

**ILQ**

**TROUBLESHOOTING GUIDE**

## ILQ – Series (until June 2008)

### Troubleshooting: ILQ with rectangle circuit board on driver side

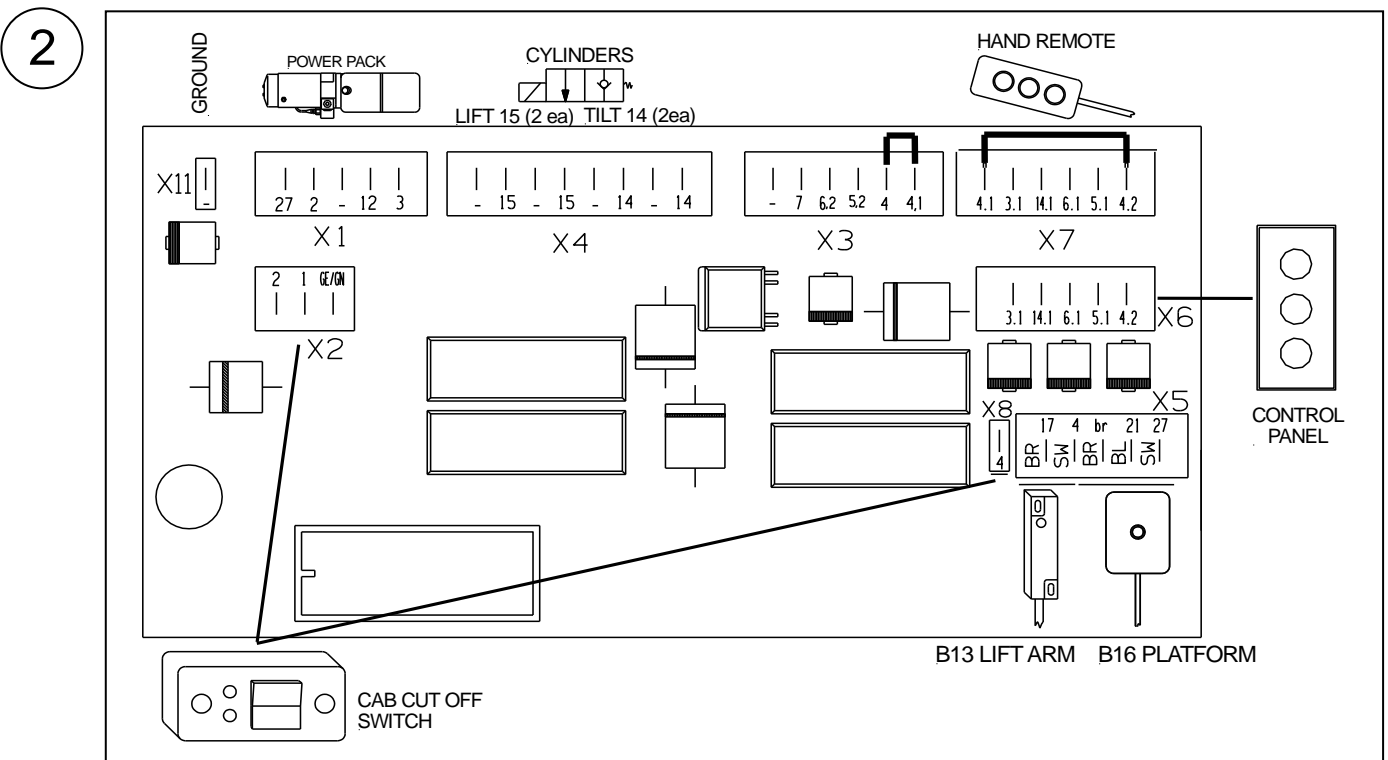
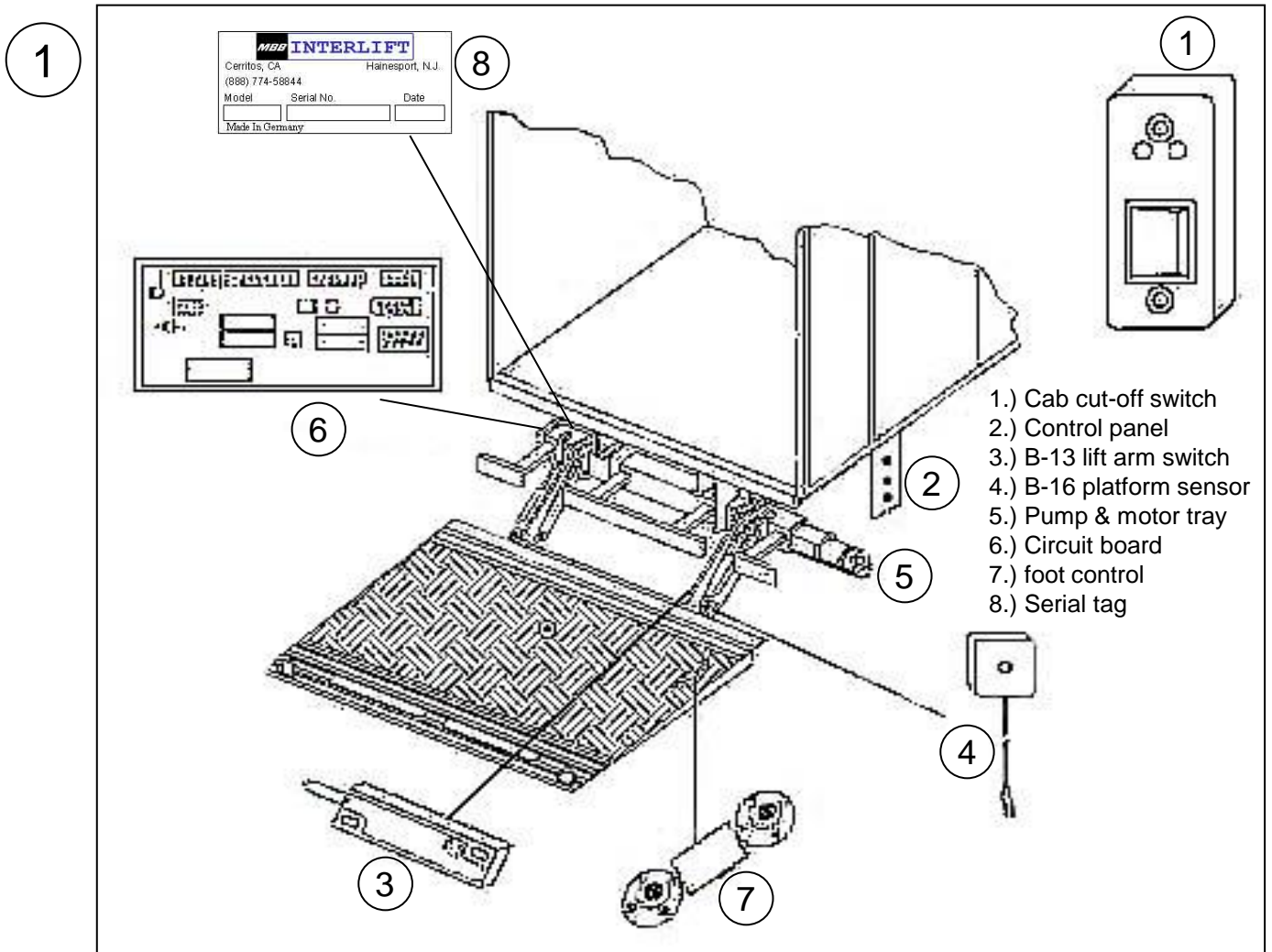
<u>Table of content:</u>	<u>Page</u>
1) Gate overview and connector setup.....	2
2) Gate does not tilt open up.....	3
3) Gate is not lowering down.....	4
4) Gate is not auto tilting down at ground level.....	5
5) Gate is not tilting up at ground level.....	6
6) Gate is not lifting up.....	7
7) Gate is not closing.....	8
8) Electrical schematic.....	9
9) Hydraulic schematic.....	10

