Service Manual

Telehandler

2506



Machine model	407-02
From serial no.	407 02 0001
Edition	2.0
Order number	1000262363
Language	[en]

kramerALLRAD

MidWestTech | Wacker Neuson Kramer 2506 Telehandler Service Manual | Publication 100... Order the manual at mid-west-tech.com >

Inhaltverzeichnis

1 Cab overview, use, operation

1.1 Machine outside view ... 1-2
1.2 Inside of cab (overview) ... 1-3
1.3 Instrument panel, multifunctional lever, switch consoles (overview) ... 1-4
1.4 Fields of application and using a machine with an attachment ... 1-5
1.5 Legal regulations regarding machine operation ... 1-6
1.6 Type labels and component numbers ... 1-8
1.7 Key-based drive interlock (option) ... 1-11
1.8 Drive interlock with code input (option) ... 1-13
1.9 Battery master switch (option) ... 1-16
1.10 Avoiding running the engine under low-load conditions ... 1-17
1.11 Stopping the diesel engine ... 1-17
1.12 Jump-starting the diesel engine (external battery) ... 1-18
1.13 Pressure relief on the quickhitch couplers ... 1-19
1.14 Overview of steering modes (option) ... 1-20
1.15 Steering synchronisation (wheels front/rear axles) ... 1-21
1.16 Low-speed control (option) ... 1-23
1.17 Rear hydraulic additional control circuit (option) ... 1-24
1.18 Hydraulic connection for tipping trailer (option) ... 1-26
1.19 Autohitch trailer coupling (option) ... 1-27
1.20 Automatic trailer coupling (option) ... 1-29
1.21 Hydraulic trailer brake connection (option) ... 1-31
1.22 Fitting attachments from other manufacturers (option) ... 1-32
1.23 Towing the machine ... 1-35

2 Specifications

2.1 Model and trade names (overview) ... 2-2
2.2 Frame ... 2-2
2.3 Diesel engine ... 2-2
2.4 Drive ... 2-3
2.5 Axles ... 2-4
2.6 Service and parking brake (disc brake) ... 2-5
2.7 Steering system ... 2-5
2.8 Work hydraulics ... 2-6
2.9 Electrical system ... 2-8
2.10 Tyres ... 2-11
2.11 Machine weight, axle loads ... 2-11
2.12 Trailer couplings: trailer weight/drawbar load ... 2-12
2.13 Sound levels, noise ... 2-12
2.14 Vibrations, oscillation and acceleration values ... 2-13
2.15 Coolant compound table ... 2-13
2.16 Tightening torques ... 2-14
2.17 Standard bucket payloads ... 2-14
2.18 Pallet forks payloads ... 2-15
2.19 Dimensions with standard bucket ... 2-17
2.20 Dimensions with pallet forks ... 2-18

MidWestTech | Wacker Neuson Kramer 2506 Telehandler Service Manual | Publicatio... Order the manual at mid-west-tech.com >

