented to the outside.

- Note the function of the auxiliary hydraulics on/off push button.



1. Auxiliary hydraulics on/off push button
2. Indicator light

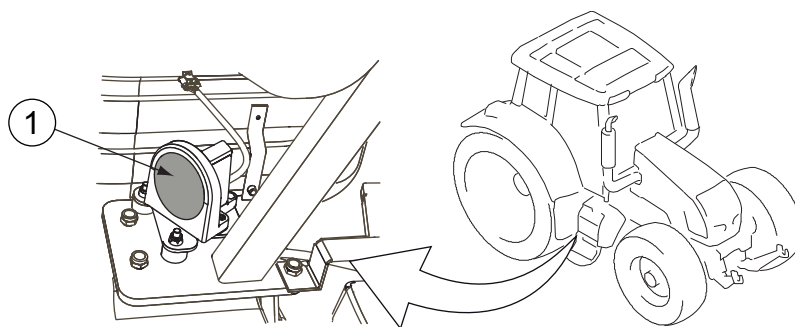
Pressing the auxiliary hydraulics on/off push button turns off or on all the functions of the auxiliary hydraulics. The button has no effect on the function of the ON/OFF valves or the rear linkage.

When the indicator light is not lit, the auxiliary hydraulics is deactivated.



DANGER: To prevent accidental auxiliary hydraulics control movements, always turn off the auxiliary hydraulics during road driving and during work if you do not need it.

- **Restarting after engine stop**
 - If the engine has stalled, for example due to too heavy loading, turn the ignition key to the STOP position.
 - Restart the engine.Keep an eye on the indicator lights on the instrument panel.
- **Do not go under the tractor.**



1. Radar



WARNING: Do not go under the tractor until the ignition key has been turned to the STOP position. The tractor is equipped with radar which presents a hazard to your eyes.

- Front loader



WARNING: The programmable features of the joystick or other controls **MUST NOT** be used to operate a loader. In order to prevent involuntary loader motion, the loader joystick controller must be of a self-neutralising type. When the operator releases his grip on the joystick, the joystick must return to a non-operational neutral position - except for float detent position in the loader lower direction.

- Ensure that no one is in the working area when you are working with a front loader.
- Lower the front loader to the down position before leaving the tractor.
- Observe any special instructions issued by the loader manufacturer.



WARNING: The risk of overturn increases as the loader is raised. Be extra careful on slopes when operating the loader. Always carry the loader as low as practical for the conditions.

- Differential lock

Use the differential lock only when running on loose or slippery ground.

- Hydraulic/fuel pressure

Do not attempt to locate a leak in the hydraulic system or attempt to close a leak using any part of your body.



CAUTION: Oil/fuel under high pressure easily penetrates through clothing and skin and can cause serious injury.

1.2.4.2 Driving on public roads

When driving the tractor on public roads, pay special attention to the safety issues.

- Before driving

- Check that the tractor is safe for driving on the road.
- Adjust the rear view mirrors to give the correct viewing angle.
- Lock the check links with pins when transporting implements using three-point linkage.

- When driving the tractor on public roads



WARNING: Do not transport anything on the auxiliary hydraulic valves while driving on the road. The load, trailer link steering and such have to be locked (for example mechanically).

- Use the slow moving vehicle emblem on the rear end of the tractor if allowed by law.



1.2.4.3 Controlling the driving speed

Adjust the driving speed to suit the driving surface, visibility and load.

IMPORTANT: Do not alter the maximum driving speed of the tractor. The maximum reverse driving speed is 20 km/h.

- **Avoid any sudden increase or reduction (braking) in the driving speed.**
- **Avoid tight turns at high driving speed.**
- **When driving the tractor with an attached implement which centre of gravity is far from the tractor, the tractor may sway considerably during cornering.**
If care is not taken, the tractor may tip over or the load may be displaced.

1.2.4.4 Driving downhill

Be careful when driving downhill.

- **Do not drive with the power shuttle in neutral or the clutch pedal pressed down.**
- **Do not press the HiShift push button.**
- **Check the brakes often.**
- **Change to a lower gear before driving down a steep incline.**

IMPORTANT: Do not brake continuously as the brakes may overheat.

IMPORTANT: Do not let the engine overrun to avoid damage to the engine.

NOTE: If the speed is too high, a speed warning is shown on the instrument panel display and a buzzer goes off.

1.2.4.5 Operating with implements

Read and follow the instructions to avoid unnecessary risks when operating with implements and attachments.



WARNING: Before entering between the tractor and the implement, prevent the tractor from moving by applying the parking brake or blocking the wheels. There is risk of accidents if the tractor or implement should move.



WARNING: Implements attached to the linkage or the auxiliary hydraulic system must be lowered to the ground during maintenance.

1.2.4.6 Running with power take-off driven implements or machines

Read and follow the given instructions to use power take-off (PTO) driven implements and machines safely.



DANGER: Serious accidents may occur due to failure to use the prescribed safety devices.

- Use the prescribed safety devices and ensure that they are in good condition.
- Follow the directions given by the implement or machine manufacturer.

1.2.4.7 Using ballast weights

Use ballast weights according to the instructions when needed.



WARNING: When driving on the road, at least 20% of the gross weight of the tractor must be on the front axle. When lifting an implement, the weight on the front end of the tractor is reduced, and the steering ability of the tractor is impaired or sometimes lost.

IMPORTANT: When using salt liquid as ballast weight in the wheels, the manufacturer does not take the responsibility for the damages caused by salt.

- Use sufficient ballast weights.
- Mount ballast weights only at the points intended for this purpose.

