



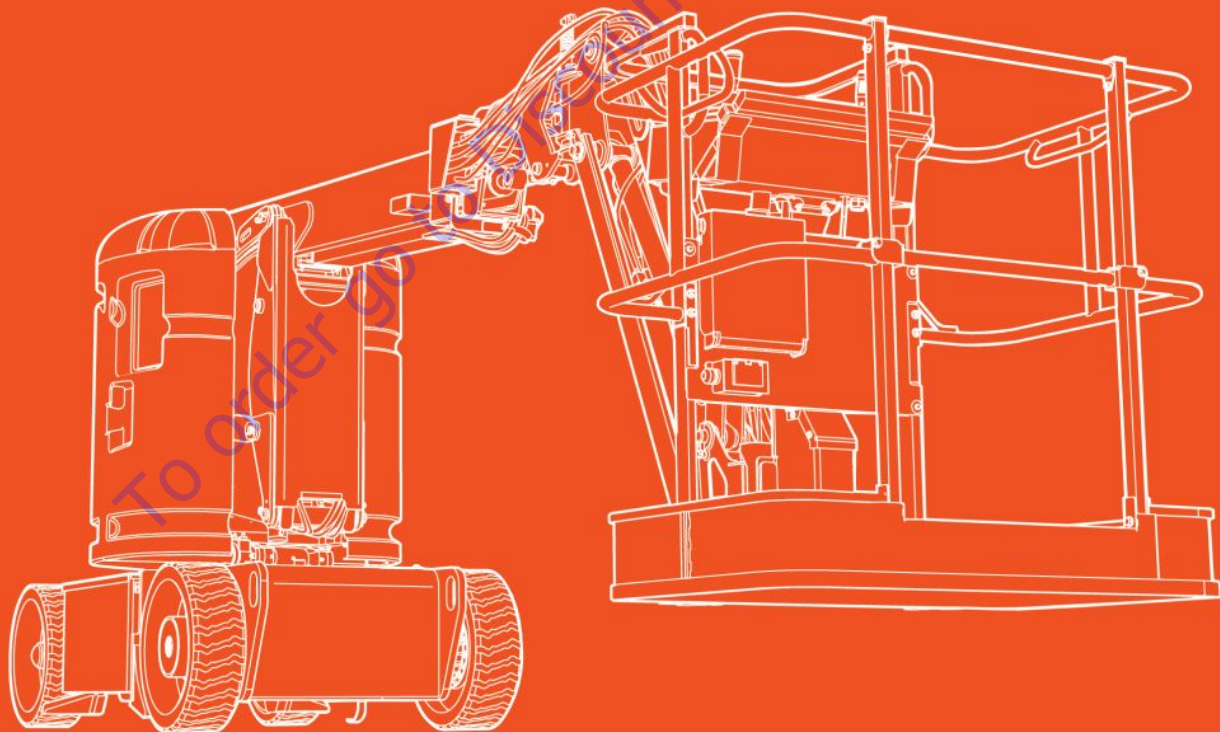
www.Discount-Equipment.com

SKYJACK[™]

SERVICE MANUAL

SJ30 AJE, SJ30 ARJE

ARTICULATING BOOM



229041ADA

August 2020

ANSI/CSA, CE, AS, KC

TO PURCHASE THIS PRODUCT PLEASE CONTACT US



**Equipment Financing and
Extended Warranties Available**



**Discount-Equipment.com is your online resource for
commercial and industrial quality parts and equipment sales.**

561-964-4949

visit us on line @ www.discount-equipment.com

Select an option below to find your Equipment

Search by Manufacturer

Search by Product Type

Request a Quote

We sell worldwide for the brands: Genie, Terex, JLG, MultiQuip, Mikasa, Essick, Whiteman, Mayco, Toro Stone, Diamond Products, Generac Magnum, Airman, Haulotte, Barreto, Power Blanket, Nifty Lift, Atlas Copco, Chicago Pneumatic, Allmand, Miller Curber, Skyjack, Lull, Skytrak, Tsurumi, Husquvarna Target, Stow, Wacker, Sakai, Mi-T-M, Sullair, Basic, Dynapac, MBW, Weber, Bartell, Bennar Newman, Haulotte, Ditch Runner, Menegotti, Morrison, Contec, Buddy, Crown, Edco, Wyco, Bomag, Laymor, EZ Trench, Bil-Jax, F.S. Curtis, Gehl Pavers, Heli, Honda, ICS/PowerGrit, IHI, Partner, Imer, Clipper, MMD, Koshin, Rice, CH&E, General Equipment, Amida, Coleman, NAC, Gradall, Square Shooter, Kent, Stanley, Tamco, Toku, Hatz, Kohler, Robin, Wisconsin, Northrock, Oztec, Toker TK, Rol-Air, APT, Wylie, Ingersoll Rand / Doosan, Innovatech, Con X, Ammann, Mecalac, Makinex, Smith Surface Prep, Small Line, Wanco, Yanmar

This manual is for MEWPs with serial numbers:

SJ30 AJE & SJ30 ARJE: A300 000 001 - A300 999 999

To order go to Discount-Equipment.com

THIS SAFETY ALERT SYMBOL MEANS ATTENTION!



BECOME ALERT! YOUR SAFETY IS INVOLVED.

The Safety Alert Symbol identifies important safety messages on MEWPs, safety signs in manuals or elsewhere. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

 DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

 WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

 CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

IMPORTANT

IMPORTANT indicates a procedure essential for safe operation and which, if not followed, may result in a malfunction or damage to the MEWP.

Table of Contents

Section 1 – Scheduled Maintenance	11
1.1 Read and Heed	11
1.1-1 <i>Mobile Elevating Work Platform (MEWP) Definition</i>	11
1.1-2 <i>Purpose of Equipment</i>	11
1.1-3 <i>Use of Equipment</i>	11
1.1-4 <i>Manual</i>	11
1.1-5 <i>Service Policy and Warranty</i>	11
1.1-6 <i>Operator Safety Reminders, Warnings and Precautions</i>	11
1.2 Maintenance and Service	12
1.2-1 <i>Maintenance and Inspection Schedule</i>	12
1.2-2 <i>Owner's Annual Inspection Record</i>	12
1.2-3 <i>Replacement Parts</i>	12
1.2-4 <i>Maintenance and Service Safety Tips</i>	12
1.2-5 <i>Hydraulic System & Component Maintenance and Repair</i>	13
1.2-6 <i>Hydraulic Maintenance Hints</i>	13
1.2-7 <i>Railing Maintenance and Repair</i>	14
1.3 Scheduled Maintenance	15
1.3-1 <i>Service Bulletins</i>	15
1.3-2 <i>Maintenance and Inspection</i>	15
1.3-3 <i>Maintenance Instructions</i>	15
1.4 Owner's Annual Inspection Record	16
1.5 Pre-Delivery/Maintenance Inspection Checklist	17
1.6 Scheduled Maintenance Inspections	18
1.6-1 <i>Electrical</i>	18
1.6-2 <i>Hydraulic</i>	18
1.6-3 <i>Labels</i>	18
1.6-4 <i>Limit switches</i>	18
1.6-5 <i>Control Compartment</i>	19
1.6-6 <i>Motor/Hydraulic Compartment</i>	20
1.6-7 <i>Base</i>	21
1.6-10 <i>Platform</i>	23
1.6-11 <i>Boom</i>	24
1.6-12 <i>Optional Equipment</i>	25
1.7 Function Tests	26
Section 2 – Maintenance Tables and Diagrams	27
2.1 Standard Hose Numbering System	27
2.2 MEWP Torque Specifications	29

2.3	Torque Specifications for Fasteners (US)	30
2.4	Torque Specifications for Fasteners (Metric).....	31
2.5	Torque Specifications for Hydraulic Couplings & Hoses	32
2.6	Tire Specifications	33
2.7	Maximum Platform Capacities	33
2.8	Floor Loading Pressure.....	34
2.9	Hydraulic Specifications	35
2.10	Specifications and Features - ANSI/CSA	37
2.11	Specifications and Features - CE, AS & KC	39
2.12	Reach Diagram - SJ30 AJE.....	41
2.13	Dimension Diagram - SJ30 AJE	42
2.14	Reach Diagram - SJ30 ARJE.....	43
2.15	Dimension Diagram - SJ30 ARJE	44
Section 3 – System Component Identification and Schematics		45
3.1	Electrical Symbol Chart.....	46
3.2	Hydraulic Symbol Chart	47
3.3	Wire Number and Color Code.....	48
3.4	Hydraulic Parts List	49
3.5	Electrical Parts List	51
3.6	Jib Valves and Port Identifications	54
3.7	Main Manifold Hose Port Identification	55
3.8	Main Manifold Electrical Component Identification.....	56
3.9	Main Manifold Component Identification.....	57
3.10	Main Manifold Harness - ANSI/CSA, CE & AS	58
3.11	Main Manifold Harness - KC.....	59
3.12	Control Cables & Harnesses.....	60
3.13	Platform Limit Switch Harness - KC	61
3.14	Emergency Pump Base Controls Wiring	62
3.15	Direction Sensing Limit Switch Base Control Wiring	63
3.16	High Speed Cut - Out Limit Switches Base Controls Wiring.....	64
3.17	Overload Sensor Platform Controls Wiring	65
3.18	Footswitch Platform Controls Wiring	66
3.19	SGE Platform Controls Wiring	67
3.20	Hydraulic Schematic - SJ30 AJE	69
3.21	Hydraulic Schematic - SJ30 ARJE	70
3.22	Platform Controls Schematic - SJ30 AJE ANSI/CSA.....	71
3.23	Platform Controls Schematic - SJ30 ARJE ANSI/CSA, CE & AS	72
3.24	Platform Controls Schematic - SJ30 ARJE KC	73
3.25	Base Controls Schematic - SJ30 AJE ANSI/CSA.....	74
3.26	Base Controls Schematic - SJ30 ARJE ANSI/CSA & AS.....	75
3.27	Base Controls Schematic - SJ30 ARJE CE	76
3.28	Base Controls Schematic - SJ30 ARJE KC	77

3.29	Electrical Schematic - ANSI/CSA	78
3.30	Electrical Schematic - CE	79
3.31	Electrical Schematic - AS	80
3.32	Electrical Schematic - KC	81
3.33	Motor Controller Electrical Schematic	82
Section 4 – Troubleshooting Information		83
4.1	Introduction	83
4.2	Electrical System	84
4.2-1	<i>All Controls Inoperative</i>	84
4.2-2	<i>All Controls Inoperative If Equipped with Elevate/Trackunit Telematics</i>	86
4.2-3	<i>No Power To Platform</i>	87
4.2-4	<i>All Functions Inoperative from Base Control Console</i>	87
4.2-5	<i>No Boom Up from Base Control Console</i>	88
4.2-6	<i>No Boom Down from Base Control Console</i>	89
4.2-7	<i>All Controls Inoperative</i>	89
4.2-8	<i>No Riser Down from Base Control Console</i>	90
4.2-9	<i>No Turret Rotate Left from Base Control Console</i>	91
4.2-10	<i>No Turret Rotate Right from Base Control Console</i>	91
4.2-11	<i>No Telescope Retract from Base Control Console</i>	92
4.2-12	<i>No Telescope Extend from Base Control Console</i>	93
4.2-13	<i>No Platform Rotate Left from Base Control Console</i>	93
4.2-14	<i>No Platform Rotate Right from Base Control Console</i>	94
4.2-15	<i>No Jib Up from Base Control Console</i>	95
4.2-16	<i>No Jib Down from Base Control Console</i>	96
4.2-17	<i>No Jib Rotate Right from Base Control Console</i>	97
4.2-18	<i>No Jib Rotate Left from Base Control Console</i>	98
4.2-19	<i>No Manual Platform Level Up from Base Control Console</i>	99
4.2-20	<i>No Manual Platform Level Down from Base Control Console</i>	100
4.2-21	<i>All Controls Inoperative from Platform Control Console</i>	101
4.2-22	<i>No Boom Up from Platform Control Console</i>	102
4.2-23	<i>No Boom Down from Platform Control Console</i>	103
4.2-24	<i>No Riser Up from Platform Control Console</i>	104
4.2-25	<i>No Riser Down from Platform Control Console</i>	105
4.2-26	<i>No Turret Left from Platform Control Console</i>	106
4.2-27	<i>No Turret Right from Platform Control Console</i>	107
4.2-28	<i>No Telescope In from Platform Control Console</i>	108
4.2-29	<i>No Telescope Out from Platform Control Console</i>	109
4.2-30	<i>No Platform Rotate Left from Platform Control Console</i>	110
4.2-31	<i>No Platform Rotate Right from Platform Control Console</i>	110
4.2-32	<i>No Jib Up from Platform Control Console</i>	111
4.2-33	<i>No Jib Down from Platform Control Console</i>	111
4.2-34	<i>No Jib Rotate Left from Platform Control Console</i>	112

