



ILUK – Series (1997 - 2005)

Troubleshooting: ILUK with rectangle circuit board

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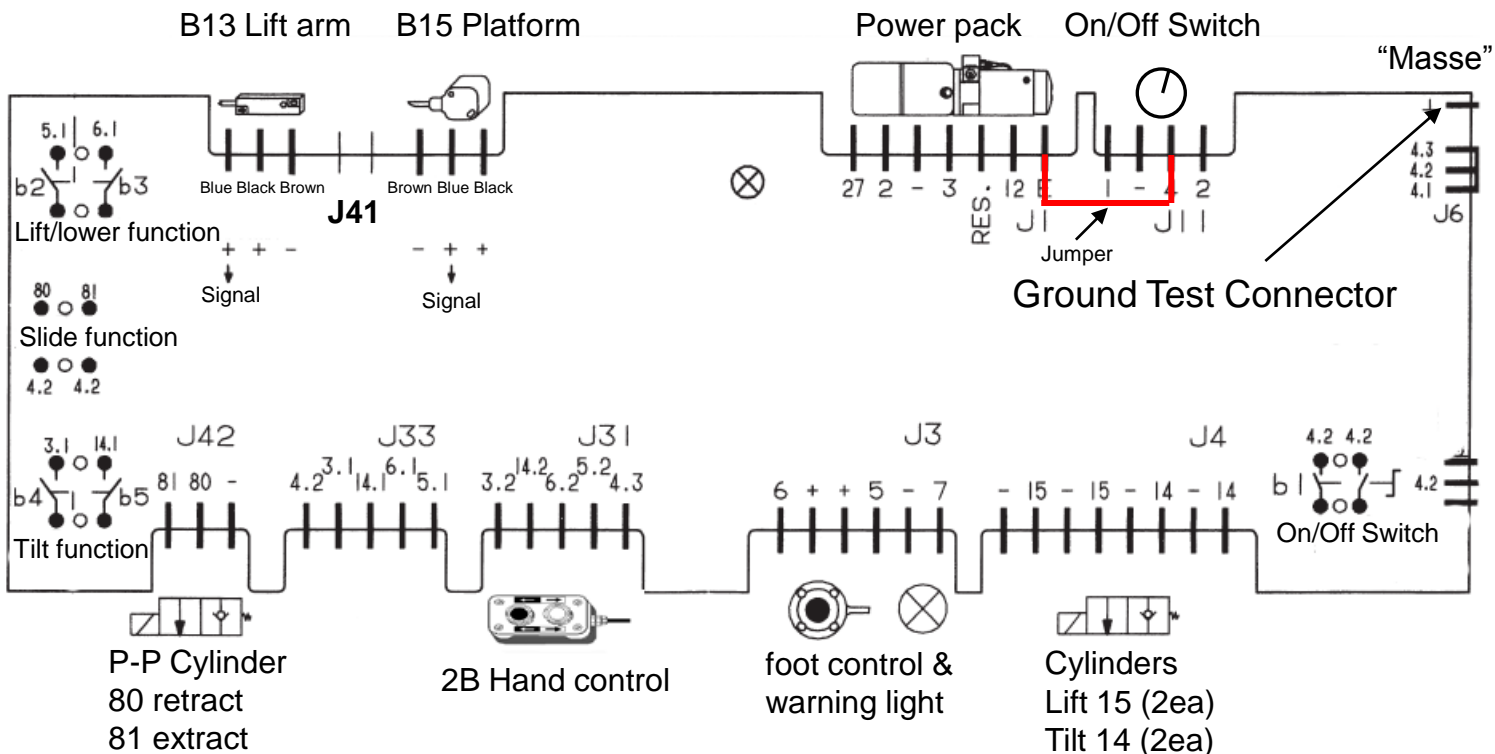
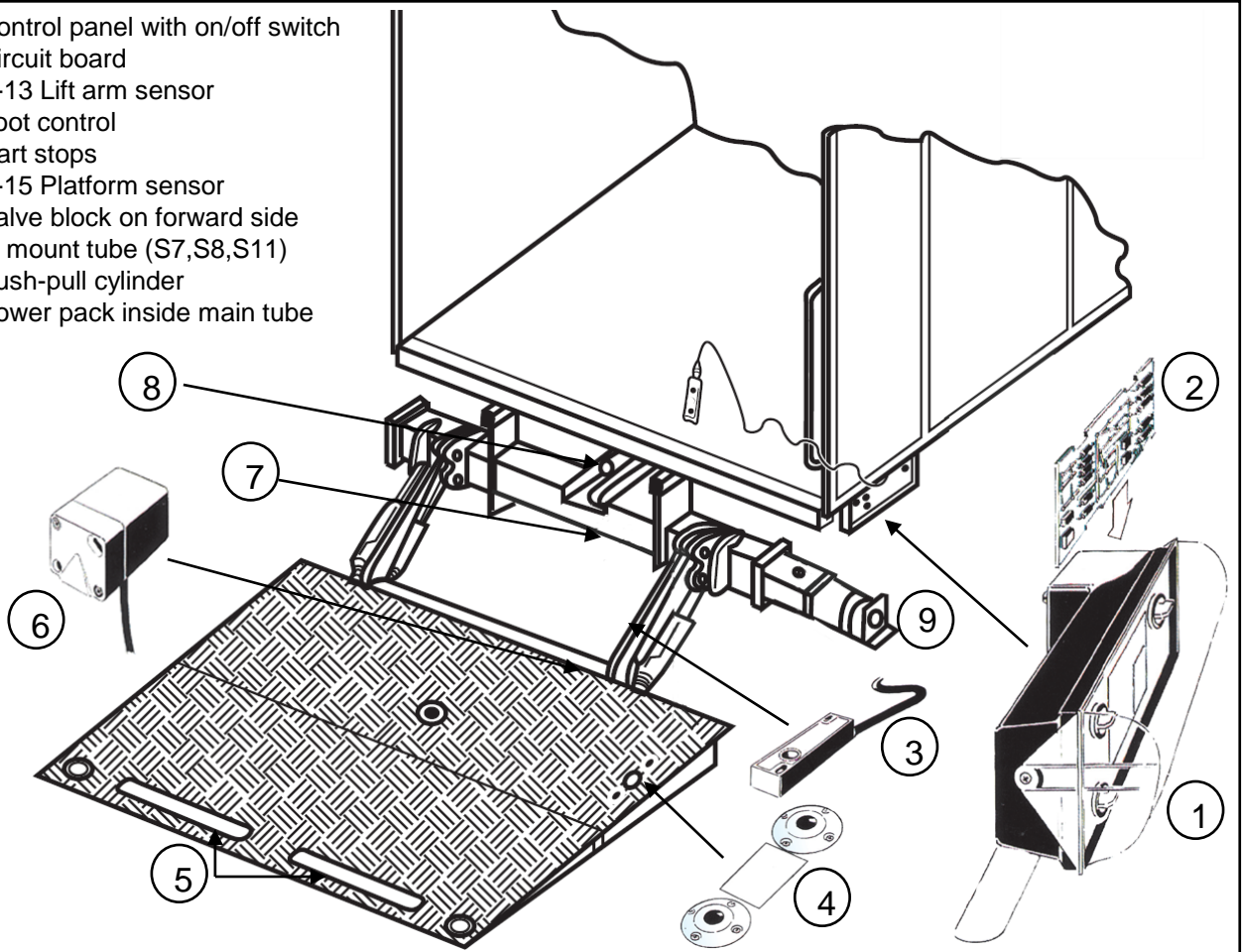
Tools needed:

