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Minifix-K1Plus – Series (July 2008-today)

Troubleshooting: K1Plus with square circuit board

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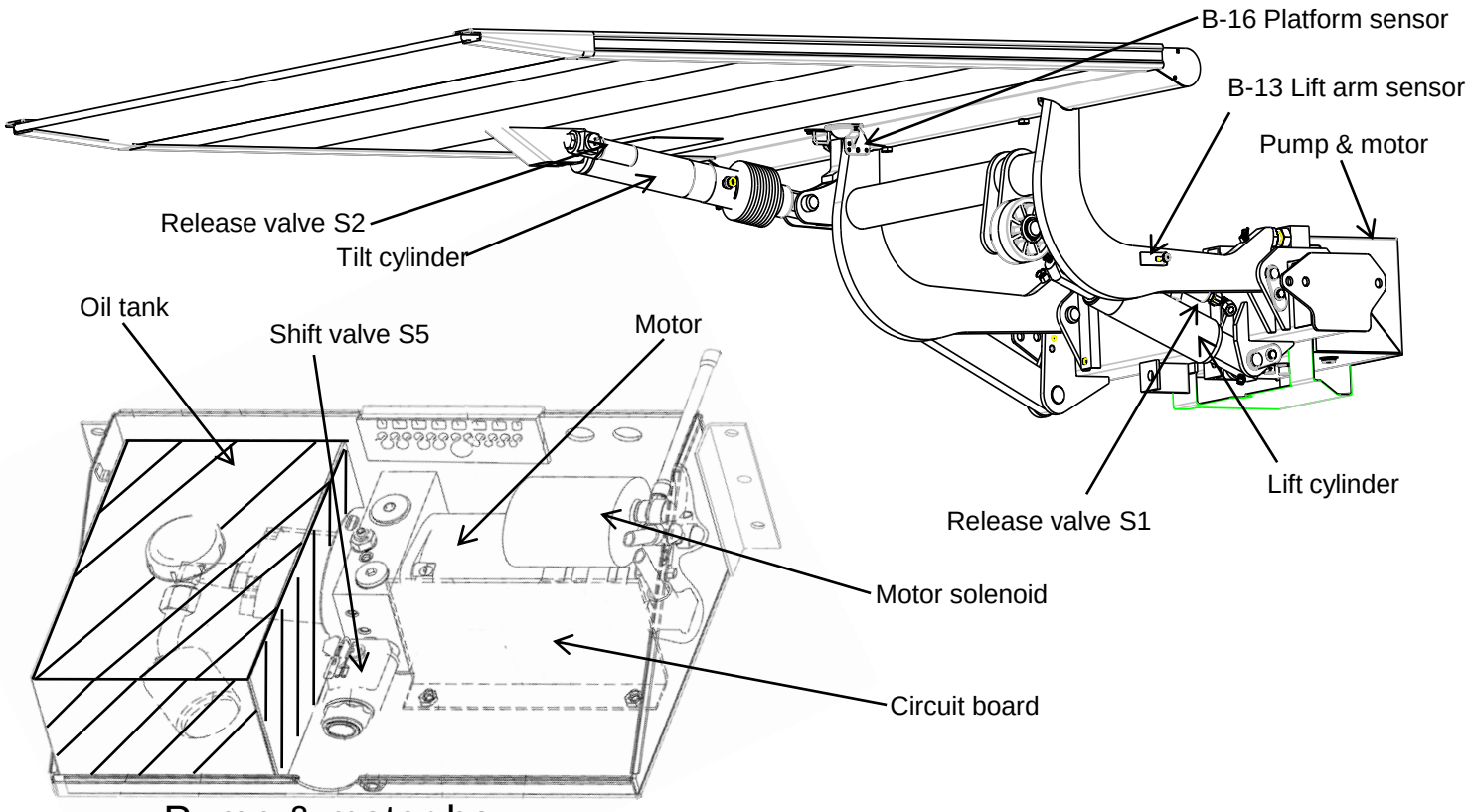
Tools needed:

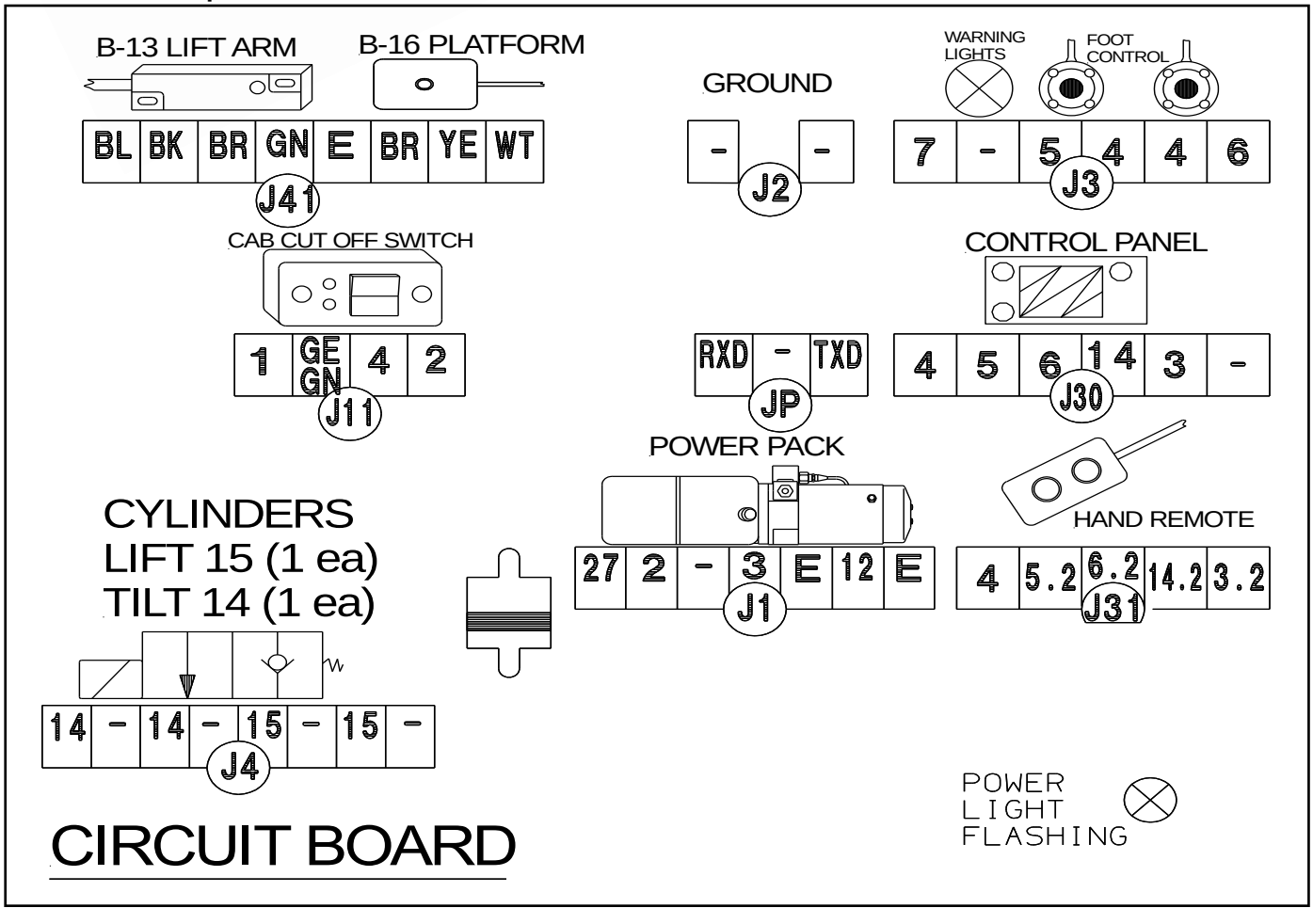
1.) Voltmeter
2.) Test light
3.) 8” jumper cable (16ga. or smaller)
4.) Screw driver flat head or 13mm (1/2”) wrench