#### 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 CONDITIONS\*\*\*\*\***

# Overview of liftgate and connector setup of circuit board





# 1) GATE DOES NOT TILT OPEN UP

## 1.1) Check Battery Power

- a) Check resettable Circuit Breaker on top of batteries → Push Reset Tab back in, if popped out
  - b) Check fuse on top of batteries (qty 1) and at pump & motor (qty 2) inside the main tube on passenger side
  - c) Start truck and run engine in fast idle for charging the battery  
→ if liftgate starts working, recharge batteries → test batteries and truck charging system
  - d) Check power at motor solenoid on the small terminals with voltmeter by pushing the up-function and hold it 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 X-2 #2 to X8 #4  
→ voltage jumps more than 1volt, call Palfinger for assistance
- \*\*\*\*DO NOT LEAVE JUMPER ON – GATE MUST BE SHUT OFF WHEN NOT IN USE\*\*\*\***

## 1.2) Check for short in optional equipment

- a) Unplug X5 (B-13 and B-16 Sensors) and X7 (Hand control) **\*\*\*Set Jumper at X-7 at #4.1 to #4.2\*\*\***  
Keep the 2 connectors unplugged (gate will operate without plugs connected, will loose auto tilt)
- b) Unplug X-1 (Main power), wait 10 seconds and plug X-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 valves on tilt cylinder

- a) Check voltage at X4 #14 and Ground X-11 while pushing the tilt knobs for opening up the release valves at the tilt cylinders. No Voltage → check for loose wire at X-6 or no signal at X-6 #14
- b) Listen for clicking of the release valves at the tilt cylinders (outer cylinders)  
- If valves are not clicking → check wire for damaged spots, loose connections or a bad valve

## 1.4) Check motor solenoid power

- a) Check voltage at X-1 #3 and Ground X-11 while pushing opening knobs to engage motor solenoid  
No voltage → board might be damaged
- b) Check voltage at small motor solenoid studs and Ground motor post 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 studs with test light while turning 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 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

## 2) GATE IS NOT LOWERING DOWN



### 2.1) Check Battery Power

- Check resettable Circuit Breaker on top of batteries → Push Reset Tab back, if popped out.
- Check fuse on top of batteries (qty 1) and at pump & motor (qty 2) inside the main tube on passenger side
- Start truck and run engine in fast idle for charging the battery  
→ if liftgate starts working, recharge batteries → test batteries and truck charging system
- Check power at motor solenoid on the small terminals with voltmeter by pushing the up-function knob and hold for 10 sec with gate upper lift position (DEADHEAD GATE) (above 10 Volt is necessary for proper use of liftgate) → less than 10V; Jump X-2 #2 to X-8 #4  
→ voltage jumps more than 1 volt, call Palfinger for assistance

\*\*\*\*DO NOT LEAVE JUMPER ON – GATE MUST BE SHUT OFF WHEN NOT IN USE\*\*\*\*

### 2.2) Check for short in optional equipment

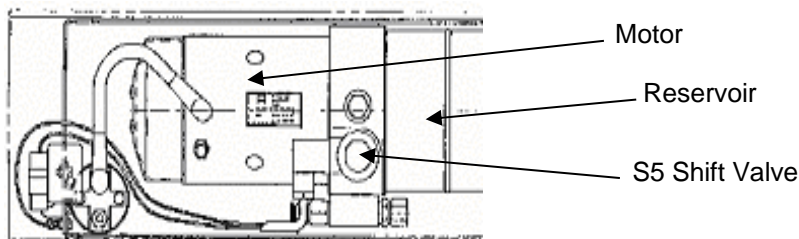
- Unplug X-5(B-13 and B-15 Sensors) and X-7(Hand control) **\*\*\*Set Jumper at X-7 from #4.1 to #4.2\*\*\***  
Keep the 2 connectors unplugged (gate also operates without plugs connected, will loose auto tilt)
- Unplug X-1 (Main power), wait 10 seconds and plug X-1 back to the board (Reset the board)
- Plug each connector back one at a time and check functions of gate after plugging in each

### 2.3) Check voltage supply to release valves on lift cylinder

- Check voltage at X-4 #15 and Ground X-11 while pushing the lowering knob for opening the release valves at the lift cylinders. No voltage → check for bad knob or loose wire at control panel
- Listen for clicking of the release valves at the lift cylinder (inner cylinders)  
→ If valves are not clicking → check wire for damaged spots or loose connections

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

- Check Voltage at X-1 #12 and Ground X-11 while pushing knob to engage the shift valve at the pump and motor inside the main tube
- Override the shift valve by pushing down the center brass pin with small Phillips screwdriver while pushing the down knob  
→ Gate will lower down → check the valve and look for damaged wire or loose connections