- 1.) Voltmeter
- 2.) Test light
- 3.) 8" jumper cable (16ga. or smaller)
- 4.) Screw driver flat head and 13mm (1/2") wrench
- 5.) Small Philips screwdriver

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

Gate overview and connector setup

- 1) Control panel with on/off switch
- 2) Circuit board
- 3) B-13 Lift arm sensor
- 4) Foot control
- 5) Cart stops
- 6) B-15 Platform sensor
- 7) Valve block on forward side of mount tube (S7,S8,S11)
- 8) Push-pull cylinder
- 9) Power pack inside main tube



1) GATE IS NOT LOWERING DOWN



1.1) Check Battery Power

- a) Check resettable Circuit Breaker on top of batteries → Push Reset Tab back, if popped out.
- b) Check condition of ground cable on driver side attached to gate frame and trailer/truck body.**
- c) Check fuse on top of batteries (qty 1)
at pump & motor (qty 2) inside the main tube on passenger side and/or
at circuit board (qty 2) behind control box lid on passenger side
- d) Check power on board between J-11 #4 and “Masse” with voltmeter by turning the lift up knob and hold for 10 sec with gate in stored position (DEADHEAD GATE)
(above 10 Volt is necessary for proper use of lift gate) → less than 10V; → see e)
- e) Test for charged batteries and a solid working truck/trailer charging system
- f) Check Ground connection from front of trailer/truck to batteries and lift gate. Check for tight connections

1.2) Check for short in optional equipment

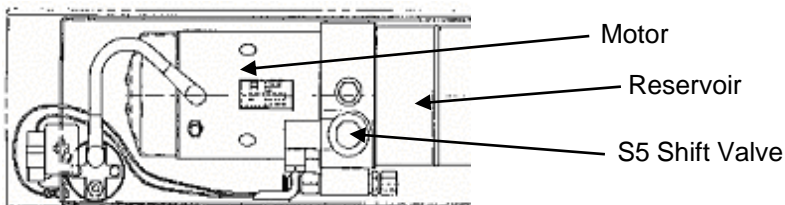
- a) Check switches for proper function, check if contact block does make contact when turning switch
- b) Unplug J-3(Lights and foot control), J-41(B-13 and B-15 Sensors, loose tilt up) and J-31(Hand control)
Keep the connectors unplugged (gate also operates without plugs connected)
- b) Unplug J-1(Main power), wait 10 seconds and plug J-1 back to the board (Resetting 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 lift cylinders