*****MAKE SURE YOUR BATTERIES ARE FULLY CHARGED AND IN GOOD CONDITION*****

Overview of liftgate and schematic of circuit board



Pump & motor box



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1) GATE DOES NOT TILT OPEN UP

Minifix K1Plus Series

1.1) Check Battery Power

a) Check resettable Circuit Breaker on top of battery → Push Reset Tab back in, if popped out

b) Check fuse on top of battery (qty 1) and
at circuit board (qty 2) inside pump and motor box at mount frame

c) Start van and run engine in fast idle for charging the battery
→ if liftgate starts working, recharge battery→ test battery and replace if necessary

d) Check power on board between J-11 #4 and J-2 (-) with voltmeter by pushing the up-function knob and hold for 10 sec with gate in stored position (DEADHEAD GATE) (above 10 Volt is necessary for proper use of liftgate) → less than 10 V; Jump #2 to #4 on J-11→ voltage jumps more than 1volt, call Interlift for assistance

******DO NOT LEAVE JUMPER ON J-11 – GATE MUST BE SHUT OFF WHEN NOT IN USE******

1.2) Check for short in optional equipment

a) Unplug J-3(foot control), J-41(B-13, B16, **jump J-11 #4 to J-41 #GN**) and J-31(Hand control)
Keep the 3 connectors unplugged (gate will operate without plugs connected, loose auto tilt)

b) Unplug J-1 (Main power), wait 10 seconds and plug J-1 back to the board (Reset the board)

c) Plug each connector back, one at a time and check functions of gate after plugging in each

1.3) Check voltage supply to release valve on tilt cylinder

a) Check voltage at J4 #14 and Ground J-2 #(-) while pushing the open knob for opening up the release valve S2 at the tilt cylinder. No Voltage → check for bad knob or loose wire to control panel.

b) Listen for clicking of the release valve at the tilt cylinder (connected to platform)
- If valve is not clicking → check wire for damaged spots, loose connections or a bad valve

1.4) Check motor solenoid power

a) Check voltage at J-1 #3 and Ground J-2 #(-) while pushing knob to engage motor solenoid
No voltage → board might be damaged

b) Check voltage at small motor solenoid terminals and Ground J-2 #(-) while pushing knob and listen for clicking of the motor solenoid – no voltage or clicking → check wire to motor solenoid

c) Check for voltage across the small motor solenoid terminals with test light while pushing knob
See a light → power is reaching solenoid.

d) Check for main power at the big solenoid studs, one has voltage; if not check connections to battery

e) Check both big solenoid studs for voltage while pushing the opening knob → if not → solenoid is bad

f) Jump large terminals at motor solenoid
- If motor runs → motor solenoid is bad
- If motor does not run → Bad motor or bad ground
- Tap on motor → motor starts running – bad brushes

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2) GATE IS NOT LOWERING DOWN

Minifix K1Plus Series

2.1) Check Battery Power

a) Check resettable Circuit Breaker on top of battery → Push Reset Tab back in, if popped out

b) Check fuse on top of battery (qty 1) and
at circuit board (qty 2) inside pump and motor box at mount frame

c) Start van and run engine in fast idle for charging the battery
→ if liftgate starts working, recharge battery→ test battery and replace if necessary

d) Check power on board between J-11 #4 and J-2 (-) with voltmeter by pushing the up-function knob and hold for 10 sec with gate in stored position (DEADHEAD GATE) (above 10 Volt is necessary for proper use of liftgate) → less than 10 V; Jump #2 to #4 on J-11→ voltage jumps more than 1volt, call Interlift for assistance