### 3) GATE IS NOT AUTO TILTING AT GROUND LEVEL



ILQ  
SERIES

#### 3.1) Check Battery Power

- Check resettable Circuit Breaker on top of batteries → Push Reset Tab back in, if popped out
  - Check fuse on top of batteries (qty 1) and at pump& motor (qty 2) inside the main tube on passenger side
  - Start truck and run engine in fast idle for charging the battery → if liftgate starts working, recharge batteries → test batteries and truck charging system
  - Check power at motor solenoid on the small terminals with voltmeter when gate in upper lift position (above 10 Volt is necessary for proper use of liftgate) → less than 10V; Jump X-2 #2 to X-8 #4 → voltage jumps more than 1 volt, call Palfinger for assistance
- \*\*\*\*DO NOT LEAVE JUMPER ON – GATE MUST BE SHUT OFF WHEN NOT IN USE\*\*\*\***

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

- Check the position of the B-13 Sensor on the inside of the passenger side liftarm → Sensor has to be in a horizontal position when gate is 8”-10” above ground
- Check if the inner X-5 Plug is loose (color sequence = brown, black)

#### 3.3) Check function of control panel or hand control

- Check voltage at X-6 #4.2 to Ground X-11 for power supply of the control panel at X-7 #4.2 to Ground X-11 for power supply of the hand control
- Check voltage at X-6 #6.1(lower) to Ground X-11 for lowering signal → Signal on X-6 #6.1 → control panel is ok; if no signal check for damaged wire or loose connectors inside control panel or damaged knob

#### 3.4) Check voltage supply to release valves on tilt cylinder

- Check voltage at X-5 #(BLACK)(B-13) to Ground X-11 while platform is on ground → 12V
- Check voltage at X5 #(BROWN)(B-13) to Ground (J11) while platform is on ground → 12V → No voltage on BROWN → Look for damaged spots, loose connection or bad B-13
- Check voltage at Ground X-11 to X4 #14 while pushing the lowering button when gate is on ground for opening up the release valves at the tilt cylinders
- Listen for clicking of the release valves at the tilt cylinder (outer cylinders) → If valves are not clicking → check wire for damaged spots or loose connections



## 4) GATE IS NOT TILTING UP AT GROUND

### 4.1) Check Battery Power

- Check resettable Circuit Breaker on top of batteries → Push Reset Tab back in, if popped out
- Check fuses on top of batteries (qty 1) and at pump & motor (qty 2) inside the main tube on passenger side
- Start truck and run engine in fast idle for charging the battery  
→ if liftgate starts working, recharge batteries → afterwards test batteries and truck charging system
- Check power at motor solenoid on the small terminals with voltmeter (above 10 Volt is necessary for proper use of liftgate) → less than 10 V; Jump X-2 #2 to X8 #4  
→ voltage jumps more than 1 volt, call Palfinger for assistance  
**\*\*\*\*DO NOT LEAVE JUMPER ON – GATE MUST BE SHUT OFF WHEN NOT IN USE\*\*\*\***

### 4.2) Check function of control box or hand control

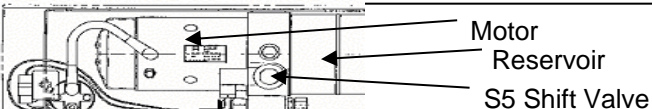
- Check voltage at X-6 #4.2 to Ground X-11 for power supply of the control box  
X-7 #4.2 to Ground X-11 for power supply of the hand control
- Check voltage at X-6 #5.1 (lift) to Ground X-11 for lifting signal  
→ Signal on X-6 #5.1 → control box is ok; if no signal check for damaged wire or loose connectors inside control box or damaged turn knob

### 4.3) Check motor solenoid power to run the motor (2<sup>nd</sup> person needed)

- Check voltage at X-1 #3 to Ground X-11 while turning lift knob to engage motor solenoid
- Check for voltage at small motor solenoid studs and Ground motor post while pushing button and listen for clicking of the motor solenoid – no voltage or clicking → check wire to motor solenoid
- Check for voltage across the small motor solenoid studs with test light while pushing button  
→ See a light → power is reaching solenoid.
- Check for main power at the big solenoid studs, one has voltage; if not check connections to battery
- Check both big solenoid studs for voltage while pushing the lifting button → if not → solenoid is bad
- 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

- Check voltage at X1 #12 and Ground X-11 while pushing button to engage the shift valve at the pump and Motor inside the main tube (2<sup>nd</sup> person needed)
- While pushing the button to make the motor run, override shift valve by pushing the center brass pin with small Phillips screwdriver  
→ Gate will tilt up, if not → check the valve and look for damaged wire or loose connections