- a) Check voltage between Ground “Masse” and J4 #15 (release valves S1 & S2 at lift cylinders) and J1 #12 (Lock valve S11(only on 3 valve setup) and shift valve S5) while turning the lowering knob
No voltage → check for a bad knob or contact block
- b) Listen for clicking of the release valves at the lift cylinders (inner cylinders)
→ If valves are not clicking → check wire for damaged spots or loose connections or a bad valve

1.4) Gate is lowering down very slowly → S5 at pump not engaged

- a) Check Voltage at J1 #12 and Ground “Masse” while turning lowering knob to engage the shift valve at the pump and motor inside the main tube
- b) Override the shift valve by pushing down the center brass pin with small Phillips screwdriver while turning the lowering knob
→ Gate will lower down → check the valve and look for damaged wire or loose connections





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2) GATE DOES NOT SLIDE OUT

2.1) Check Battery Power

- a) Check resettable Circuit Breaker on top of batteries → Push Reset Tab back, if popped out.
- b) Check condition of ground cable on driver side attached to gate frame and trailer/truck body.**
- c) Check fuse on top of batteries (qty 1)
at pump & motor (qty 2) inside the main tube on passenger side and/or
at circuit board (qty 2) behind control box lid on passenger side
- d) Check power on board between J-11 #4 and “Masse” with voltmeter by turning the lift up knob and hold for 10 sec with gate in stored position (DEADHEAD GATE)
(above 10 Volt is necessary for proper use of lift gate) → less than 10V; → see e)
- e) Test for charged batteries and a solid working truck/trailer charging system
- f) Check Ground connection from front of trailer/truck to batteries and lift gate. Check for tight connections

2.2) Check for short in optional equipment

- a) Check switches for proper function, check if contact block does make contact when turning switch
- b) Unplug J-3 (Lights and foot control), J-41(B-13 and B-15 Sensors, loose tilt up) and J-31(Hand control)
Keep the connectors unplugged (gate will operate without plugs connected)
- b) Unplug J-1 (Main power), wait 10 seconds and plug J-1 back to the board (Resetting 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 for push-pull cylinder

- a) Check voltage at J42 #81 and Ground “Masse” while turning the slide out knob for opening up the lock valve S8 for the P-P cylinder. No Voltage → check for bad knob or contact block
- b) Listen for clicking of the release valve for the P-P cylinders (at valve block on mount frame)
- If valve is not clicking → check wire for damaged spots, loose connections or a bad valve

2.4) Check motor solenoid power

- a) Check voltage at J-1 #3 and Ground “Masse” while turning knob to engage motor solenoid
No voltage → board might be damaged
- b) Check voltage at small motor solenoid studs and Ground “Masse” while turning 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 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
or popped tap at circuit breaker
- e) Check both big solenoid studs for voltage while turning the slide out 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 (check for loose hanging cable on driver side)
 - Tap on motor → motor starts running – bad brushes

3) GATE IS NOT AUTO TILTING AT GROUND LEVEL



3.1) Check Battery Power

- a) Check resettable Circuit Breaker on top of batteries → Push Reset Tab back in, if popped out
- b) Check condition of ground cable on driver side attached to gate frame and trailer/truck body.**
- c) Check fuse on top of batteries (qty 1),
at pump & motor (qty 2) inside the main tube on passenger side and/or
at circuit board (qty 2) behind control box lid on passenger side
- d) Check power on board between J-11 #4 and “Masse” with voltmeter by turning the
slide out knob and hold for 10 sec (DEADHEAD GATE)
(above 10 Volt is necessary for proper use of lift gate) → less than 10V; → see e)
- e) Test for charged batteries and a solid working truck/trailer charging system
- f) Check Ground connection from front of trailer/truck to batteries and lift gate. Check for tight connections

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, wire pointing towards
front of trailer/truck
- b) Check if the outer J41 Plug is loose (color sequence = blue, black, brown)

3.3) Check voltage supply to release valves on tilt cylinders

- a) Check voltage at J41 #(BLACK)(B-13) to Ground “Masse” while platform is on ground → 12V
- b) Check voltage at J41 #(BLUE)(B-13) to Ground “Masse” 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 “Masse” while turning the lowering knob when gate is on
ground for opening up the release valves at the tilt cylinders for auto tilt
→ No power on J4 #14 → check turning knob and contact block for making contact
→ Turning knob and contact block ok → board is bad
- d) Listen for clicking of the release valves at the tilt cylinders (outer cylinders)
→ If valves are not clicking → check wire for damaged spots or loose connections
- e) Jump J-11 #2 to J4 #15 for about 8-10 min – if coils on lift cylinders are cold, look for broken wire