******DO NOT LEAVE JUMPER ON J-11 – GATE MUST BE SHUT OFF WHEN NOT IN USE******

2.2) Check for short in optional equipment

a) Unplug J-3(foot control), J-41(B-13, B16, **jump J-11 #4 to J-41 #GN**) and J-31(Hand control)
Keep the 3 connectors unplugged (gate will operate without plugs connected, loose auto tilt)

b) Unplug J-1 (Main power), wait 10 seconds and plug J-1 back to the board (Reset the board)

c) Plug each connector back, one at a time and check functions of gate after plugging in each

2.3) Check voltage supply to release valve on lift cylinder

a) Check voltage between Ground J-2 #(-) to J4 #15 while pushing the lowering knob for opening the release valve at the lift cylinder. No voltage → check for bad knob or loose wire to control knobs

b) Listen for clicking of the release valve at the lift cylinder (connected to lift arm)
→ If valve is not clicking → check wire for damaged spots or loose connections

2.4) Gate is lowering down very slowly → S5 at motor not engaged

a) Check Voltage at J1 #12 and Ground J-2 #(-) while pushing knob to engage the shift valve S5 at the pump and motor inside box at main frame underneath van.

b) Override the shift valve by pushing in at the cab of the shift valve while pushing the down knob
→ Gate will lower down → check the valve and look for damaged wire or loose connections

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3) GATE IS NOT AUTO TILTING AT GROUND LEVEL

3.1) Check Battery Power

a) Check resettable Circuit Breaker on top of battery → Push Reset Tab back in, if popped out

b) Check fuse on top of battery (qty 1) and
at circuit board (qty 2) inside pump and motor box at mount frame

c) Start van and run engine in fast idle for charging the battery
→ if liftgate starts working, recharge battery→ test battery and replace if necessary

d) Check power on board between J-11 #4 and J-2 (-) with voltmeter by pushing the up-function knob and hold for 10 sec with gate in upper position(DEADHEAD GATE) (above 10 Volt is necessary for proper use of liftgate) → less than 10 V; Jump #2 to #4 on J-11→ voltage jumps more than 1volt, call Interlift for assistance

******DO NOT LEAVE JUMPER ON J-11 – GATE MUST BE SHUT OFF WHEN NOT IN USE******

3.2) Check adjustment of auto-tilt sensor B-13

a) Check the position of the B-13 Sensor on the inside of the passenger side lift arm
→ Sensor has to be in a horizontal position when gate is 8”-10” above ground

b) Check if the outer J-41 Plug is loose (color sequence = blue, black, brown)

3.3) Check function of control buttons(J30) and hand control(J31)

a.) Check voltage at J30 #4 to Ground J-2 #(-) for power supply of the control buttons

b) Check voltage at J30 #6(lower) to Ground J-2 #(-) for lowering signal by pushing down knob
→Signal on J30 #6 → control buttons are ok; if no signal → check for damaged wire or loose cables to control buttons or damaged buttons

3.4) Check voltage supply to release valve on tilt cylinder

a) Check voltage at J41 #(BLACK)(B-13) to Ground J-2 #(-) while platform is on ground → 12V

b) Check voltage at J41 #(BLUE)(B-13) to Ground J-2 #(-) while platform is on ground → 12V
→ No voltage on BLUE → Look for damaged spots or loose connection or B-13 is bad

c) Check voltage at J4 #14 to Ground J-2 #(-) while pushing the lowering button when gate is on ground for opening up the release valve S2 at the tilt cylinder

d) Listen for clicking of the release valve at the tilt cylinder (connected to platform)
→ If valve is not clicking → check wire for damaged spots or loose connections

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4) GATE IS NOT TILTING UP AT GROUND

4.1) Check Battery Power

a) Check resettable Circuit Breaker on top of battery → Push Reset Tab back in, if popped out

b) Check fuse on top of battery (qty 1) and
at circuit board (qty 2) inside pump and motor box at mount frame

c) Start van and run engine in fast idle for charging the battery
→ if liftgate starts working, recharge battery→ test battery and replace if necessary

d) Check power on board between J-11 #4 and J-2 (-) with voltmeter by pushing the up-function knob and hold for 10 sec with gate in upper position(DEADHEAD GATE) (above 10 Volt is necessary for proper use of liftgate) → less than 10 V; Jump #2 to #4 on J-11→ voltage jumps more than 1volt, call Interlift for assistance