3 Maintenance and service work

3.1 Explanation of symbols on the maintenance label ... 3-2
3.2 Maintenance label ... 3-3
3.3 Fluids and lubricants ... 3-4
3.4 Maintenance plan (overview) ... 3-5
3.5 Important notice regarding maintenance work ... 3-9
3.6 Safety strut for telescopic boom ... 3-10
3.7 Fuel system ... 3-11
3.8 Refuelling ... 3-12
3.9 Checking/cleaning the additional fuel filter (water separator, option) ... 3-12
3.10 Bleeding the fuel system ... 3-13
3.11 Replacing the fuel filter ... 3-14
3.12 Diesel engine lubrication system ... 3-15
3.13 Filling up engine oil ... 3-16
3.14 Change the engine oil ... 3-17
3.15 Replacing the engine oil filter cartridge ... 3-18
3.16 Diesel engine and hydraulics cooling system ... 3-19
3.17 Temperature gauge: diesel engine coolant ... 3-20
3.18 Filling up coolant ... 3-21
3.19 Cleaning the radiator fins ... 3-22
3.20 Draining coolant ... 3-23
3.21 Air filter ... 3-24
3.22 Replacing the filter cartridge ... 3-25
3.23 V-belts ... 3-26
3.24 Hydraulic system ... 3-27
3.25 Monitoring the hydraulic oil and the return filter indicator lights ... 3-28
3.26 Checking the hydraulic oil level once a day ... 3-29
3.27 Filling up hydraulic oil ... 3-29
3.28 Changing the filter insert ... 3-30
3.29 Replacing hydraulic oil ... 3-31
3.30 Important notices on the use of biodegradable oil ... 3-32
3.31 Checking hydraulic pressure lines ... 3-33
3.32 Oil levels: rear axle transfer gearbox ... 3-34
3.33 Oil levels: front and rear axle differentials ... 3-35
3.34 Oil levels: front and rear axle planetary drives ... 3-36
3.35 Lubrication work ... 3-37
3.36 Lubrication points on the telescopic boom (overview) ... 3-38
3.37 Lubricating with the central lubrication system (option) ... 3-40
3.38 Setting the lubrication and break times ... 3-41
3.39 Central lubrication system diagram ... 3-42
3.40 Installing the high-pressure hoses on the central lubrication system ... 3-43
3.41 Instructions for troubleshooting in case of central lubrication system blocking ... 3-44
3.42 Repairing a blocking distributor of the central lubrication system ... 3-45
3.43 Troubleshooting table for central lubrication system ... 3-46
3.44 Maintenance of the brake system ... 3-47
3.45 Tyres ... 3-48
3.46 Changing wheels ... 3-49
3.47 Heating/cab ventilation ... 3-50
3.48 Air conditioning (option): maintenance ... 3-51
3.49 Functional and visual checks of the air conditioning ... 3-52
3.50 Cleaning the heat exchanger (condenser) ... 3-53
3.51 Maintenance of the electrical system ... 3-54
3.52 Maintenance of the automatic trailer coupling (option) ... 3-58
3.53 General maintenance and cleaning work ... 3-59
3.54 Maintenance of attachments and of the work equipment ... 3-61

MidWestTech | Wacker Neuson Kramer 2506 Telehandler Service Manual | Publicatio... Order the manual at mid-west-tech.com >

4 Engine

4.1 Diesel engine diagrams 4-2
4.2 Diagnosis/fuel preheater (electrical diagrams) 4-4
4.3 Manual throttle diagrams 4-6
4.4 Engine designation 4-7
4.5 Fuel specification 4-7
4.6 Coolant specification 4-7
4.7 Diesel engine TD 2009 L04 (overview) 4-8
4.8 Electric components on engine (overview) 4-9
4.9 Lube oil circuit 4-10
4.10 Cooling 4-11
4.11 Adjusting the cable pull for speed regulation 4-12
4.12 Fuel system 4-13
4.13 Replacing the cylinder head gasket 4-14
4.14 Removing/installing the fuel injection pump 4-17
4.15 Mounting the fuel injection pump 4-19
4.16 Removing/installing the fuel injectors 4-20
4.17 Sealing the coolant pump 4-21
4.18 Removing/installing the thermostat 4-21
4.19 Checking the thermostat 4-22
4.20 Assembly instructions: replacing the Visco clutch 4-23
4.21 Tightening torque table 4-26
4.22 Diesel engine malfunctions 4-28

MidWestTech | Wacker Neuson Kramer 2506 Telehandler Service Manual | Publicatio... Order the manual at mid-west-tech.com >

4.4 Engine designation

Engine designation	Type
TD 2009 L04 (50 kW)	407-02 (2506)

4.5 Fuel specification

Fuel specification	Country
No. 2-D, no. 1-D, ASTM D975-94	USA
DIN EN 590	European Union
ISO 8217 DMX	International
BS 2869-A1 or A2	United Kingdom
GB252	China