4) GATE IS NOT TILTING UP AT GROUND

4.1) Check Battery Power

- a) Check resettable Circuit Breaker on top of batteries → Push Reset Tab back in, if popped out
- b) Check condition of ground cable on driver side attached to gate frame and trailer/truck body.**
- c) Check fuse on top of batteries (qty 1),
at pump & motor (qty 2) inside the main tube on passenger side and/or
at circuit board (qty 2) behind control box lid on passenger side
- d) Check power on board between J-11 #4 and Ground "Masse" with voltmeter by turning the
slide out knob and hold for 10 sec (DEADHEAD GATE)
(above 10 Volt is necessary for proper use of lift gate) → less than 10V; → see e)
- e) Test for charged batteries and a solid working truck/trailer charging system
- f) Check Ground connection from front of trailer/truck to batteries and lift gate. Check for tight connections

4.2) Check function of B-15 Sensor

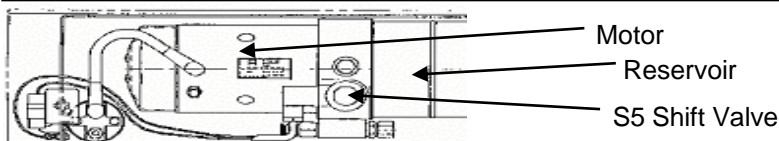
- a) Check voltage at J41 #(BLACK)(B-15) to Ground "Masse" while platform is on ground → 12V
- b) Check voltage at J41 #(BLUE)(B-15) to Ground "Masse" while platform is on ground → 4.3V
→ Less than 4 Volts, check position of B-15 sensor
→ No voltage on BLUE → Look for damaged spots or loose connection or B-15 is bad
→ Jump BLUE to BLACK → Gate tilts up at ground level, does not stop automatically

4.3) Check motor solenoid power to run the motor

- a) Check voltage at J-1 #3 to Ground "Masse" while turning lift knob to engage motor solenoid
- b) Check for voltage at one of the small motor solenoid studs and Ground "Masse" while turning 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 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 both big solenoid studs for voltage while turning 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 (check for loose wire, hanging on driver side)
 - 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 "Masse" while turning the up knob to engage the shift valve S5 at
the pump and Motor inside the main tube
- b) While turning the knob 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





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 condition of ground cable on driver side attached to gate frame and trailer/truck body.**
- Check fuse on top of batteries (qty 1),
at pump & motor (qty 2) inside the main tube on passenger side and/or
at circuit board (qty 2) behind control box lid on passenger side
- Test for charged batteries and a solid working truck/trailer charging system
- Check power on board between J-11 #4 and Ground “Masse” with voltmeter by turning the
slide out knob and hold for 10 sec (DEADHEAD GATE)
(above 10 Volt is necessary for proper use of lift gate) → less than 10V; → see e)
- Check your Ground connection from front of trailer to batteries and lift gate. Check for tight connections

5.2) Check for short in optional equipment

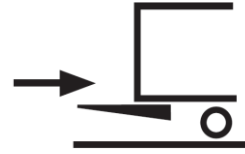
- Check switches for proper function, check if contact block does make contact when turning switch
- Unplug J-3(Lights and foot control), J-41(B-13 and B-15 Sensors, loose tilt up) and J-31(Hand control)
Keep the connectors unplugged (gate also operates without plugs connected)
- Unplug J-1 (Main power), wait 10 seconds and plug J-1 back to the board (Resetting the board)
- Plug each connector back one at a time and check functions of gate after plugging in each.

5.3) Check motor solenoid power to run the motor

- Check for voltage at J-1 #3 to Ground “Masse” to engage motor solenoid while turning lift knob
- Check for voltage at one of the small motor solenoid studs to Ground “Masse” while turning knob 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 (#3 and -) with test light while turning knob
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 turning the opening knob → 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 (check for loose wire, hanging on driver side)
 - Tap on motor → motor starts running – bad brushes

5.5) Check voltage supply to release valves on lift cylinders

- Check voltage between Ground “Masse” and J4 #15 (release valves S1 & S2 at lift cylinders)
while turning the lifting knob → No voltage → check for bad knob or contact block
- Listen for clicking of the release valves at the lift cylinders (inner cylinders)
→ If valves are not clicking → check wire for damaged spots or loose connections
- Jump J-11 #2 to J4 #15 for about 8-10 min – if coils on lift cylinders are cold, look for broken wire