4.2-35	No Jib Rotate Right from Platform Control Console	113
4.2-36	No Manual Platform Level Up from Platform Control Console	113
4.2-37	No Manual Platform Level Down from Platform Control Console	114
4.2-38	Brake will not Release	115
4.2-39	No Drive and Steer	116
4.2-40	No Forward Drive	116
4.2-41	No Reverse Drive	116
4.2-42	No High Speed Drive	117
4.2-43	No Left Steer	118
4.2-44	No Right Steer	118
4.2-45	Direction Sensing Inoperative	119
4.3	Hydraulic System	119
4.3-1	All Controls Inoperative	120
4.3-2	No Main Boom Up	120
4.3-3	No Main Boom Down	120
4.3-4	No Riser Boom Up	120
4.3-5	No Riser Boom Down	121
4.3-6	No Turret Rotate Left	121
4.3-7	No Turret Rotate Right	121
4.3-8	No Boom Extend	121
4.3-9	No Boom Retract	122
4.3-10	No Jib Up	122
4.3-11	No Jib Down	122
4.3-12	No Platform Rotation Right	123
4.3-13	No Platform Rotation Left	123
4.3-14	No Jib Rotation Right	123
4.3-15	No Jib Rotation Left	124
4.3-16	Platform will not Level Down Manually	124
4.3-17	Platform will not Level Up Manually	125
4.3-18	No Left Steer	125
4.3-19	No Right Steer	126
4.4	Load Sensing System	126
4.4-1	Green Power LED is not Flashing	127
4.4-2	Load Cell red Alarm LED is ON (with platform empty)	127
4.4-3	Red Error LED is ON	127
4.4-4	Load Cell red Alarm LED is OFF (with platform overloaded)	127
4.4-5	Platform Indicator Light does not turn ON	127
4.4-6	Audible Alarm does not turn ON	127
Section 5 – Procedures		129
5.1	General	129
5.1-1	Safety and Workmanship	129
5.2	Platform	130

5.2-1	<i>Human Machine Interface (HMI)</i>	130
5.1-2	<i>User Interface Keys</i>	130
5.2-2	<i>SCM Character Functions Charts</i>	131
5.2-3	<i>SCM Operating Values Chart</i>	132
5.2-4	<i>How to Unlock and Modify the SCM Settings</i>	133
5.2-5	<i>How to Adjust the SCM Pump Motor Speed</i>	134
5.2-6	<i>How to Set the SCM Valve Characteristics</i>	135
5.2-7	<i>SCM Pin Voltage Reference</i>	136
5.2-8	<i>Platform Controller Voltage References</i>	139
5.2-9	<i>Telescope, Riser & Jib Switch Voltage References</i>	140
5.3	Load Sensing System	141
5.3-1	<i>Verify Proper Operation of the Load Sensing System</i>	142
5.3-2	<i>Calibration of Load Sensing System (with “Teach In” Handset)</i>	143
5.4	Boom & Jib	144
5.4-1	<i>Check Wear Pads</i>	144
5.4-2	<i>Shimming Wear Pads</i>	144
5.4-3	<i>Cable Carrier Repair</i>	144
5.4-4	<i>Master Cylinder Replacement</i>	145
5.4-5	<i>Jib Rotary Actuator Bolt Torque Sequence</i>	149
5.4-6	<i>Platform Rotary Actuator Bolt Torque Sequence</i>	149
5.5	Turret	150
5.5-1	<i>Hydraulic Oil Replacement</i>	150
5.5-2	<i>Hydraulic Filter Replacement</i>	150
5.5-3	<i>Hydraulic System Main Relief Valve Adjustment (RV1)</i>	151
5.5-4	<i>Main Pump Relief Valve Adjustment (RV5)</i>	151
5.5-5	<i>Emergency Pump Relief Valve Adjustment (RV6)</i>	152
5.5-6	<i>Turret Rotate Relief Valve Adjustment (RV3)</i>	152
5.5-7	<i>Riser Down Relief Valve Adjustment (RV7)</i>	153
5.5-8	<i>Boom Extend Relief Valve Adjustment (RV4)</i>	153
5.5-9	<i>Platform Level Relief Valve Adjustment (RV2)</i>	154
5.6	Base	154
5.6-1	<i>Battery Replacement</i>	154
5.6-2	<i>Ring Gear Bolt Torque Sequence</i>	155
5.6-3	<i>Check Torque Hub Oil Level</i>	155
5.6-4	<i>Electronic Tilt Switch Setup Procedure</i>	156
5.6-5	<i>Motor Controller Thermal Sensor</i>	159
5.6-6	<i>Motor Controller Panel Pin Interface - Connector A</i>	160
5.6-7	<i>Motor Controller Panel Pin Interface - Connector B</i>	162
5.6-8	<i>Motor Controller Connectors Pin Reference</i>	163
5.6-9	<i>ZAPI MDI-CAN Display</i>	168
5.6-10	<i>ZAPI MDI-CAN Controller Master Codes</i>	169
5.6-11	<i>ZAPI “Skyjack PC CAN Console” Software Guide</i>	176
5.7	Grease Points	188

To order go to Discount-Equipment.com

Section 1 – Scheduled Maintenance

1.1 Read and Heed

Skyjack is continuously improving and expanding product features on its equipment, therefore, specifications and dimensions are subject to change without notice.

1.1-1 Mobile Elevating Work Platform (MEWP) Definition

A mobile device that has a positionable platform supported from ground level by a structure.

1.1-2 Purpose of Equipment

The Skyjack Electric Articulating Boom Series MEWPs are designed to transport and raise personnel, tools and materials to overhead work areas.

1.1-3 Use of Equipment

The MEWP is a highly maneuverable, mobile work station. Work platform elevation and elevated driving must only be done on a firm, level surface.

1.1-4 Manual

Operating Manual: The operating manual is considered a fundamental part of the MEWP. It is a very important way to communicate necessary safety information to users and operators. A complete and legible copy of this manual must be kept in the provided weather-resistant storage compartment on the MEWP at all times.

Service & Maintenance: The purpose of this is to provide the customer with the servicing and maintenance procedures essential for the promotion of proper machine operation for its intended purpose.

All information in this manual should be read and understood before any attempt is made to service the machine. The updated copy of the manuals are found on the company's website: www.skyjack.com.

1.1-5 Service Policy and Warranty

Skyjack warrants each new product to be free of defective parts and workmanship for the first 2 years or 3000 hours, whichever occurs first. Any defective part will be replaced or repaired by your local Skyjackdealer at no charge for parts or labor. In addition, all products have a 5 year structural warranty. Contact the Skyjack Service Department for warranty statement extensions or exclusions.

1.1-6 Operator Safety Reminders, Warnings and Precautions

Operator safety is Skyjack's priority. The operator should comply with all applicable safety-related reminders, warnings and precautions found in the Operating Manual. They should be read and understood completely before operating the MEWP.

1.2 Maintenance and Service

1.2-1 Maintenance and Inspection Schedule

The actual operating environment of the work platform governs the use of the maintenance schedule. The inspection points covered in [1.5 Pre-Delivery/Maintenance Inspection Checklist](#), indicates the areas of the MEWP to be maintained or inspected and at what intervals the maintenance and inspections are to be performed.

1.2-2 Owner's Annual Inspection Record

It is the responsibility of the owner to arrange quarterly and annual inspections of the MEWP. [Table 1.4 Owner's Annual Inspection Record](#) is to be used for recording the date of the inspection, owner's name, and the person responsible for the inspection of the work platform.

1.2-3 Replacement Parts

Use only original replacement parts. Parts such as batteries, wheels, railings, etc. with weight and dimensions different from original parts will affect stability of the MEWP and must not be used without manufacturer's consent.

All replacement tires must be of the same size and load rating as originally supplied tires; to maintain safety and stability of MEWP.

Consult Skyjack's Service Department for optional tires specifications and installation.

WARNING

Any unit that is damaged or not operating properly must be immediately tagged and removed from service until proper repairs are completed.

1.2-4 Maintenance and Service Safety Tips

Maintenance and repair should only be performed by personnel who are trained and qualified to service this MEWP.

All maintenance and service procedures should be performed in a well lighted and well ventilated area.

Anyone operating or servicing this MEWP must read and completely understand all operating instructions and safety hazards in this manual and operating manual.

All tools, supports and lifting equipment to be used must be of proper rated load and in good working order before any service work begins. Work area should be kept clean and free of debris to avoid contaminating components while servicing.

Ensure personnel are clear from under unsupported components/systems that are at risk of movement during maintenance.

All service personnel must be familiar with employer and governmental regulations that apply to servicing this type of equipment.

Keep sparks and flames away from all flammable or combustible materials.

Properly dispose of all waste material such as lubricants, rags, and old parts according to the relative law provisions obtaining in the country.

Before attempting any repair work, disconnect the main power connectors.

Preventive maintenance is the easiest and least expensive type of maintenance.

1.2-5 Hydraulic System & Component Maintenance and Repair

The following points should be kept in mind when working on the hydraulic system or any component:

WARNING

Escaping fluid from a hydraulic pressure leak can damage your eyes, penetrate the skin and cause serious injury. Use proper personal protection at all times.

1. Any structure has limits of strength and durability. To prevent failure of structural parts of hydraulic components, relief valves which limit pressure to safe operating values are included in the hydraulic circuits.
2. Tolerance of working parts in the hydraulic system is very close. Even small amounts of dirt or foreign materials in the system can cause wear or damage to components, as well as general faulty operation of the hydraulic system. Every precaution must be taken to assure absolute cleanliness of the hydraulic oil.
3. Whenever there is a hydraulic system failure which gives reason to believe that there are metal particles or foreign materials in the system, drain and flush the entire system and replace the filter cartridges. A complete change of oil must be performed under these circumstances.
4. Whenever the hydraulic system is drained, check the magnets in the hydraulic reservoir for metal particles. If metal particles are present, flush the entire system and add a new change of oil. The presence of metal particles also may indicate the possibility of imminent component failure. A very small amount of fine particles is normal.
5. All containers and funnels used in handling hydraulic oil must be absolutely clean. Use a funnel when necessary for filling the hydraulic oil reservoir, and fill the reservoir only through the filter opening. The use of cloth to strain the oil should be avoided to prevent lint from getting into the system.
6. When removing any hydraulic component, be sure to cap and tag all hydraulic lines involved. Also, plug the ports of the removed components.

7. All hydraulic components must be disassembled in spotlessly clean surroundings. During disassembly, pay particular attention to the identification of parts to assure proper reassembly. Clean all metal parts in a clean mineral oil solvent. Be sure to thoroughly clean all internal passages. After the parts have been dried thoroughly, lay them on a clean, lint-free surface for inspection.
8. Replace all O-rings and seals when overhauling any component. Lubricate all parts with clean hydraulic oil before reassembly. Use small amounts of petroleum jelly to hold O-rings in place during assembly.
9. Be sure to replace any lost hydraulic oil when completing the installation of the repaired component, and bleed any air from the system when required.
10. All hydraulic connections must be kept tight. A loose connection in a pressure line will permit the oil to leak out or air to be drawn into the system. Air in the system can cause damage to the components and noisy or erratic system operation.

1.2-6 Hydraulic Maintenance Hints

Three simple maintenance procedures have the greatest effect on the hydraulic system performance, efficiency and life. Yet, the very simplicity of them may be the reason they are so often overlooked. They are simply these:

1. Change filters annually. The filters will need to be changed more often depending on the operating conditions. Dirty, dusty, high moisture environments may cause the hydraulic system to be contaminated more quickly.
2. Maintain a sufficient quantity of clean hydraulic oil of the proper type and viscosity in the hydraulic reservoir.
3. Keep all connections tight.

1.2-7 Railing Maintenance and Repair

Skyjack MEWPs have been designed to ensure compliance with the relevant design standards applicable for that particular unit at the time of manufacture. As such, any repairs made to the guardrail or basket structure need to ensure this compliance is not compromised and must return the structure to its original condition.

Any damage must be repaired by returning the railing assembly to its undamaged state. Damage includes, but is not limited to, the items listed below:

- bent/deformed guardrail sections
- cracks or broken welds in railing sections
- damaged pin connections
- missing pins or broken pin lanyards
- missing railing hardware
- loose or missing parts
- additional holes in guardrail sections other than those approved by Skyjack

Additionally, the guardrails must be properly positioned and secured, and the entry gate must be in good working order.

The strength of the guardrail system, and therefore its ability to provide fall protection for platform occupants, depends upon the design being secure and undamaged.