******DO NOT LEAVE JUMPER ON J-11 – GATE MUST BE SHUT OFF WHEN NOT IN USE******

4.2) Check function of control buttons(J-30) and hand control(J31)

a) Check voltage at J30 #4 to Ground J-2 #(-) for power supply of the control buttons

b) Check voltage at J30 #5(lift) to Ground J-2 #(-) for lifting signal by pushing up buttons
→Signal on J30 #5 → control buttons are ok; if no signal check for damaged wire or loose cables at control buttons or damaged buttons.

4.3) Check motor solenoid power to run the motor

a) Check voltage at J-1 #3 to Ground J-2 #(-) while pushing lift knobs to engage motor solenoid

b) Check for voltage at small motor solenoid terminals and Ground J-2 #(-) while pushing knobs and listen for clicking of the motor solenoid – no voltage or clicking → check wire to motor solenoid

c) Check for voltage across the small motor solenoid terminals with test light while pushing knobs
→See a light → power is reaching solenoid.

d) Check for main power at the big solenoid studs, one has voltage; if not check connections to battery

e) Check both big solenoid studs for voltage while pushing the lifting buttons → if not → solenoid is bad

f) Jump large terminals at motor solenoid
- If motor runs → motor solenoid is bad
- If motor does not run → Bad motor or bad ground
- Tap on motor → motor starts running – bad brushes

4.4) Check function of shift valve S5 at pump & motor

a) Check voltage at J1 #12 and Ground J-2 #(-) while pushing buttons to engage the shift valve at the pump and motor inside the main tube

b) While pushing the knobs to make the motor run, override shift valve S5 by pushing in at the cab of the valve → Gate will tilt up, if not → check the valve and look for damaged wire or loose connections

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5) GATE IS NOT LIFTING UP

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K1Plus
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5.1) Check Battery Power

a) Check resettable Circuit Breaker on top of battery → Push Reset Tab back in, if popped out.

b) Check fuse on top of battery (qty 1) and
at circuit board (qty 2) inside pump and motor box at mount frame

c) Start van and run engine in fast idle for charging the battery
→ if liftgate start working, recharge battery → test battery and replace if necessary

d) Check power on board between J-11 #4 and J-2 #(-) with voltmeter while pushing lift up buttons (above 10 volt is necessary for proper use of liftgate) → less than 10V; Jump #2 to #4 on J-11 → voltage jumps more than 1 volt, call Interlift for assistance

******DO NOT LEAVE JUMPER ON J-11 – GATE MUST BE SHUT OFF WHEN NOT IN USE******

5.2) Check function of control buttons(J30) and hand control(J31)

a) Check voltage at J30 #4 to Ground J-2 #(-) for power supply of the control buttons

b) Check voltage at J30 #5(lift) to Ground J-2 #(-) for lifting signal
→Signal on J30 #5 → control buttons are ok; if no signal - check for damaged wire or loose cables to control buttons or damaged buttons

5.3) Check for short in optional equipment

a) Unplug J-3(foot control), J-41(B-13, B16, **jump J-11 #4 to J-41 #GN**) and J-31(Hand control)
Keep the 3 connectors unplugged (gate also operates without plugs connected)

b) Unplug J-1 (Main power), wait 10 seconds and plug J-1 back to the board (Reset the board)

c) Plug each connector back - one at a time - and check functions of gate after plugging in each.