6) GATE IS NOT SLIDE IN

6.1) Check Battery Power

- a) Check resettable Circuit Breaker on top of batteries → Push Reset Tab back in, if popped out
- b) Check condition of ground cable on driver side attached to gate frame and trailer/truck body.**
- c) Check fuse on top of batteries (qty 1)
at pump & motor (qty 2) inside the main tube on passenger side and/or
at circuit board (qty 2) behind control box lid on passenger side
- d) Start truck and run engine in fast idle for charging the battery
→ if liftgate start working, recharge batteries → test batteries and truck/trailer charging system
- e) Check power on board between J-11 #4 and Ground “Masse” with voltmeter by turning the
up-function knob and hold for 10 sec (DEADHEAD GATE)
(above 10 Volt is necessary for proper use of liftgate) → less than 10V → see f)
- f) Test for charged batteries and a solid working truck/trailer charging system

6.2) Check for short in optional equipment

- a) Check switches for proper function, check if contact block does make contact when turning switch
- b) Unplug J-3 (Lights and foot control), J-41(B-13 and B-15 Sensors, loose tilt up) and J-31(Hand control)
Keep the connectors unplugged (gate will operate without plugs connected)
- b) Unplug J-1 (Main power), wait 10 seconds and plug J-1 back to the board (Resetting the board)
- c) Plug each connector back, one at a time and check functions of gate after plugging in each

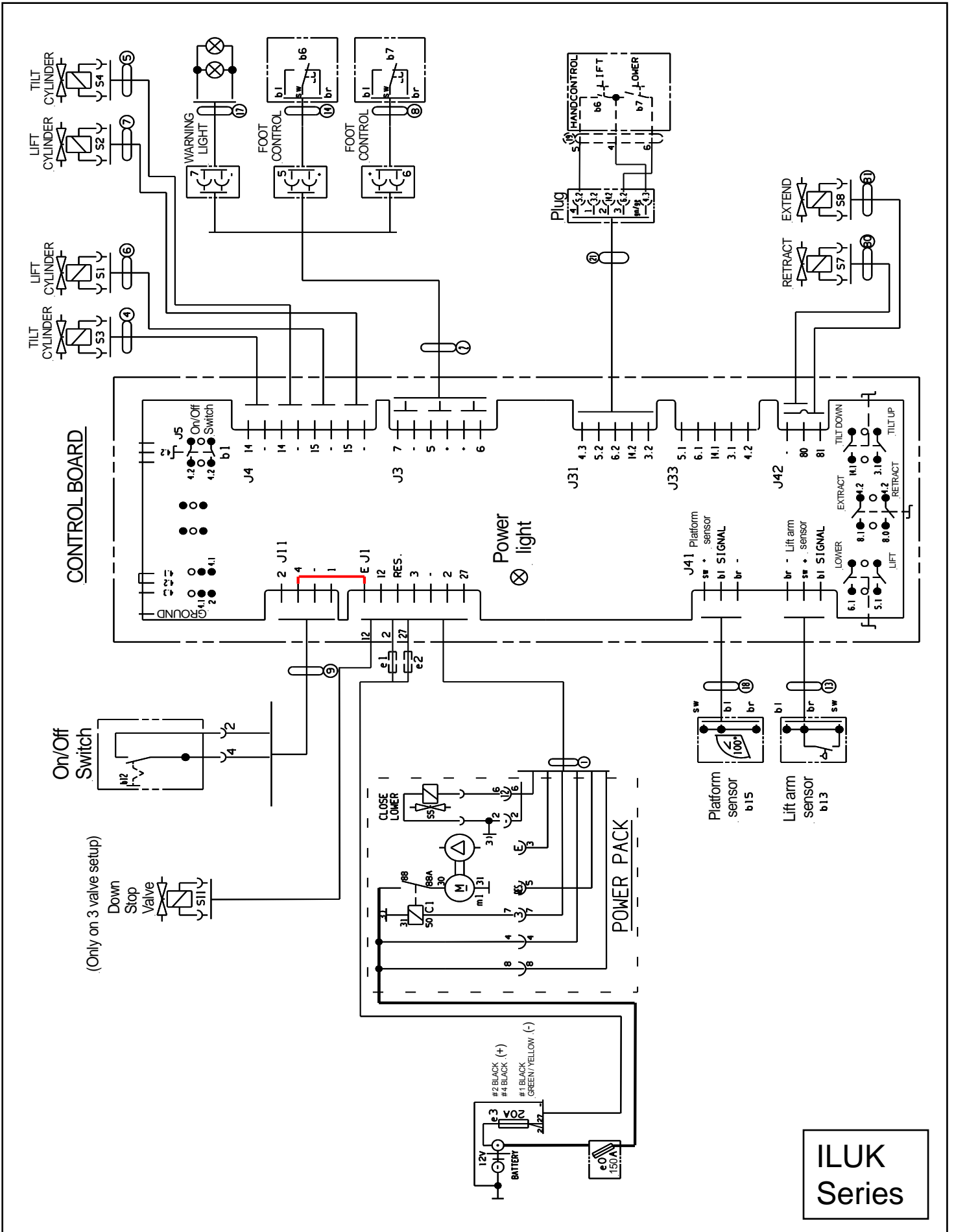
6.3) Check voltage supply to release valve on slide cylinder