1.2.4.8 Towing

Read and follow the given instructions to tow a trailer or an implement safely.



WARNING: When the tractor is towing a trailer, the brake pedals must be locked together. The brakes are not to be used individually for steering.



WARNING: When using a trailer, make sure that the hitch latch is locked.



WARNING: When using a trailer, always use the trailer brakes if required by law. The trailer brakes are recommended to be used in 50 km/h models also in those countries where it is not required by law.

- Couple a trailer to the drawbar using an approved trailer coupling.
- Always lower a loaded drawbar with the hydraulic lift.
- Check that trailer brakes are operating properly and observe any special instructions issued by the trailer manufacturer.
- Secure the trailer load properly.



WARNING: On tractors with trailers, the load must be properly secured. The load must not obstruct the operator's vision, or cover lights and reflectors. Loads which project more than 1 m behind the vehicle train must be suitably marked. During daytime, this should be done with a flag, and during darkness, with a red light and a reflector arrangement.

1.2.4.9 Ensuring personal safety of other people

Avoid hazards for other people when using the tractor.



DANGER: Do not allow children in the cab or near the tractor or an attached implement while the engine is running.



DANGER: If the tractor engine is running, do not leave anybody in the cab without supervision, as the push buttons are easily operated. Always apply the parking brake.

- Stop the engine and lower the implement to the ground when leaving the tractor.
- Do not let passengers ride in the tractor unless it is provided with a special seat.

Other personal transport, for example on front-mounted loaders, is not permissible.

- Do not let passengers ride on the platform inside the tractor.
- Never lend the tractor to a person who is not used to driving it.



DANGER: You may be held responsible for any resulting accidents.

- Do not allow children, untrained or unqualified persons to operate your tractor. They could injure themselves or someone else.

1.2.4.10 Fire hazards



WARNING: Open fire, smoking and sparks are prohibited near the fuel system and batteries. Especially when charging batteries, explosive gases are present.

1.2.4.11 Handling viton seals subjected to high temperatures

At temperatures over 300°C, the viton seals of the engine produce highly corrosive hydrofluoric acid.

- Do not touch viton seals subjected to abnormally high temperatures with your bare hands.

Use neoprene rubber or heavy duty gloves and safety glasses when decontaminating.

- Wash seals and the contaminated area with 10% calcium hydroxide or other alkali solution.
- Put all the removed material in sealed plastic bags and deliver them to the point stated by the authorities concerned.

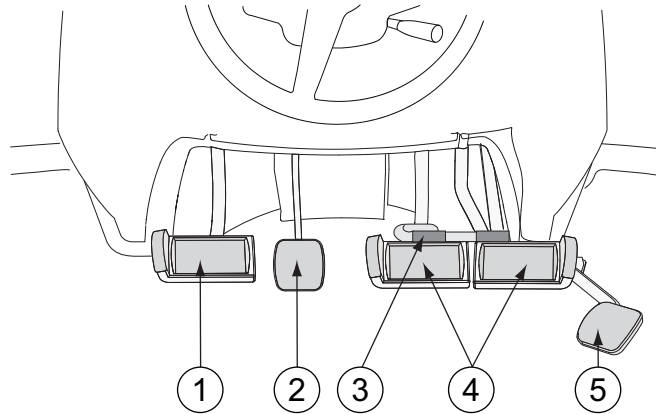


WARNING: Never burn viton seals.

2 Instruments and controls

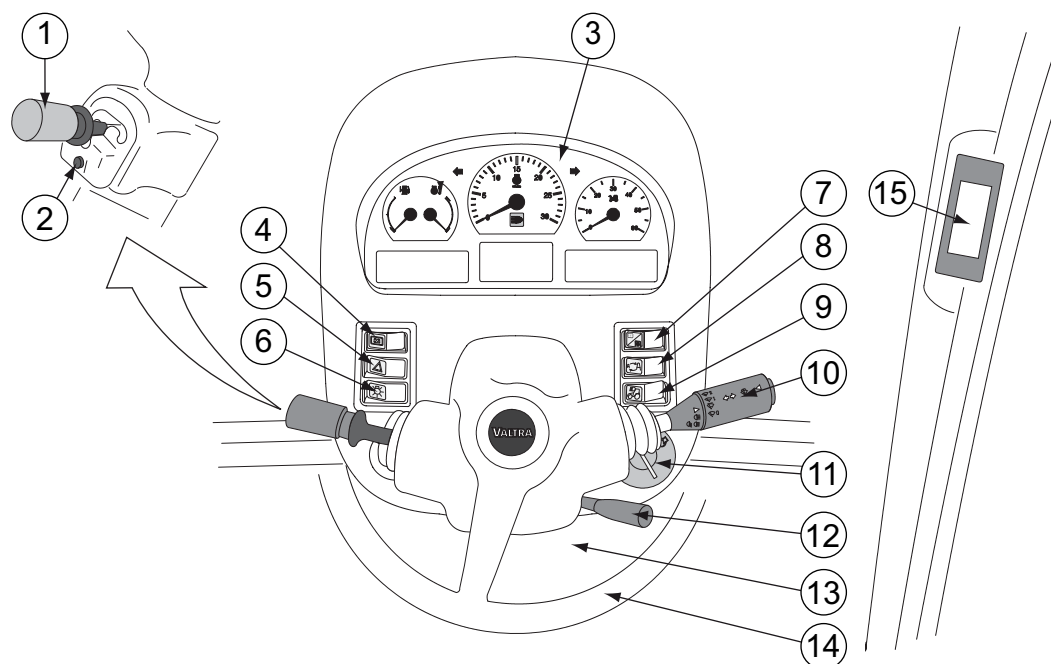
2.1 Pedals

The tractor pedals are positioned as follows:



1. Clutch pedal
2. Locking pedal for steering wheel inclination
3. Latch for brake pedals
4. Brake pedals
5. Accelerator pedal

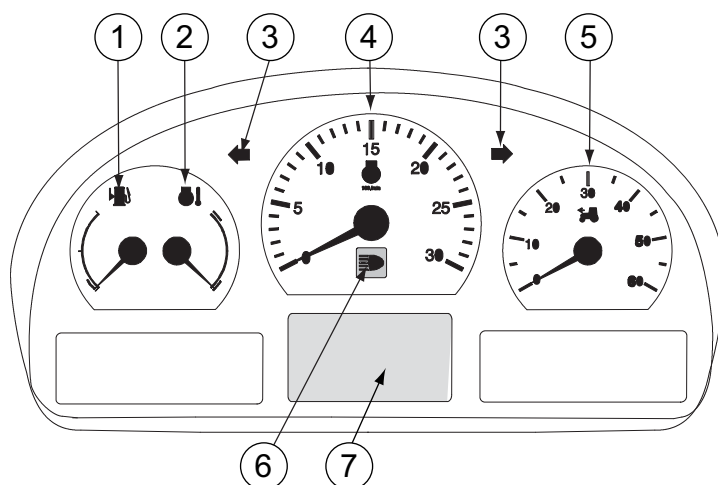
2.2 Dashboard



1. Power shuttle lever
2. Powershift preprogramming push button
3. Proline instrument panel
4. Main switch (extra equipment)
5. Hazard warning flasher switch
6. Light switch
7. Proline instrument panel display change-over switch
8. Proline instrument panel display setting switch
9. Upper headlights (extra equipment)
10. Multifunctional lever
11. Ignition switch
12. Lever for adjusting steering wheel position
13. Electric centre, lower part of the dashboard
14. Steering wheel
15. A-pillar display

2.2.1 Proline instrument panel

The operator receives information from the gauges, coolant thermometer, tachometer, speedometer and indicator lights. All this can be seen on the Proline instrument panel.



1. Fuel gauge
2. Coolant thermometer
3. Indicator lights for direction indicator
4. Tachometer
5. Speedometer
6. Indicator light for the main beam
7. Proline instrument panel display

The fuel gauge shows the amount of fuel left in the tank.

The coolant thermometer indicates the engine temperature. The zone between blue (cold) and red (hot) is the normal operating temperature.

2.2.2 Symbols on the Proline instrument panel display

The Proline instrument panel display have fixed views and views that can be selected by the operator.

Fixed view symbols

The fixed views are the two functions shown on the bottom row of the display:













Symbol	Function
	Operating hours (hhhh.h)
	Clock (hh:mm)

Selectable view symbols

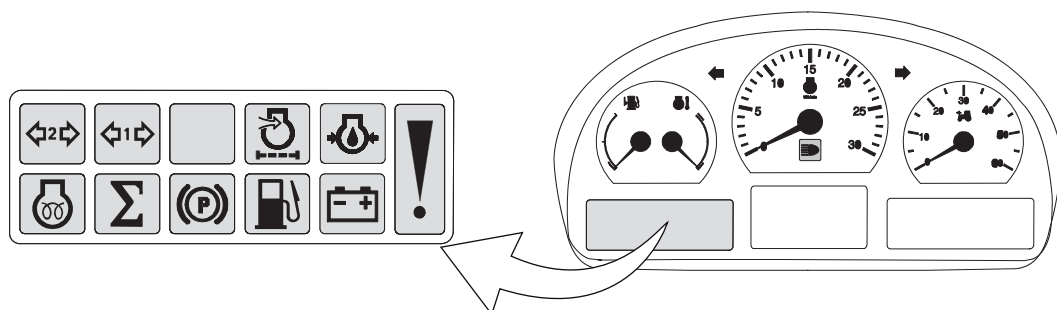
The selectable views are the functions shown on the top and centre row of the display:

Symbol	Function
	Working time (h:mm)
cruise RPM	Cruise control
km/h/mph	Driving speed (km/h/mph)
	Wheel slip (% , 0-100)
Table continued on next page	

2. Instruments and controls

Symbol	Function
	Rear power take-off (PTO) speed (rpm)
	Front power take-off (PTO) speed (rpm)
	Engine speed (rpm)
	Immediate fuel consumption (ha, acre)
	Average fuel consumption (ha, acre)
	Immediate fuel consumption
	Average fuel consumption
	Fuel consumption
AC_R	Lower link position (%; 0-100)
AC_F	Lifting link position of front linkage (%; 0-100)
Σ	Sigma power (%; 0-100)
	Gearbox temperature (C/F)
	Travel distance (m/km/miles)
	Square area (ha)
	Periodical maintenance

2.2.3 Indicator lights on the left side of the display














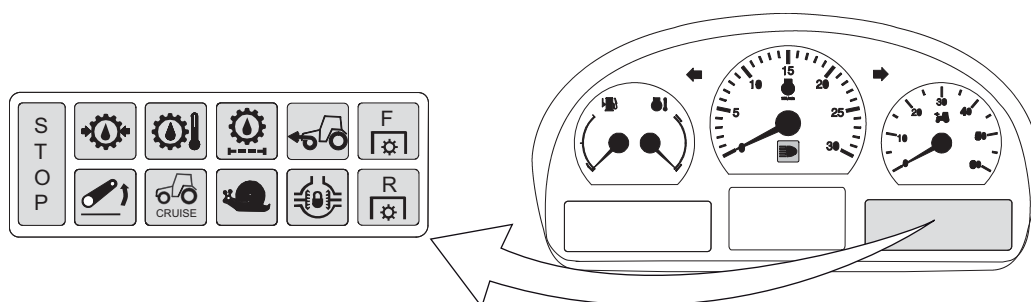
Indicator light	Indication
	Direction indicator light for second trailer (green). If one of the bulbs on the combination has failed, this light is not lit.
	Direction indicator light for first trailer (green). If one of the bulbs on the combination has failed, this light is not lit.
	Engine air cleaner clogging indicator light.
	Engine oil pressure light