Skyjack railings are designed for modular replacement, and Skyjack recommends replacement of any damaged railing section. Skyjack-approved replacement parts will meet this requirement.

1.3 Scheduled Maintenance

This section contains the maintenance and inspection schedule that is to be performed.

References are made to the procedures in Section 5 that outline detailed step-by-step instructions for checks and replacements.

1.3-1 Service Bulletins

Before performing any scheduled maintenance inspection procedure, refer to the service bulletins found on our website: www.skyjack.com for updates related to the service and maintenance of this MEWP.

1.3-2 Maintenance and Inspection

Death or injury can result if the MEWP is not kept in good working order. Inspection and maintenance should be performed by competent personnel who are trained and qualified on maintenance of this MEWP.

WARNING

Failure to perform each procedure as presented and scheduled may cause death, serious injury or substantial damage.

NOTE

Preventive maintenance is the easiest and least expensive type of maintenance.

- Unless otherwise specified, perform each maintenance procedure with the MEWP in the following configuration:
 - MEWP parked on a flat and level surface
 - Disconnect the batteries by disconnecting the main power connectors.
- Repair any damaged or malfunction components before operating MEWP.
- Keep records on all inspections.

1.3-3 Maintenance Instructions
















This manual consists of four schedules to be done for maintenance on a MEWP. The inspection schedule frequency is shown below:

Issue or Symptom		
PDI/Frequent	B	Perform a PDI prior to each delivery, or a Frequent Inspection every 200 days or 200 hours.
Annual	B + C	Perform Scheduled Maintenance Inspections every year.
Additional	*	Perform at time sensitive maintenance intervals.

- Make copies of the maintenance and inspection checklist to be used for each inspection.
- Check the schedule on the checklist for the type of inspection to be performed.
- Place a check in the appropriate box after each inspection procedure is completed.
- Use the maintenance and inspection checklist and step-by-step procedures in Section 1 to perform these inspections.
- If any inspection receives a fail, tag and remove the MEWP from service.
- If any MEWP component(s) has been repaired, an inspection must be performed again before removing the tag. Place a check in the repair column.

Legend	
Pass	P
Fail	F
Repaired	R
Not applicable	N/A

Table 1.4 Owner's Annual Inspection Record

		Model _____		SN _____							
<i>Inspection Date</i> 											
	20	20	20	20	20	20	20	20	20	20	20
<i>Inspector Signature</i> 											
											

⚠ WARNING

Do not use the MEWP if there is no inspection recorded in the last 13 months. If you do not obey, there is a risk of death or serious injury.

IMPORTANT

The Owner's annual inspection record is located on the scissor assembly. It must be filled out after an annual inspection has been completed. Do not use the MEWP if an inspection has not been recorded in the last 13 months.

To order go to Discount-Equipment.com

1.5 Pre-Delivery/Maintenance Inspection Checklist



Frequent/Periodic/Annual PDI Checklist

Electric Articulating Booms

Serial Number: Starting with serial number A000 000 000 or B000 000 000 and above

Product Owner: _____

Model: _____

Product User: _____

Hourmeter Reading: _____

Date/Time: _____

Use this table for pre-delivery inspections (PDI) before each rental, lease or sale and as an instruction for all frequent inspections and annual inspections. Refer to the operation and service manuals for inspection instructions (for example, visual inspection and function tests, torque specs, engine oil, chain inspection intervals, and more).

Inspection Type (Choose one): Pre-delivery Frequent Periodic Annual

Inspection Type Schedule	
PDI/Frequent/Periodic	B
Annual	B+C

B - Do the pre-delivery inspection before the machine is sent out or during the frequent inspections at 200 days or 200 hour intervals. For more instructions, refer to the operation and service manuals. **P** - Pass
N/A - Not Applicable

C - Do the scheduled maintenance inspections each year. For more instructions, refer to the operation and service manuals.

Put a check mark on the "Pass" column as you meet the requirements of the inspection of each item. Add a comment if the item does not pass inspection.

Items for Inspection	P	N/A
Service Bulletins. Make sure there are no open service bulletins.	B	
Annual Inspection. Make sure you complete it within 13 months.	B	
Labels. In place, correctly attached and you can read them.	B	
Limit Switches. Correctly installed and no obstructions or damage.	B	
CONTROL COMPARTMENT		
Base Control Console. Operate the switches and make sure they all operate correctly. No damage or missing components.	B	
Main Manifold. Tight fittings and hoses and no damage or leaks. Tight wire connections, no missing components and correctly working valves.	B	
MOTOR/HYDRAULIC COMPARTMENT		
Hydraulic Tank. Filler cap closed tightly and no damage or leaks.	B	
Hydraulic Filter. Correctly attached and no damage, missing components or leaks.	B	
Hydraulic Filter. Do a check of the filter.	C	
Hydraulic Pump/Motor. Tight fittings and hoses and no damage or leaks. No damage, missing components or leaks.	B	
Hydraulic Oil. Level between min. and max. marks.	B	
Emergency Power Unit. Tight fittings and hoses and no damage or leaks. Tight wire connections, no missing components.	B	
Turret Rotation Motor/Gear. Tight fittings, hoses and bolts. No damage, missing components or leaks. Make sure the gears are lubricated.	B	
Turret Rotation Motor/Gear. Lubricate the gears.	C	
BASE		
Electrical Panel. Correctly attached and no damage. Tight wire connections and fasteners.	B	
Main Power Connectors. Cables are correctly attached. No damage. Operates correctly.	B	
Torque Hubs. Correctly attached and no damage or missing components. Tight fittings, hoses and bolts. No leaks.	B	
Wheel Motors. Correctly attached. No damage or missing components.	B	
Steer Assembly. Correctly attached and no missing components. Tight fittings and hoses. No leaks, damage or wear.	B	
Wheel/Tire Assembly. Do a check of all tires for damage, wear and correctly aligned.	B	
Wheel/Tire Assembly. No loose bolts. Wheel nuts torqued as recommended.	C	

Items for Inspection	P	N/A
Base Weldment. No cracks or deformation.	B	
Battery Trays. Trays and covers are latched tightly and no missing components.	B	
Batteries. No damage, tight connections and sufficient fluid levels. Clean terminals and cable ends.	B	
Battery Charger. Correctly attached and no damage.	B	
BOOM		
Boom. No damage or missing components. No deformation or cracks in welds. Tight fittings, hoses, bolts, and pins. No leaks.	B	
Riser. No damage or missing components. No deformation or cracks in welds. Tight fittings, hoses, bolts, and pins. No leaks.	B	
Cylinders. No damage or missing components. Tight fittings and hoses and no leaks. Pins and bushing are tight and correctly installed.	B	
Wear Pads. No damage, wear or missing components. Fasteners tight.	B	
Wear Pads. Clearance is correct.	C	
Cable Track. No damage or missing components.	B	
Jib. No damage or missing components. Tight hoses and bolts and no leaks.	B	
Rotary Actuators. No damage or missing components. Tight fittings, hoses and bolts and no leaks.	B	
PLATFORM		
Railings and Gate. Correctly attached and no damage or missing components.	B	
Platform Floor. Correctly attached and no damage or missing components.	B	
Footswitch. Correctly attached. Operates correctly with no modifications.	B	
Fall-Protection Anchorage. Anchorages are correctly attached and no damage.	B	
AC Power Socket. No obstructions, dirt, or damage.	B	
Platform Control Console. Operate the switches and make sure they all operate correctly. No damage or missing components.	B	
Manuals. In storage the box, in good condition, and you can read them.	B	
OPTIONAL EQUIPMENT		
Special Options and Approved Attachments. Correctly attached and no damage or missing components.	B	
Function Tests. Refer to the operating manual for your serial number for information on how to run these tests.		PASS
		FAIL

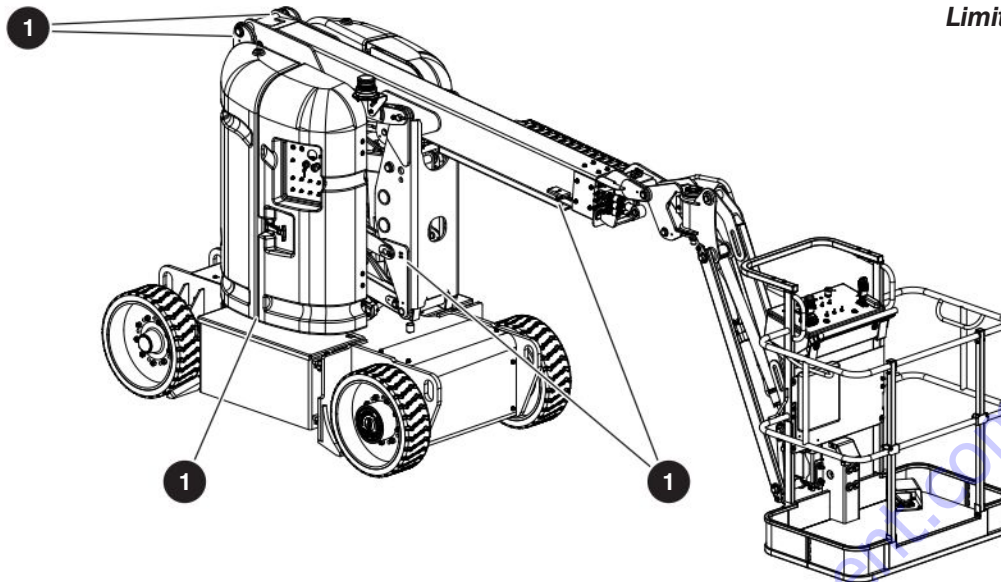
199343AA

Comments: _____

The undersigned has made sure that all areas in the list have received an inspection.
The undersigned has told the machine owner of all inconsistencies in the inspection and corrected them before machine operation.

Owner: _____ Print Name _____ Signature _____ Date (DD/MM/YY) _____

User: _____ Print Name _____ Signature _____ Date (DD/MM/YY) _____



Limit Switch Locations

1.6 Scheduled Maintenance Inspections

Do an inspection of the MEWP in this sequence.

⚠ WARNING

Do not operate a MEWP until all malfunctions have been corrected. If you do not obey, there is a risk of death or serious injury.

⚠ WARNING

Disconnect the main power connectors before you do the visual and daily maintenance inspections. If you do not obey, there is a risk of death or serious injury.

1.6-1 Electrical

Do a check on these areas for chafed, corroded, and loose wires:

- Boom to platform cable harness
- Engine compartment electrical panel
- Engine wiring harness
- Rotary manifold wiring

1.6-2 Hydraulic

Do a check on these areas and make sure there are no signs of leakage:

- Hydraulic tank filter, fittings, hoses, emergency-power unit, turret and base surfaces
- Engine compartment fittings, hoses, primary pump, filter, turret and base surface
- All hydraulic cylinders
- All hydraulic manifolds
- The ground area below the MEWP.

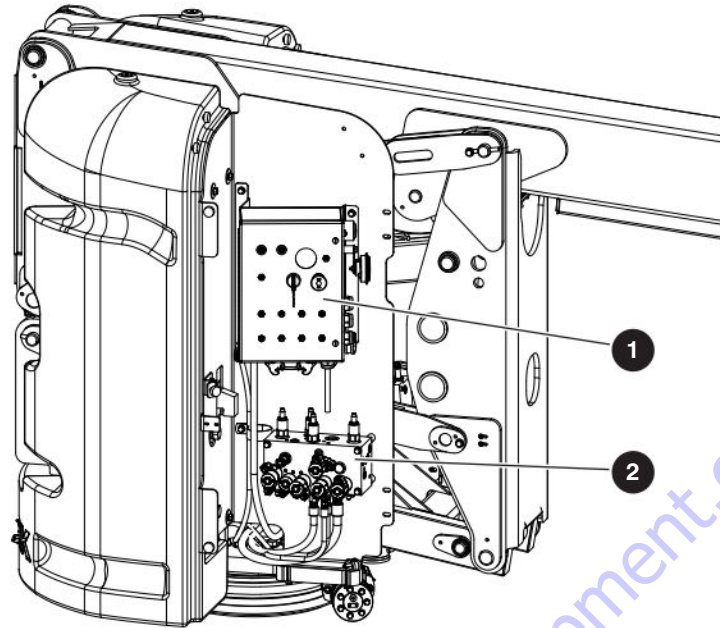
1.6-3 Labels (B)

Refer to the labels section in the Operating Manual. Make sure all the labels are in the correct location, are in good condition, and you can read them.

1.6-4 Limit switches (B)

Do an inspection of all limit switches **1** located inside the turret and on the boom. Inspect for the following:

- Broken or missing actuator arms
- Missing fasteners
- Loose wiring.