5.4) Check motor solenoid power to run the motor

a) Check for voltage at J-1 #3 to Ground J-2 #(-) to engage motor solenoid while pushing lift knobs

b) Check for voltage at small motor solenoid terminals to Ground J-2 #(-) while pushing knobs and listen for clicking of the motor solenoid – no voltage or clicking → check wire to motor solenoid

c) Check voltage across the small motor solenoid terminals with test light while pushing knobs
See a light → power is reaching solenoid

d) Check for main power at the large solenoid studs, one has voltage; if not check connections to battery

e) Check both big solenoid studs for voltage while pushing the opening knobs → if not → solenoid is bad

f) Jump large terminals at motor solenoid
- If motor runs → motor solenoid is bad
- If motor does not run → Bad motor or bad ground
- Tap on motor → motor starts running – bad brushes

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6) GATE IS NOT CLOSING

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6.1) Check Battery Power

a) Check resettable Circuit Breaker on top of battery → Push Reset Tab back in, if popped out

b) Check fuse on top of battery (qty 1) and
at circuit board (qty 2) inside pump and motor box at mount frame

c) Start van and run engine in fast idle for charging the battery
→ if liftgate starts working, recharge battery→ test battery and replace if necessary

d) Check power on board between J-11 #4 and J-2 (-) with voltmeter by pushing the up-function knob and hold for 10 sec with gate in upper position(DEADHEAD GATE) (above 10 Volt is necessary for proper use of liftgate) → less than 10 V; Jump #2 to #4 on J-11→ voltage jumps more than 1volt, call Interlift for assistance

******DO NOT LEAVE JUMPER ON J-11 – GATE MUST BE SHUT OFF WHEN NOT IN USE******

6.2) Check function of control buttons(J30) and hand control(J31)

a) Check voltage at J30 #4 to Ground J-2 #(-) for power supply of the control buttons

b) Check voltage at J30 #3(close) to Ground J-2 #(-) for lifting signal while pushing the buttons.
→Signal on J30 #3 → control buttons are ok; if no signal, check for damaged wire or loose cables inside control buttons or damaged buttons

6.3) Check for S5 valve on pump & motor not engaged

a) Check Voltage at J1 #12 and Ground J-2 #(-) while pushing buttons to engage the shift valve S5 at the pump and motor inside box at mount frame underneath van

b) Override the shift valve S5 by pushing in at the cab on shift valve S5 while pushing the buttons
→ Gate will close up → check the valve and look for damaged wire or loose connections

6.4) Check motor solenoid power to run the motor

a) Check voltage at J-1 #3 and Ground J-2 #(-) to engage motor solenoid while pushing closing buttons

b) Check voltage at small motor solenoid terminals and Ground J-2 #(-) while pushing knobs and listen for clicking of the motor solenoid – no voltage or clicking → check wire to motor solenoid