4.6 Coolant specification

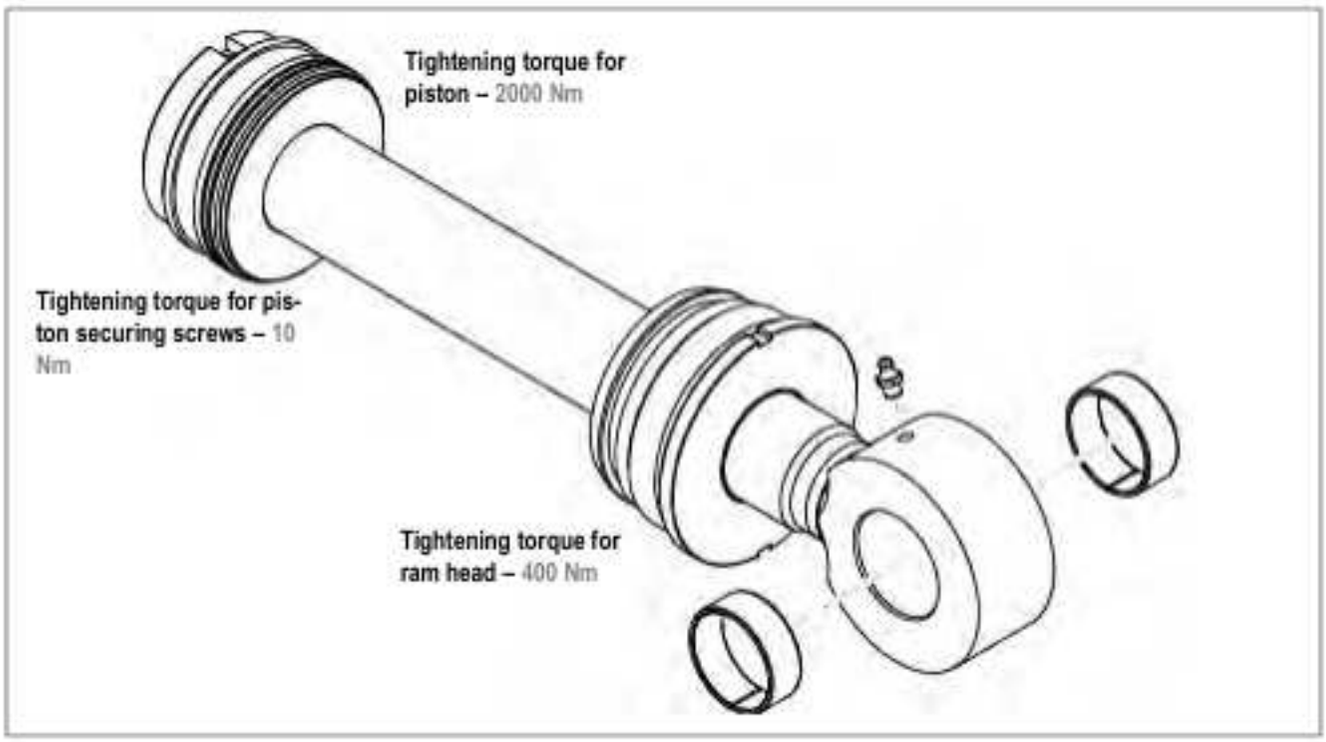
Specification	Country
ASTM D6210, D4985	USA
SAE J814C, J1941, J1034 or J2036	International

MidWestTech | Wacker Neuson Kramer 2506 Telehandler Service Manual | Publicatio... Order the manual at mid-west-tech.com >

Autohitch/additional control circuit/tipping trailer
(hydraulic diagram)

Order the manual at mid-west-tech.com >

9.52 Tilt ram (sealing work)



Disassembly/assembly

- *Unscrew ram head with special key*
- *Pull out piston rod*
- *Remove threaded pin on piston*
- *Unscrew piston from piston rod*
- *Replace complete sealing kit*
  - ➥ Sealing kit includes all seals, sleeves and threaded pins
  - ➥ Calibrate the piston seal when replacing it
- *Assembly in the reverse order*
  - ➥ Bear in mind the tightening torques

Caution!