1.6-5 Control Compartment

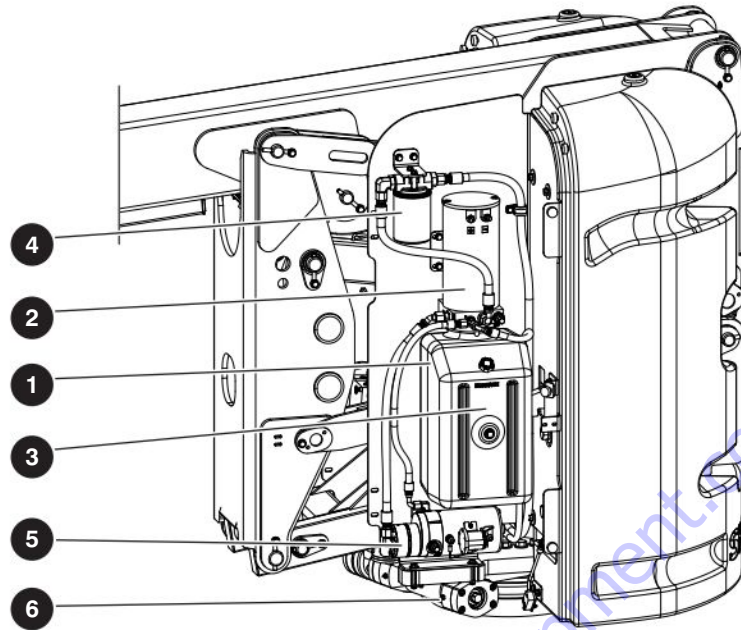
Make sure all compartment latches are latched tightly and in good condition.

1 Base Control Console (B)

- Make sure there are no loose or missing parts.
- Make sure there is no visible damage, and all the switches are in their off/neutral positions.

2 Main Manifold (B)

- Make sure all fittings and hoses are correctly tightened.
- Make sure there is no indication of hydraulic leakage.
- Make sure there are no loose wires or missing fasteners.



1.6-6 Motor/Hydraulic Compartment

Make sure all compartment latches are latched tightly and in good condition.

1 Hydraulic tank (B)

- Make sure the hydraulic filler cap closes tightly.
- Make sure there is no visible damage or hydraulic leaks.

2 Hydraulic pump and motor (B)

- Make sure there are no loose or missing parts.
- Make sure there is no visible damage.
- Make sure all bolts are correctly tightened.
- Make sure all fittings and hoses are correctly tightened and there are no hydraulic leaks.

3 Hydraulic oil (B)

- Make sure the boom is in the stowed position.
- Do a check on the **gauge** on the side of the hydraulic oil tank. The hydraulic oil level must be at or a small distance above the top mark of the gauge. Add oil if it is necessary. Refer to [2.9 Hydraulic Specifications](#).

4 Hydraulic filter (B)

- Make sure the filter housing is attached and tight.
- Make sure there is no visible damage or hydraulic leaks.

5 Emergency power unit (B)

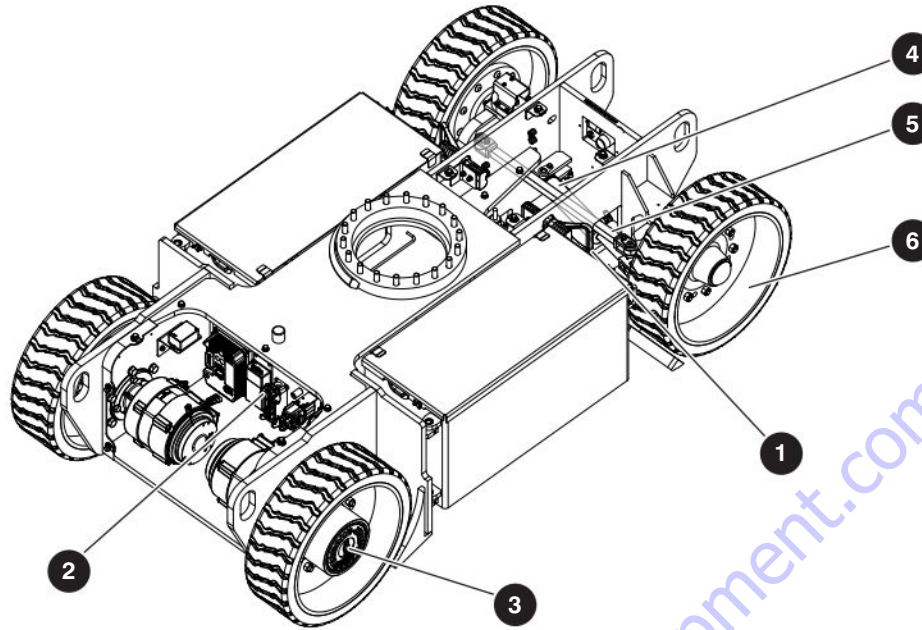
- Make sure there are no loose or missing parts.
- Make sure there are no loose wires or missing fasteners.
- Make sure there is no visible damage.
- Make sure all the fittings and hoses are correctly tightened and there are no hydraulic leaks.

6 Turret rotation motor and gear (B,C)

- Make sure there are no loose or missing parts.
- Make sure there is no visible damage.
- Make sure all bolts are correctly tightened.
- Ensure that all fittings and hoses are properly tightened and there is no evidence of hydraulic leakage.

C - Annual Inspection

- For the lubrication procedure refer to section [5.7-1 Lubrication](#).



1.6-7 Base

1 Main power connectors (B)

- Disconnect and lock out the connector on either the left or right side of the MEWP.
- Make sure the cables are not loose.
- Make sure there is no visible damage.

2 Electrical panel

- Make sure there are no loose or missing parts.
- Make sure there is no visible damage.
- Make sure all bolts are correctly tightened.
- Make sure there are no loose wires.

3 Torque hubs (B)

- Make sure the hubs are correctly attached.
- Make sure there are no loose or missing parts.
- Make sure all the fittings and hoses are correctly tightened and there are no hydraulic leaks.

4 Steer cylinder assembly (B)

- Make sure there are no loose or missing parts.
- Make sure all the fittings and hoses are correctly tightened and there are no hydraulic leaks.

5 Steering linkage (B)

- Make sure there are no loose or missing parts.
- Make sure the tie rod end studs are locked and there is no visible damage.

6 Wheel/tire assembly (B,C)

- Do a check on all tire treads and sidewalls for cuts, cracks, holes, and unusual wear.
- Do a check on each wheel for damage, and cracked welds.
- Do a check on each lug nut for the correct torque to make sure they are not loose.
- Make sure the wheels are correctly aligned vertically and horizontally.
- Make sure there are no loose or missing parts.
- Make sure there is no visible damage.

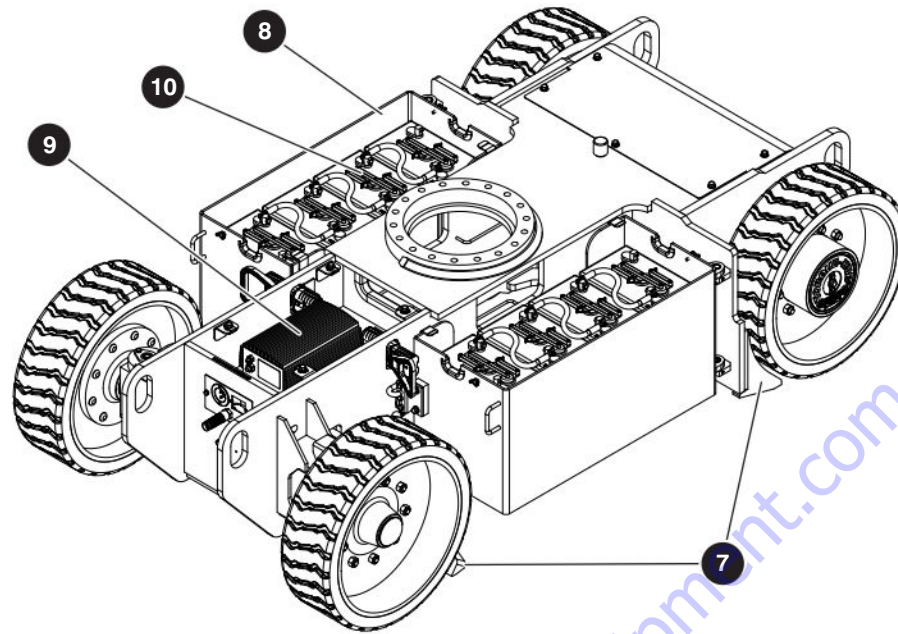
B - Frequent Inspection

- For torque specifications, refer to [2.2 MEWP Torque Specifications](#).

⚠ WARNING

Do not use tires other than the tires that Skyjack specifies for this MEWP. Do not mix different types of tires or use tires that are not in good condition. Only replace the tires with the same types that are approved by Skyjack. The use of other tires can make the MEWP less stable. If you do not obey, there is a risk of death or serious injury.

Refer to [2.6 Tire Specifications](#).



7 Pothole Protection

- Make sure there are no visible cracks in welds or structure and there are no signs of deformation.

8 Battery Trays

- Make sure the tray latches are secure and in good condition.

9 Battery Charger

- Make sure the charger is correctly attached.
- Make sure there is no visible damage.

10 Batteries (B)

B - Frequent Inspection

- Do an inspection of the battery case for damage.
 - Clean the battery terminals and cable ends thoroughly with a terminal cleaning tool or wire brush.
- Make sure all the battery connections are tight.
- If applicable, check the battery fluid level.
 - If the plates do not have a minimum 13 mm (1/2 inch) of solution above them, add distilled or demineralized water.
 - Replace the battery if it is damaged or cannot hold a lasting charge.

⚠ WARNING

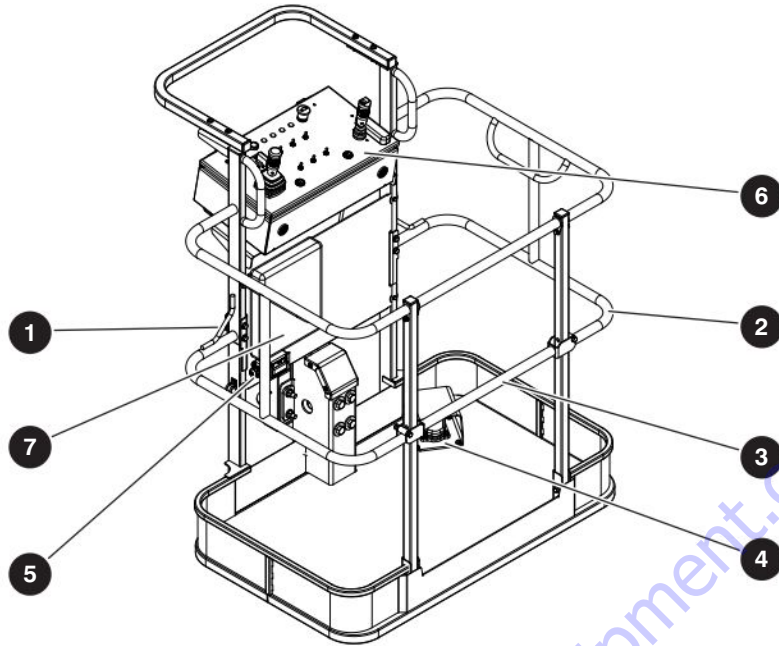
Explosion hazard. Keep flames and sparks away. Do not smoke near the batteries. If you do not obey, there is a risk of death or serious injury.

⚠ WARNING

Corrosion hazard. Do not touch battery acid. Wear the correct PPE. If the battery acid touches you, immediately flush the area with cold water and get medical aid.

⚠ WARNING

Only use original or manufacturer-approved parts and components for the MEWP. If you do not obey, there is a risk of death, serious injury, or machine damage.



1.6-10 Platform

1 2 Railings and gates

- Make sure there are no loose or missing parts, and there is no visible damage.
- Make sure the fasteners are correctly installed.
- Make sure the platform railings 1 are in the correct position.
- Make sure the gates or drop bars 2 are in good condition and operate correctly.

3 MEWP floor

- Make sure the MEWP floor is solid and there is no visible damage.

4 Footswitch

- Make sure the footswitch is in good working order and has not been tampered with, disabled or blocked.

5 Fall-protection anchorages

- Make sure that the fall-protection anchorages are correctly installed.
- Make sure there is no visible damage.