- a) Check voltage at J42 #80 and Ground “Masse” while turning the slide in knob for opening up the
lock valve S7 for the P-P cylinder. No Voltage → check for bad knob or contact block
- b) Listen for clicking of the lock valve for the P-P cylinder (at valve block on mount frame)
- If valve is not clicking → check wire for damaged spots, loose connections or a bad valve

6.4) Check motor solenoid power to run the motor

- a) Check voltage at J-1 #3 and Ground “Masse” to engage motor solenoid while turning lift knob
- b) Check voltage at one of the small motor solenoid studs and Ground “Masse” while turning knob 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 turning knob
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 turning 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 (check for loose wire, hanging on driver side)
 - Tap on motor → motor starts running – bad brushes

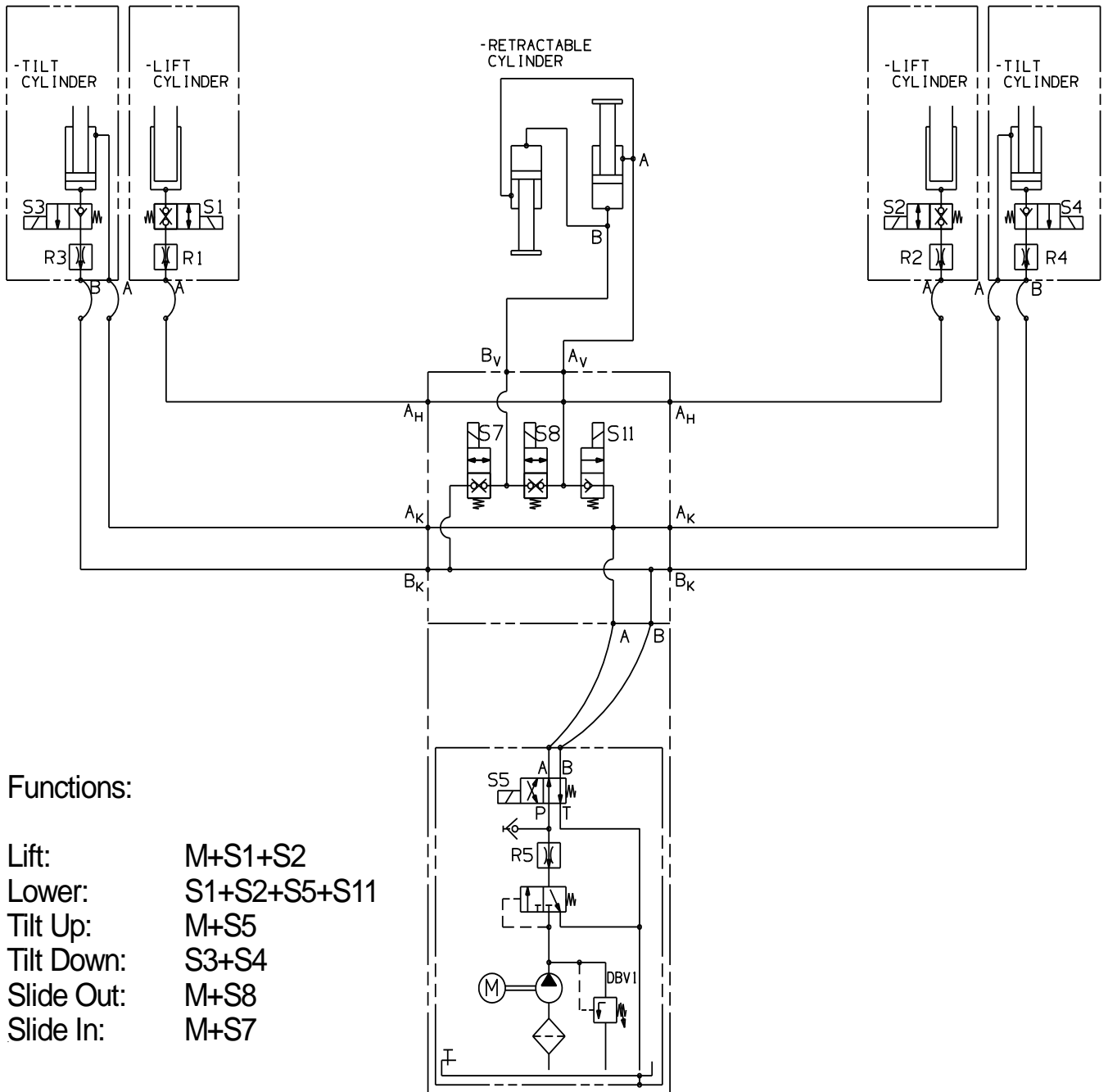
Electrical schematic



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Hydraulic schematic

3-Valve-Setup



Functions:

Lift:	M+S1+S2
Lower:	S1+S2+S5+S11
Tilt Up:	M+S5
Tilt Down:	S3+S4
Slide Out:	M+S8
Slide In:	M+S7

S1, S2 on lift cylinder and S7, S8 on push pull valve block are double acting release valves: They have to be activated for fluid to go through them in either direction

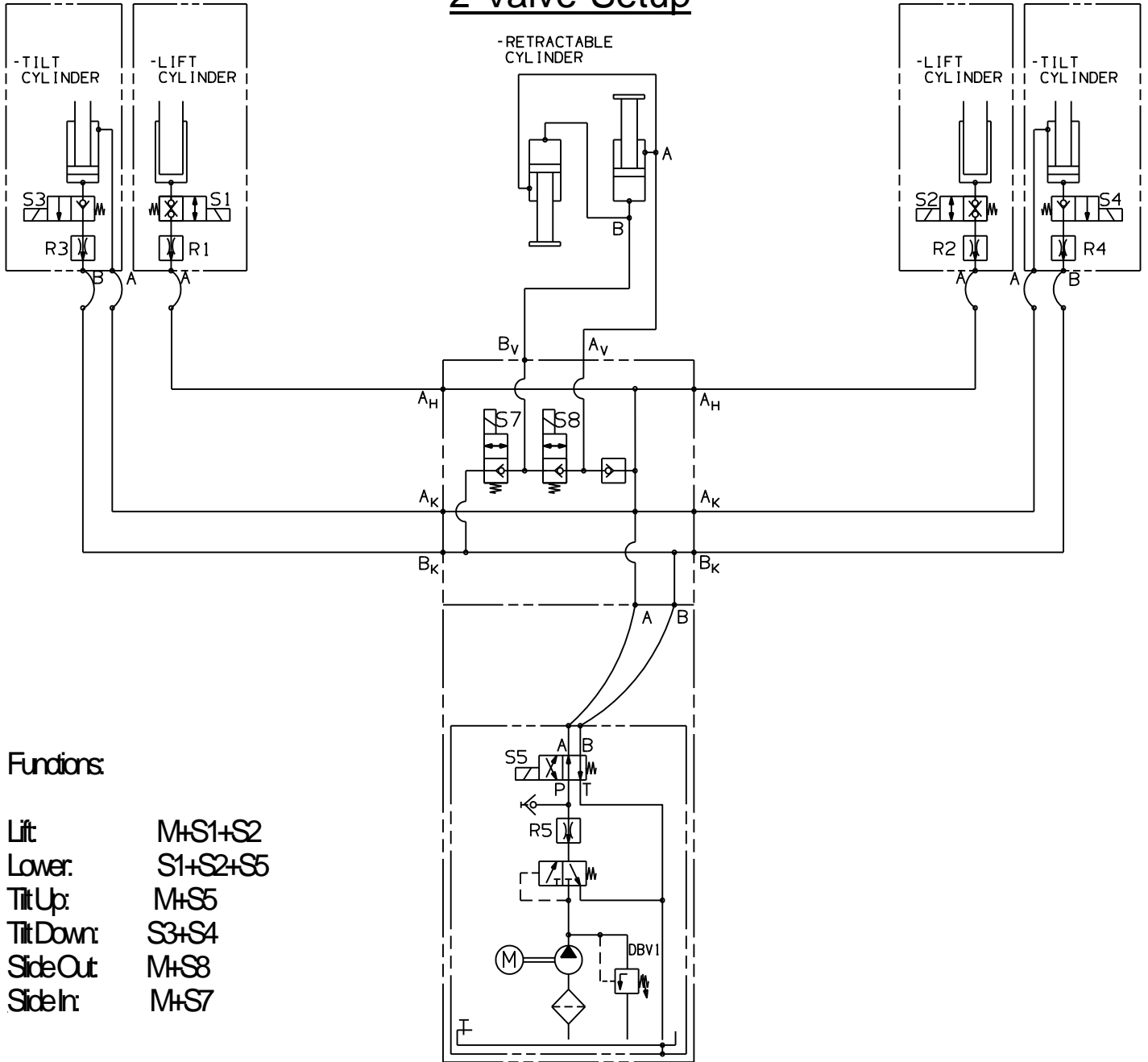
To slide out S8 is activated to allow fluid to both sides of retractable cylinders

To slide in S7 is activated to allow fluid to piston rod side of retractable cylinders

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Hydraulic schematic

2-Valve-Setup



Functions:

- Lift: M+S1+S2
- Lower: S1+S2+S5
- Tilt Up: M+S5
- Tilt Down: S3+S4
- Side Out: M+S8
- Side In: M+S7

S1, S2 only for a double-acting cylinder
They have to be activated through the main circuit