## 5) GATE IS NOT LIFTING UP



### 5.1) Check Battery Power

- Check resettable Circuit Breaker on top of batteries → Push Reset Tab back in, if popped out.
- Check fuse on top of batteries (qty 1)  
at pump & motor (qty 2) inside the main tube on passenger side
- Start truck and run engine in fast idle for charging the battery  
→ if liftgate start working, recharge batteries → test batteries and truck charging system
- Check power at motor solenoid on the small terminals with voltmeter  
(above 10 volt is necessary for proper use of liftgate) → less than 10V; Jump X-2 #2 to X-8 #4  
→ voltage jumps more than 1 volt, call Palfinger for assistance

**\*\*\*\*DO NOT LEAVE JUMPER ON – GATE MUST BE SHUT OFF WHEN NOT IN USE\*\*\*\***

### 5.2) Check function of control panel or hand control

- Check voltage at X-6 #4.2 to Ground X-11 for power supply of the control panel  
X-6 #4.2 to Ground X-11 for power supply of the control panel
- Check voltage at X-6 #5.1 (lift) to Ground X-11 for lifting signal  
→ Signal on X-6 #5.1 → control box is ok; if no signal, check for damaged wire or loose connectors inside control panel or damaged buttons

### 5.3) Check for short in optional equipment

- Unplug X-5 (B-13 and B-16 sensors) and X-7 (Hand control) **\*\*\*Set Jumper at X-7 at #4.1 to #4.2\*\*\***  
Keep the 2 connectors unplugged (gate will operate without plugs connected, will loose auto tilt)
- Unplug X-1 (Main power), wait 10 seconds and plug X-1 back to the board (Reset the board)
- 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 (2<sup>nd</sup> person needed)

- Check for voltage at X-1 #3 to Ground X-11 to engage motor solenoid while pushing lift knob  
No voltage → board might be damaged
- Check for voltage at small motor solenoid studs to Ground motor stud while pushing button and listen for clicking of the motor solenoid – no voltage or clicking → check wire to motor solenoid
- Check voltage across the small motor solenoid terminals with test light while pushing button  
See a light → power is reaching solenoid
- Check for main power at the large solenoid studs one has voltage; if not check connections to battery
- Check both big solenoid studs for voltage while pushing the opening button → if not → solenoid is bad
- 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



## 6) GATE IS NOT CLOSING



ILQ  
SERIES

### 6.1) Check Battery Power

- Check resettable Circuit Breaker on top of batteries → Push Reset Tab back in, if popped out
- Check fuse on top of batteries (qty 1)  
at pump & motor (qty 2) inside the main tube on passenger side
- Start truck and run engine in fast idle for charging the battery  
→ if liftgate start working, recharge batteries → test batteries and truck charging system
- Check power at motor solenoid on the small terminals with voltmeter by pushing the up-function buttons and hold for 10 sec with gate in upper position (DEADHEAD GATE)  
(above 10 Volt is necessary for proper use of liftgate) → less than 10V; Jump X-2 #2 to X-8 #4  
→ voltage jumps more than 1 volt, call Palfinger for assistance

**\*\*\*\*DO NOT LEAVE JUMPER ON – GATE MUST BE SHUT OFF WHEN NOT IN USE\*\*\*\***

### 6.2) Check function of control box

- Check voltage at X-6 #4.2 to Ground X-11 for power supply of the control panel  
at X-7 #4.2 to Ground X-11 for power supply of the hand control
- Check voltage at X-6 #3.1(close) to Ground X-11 for lifting signal  
→ Signal on X-6 #3.1 → control box is ok; if no signal, check for damaged wire or loose connectors inside control box or damaged buttons