Table continued on next page

Indicator light	Indication
	The exclamation mark is lit together with other indicator lights (yellow)
	Glow indicator light The light (yellow) is lit when the ignition key is in position  and the engine is cold.
	Σ -indicator light (on models T182 V and T202 V) The light is lit continuously (yellow) when the tractor is operating in the higher power range and using PTO.
	Parking brake indicator light The light (red) is lit to indicate that the power shuttle lever is in the parking brake position.
	Low fuel level indicator light The light is lit (yellow) and a buzzer sounds once to indicate that about 50 litres of fuel is left.
	Battery charging indicator light

2.2.4 Indicator lights on the right side of the display














Indicator light	Indication
	STOP indicator light (red)
	Gearbox oil pressure light
	Gearbox oil temperature light
	Pressure oil filter clogging indicator light
	Four-wheel drive (4WD) indicator light The light is lit (yellow) to indicate that 4WD is engaged.

Table continued on next page

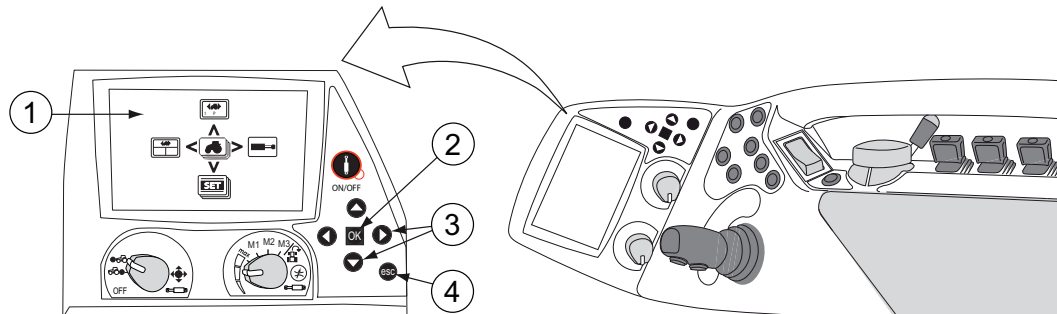
2. Instruments and controls

Indicator light	Indication
	Front power take-off (PTO) indicator light The light (yellow) is continuously on and indicates that the front PTO (extra equipment) is engaged.
	Rear linkage indicator light The light is on (yellow) to indicate that the lift/stop/lower switch is in lift position.
	Cruise control indicator light The light is on (yellow) to indicate that cruise control is engaged (constant driving speed/ constant engine speed chosen).
	Creeper speed range indicator light The light flashes (yellow) when the creeper gear is engaging.
	Differential lock indicator light The light is lit (yellow) to indicate that the differential lock is engaged.
	Rear PTO indicator light The light blinks (yellow) when the rear PTO has been activated and is ready to operate. The light is on continuously when the rear PTO is engaged.