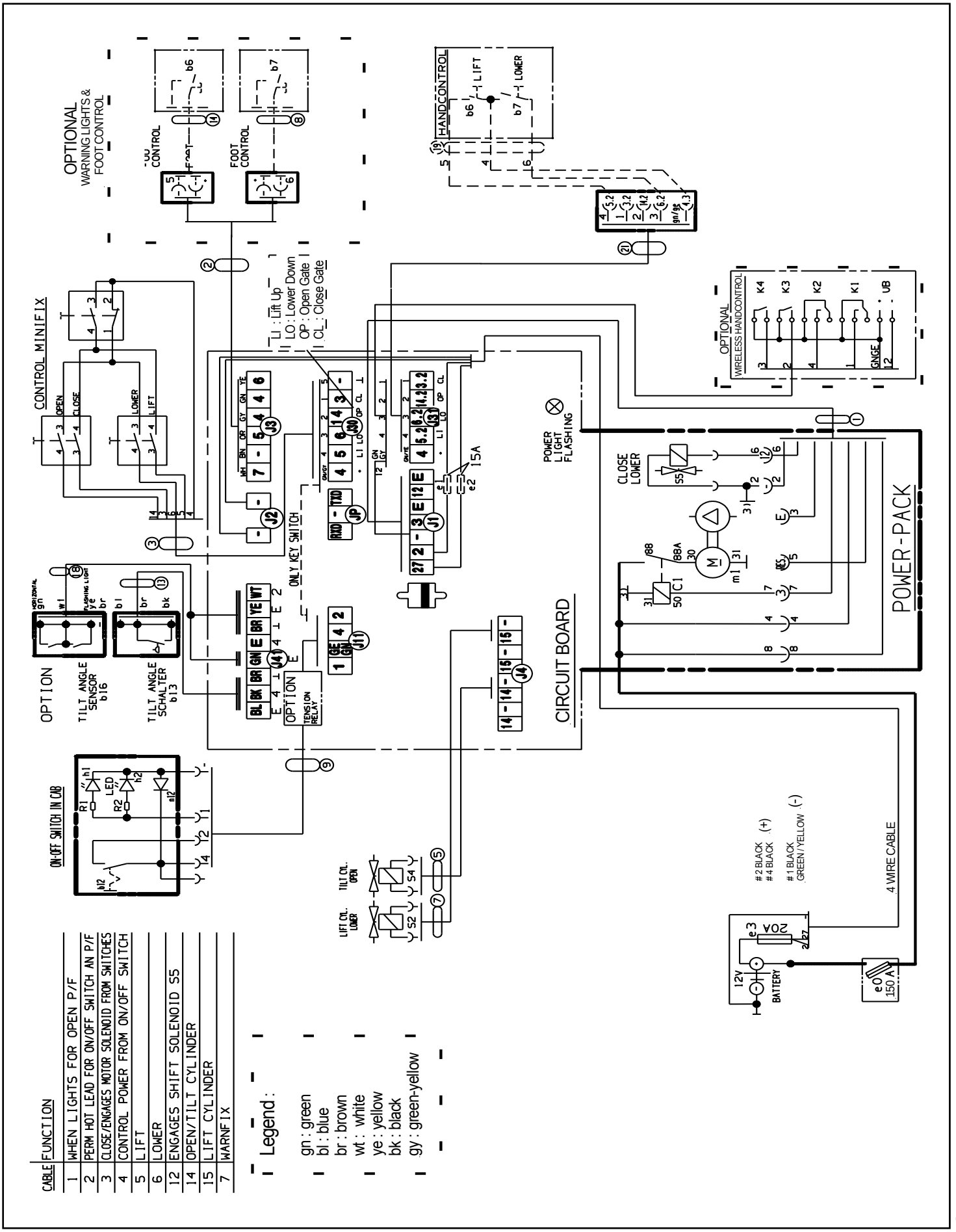
c) Check voltage across the small motor solenoid terminals with test light while pushing buttons
See a light → power is reaching solenoid

d) Check main power at the large solenoid studs, one has voltage; if not check connections to battery

e) Check both big solenoid studs for voltage while pushing the closing buttons → if not → solenoid is bad

f) Jump large terminals at motor solenoid
- If motor runs → motor solenoid is bad
- If motor does not run → Bad motor or bad ground
- Tap on motor → motor starts running – bad brushes

Electrical schematic



CABLE	FUNCTION
1	WHEN LIGHTS FOR OPEN P/F
2	PERM HOT LEAD FOR ON/OFF SWITCH AN P/F
3	CLOSE/ENGAGES MOTOR SOLENOID FROM SWITCHES
4	CONTROL POWER FROM ON/OFF SWITCH
5	LIFT
6	LOWER
12	ENGAGES SHIFT SOLENOID S5
14	OPEN/TILT CYLINDER
15	LIFT CYLINDER
7	WARNFIX