6 AC power socket

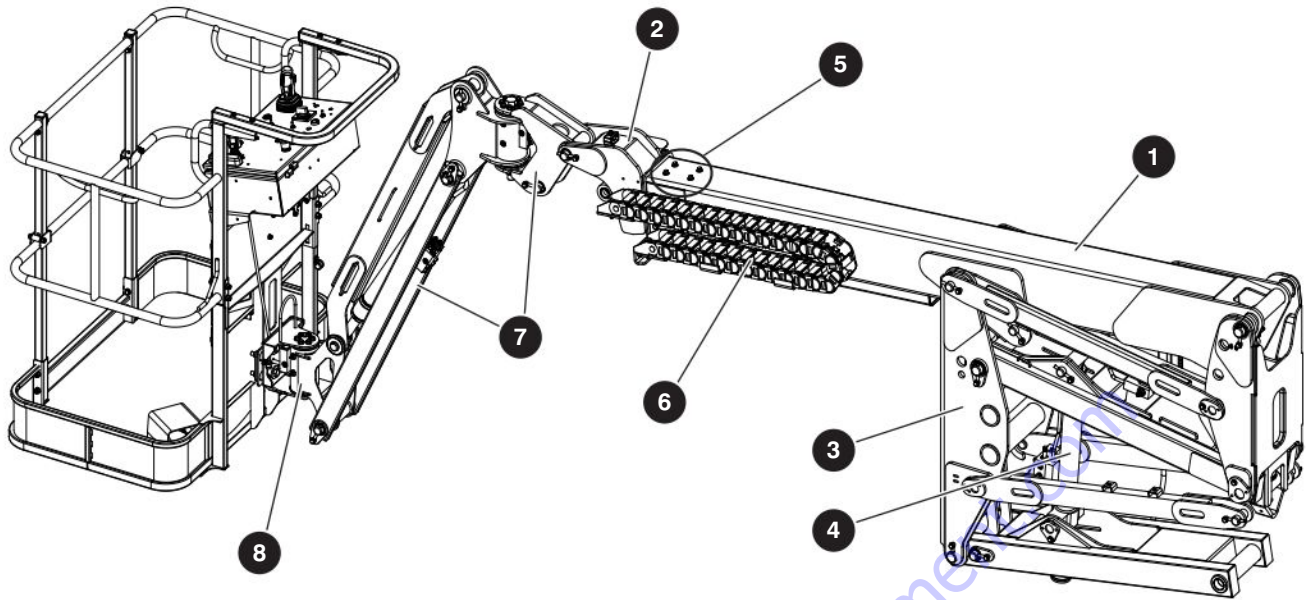
- Make sure that the socket is free of dirt or blockages.

7 Platform control console (B)

- Make sure all switches and controllers are in the neutral position.
- Make sure there are no loose or missing parts, and there is no visible damage.

8 Manual storage box (B)

- Make sure that the operation manual and other important documents are in the manual storage box.
- Make sure that the documents are in good condition, and you can read them.
- Always put the manuals and other documents back in the storage box after use.



1.6-11 Boom

1 Rotary actuator

- There are no loose or missing parts, and there is no visible damage.
- All fasteners are correctly tightened.
- All hoses are correctly tightened and there is no sign of hydraulic leakage.

2 Jib (if equipped) (B)

- There are no loose or missing parts, and there is no visible damage.
- All fasteners are correctly tightened.
- All hoses are correctly tightened and there is no sign of hydraulic leakage.

3 Boom (B)

- There are no loose or missing parts, and there is no visible damage.
- All fasteners are correctly tightened.
- All hoses are correctly tightened and there is no sign of hydraulic leakage.
- Make sure there are no visible cracks in welds or structure and there are no signs of deformation.

3 Riser (B)

- There are no loose or missing parts, and there is no visible damage.
- All fasteners are correctly tightened.

- All hoses are correctly tightened and there is no sign of hydraulic leakage.

- Make sure there are no visible cracks in welds or structure and there are no signs of deformation.

4 Cable Track (B)

- There are no loose or missing parts, and there is no visible damage.

5 Wear Pads (B)

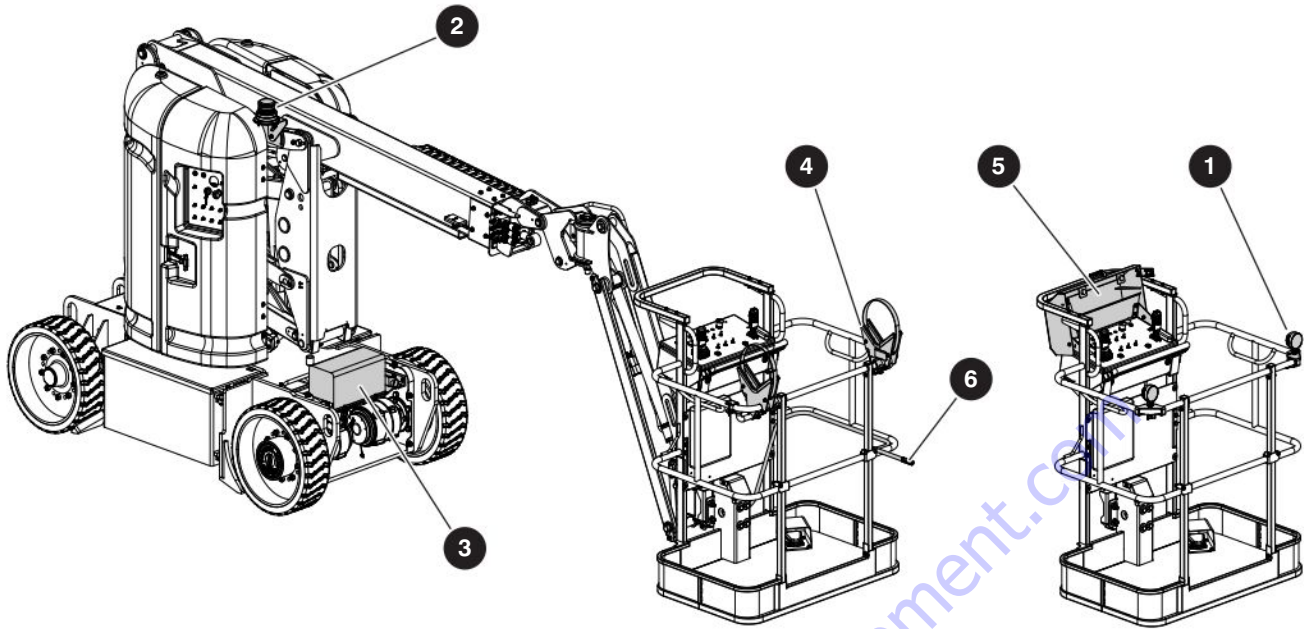
- All fasteners are correctly tightened.
- There are no loose or missing parts, and there is no visible damage to the wear pads.

6 Cylinders (B)

- Make sure the cylinders are correctly installed.
- Make sure there is no indication of leaks or damage.
- Make sure all pins and bushings are secure and properly tightened.

7 Control Cables and Hoses (B)

- There are no loose or missing parts, and there is no visible damage.
- All hoses are correctly tightened and there is no sign of hydraulic leakage.



1.6-12 Optional Equipment

2 Flashing Amber Light

- The lamp is correctly attached, and there is no visible damage.

3 Inverter

- The inverter is correctly attached, and there is no visible damage.

4 Pipe Rack

- There are no loose or missing parts, and there is no visible damage.

5 Control Box Cover

- The cover is correctly attached, and there is no visible damage.

6 Air Line

- The air line is correctly attached, and there is no visible damage.

1.7 Function Tests

Function tests are designed to discover any malfunctions before a MEWP is put into service. The operator must understand and follow the step-by-step instructions to test all MEWP functions.

IMPORTANT

Never use a malfunctioning MEWP. If malfunctions are discovered, the MEWP must be tagged and placed out of service. Repairs to the MEWP may only be made by qualified/competent repair personnel.

After repairs are completed, the operator must perform a pre-operation inspection and a series of function tests again before putting the MEWP into service.

Prior to performing function tests, be sure to read and understand the “Start Operation” section of the operating manual.

For function test that are to be performed, please refer to the operating manual that corresponds to the correct serial number. Found there are detailed instructions for which tests to perform, as well as how to properly and successfully perform them.

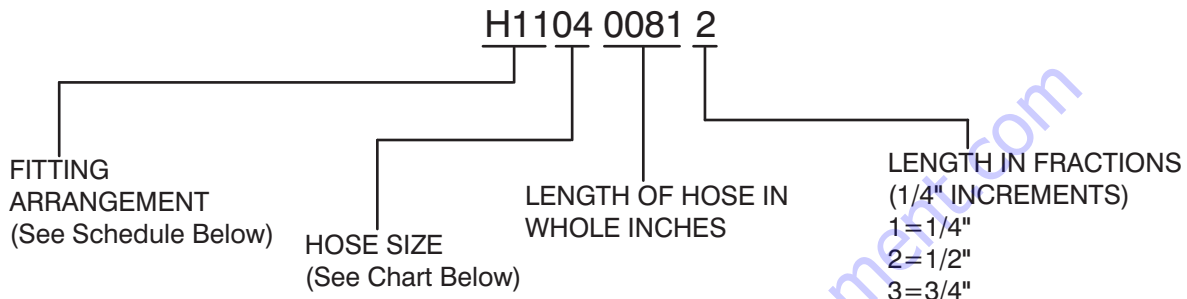


NOTE

All-function motion alarm should sound while operating any boom and drive function.

Section 2 – Maintenance Tables and Diagrams

Table 2.1 Standard Hose Numbering System



Using the number above as an example, H1104 0081 2, this hose requires a 37° JIC female swivel fitting on one end, and a medium length 90° JIC female swivel fitting for the other end. The hose must meet or exceed the S.A.E. 100R13 hose specification, and be a total of 81-1/2" long.



NOTE

Hose ends and hose must be from same manufacturer per S.A.E. J1273 Nov. '91, Sections 3.10 and 4.2. Hose ends and hose must be of the same size i.e. #4 size fittings must be used with #4 size hose.

Hose Size Chart														
Size	03	04	06	08	10	12	16	20	24	32	40	48	56	64
ID	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"

Fitting Arrangement Schedule			
Hose Prefix	Hose End Fitting	Hose End Fitting	S.A.E. Hose Specification
H01	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H02	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R13
H03	FEMALE, 37° JIC, SWIVEL	45°, FEMALE, 37° JIC, SWIVEL	100R17
H04	FEMALE, 37° JIC, SWIVEL	45°, FEMALE, 37° JIC, SWIVEL	100R13
H05	FEMALE, 37° JIC, SWIVEL	LONG 90°, FEMALE, 37° JIC, SWIVEL	100R17
H06	FEMALE, 37° JIC, SWIVEL	SHORT 90°, FEMALE, 37° JIC, SWIVEL	100R17
H07	LONG 90°, FEMALE, 37° JIC, SWIVEL	LONG 90°, FEMALE, 37° JIC, SWIVEL	100R17
H08	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R4
H09	FEMALE, 37° JIC, SWIVEL	45°, FEMALE, 37° JIC, SWIVEL	100R4
H10	FEMALE, 37° JIC, SWIVEL	MALE PIPE THREAD FITTING	100R17
H11	FEMALE, 37° JIC, SWIVEL	MEDIUM 90°, FEMALE, 37° JIC, SWIVEL	100R13
H12	SHORT 90°, FEMALE, 37° JIC, SWIVEL	SHORT 90°, FEMALE, 37° JIC, SWIVEL	100R17
H13	FEMALE, 37° JIC, SWIVEL	REUSABLE MALE PIPE THREAD FITTING	300 PSI
H14	REUSABLE MALE PIPE THREAD FITTING	NO FITTING	300 PSI