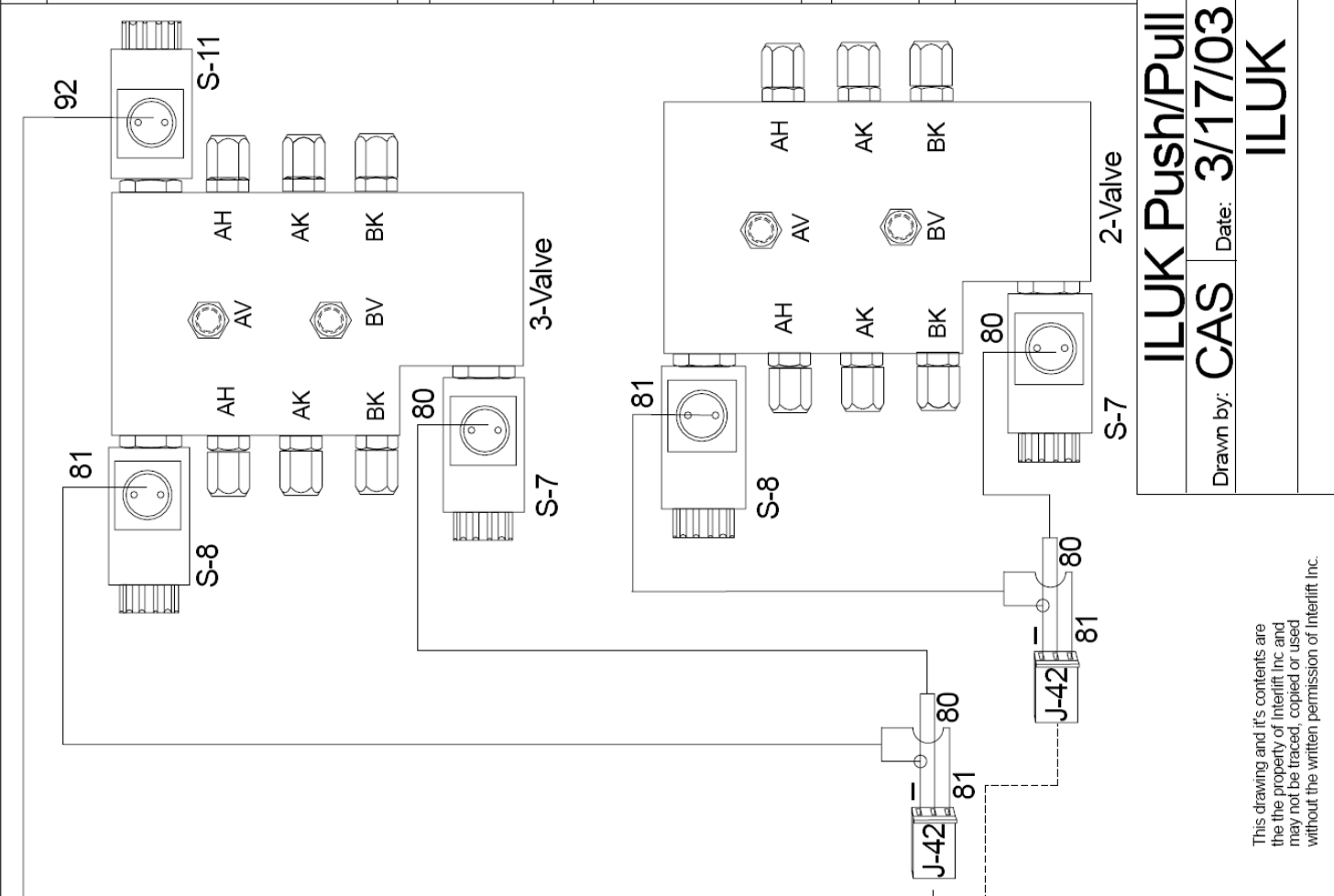
S3 and S4 - double-acting cylinder
R1 and R2 - valve to control the side of the cylinder
R3 and R4 - valve to control the side of the cylinder

Tilt out S3 is activated by the side of the cylinder
Tilt in S7 is activated by the side of the cylinder

R5 - valve to control the power pack
Flow divider is activated when lifting back to power pack
Flow divider is used for grouping the cylinders back to tank

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3-Valve Part Numbers	S-8 & S-7 Double Locking P-1284466 S-11 Single Locking P-67282345 S-11 Opens When Lowering, Lift Cylinder Return Line
2-Valve Part Numbers	S-8 & S-7 Single Locking P-67282345
Hydraulic Ports	AV-Push/Pull In BV-Push/Pull Out AH-Lift Cylinder AK-Tilt Cylinder Down BK-Tilt Cylinder Up Push/Pull Cylinder Out S-7 - Closed S-8 - Open Push/Pull Cylinder In S-7 - Open S-8 - Closed



ILUK Push/Pull Valving

Drawn by: **CAS** Date: **3/17/03** Rev Date:

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Interlift Inc.
15939 Piuma Ave.
Cerritos, California 90703