Special tools required for sealing the ram

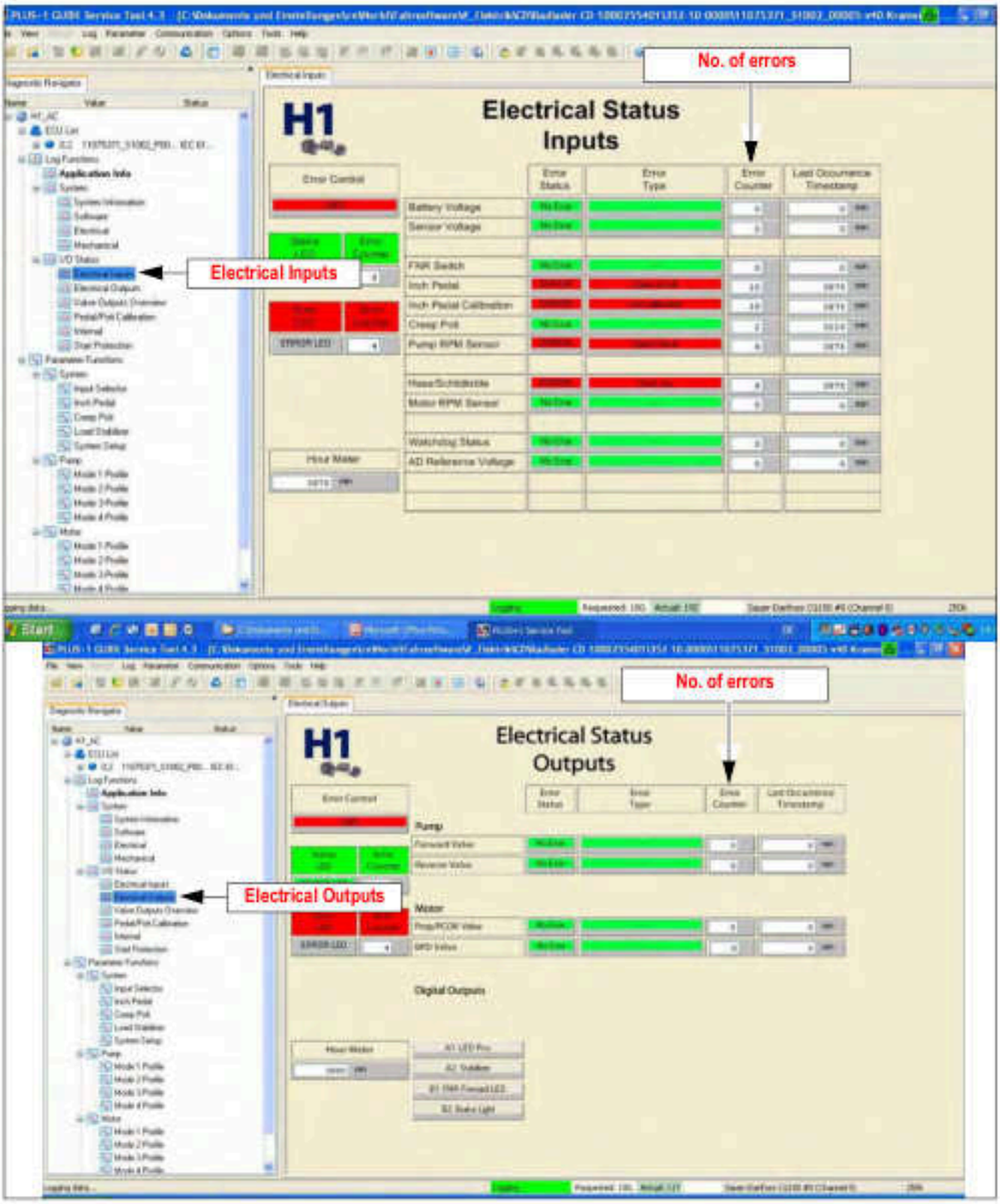
MidWestTech | Wacker Neuson Kramer 2506 Telehandler Service Manual | Publicatio... Order the manual at mid-west-tech.com >

5.7 Reading out/deleting the error history

☞ *Connect the laptop to the machine and open the Service Tool, refer to the instructions for entering settings with the laptop*

☞ *Click on* **Electrical Inputs** *or* **Electrical Outputs** *in the navigation bar*

➥ The error screen "Electrical Status Inputs/Electrical Outputs" is displayed



MidWestTech | Wacker Neuson Kramer 2506 Telehandler Service Manual | Publicatio... Order the manual at mid-west-tech.com >

5.26 Checking/adjusting starting speed

Check/adjust the starting speed as follows:

☞ *Switch to turtle (mode 2) and select the forward driving direction*

☞ *Increase the engine speed slowly until the machine starts to move off*

➥Note the diesel engine speed (starting speed)