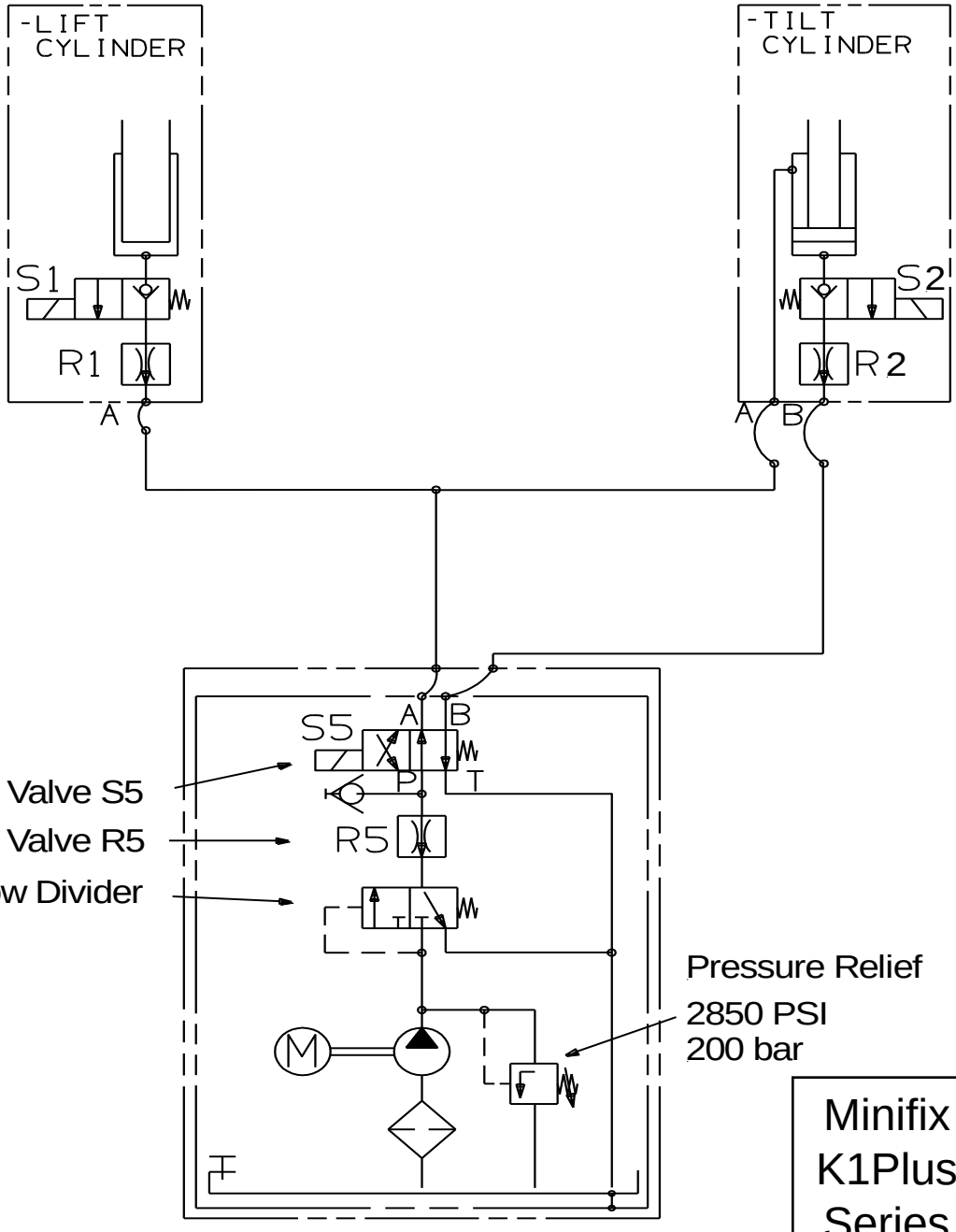
Legend:

gn : green
bl : blue
br : brown
wt : white
ye : yellow
bk : black
gy : green-yellow

Hydraulic schematic

Functions:

S1 = Release Valve for lowering function
S2 = Release Valve for tilt down function
R1 = Flow Restrictor located inside hose adaptor on lift cylinder
R2 = Flow Restrictor located inside hose adaptor on tilt cylinder
S5 = Shift Valve is activated on tilt up and lowering function
R5 = Restrictor Valve located in power pack
Flow Divider is activated, when fluid is going back into the power pack
If Flow Divider is loose or hanging up the fluid is circulated back in to tank



Functions:

Lift: M
Lower: S1+ S5
Tilt Up: M+S5
Tilt Down: S2
Horiz. Open: M+S2

Pressure Relief
2850 PSI
200 bar

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