2.3 Controls on the right-hand side

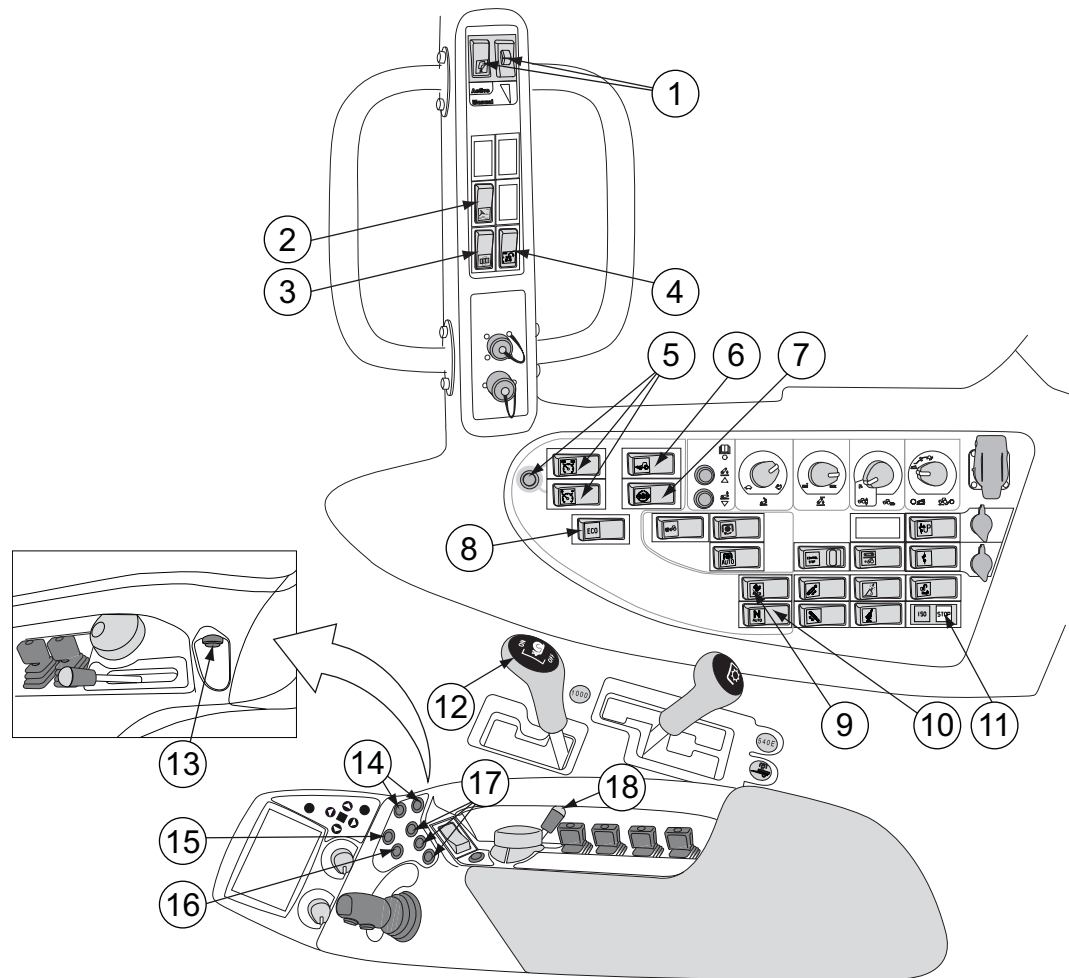
2.3.1 Tractor terminal

The tractor terminal contains the following components.



1. Tractor terminal display
2. OK button
3. Arrow buttons
4. ESC button

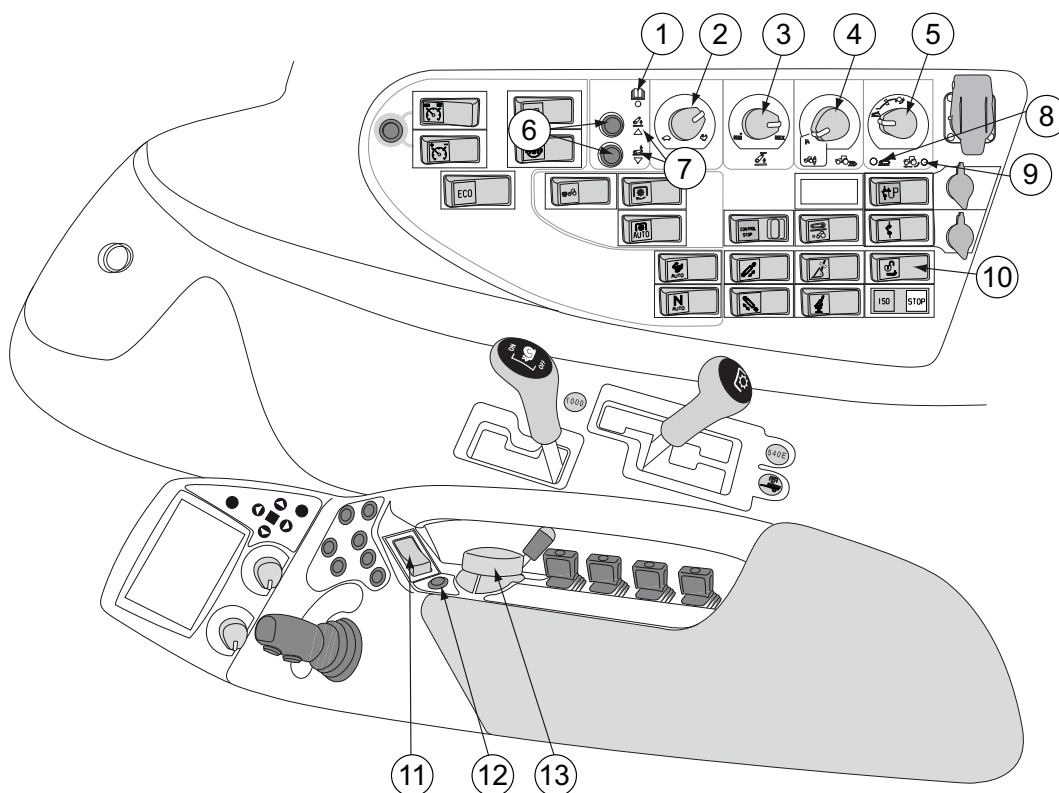
2.3.2 Driving controls



1. AutoComfort cabin suspension system (extra equipment)
2. Activation switch for Auto-Guide (extra equipment)
3. Change switch for A-pillar display views
4. Activation/recording switch for U-Pilot
5. Switches for cruise control
6. Switch for four-wheel drive (4WD)
7. Switch for differential lock
8. Engine speed range selector (ECO), only on model T162e V
9. Switch for shifting automatics
10. Switch for automatic traction control
11. STOP indicator light (red)
12. Lever for creeper speed range
13. HiShift push button
14. Push buttons for Powershift operation
15. Engage/pause button for U-pilot
16. Stop button for U-pilot
17. Push buttons for cruise control
18. Hand throttle