☞ *Connect a laptop to the machine and open the* Servicetool

➥Refer to the instructions for entering settings with the laptop

☞ *Click on* **Mode 2 Profile** *in the navigation bar*

☞ *In the forward/reverse tables, positions 1 and 2, modify* **mA**

➥Increase = machine moves off earlier

➥Decrease = machine moves off later

For example: machine moves off too early in *forward* direction

☞ *For example, in position 1 (green) highlight the electric current value for* **Forward** *and lower it by 20 mA*

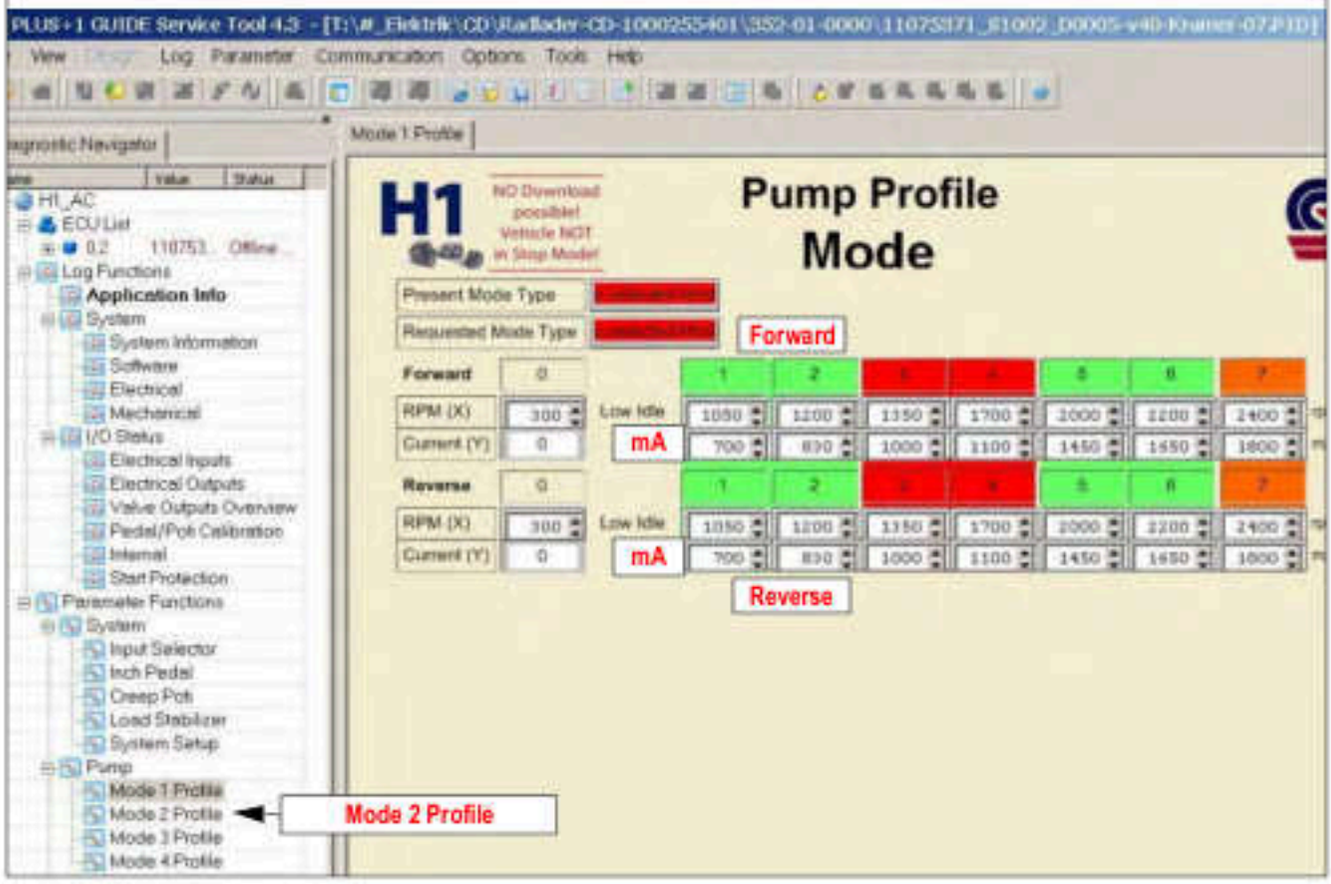
☞ *For example, in position 2 (green) highlight the electric current value for* **Forward** *and lower it by 20 mA*