Hose Prefix	Hose End Fitting	Hose End Fitting	S.A.E. Hose Specification
H15	REUSABLE FEMALE, 37° JIC, SWIVEL	REUSABLE FEMALE, 37° JIC, SWIVEL	300 PSI
H16	NO FITTING	NO FITTING	100R4
H17	NO FITTING	NO FITTING	300 PSI
H18	REUSABLE, FEMALE, 37° JIC, SWIVEL	NO FITTING	300 PSI
H19	LONG 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R13
H20	FEMALE, SHORT 37° JIC, SWIVEL	SHORT 90°, FEMALE, 37° JIC, SWIVEL	100R4
H21	FEMALE, SHORT 37° JIC, SWIVEL	SHORT 90°, FEMALE, 37° JIC, SWIVEL	100R2AT
H22	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R2AT
H23	FEMALE, LONG 37° JIC, SWIVEL	LONG 90°, FEMALE, 37° JIC, SWIVEL	100R2AT
H24	FEMALE, SHORT 37° JIC, SWIVEL	SHORT 90°, FEMALE, 37° JIC, SWIVEL	100R13
H25	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R4
H30	MEDIUM 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H31	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H32	SHORT 45°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H33	MEDIUM 45°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H34	SHORT 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H35	MEDIUM 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H36	LONG 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H37	SHORT 45°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R4
H38	SHORT 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R4
H39	LONG 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R4
H40	SHORT 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R16
H43	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R16
H51	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H52	SHORT 45°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H53	MEDIUM 45°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H54	SHORT 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H55	MEDIUM 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H56	LONG 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H57	SHORT 45°, FEMALE, SAE ORFS, SWIVEL	FEMALE, SAE ORFS, SWIVEL	100R13
H58	FEMALE, SAE ORFS, SWIVEL	FEMALE, SAE ORFS, SWIVEL	100R13
H59	MEDIUM 90°, FEMALE, SAE ORFS, SWIVEL	FEMALE, SAE ORFS, SWIVEL	100R13
H60	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H61	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R16
H62	SHORT 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R16
H63	MEDIUM 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R16
H64	LONG 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R16
H65	MEDIUM 67°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R12
H66	FEMALE, 37° JIC, SWIVEL	NO FITTING	100R4
H67	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R19
H68	SHORT 45°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R19
H69	MEDIUM 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R19
H70	LONG 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R19
H71	LONG 90°, FEMALE, SAE ORFS, SWIVEL	FEMALE, SAE ORFS, SWIVEL	100R15

Table 2.2 MEWP Torque Specifications

Location	Description	Torque	
		ft-lb	Nm
Base			
Drive Motor	BOLT, Hex head (1/2"-13 x 1.75", Grade 8)	75-85	102-115
Torque Hub	BOLT, Hex head (5/8"-11 x 1.75", Grade 8)	170	230
Wheel Nut (torque hub)	NUT, Wheel (5/8"-18)	180	244
Wheel Nut (free spinning hub)	NUT, Wheel (5/8"-18)	180	244
Swing Drive	BOLT, Hex head (5/8"-11 x 4.00", Grade 8)	170	230
Turret			
Ring Gear	BOLT, Hex head (5/8"-11 x 4.00", Grade 8)	170	230
Turret Counterweight	BOLT, Hex Head (3/4"-10 x 3.00", Grade 8)	250	339
Riser Counterweight	BOLT, Hex head (3/8"-16 x 3.25", Grade 5)	30	41
Cylinders			
Main Lift	PISTON	578	784
	PISTON SET SCREW	11	15
	GLAND	491	666
Extension	ROD NUT	289	392
	GLAND	318	431
Master	PISTON	542	735
	PISTON SET SCREW	11	15
	GLAND	462	626
Slave	ROD NUT	289	392
	GLAND	462	626
Riser	PISTON	434	588
	PISTON SET SCREW	6	8
	GLAND	376	510
Jib	PISTON	324	439
	PISTON SET SCREW	6	8
	GLAND	318	431
Steer	PISTON	361	489
	PISTON SET SCREW	6	8
	GLAND	318	413
Jib			
Rotary Actuator	BOLT, Hex head, patch (3/8"-16 x 0.875", Grade 8)	35	47
	NUT, Torque Lock (1-8, Grade 3)	770	1044
Platform			
Rotary Actuator	BOLT, Hex head, patch (3/8"-16 x 0.75", Grade 8)	35	47
	NUT, Torque Lock (3/4"-10, Grade C)	380	512
Load Cell	BOLT, Hex head (1/2"-13 x 2.25", Grade 8)	80	108
	BOLT, Hex head patch (ZP, M16 x 1.5 x 4.5, Grade 8.8)	130	177

1388AC

Table 2.3 Torque Specifications for Fasteners (US)

Size	Torque Type	SAE2		SAE 5		SAE 8	
		Dry	Lubed	Dry	Lubed	Dry	Lubed
4-40	(in-lb)	(5)	(4)	(8)	(6)	(12)	(9)
	Nm	0.6	0.5	0.9	0.7	1.4	1.0
4-48	(in-lb)	(6)	(5)	(9)	(7)	(13)	(10)
	Nm	0.7	0.6	1.0	0.8	1.5	1.1
6-32	(in-lb)	(10)	(8)	(16)	(12)	(23)	(17)
	Nm	1.1	0.9	1.8	1.4	2.6	1.9
6-40	(in-lb)	(12)	(9)	(18)	(13)	(25)	(19)
	Nm	1.4	1.0	2.0	1.5	2.8	2.1
8-32	(in-lb)	(19)	(14)	(30)	(22)	(41)	(31)
	Nm	2.1	1.6	3.4	2.5	4.6	3.5
8-36	(in-lb)	(20)	(15)	(31)	(23)	(43)	(32)
	Nm	2.3	1.7	3.5	2.6	4.9	3.6
10-24	(in-lb)	(27)	(21)	(43)	(32)	(60)	(45)
	Nm	3.1	2.4	4.9	3.6	6.8	5.1
10-32	(in-lb)	(31)	(23)	(49)	(36)	(68)	(51)
	Nm	3.5	2.6	5.5	4.1	7.7	5.8
1/4-20	(in-lb) ft-lb	(66)	(50)	8	(75)	12	9
	Nm	7.5	5.6	11	8.5	16	12
1/4-28	(in-lb) ft-lb	(76)	(56)	10	(86)	14	10
	Nm	8.6	6.3	14	9.7	19	14
5/16-18	ft-lb	11	8	17	13	25	18
	Nm	15	11	23	18	34	24
5/16-24	ft-lb	12	9	19	14	25	20
	Nm	16	12	26	19	34	27
3/8-16	ft-lb	20	15	30	23	45	35
	Nm	27	20	41	31	61	47
3/8-24	ft-lb	23	17	35	25	50	35
	Nm	31	23	47	34	68	47
7/16-14	ft-lb	32	24	50	35	70	55
	Nm	43	33	68	47	95	75
7/16-20	ft-lb	36	27	55	40	80	60
	Nm	49	37	75	54	108	81
1/2-13	ft-lb	50	35	75	55	110	80
	Nm	68	47	102	75	149	108
1/2-20	ft-lb	55	40	90	65	120	90
	Nm	75	54	122	88	163	122

Size	Torque Type	SAE2		SAE 5		SAE 8	
		Dry	Lubed	Dry	Lubed	Dry	Lubed
9/16-12	ft-lb	70	55	110	80	150	110
	Nm	95	75	149	108	203	149
9/16-18	ft-lb	80	60	120	90	170	130
	Nm	108	81	163	122	230	176
5/8-11	ft-lb	100	75	150	110	220	170
	Nm	136	102	203	149	298	230
5/8-18	ft-lb	110	85	180	130	240	180
	Nm	149	115	244	176	325	244
3/4-10	ft-lb	175	130	260	200	380	280
	Nm	237	176	353	271	515	380
3/4-16	ft-lb	200	150	300	220	420	320
	Nm	271	203	407	298	569	434
7/8-9	ft-lb	170	125	430	320	600	460
	Nm	230	169	583	434	813	624
7/8-14	ft-lb	180	140	470	360	660	500
	Nm	244	190	637	488	895	678
1-8	ft-lb	250	190	640	480	900	680
	Nm	339	258	868	651	1220	922
1-12	ft-lb	270	210	710	530	1000	740
	Nm	366	285	963	719	1356	1003
1-14	ft-lb	280	210	730	540	1020	760
	Nm	380	285	990	732	1383	1030
1 1/8-7	ft-lb	350	270	800	600	1280	960
	Nm	475	366	1085	813	1735	1302
1 1/8-12	ft-lb	400	300	880	660	1440	1080
	Nm	542	407	1193	895	1952	1464
1 1/4-7	ft-lb	500	380	1120	840	1820	1360
	Nm	678	515	1519	1139	2468	1844
1 1/4-12	ft-lb	550	420	1240	920	2000	1500
	Nm	746	569	1681	1247	2712	2034
1 3/8-6	ft-lb	670	490	1460	1100	2380	1780
	Nm	908	664	1979	1491	3227	2413
1 3/8-12	ft-lb	750	560	1680	1260	2720	2040
	Nm	1017	759	2278	1708	3688	2766
1 1/2-6	ft-lb	870	650	1940	1460	3160	2360
	Nm	1180	881	2630	1979	4284	3200
1 1/2-12	ft-lb	980	730	2200	1640	3560	2660
	Nm	1329	990	2983	2224	4827	3606

NOTE: Lubed includes lubricants such as lubrizing, oil, grease, or uncured Loctite.

1374AA

Table 2.4 Torque Specifications for Fasteners (Metric)

Size	Torque Type	SAE 2		SAE 5		SAE 8	
		Dry	Lubed	Dry	Lubed	Dry	Lubed
M5 x 0.80	(in-lb)	(54)	(41)	(78)	(59)	(12)	(9)
	Nm	6.1	4.6	8.8	6.7	1.4	1.0
M6 x 1.00	(in-lb)	(92)	(69)	(133)	(99)	(13)	(10)
	Nm	10.4	7.8	15	11.2	1.5	1.1
M7 x 1.00	(in-lb)	(156)	(116)	(222)	(167)	(23)	(17)
	Nm	17.6	13.1	25.1	18.9	2.6	1.9
M8 x 1.25	(in-lb)	(225)	(169)	(333)	(242)	(25)	(19)
	Nm	25.4	19.1	37.6	27.3	2.8	2.1
M10 x 1.50	ft-lb	37	28	53	40	(41)	(31)
	Nm	50	38	72	54	4.6	3.5
M12 x 1.75	ft-lb	65	49	93	69	(43)	(32)
	Nm	88	66	126	94	4.9	3.6
M14 x 2.00	ft-lb	104	78	148	111	(60)	(45)
	Nm	141	106	201	150	6.8	5.1
M16 x 2.00	ft-lb	161	121	230	172	(68)	(51)
	Nm	218	164	312	233	7.7	5.8
M18 x 2.50	ft-lb	222	167	318	238	12	9
	Nm	301	226	431	323	16	12
M20 x 2.50	ft-lb	314	235	449	337	14	10
	Nm	426	319	609	457	19	14
M22 x 2.50	ft-lb	428	321	613	460	25	18
	Nm	580	435	831	624	34	24
M24 x 3.00	ft-lb	543	407	776	582	25	20
	Nm	736	552	1052	789	34	27
M27 x 3.00	ft-lb	796	597	1139	854	45	35
	Nm	1079	809	1544	1158	61	47
M30 x 3.50	ft-lb	1079	809	1543	1158	50	35
	Nm	1463	1097	2092	1570	68	47
M33 x 3.50	ft-lb	1468	1101	2101	1576	70	55
	Nm	1990	1493	2849	2137	95	75
M36 x 4.00	ft-lb	1886	1415	2699	2024	80	60
	Nm	2557	1918	3659	2744	108	81

NOTE: Lubed includes lubricants such as lubrizing, oil, grease, or uncured Loctite.

1375AA

Table 2.5 Torque Specifications for Hydraulic Couplings & Hoses

Hydraulic Coupling Torque Chart O-Ring Port Connectors				
SAE Size	Steel Ports		Non-ferrous Ports	
	ft-lb	Nm	ft-lb	Nm
4	14-16	20-22	9-10	12-13
6	24-26	33-35	15-16	20-21
8	50-60	68-78	30-36	41-47
10	72-80	98-110	43-48	60-66
12	125-135	170-183	75-81	102-110
16	200-220	270-300	120-132	162-180
20	210-280	285-380	126-168	171-228
24	270-360	370-490	162-216	222-294
32	-	-	-	-

Hose End Torque Chart for JIC									
Size		Steel				Brass			
Dash	Frac.	ft-lb		Nm		ft-lb		Nm	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
-4	1/4"	10	11	13	15	5	6	6.75	9
-6	3/8"	17	19	23	26	12	15	17	20
-8	1/2"	34	38	47	52	20	24	27.66	33
-10	5/8"	50	56	69	76	34	40	46.33	55
-12	3/4"	70	78	96	106	53	60	72.33	82
-16	1"	94	104	127	141	74	82	100.5	111
-20	1 1/4"	124	138	169	188	75	83	101.5	113
-24	1 1/2"	156	173	212	235	79	87	107	118
-32	2"	219	243	296	329	158	175	214	237

Hose End Torque Chart for Flat-Face O-Ring Seal (Steel)					
Size		Torque Specification			
Dash	Frac.	ft-lb		Nm	
		Min.	Max.	Min.	Max.
-4	1/4"	10	12	14	16
-6	3/8"	18	20	24	27
-8	1/2"	32	40	43	54
-10	5/8"	46	56	60	75
-12	3/4"	65	80	90	110
-14	1"	65	80	90	110
-16	1 1/4"	92	105	125	240
-20	1 1/2"	125	140	170	190
-24	2"	150	180	200	245

1276AA

Table 2.6 Tire Specifications

SJ30 AJE / SJ30 ARJE	
Tire Size	559 cm x 178 cm (22" x 7")
Type	Solid Rubber
Wheel Nut Torque	244 Nm (180 ft-lb)

1754AA

⚠ WARNING

Do not use tires other than those specified for this machine. Do not mix different types of tires. Tires other than those specified can adversely affect stability. Failure to operate with matched, approved tires in good condition can result in death or serious injury. Replace tires with the exact, Skyjack-approved types only.