2.3.3 Linkage

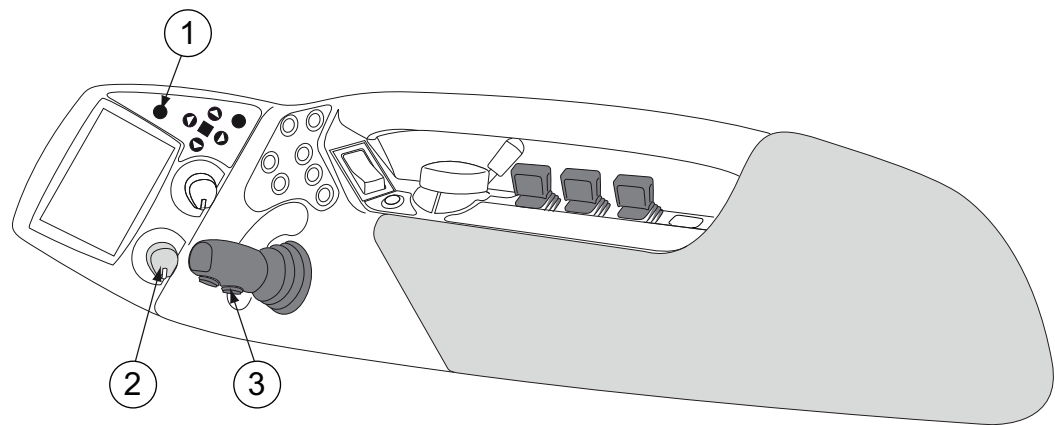
Rear linkage



1. Diagnose light
2. Lowering speed selector
3. Lifting height selector
4. Draft control selector
5. Drive balance control, including slip control system
6. Lift/lower push buttons
7. Lift/lower indicator lights
8. Drive balance control light
9. Slip control light
10. Switch for trailer hitch latch hydraulic releasing (extra equipment)
11. Lift/stop/lower switch
12. Passing switch for position control knob
13. Position control knob

Front linkage

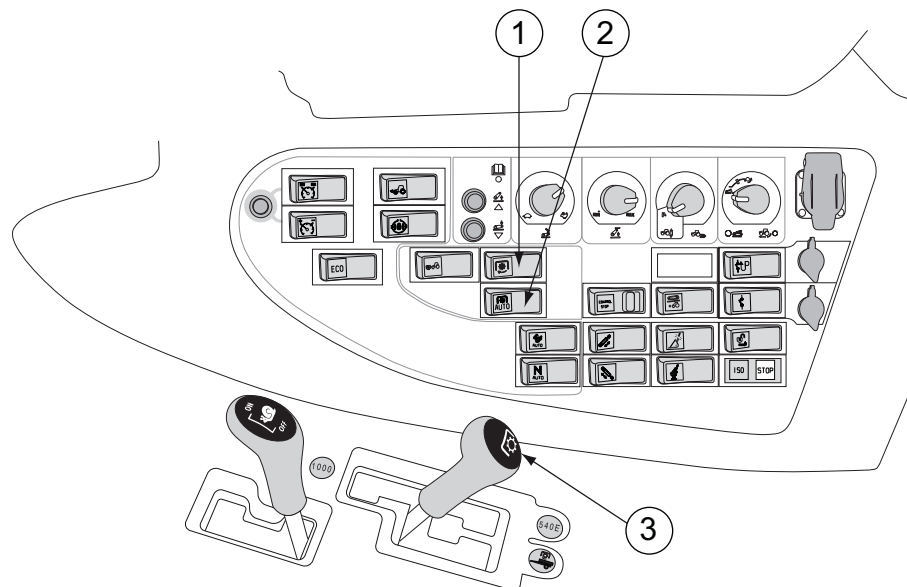
Front linkage is extra equipment.



1. Auxiliary hydraulics on/off push button
2. Joystick functions selector
3. Joystick (controls the front linkage when the selector switch is turned to front position)

2.3.4 Power take-off

Rear power take-off

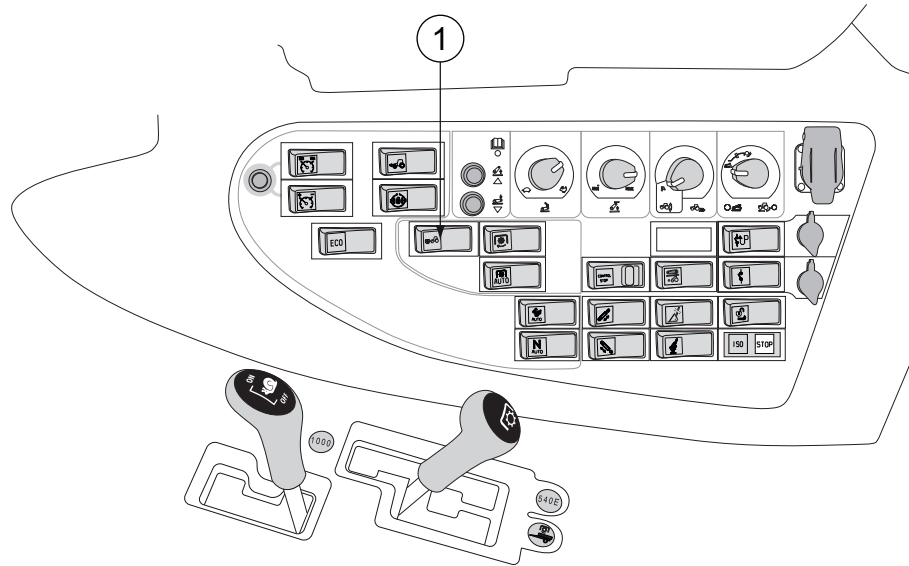


1. Switch for rear PTO
The rear PTO push buttons on the mudguards are extra equipment.
2. Switch for rear PTO automatics
3. Speed control lever for the rear PTO

Front power take-off

Front power take-off (PTO) is extra equipment.