☞ *Press* **ENTER** *and save with* **F4**

➥Lower the electric current value until the required result is reached

➥**Transfer the values to mode 1 of the pump**

The starting engine speed is adjusted with the electric current value (mA) in positions 1 and 2.
The higher the electric current value (mA), the earlier the machine moves off.
The lower the current, the later the machine moves off.
The electric current value should be changed in steps of 20 mA.



MidWestTech | Wacker Neuson Kramer 2506 Telehandler Service Manual | Publicatio... Order the manual at mid-west-tech.com >

10.9 Cab wiring harness legend

	From	To	Colour
1	XP06 (2) 14-pole connector (board connection)	X003.2 1-pole connector (working lights)	VT/YE
2	XP06 (2) 14-pole connector (board connection)	E007 rear right working light	VT/YE
3	E007 rear right working light	Earthing point I	BK
4	XP06 (14) 14-pole connector (board connection)	Connecting point 1	VT/WH
5	Connecting point 1	X003.1 1-pole connector (working lights)	VT/WH
6	Connecting point 1	E009 front left working light	VT/WH
7	Connecting point 1	XR03 (1) 15-pole connector (cab/frame)	VT/WH
8	X003.0	E008 rear left working light	VT/YE
9	E008 rear left working light	Earthing point I	BK
10	E009 front left working light	Earthing point I	BK
11	XP06 (8) 14-pole connector (board connection)	E014 interior light	GY/GN
12	E014 interior light	Earthing point I	BK
13	XP04 (1) 18-pole connector (board connection)	XA01 (15) 15-pole connector (indicating instrument)	WH/BK
14	XP04 (7) 18-pole connector (board connection)	XA01 (2) 15-pole connector (indicating instrument)	GY/BK
15	XA01 (5) 15-pole connector (indicating instrument)	Earthing point I	BK
16	XP05 (6) 22-pole connector (board connection)	XL02 (5) 6-pole connector (steering-column control lever)	YE
17	XP05 (8) 22-pole connector (board connection)	XL02 (6) 6-pole connector (steering-column control lever)	WH
18	XP05 (13) 22-pole connector (board connection)	XL01 (8) 8-pole connector (steering-column control lever)	GY/GN
19	XP05 (19) 22-pole connector (board connection)	XL02 (4) 6-pole connector (steering-column control lever)	YE/WH
20	XP02 (14) 14-pole connector (board connection)	S019 (1) hazard warning switch (terminal 15)	RD/YE
21	XP02 (5) 14-pole connector (board connection)	S019 (4) hazard warning switch (terminal 49)	BK/RD/YE
22	XP02 (3) 14-pole connector (board connection)	S019 (5) hazard warning switch (terminal 49a)	BK/WH/GN
23	S019 (7) hazard warning switch (terminal R)	XL02 (2) 6-pole connector (steering-column control lever)	BK/GN
24	S019 (7) hazard warning switch (terminal R)	XP05 (3) 22-pole connector (board connection)	BK/GN
25	S019 (6) hazard warning switch (terminal L)	XL02 (1) 6-pole connector (steering-column control lever)	BK/WH
26	S019 (6) hazard warning switch (terminal L)	XP05 (2) 22-pole connector (board connection)	BK/WH
27	S019 (3) hazard warning switch (terminal 30)	XP05 (17) 22-pole connector (board connection)	RD/BK
28	XP02 (1) 14-pole connector (board connection)	XL02 (3) 6-pole connector (steering-column control lever)	WH/RD
29	XP02 (7) 14-pole connector (board connection)	XA01 (11) 15-pole connector (indicating instrument)	WH/GN
30	XP04 (18) 18-pole connector (board connection)	XA01 (3) 15-pole connector (indicating instrument)	BK/BU
31	XP05 (11) 22-pole connector (board connection)	XL01 (5) 8-pole connector (steering-column control lever)	BN/YE