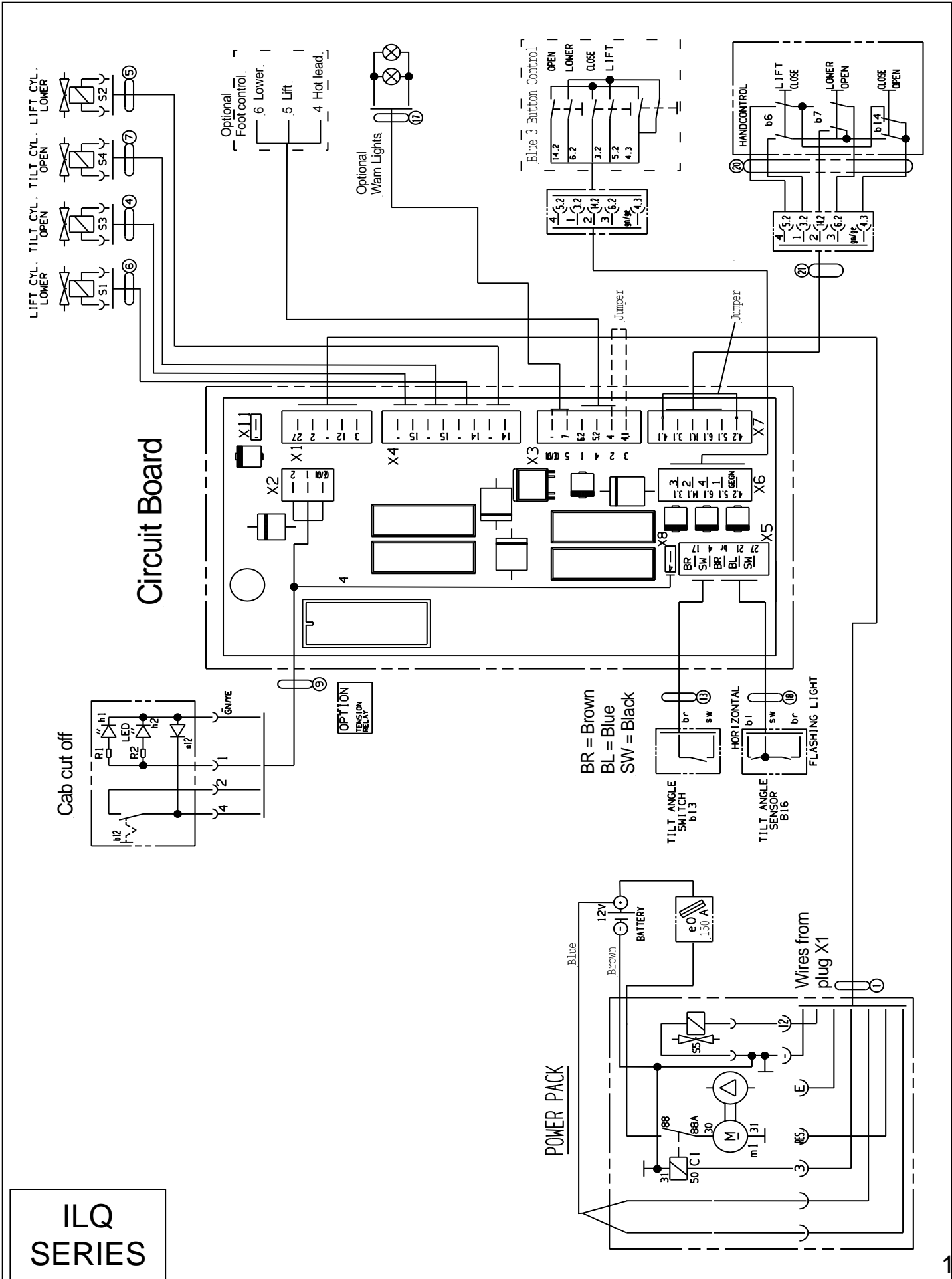
### 6.3) Check for S5 valve on pump & motor not engaged

- Check Voltage at X-1 #12 and Ground X-11 while pushing buttons to engage the shift valve at the pump and motor inside the main tube (2<sup>nd</sup> person needed)
- Override the shift valve by pushing down the center brass pin with small Phillips screwdriver while pushing the buttons → Gate will close up → check the valve, look for damaged wire or loose connections

### 6.4) Check motor solenoid power to run the motor

- Check voltage at X-1 #3 and Ground X-11 to engage motor solenoid while pushing lift button  
No voltage → board might be damaged (2<sup>nd</sup> person needed)
- Check voltage at small motor solenoid studs and Ground motor stud while pushing buttons and listen for clicking of the motor solenoid – no voltage or clicking → check wire to motor solenoid
- Check voltage across the small motor solenoid terminals with test light while pushing buttons  
See a light → power is reaching solenoid
- Check main power at the large solenoid studs, one has voltage; if not check connections to battery
- Check both big solenoid studs for voltage while pushing the opening buttons → if not → solenoid is bad
- 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