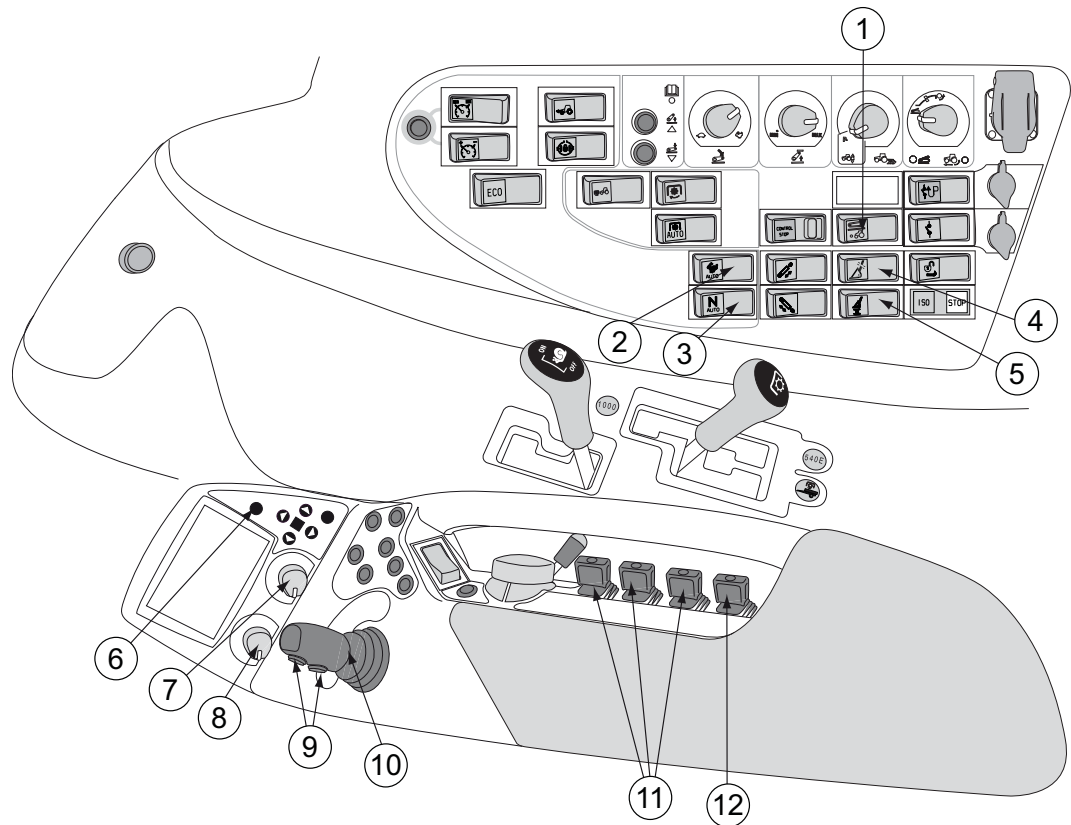
2. Instruments and controls



1. Switch for front PTO

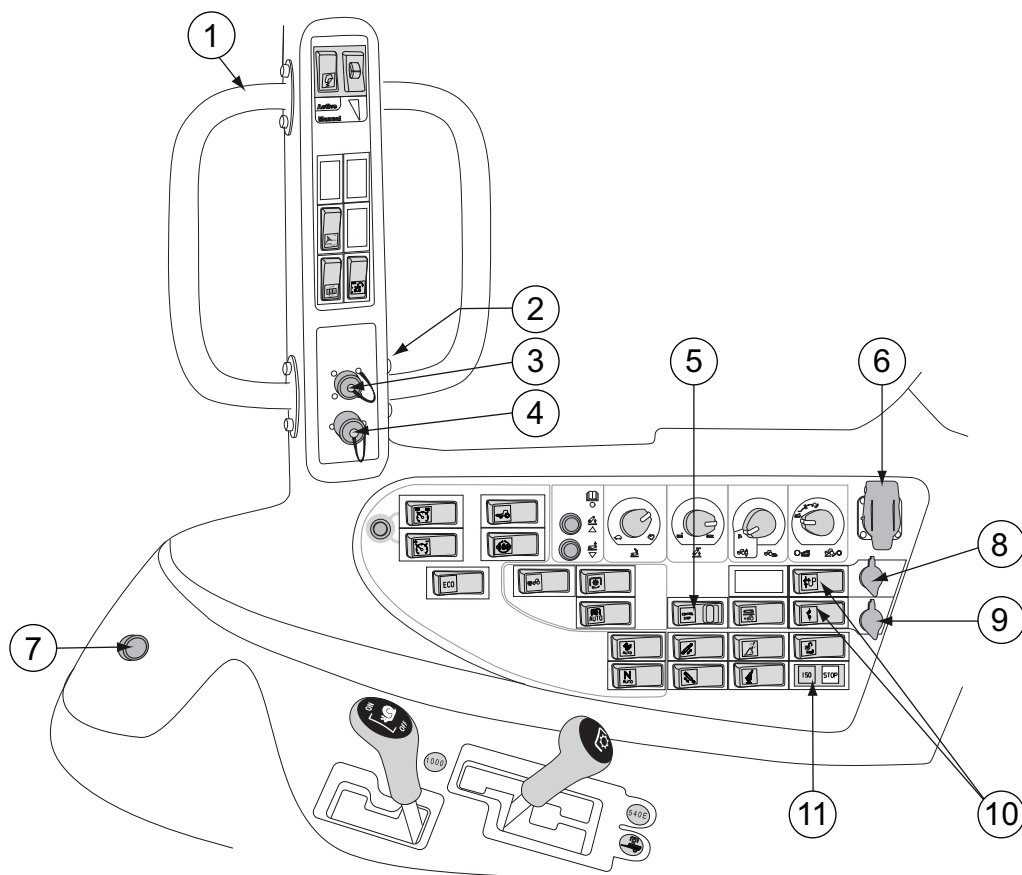
2.3.5 Auxiliary hydraulics

The following instruments and controls are used to control the auxiliary hydraulics.