32	X022 (6) 7-pole connector (work hydraulics)	XR03 (13) 17-pole connector (cab/frame)	VT/BU
33	F017 (A) fuse	XR01 (1) 21-pole connector (cab/engine)	RD
34	XP02 (14) 14-pole connector (board connection)	K030 (30) brake lights switching relay	RD/YE
35	K030 (30) brake lights switching relay	K030 (86) brake lights switching relay	RD/YE
36	K030 (85) brake lights switching relay	XR01 (2) 21-pole connector (cab/engine)	RD/BN
37	K030 (87) brake lights switching relay	XR03 (3) 17-pole connector (cab/frame)	RD
38	XR03 (3) 17-pole connector (cab/frame)	X025 (1) 2-pole connector (brake lights)	RD
39	XP02 (10) 14-pole connector (board connection)	S011 (1) parking brake switch	BN
40	S011 (2) parking brake switch	Earth connection	BK
41	XP04 (10) 18-pole connector (board connection)	XA01 (9) 15-pole connector (indicating instrument)	BN
42	XP05 (10) 22-pole connector (board connection)	XA01 (1) 15-pole connector (indicating instrument)	RD/BK
43	XR01 (3) 21-pole connector (cab/engine)	Connecting point 2	WH
44	Connecting point 2	X001 (6) 8-pole diagnosis connector	WH
45	Connecting point 2	R017 BUS terminating resistance	WH
46	XR01 (4) 21-pole connector (cab/engine)	Connecting point 3	BK
47	Connecting point 3	X001 (5) 8-pole diagnosis connector	BK
48	Connecting point 3	R017 BUS terminating resistance	BK
49	XR01 (5) 21-pole connector (cab/engine)	Loosely at X001	---
50	F019 (C) fuse	X001 (7) 8-pole diagnosis connector	RD/WH
51	X001 (8) 8-pole diagnosis connector	Earthing point I	BK
52	XR07 1-pole (High-Power connection)	Connecting point 4	RD
53	Connecting point 4	K002 (30) high current relay (power supply)	RD
54	Connecting point 4	K076 (30) high current relay (power supply)	RD
55	Connecting point 4	F024 (8) fuse	RD
56	K002 (87) high current relay (power supply)	F017 (1) fuse	BU
57	K002 (85) high current relay (power supply)	Earthing point I	BK
58	XP04 (11) 18-pole connector (board connection)	K002 (86) high current relay (power supply)	YE/WH
59	K002 (86) high current relay (power supply)	K076 (86) high current relay (power supply)	YE/WH
60	K076 (87) high current relay (power supply)	F021 (5) fuse	BU
61	K076 (85) high current relay (power supply)	Earthing point I	BK
62	XP04 (9) 18-pole connector (board connection)	XP04 (2) 18-pole connector (board connection)	YE/WH
63	XP04 (2) 18-pole connector (board connection)	S001 (5) preheating start switch (terminal 15)	YE/WH
64	XP04 (16) 18-pole connector (board connection)	S001 (7) preheating start switch	BU/BK
65	XP04 (6) 18-pole connector (board connection)	S001 (2) preheating start switch	RD/WH
66	XP04 (5) 18-pole connector (board connection)	XA01 (8) 15-pole connector (indicating instrument)	BU
67	XP04 (12) 18-pole connector (board connection)	XA01 (4) 15-pole connector (indicating instrument)	VT/BU
68	XP04 (15) 18-pole connector (board connection)	XA01 (7) 15-pole connector (indicating instrument)	BU/WH
69	XP04 (15) 18-pole connector (board connection)	B018 (31 -) buzzer (engine temperature)	BU/WH
70	XP05 (10) 22-pole connector (board connection)	B018 (15 +) buzzer (engine temperature)	RD/BK
71	F020 (D) fuse	XR02 (3) 13-pole connector (cab/engine)	BK/WH
72	XR02 (2) 13-pole connector (cab/engine)	XA01 (13) 15-pole connector (indicating instrument)	YE/BU
73	------	------	---
74	------	------	---

MidWestTech | Wacker Neuson Kramer 2506 Telehandler Service Manual | Publication 1000262363

Order the manual at mid-west-tech.com >