# Hydraulic schematic

Functions:

S1 and S2 = Release Valve for lowering function

S3 and S4 = Release Valve for tilt down function

R1 and R2 = Flow Restrictor located inside hose adaptor on lift cylinder

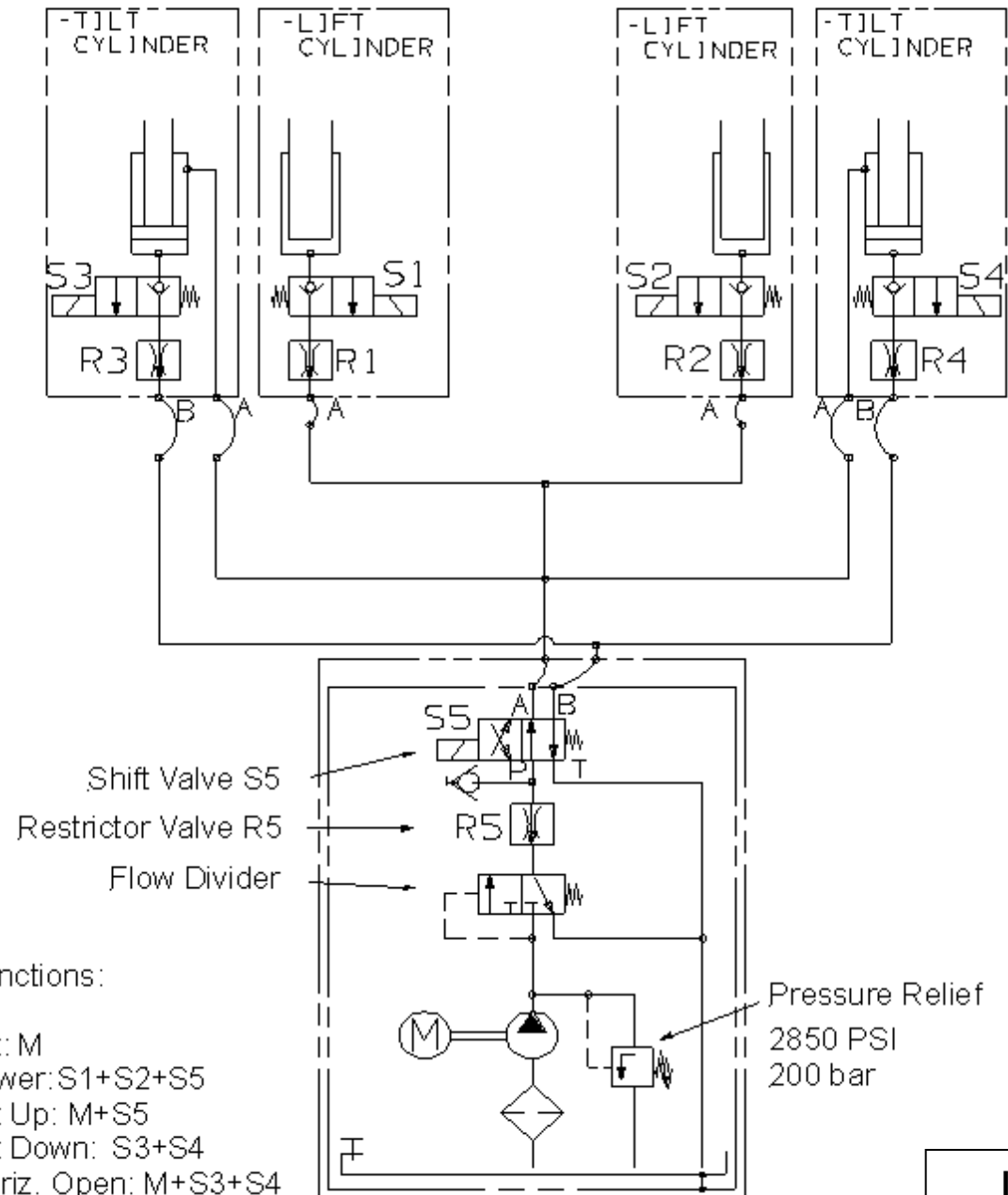
R3 and R4 = Flow Restrictor located inside hose adaptor on tilt cylinder

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



**ILQ  
SERIES**