Table 2.7 Maximum Platform Capacities

	Indoor	Outdoor
Total Capacity	227 kg (500 lb)	
	2 Persons	1 Person
Maximum Wind	0 m/s (0 mph)	12.5 m/s (28 mph)
Maximum Side Force	400 N (90 lbf)	200 N (45 lbf)

1755AA

Table 2.8 Floor Loading Pressure

Model	Standard	Gross MEWP Weight		Total MEWP Load					
				Wheel Load		LCP		OUP	
		kg	lb	kg	lb	kPa	psi	kPa	psf
SJ30 AJE	ANSI/CSA	5588	12,320	3257	7180	1503	218	21.6	451
SJ30 ARJE	ANSI/CSA	5588	12,320	3257	7180	1503	218	21.6	451
	CE & KC	5750	12,677	3257	7180	1503	218	22.2	464
	AS	5588	12,320	3257	7180	1503	218	21.6	451

1756AA

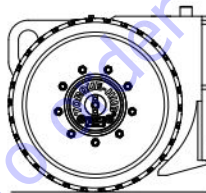
- Gross Aerial Platform Weight = Weight + platform capacity
- LCP – Locally Concentrated Pressure – is a measure of how hard the aerial platform tire tread presses on the area in direct contact with the floor. The floor covering (tile, carpet, etc.) must be able to withstand more than the indicated values above.
- OUP – Overall Uniform Pressure – is a measure of the average load the aerial platform imparts on the whole surface projected directly underneath it. The structure of the operating surface (beams, etc.) must be able to withstand more than the indicated values above.

NOTE: The LCP or OUP that an individual surface can withstand varies from structure to structure and is generally determined by the engineer or architect for that particular structure.

Locally Concentrated Pressure (LCP):

Foot Print Area identified by test.

$$LCP = \frac{\text{Wheel Load}}{\text{Foot Print Area}}$$



Overall Uniform Pressure (OUP):

Base Area = Length x Width

$$OUP = \frac{\text{Weight of MEWP} + \text{Capacity}}{\text{Base Area}}$$

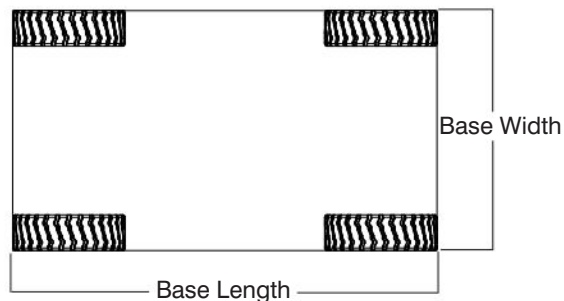
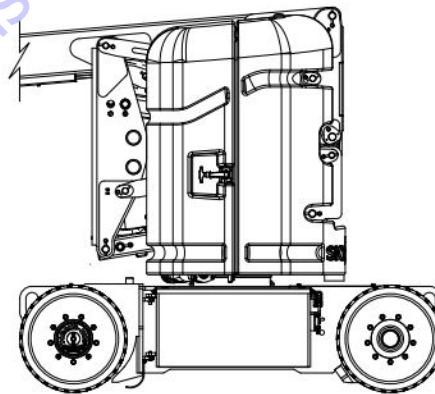


Table 2.9 Hydraulic Specifications

SPECIFICATIONS		SJ30AJE/ARJE		
			Metric	US Imperial
Pumps	Main Pumps	Pressure	228 bar	3300 psi
		Displacement	2.54 CC	0.155 CI
	Emergency Pump	Pressure	224 bar	3250 psi
		Displacement	1.19 CC	0.073 CI
Filter	Return Line Filter	Pressure	1.724 bar	25 psi
Motor	Swing Drive Motor	Flow	11.55 L/min	3.05 gal/m
		Pressure	12.23 MPa	1774 psi
Rotary Actuators	Platform Rotary Actuator	Displacement	132 CC	8.05 CI
		Pressure	207 bar	3000 psi
	Jib Rotary Actuator	Displacement	234.3 CC	14.3 CI
		Pressure	207 bar	3000 psi
Cylinders	Extension Cylinder	Bore	5.0 cm	1.96 in
		Rod Diameter	3.5 cm	1.38 in
		Stroke	116.8 cm	46 in
		Maximum Operating Pressure	86 bar	1250 psi
		Test Pressure	207 bar	3000 psi
	Main Boom Lift Cylinder	Bore	8.0 cm	3.15 in
		Rod Diameter	4.5 cm	1.77 in
		Stroke	56.6 cm	2400 psi
		Test Pressure	207 bar	3000 psi
	Riser Cylinder	Bore	6.0 cm	2.36 in
		Rod Diameter	4.5 cm	1.77 in
		Stroke	70.8 cm	27.87 in
		Maximum Operating Pressure	138 bar	2000 psi
		Test Pressure	207 bar	3000 psi
	Master Cylinder	Bore	7.5 cm	3 in
		Rod Diameter	4.0 cm	1.57 in
		Stroke	28.3 cm	11 in
Maximum Operating Pressure		207 bar	3000 psi	
Test Pressure		207 bar	3000 psi	

1211AE-1

Table 2.9 Hydraulic Specifications

SPECIFICATIONS			SJ30AJE/ARJE	
			Metric	US Imperial
Cylinders	Slave Cylinder	Bore	7.5 cm	3 in
		Rod Diameter	4.0 cm	1.57 in
		Stroke	29.6 cm	11.7 in
		Maximum Operating Pressure	207 bar	3000 psi
		Test Pressure	207 bar	3000 psi
	Jib Cylinder	Bore	4.5 cm	1.77 in
		Rod Diameter	3.5 cm	1.38 in
		Stroke	56.4 cm	22.2 in
		Maximum Operating Pressure	138 bar	2000 psi
		Test Pressure	207 bar	3000 psi
	Steer Cylinder	Bore	5.0 cm	2 in
		Rod Diameter	2.5 cm	1 in
		Stroke	18.9 cm	7.44 in
		Maximum Operating Pressure	138 bar	2000 psi
		Test Pressure	207 bar	3000 psi
Hydraulic Oil	Standard	Shell Tellus T46 Petro-Canada Hydrex MV46	-26°C to 38°C	-15°F to 100°F
	Biodegradable	Shell Naturelle HF-E 46	-20°C to 90°C	-4°F to 194°F
	Hydraulic Tank	Capacity	16.2 L	4.3 gal

1211AE-2

Table 2.10 Specifications and Features - ANSI/CSA

		SJ30 AJE ANSI/CSA		SJ30 ARJE ANSI/CSA	
Height and Reach Data	Working Height - maximum	10.87 m	35' 8"	10.82 m	35' 6"
	Platform Height - maximum	9.04 m	29' 8"	8.99 m	29' 6"
	Up & Over Clearance - at Main Boom	3.99 m	13' 1"	3.99 m	13' 1"
	Horizontal Reach - maximum	6.27 m	20' 7"	6.27 m	20' 7"
	Horizontal Reach - Retracted	5.11 m	16' 9"	5.11 m	16' 9"
	Tailswing	0 m	0"	0 m	0"
Platform Data	Platform Size	0.76 x 1.17 m	30" x 46"	0.76 x 1.17 m	30" x 46"
	Platform Rotation	180°	180°	180°	180°
	Platform Height - Stowed	0.38 m	1' 3"	0.30 m	1'
	Overall Railing Height	1.37 m	4' 6"	1.37 m	4' 6"
	Platform Railing Height	1.12 m	3' 8"	1.12 m	3' 8"
Dimensional Data	Height - stowed	1.98 m	6' 6"	1.98 m	6' 6"
	Length - stowed	5.54 m	18' 2"	5.51 m	18' 1"
	Height - transport	2.51 m	8' 3"	2.49 m	8' 2"
	Length - transport	3.99 m	13' 1"	3.78 m	12' 5"
	Width	1.19 m	3' 11"	1.19 m	3' 11"
	Wheelbase	1.65 m	5' 5"	1.65 m	5' 5"
	Ground Clearance (Chassis)	0.10 m	4"	0.10 m	4"
	Turning Radius (Inside, Left - Right)	1.55 x 1.65 m	61" - 66"	1.55 x 1.65 m	61" - 65"
	Turning Radius (Outside, Left - Right)	3.20 x 3.33 m	126" - 131"	3.20 x 3.33 m	126" - 131"
	Turning Angle	76°	76°	76°	76°
Jib Data	Turret Rotation	352°	352°	352°	352°
	Jib Length	1.24 m	4' 1"	1.24 m	4' 1"
	Jib vertical Range of Motion	2.34 m	7' 8"	2.34 m	7' 8"
	Jib Range - Up	78°	78°	78°	78°
	Jib Range - Down	66°	66°	66°	66°
Boom Data	Jib rotation	N/A	N/A	180°	180°
	Boom Up Angle	75°	75°	75°	75°
Non-Wind Capacity	Boom Down Angle	5°	5°	5°	5°
	Lift Capacity	227 kg	500 lb	227 kg	500 lb
	Manual Force	400 N	90 lbf	400 N	90 lbf
Out of Doors Capacity	Number of Persons	2	2	2	2
	Lift Capacity	227 kg	500 lb	227 kg	500 lb
	Manual Force	200 N	45 lbf	200 N	45 lbf
	Number of Persons	1	1	1	1
	Wind rating	12.5 m/s	28 mph	12.5 m/s	28 mph

1750AB

Table 2.10 Specifications and Features - ANSI/CSA

		SJ30 AJE ANSI/CSA		SJ30 ARJE ANSI/CSA	
Performance and Speeds	Gradeability - Maximum	35%	35%	35%	35%
	Drive Speed - Stowed	4.8 km/h	3.0 mph	4.8 km/h	3.0 mph
	Drive Speed - Elevated	0.6 km/h	0.4 mph	0.6 km/h	0.4 mph
	Turret Rotation Time	70-90 s	70-90 s	70-90 s	70-90 s
	Platform Rotation Time	7-10 s	7-10 s	7-10 s	7-10 s
	Main Boom Up Time	20-24 s	20-24 s	20-24 s	20-24 s
	Main Boom Down Time	18-20 s	18-20 s	18-20 s	18-20 s
	Fly Boom Extend Time	17-19 s	17-19 s	17-19 s	17-19 s
	Fly Boom Retract Time	12-16 s	12-16 s	12-16 s	12-16 s
	Riser Up Time	14-18 s	14-18 s	14-18 s	14-18 s
	Riser Down Time	22-26 s	22-26 s	22-26 s	22-26 s
	Jib Swing Time	14-16 s	14-16 s	14-16 s	14-16 s
	Jib Up Time	18-20 s	18-20 s	18-20 s	18-20 s
	Jib Down Time	12-16 s	12-16 s	12-16 s	12-16 s
	Steer Left/Right Time	2-4 s	2-4 s	2-4 s	2-4 s
Tire Data	Tire Size	5.59 x 1.78 m	22" x 7"	5.59 x 1.78 m	22" x 7"
	Diameter, Outside	5.59 m	22"	5.59 m	22"
	Width	1.78 m	7"	1.78 m	7"
Hydraulic Data	System Pressure	207 bar	3000 psi	217 bar	3150 psi
Electrical Data	Battery Voltage	48V DC	48V DC	48V DC	48V DC
	Battery Type	Lead/Acid	Lead/Acid	Lead/Acid	Lead/Acid
Weights & Pressure Data	Overall Weight - No Options	5588 kg	12,320 lbs	5588 kg	12,320 lbs
	Wheel Load - Transport with No Load	1588 kg	3500 lbs	1588 kg	3,500 lbs
	Wheel Load - Maximum with Load	3257 kg	7180 lbs	3257 kg	7,180 lbs
	LCP - Transport with No Load	951 kPa	138 psi	951 kPa	138 psi
	LCP - Maximum with Load	1503 kPa	218 psi	1503 kPa	218 psi
	OUP - No Load	20.7 kPa	433 psf	20.7 kPa	433 psf
	OUP - With Load	21.6 kPa	451 psf	21.6 kPa	451 psf