1. Change-over switch for front linkage/front loader (extra equipment)
2. Switch for rear on/off valve 1
3. Switch for rear on/off valve 2 (extra equipment)
4. Release switch for equipment locking (extra equipment)
5. Switch for Softdrive (extra equipment)
6. Auxiliary hydraulics on/off push button
7. Selector for the predefined factory/user settings
8. Joystick functions selector
9. Joystick push buttons
10. Joystick
11. Control levers for the rear valves 3, 4 and 5 (extra equipment)
12. Control lever for the third front valve (extra equipment)

2.3.6 Other controls

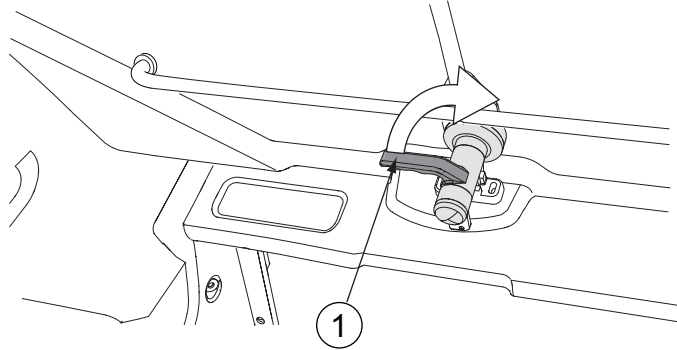


1. Mounting brackets (extra equipment)
2. ISOBUS bus extension connectors (behind the cover, extra equipment)
3. ISOBUS terminal connection (extra equipment)
4. Implement signal connection (extra equipment)
5. Control stop switch (extra equipment)
6. 3-pin power socket
7. Lighter/power outlet
8. 2-pin power socket (can be controlled by U-Pilot)
9. 2-pin power socket
10. Power switches for 2-pin power sockets
11. Indicator light for implement/ISOBUS signal connection

2.4 Controls on the rear side

2.4.1 Rear window opening device

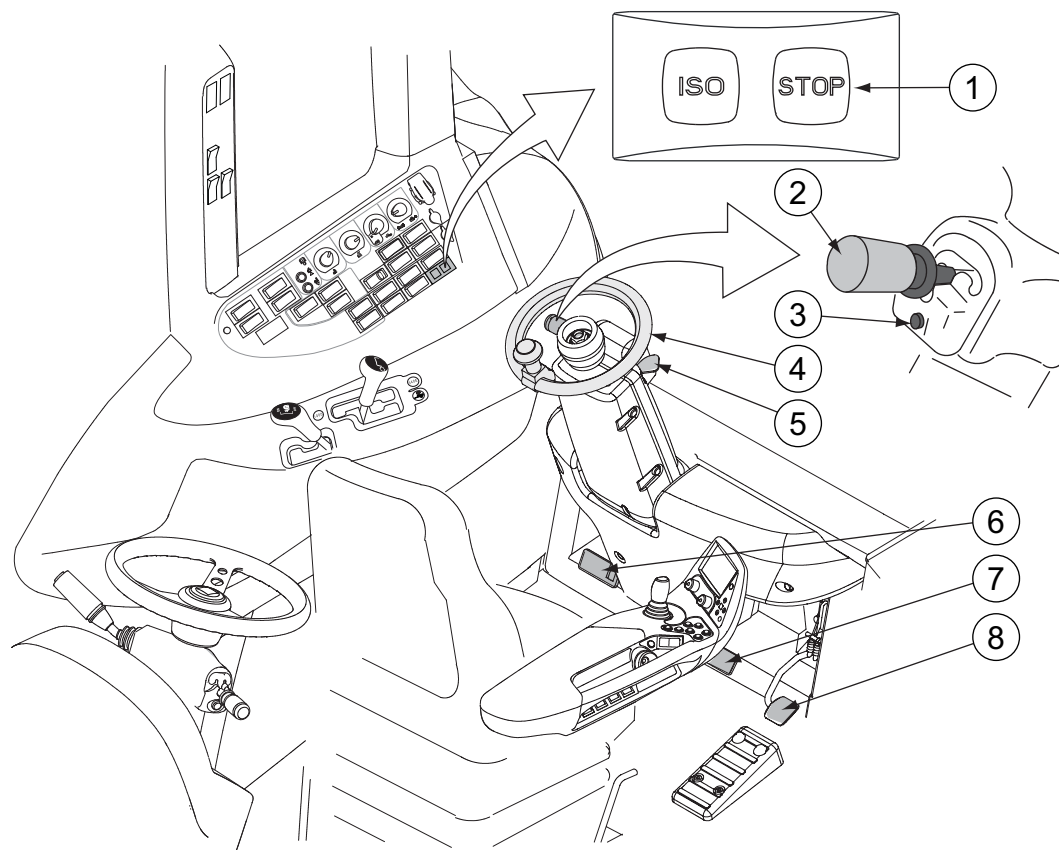
The following figure shows the rear window opening device.



1. Rear window opening device

2.4.2 Reverse drive system controls

The reverse drive system is extra equipment.



1. STOP indicator light (red)
2. Power shuttle lever
3. Powershift preprogramming push button
4. Steering wheel
5. Lever for adjusting steering wheel inclination
6. Clutch pedal
7. Brake pedal
8. Accelerator pedal