1751AB

Table 2.11 Specifications and Features - CE, AS & KC

		SJ30 ARJE CE	SJ30 ARJE AS	SJ30 ARJE KC
Height and Reach Data	Working Height - maximum	10.82 m	10.82 m	10.82 m
	Platform Height - maximum	8.99 m	8.99 m	8.99 m
	Up & Over Clearance - at Main Boom	3.99 m	3.99 m	3.99 m
	Horizontal Reach - maximum	6.27 m	6.27 m	6.27 m
	Horizontal Reach - Retracted	5.11 m	5.11 m	5.11 m
	Tailswing	0 m	0 m	0 m
Platform Data	Platform Size	0.76 x 1.17 m	0.76 x 1.17 m	0.76 x 1.17 m
	Platform Rotation	180°	180°	180°
	Platform Height - Stowed	0.30 m	0.30 m	0.30 m
	Overall Railing Height	1.37m	1.37 m	1.37 m
	Platform Railing Height	1.12 m	1.12 m	1.12 m
Dimensional Data	Height - stowed	1.98 m	1.98 m	1.98 m
	Length - stowed	5.51 m	5.51 m	5.51m
	Height - transport	2.49 m	2.49 m	2.49 m
	Length - transport	3.78 m	3.78 m	3.78 m
	Width	1.19 m	1.19 m	1.19 m
	Wheelbase	1.65 m	1.65 m	1.65 m
	Ground Clearance (Chassis)	0.10 m	0.10 m	0.10 m
	Turning Radius (Inside, Left - Right)	1.55 - 1.65 m	1.55 - 1.65 m	1.55 - 1.65 m
	Turning Radius (Outside, Left - Right)	3.20 - 3.33 m	3.20 - 3.33 m	3.20 - 3.33 m
	Turning Angle	76°	76°	76°
	Turret Rotation	352°	352°	352°
Jib Data	Jib Length	1.24 m	1.24 m	1.24 m
	Jib vertical Range of Motion	2.34 m	2.34 m	2.34 m
	Jib Range - Up	78°	78°	78°
	Jib Range - Down	66°	66°	66°
	Jib rotation	180°	180°	180°
Boom Data	Boom Up Angle	75°	75°	75°
	Boom Down Angle	5°	5°	5°
Non-Wind Capacity	Lift Capacity	227 kg	227 kg	227 kg
	Number of Persons	2	2	2
	Manual Force	400 N	400 N	400 N
Out of Doors Capacity	Lift Capacity	227 kg	227 kg	227 kg
	Number of Persons	1	1	1
	Manual Force	200 N	200 N	200 N
	Wind rating	12.5 m/s	12.5 m/s	12.5 m/s

1752AA

Table 2.11 Specifications and Features - CE, AS & KC

		SJ30 ARJE CE	SJ30 ARJE AS	SJ30 ARJE KC
Performance and Speeds	Gradeability - Maximum	35%	35%	35%
	Drive Speed - Stowed	4.8 km/h	4.8 km/h	4.8 km/h
	Drive Speed - Elevated	0.6 km/h	0.6 km/h	0.6 km/h
	Turret Rotation Time	70-90 s	70-90 s	70-90 s
	Platform Rotation Time	7-10 s	7-10 s	7-10 s
	Main Boom Up Time	20-24 s	20-24 s	20-24 s
	Main Boom Down Time	18-20 s	18-20 s	18-20 s
	Fly Boom Extend Time	17-19 s	17-19 s	17-19 s
	Fly Boom Retract Time	12-16 s	12-16 s	12-16 s
	Riser Up Time	14-18 s	14-18 s	14-18 s
	Riser Down Time	22-26 s	22-26 s	22-26 s
	Jib Swing Time	14-16 s	14-16 s	14-16 s
	Jib Up Time	18-20 s	18-20 s	18-20 s
	Jib Down Time	12-16 s	12-16 s	12-16 s
	Steer Left/Right Time	2-4 s	2-4 s	2-4 s
Tire Data	Tire Size	5.59 x 1.78 m	5.59 x 1.78 m	5.59 x 1.78 m
	Diameter, Outside	5.59 m	5.59 m	5.59 m
	Width	1.78 m	1.78 m	1.78 m
Electrical Data	Battery Voltage	48V DC	48V DC	48V DC
	Battery Type	Lead/Acid	Lead/Acid	Lead/Acid
Hydraulic Data	System Pressure	217 bar	217 bar	217 bar
Weights & Pressure Data	Overall Weight - No Options	5750 kg	5588 kg	5750 kg
	Wheel Load - Transport with No Load	1588 kg	1588 kg	1588 kg
	Wheel Load - Maximum with Load	3257 kg	3257 kg	3257 kg
	LCP - Transport with No Load	951 kPa	951 kPa	951 kPa
	LCP - Maximum with Load	1503 kPa	1503 kPa	1503 kPa
	OUP - No Load	21.4 kPa	20.7 kPa	21.4 kPa
	OUP - With Load	22.2 kPa	21.6 kPa	22.2 kPa

1753AA

Diagram 2.12 Reach Diagram - SJ30 AJE

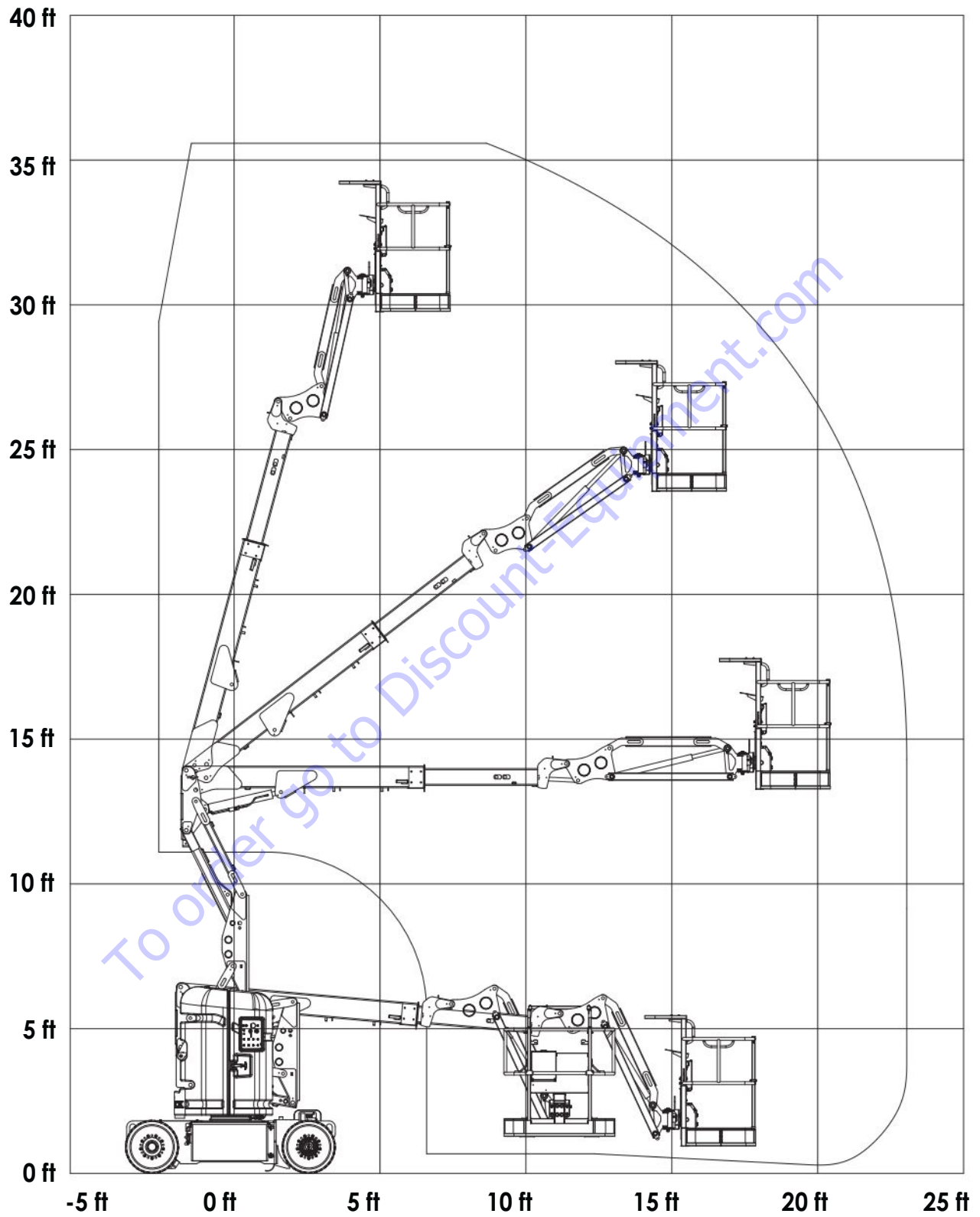


Diagram 2.13 Dimension Diagram - SJ30 AJE

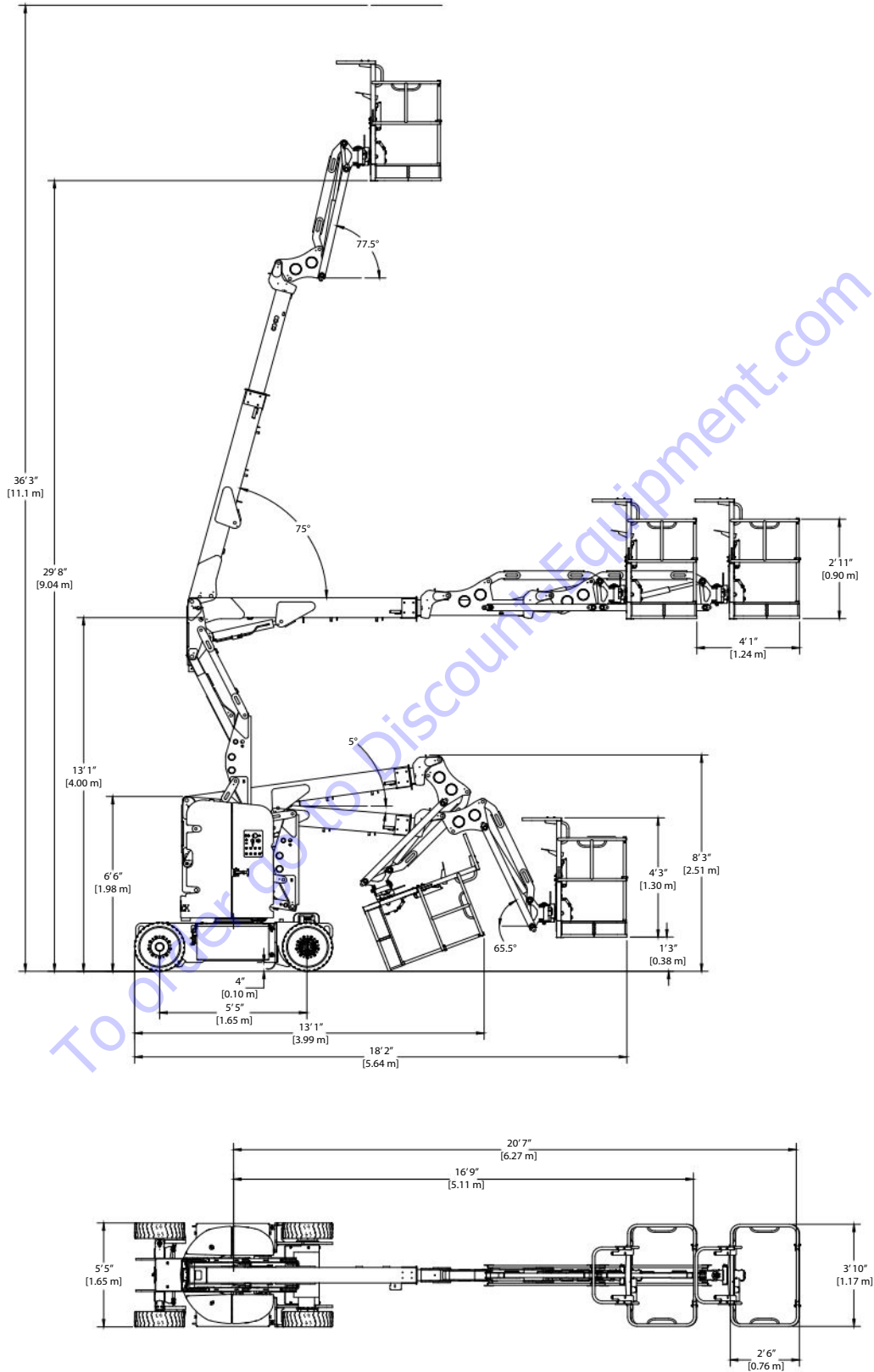


Diagram 2.14 Reach Diagram - SJ30 ARJE

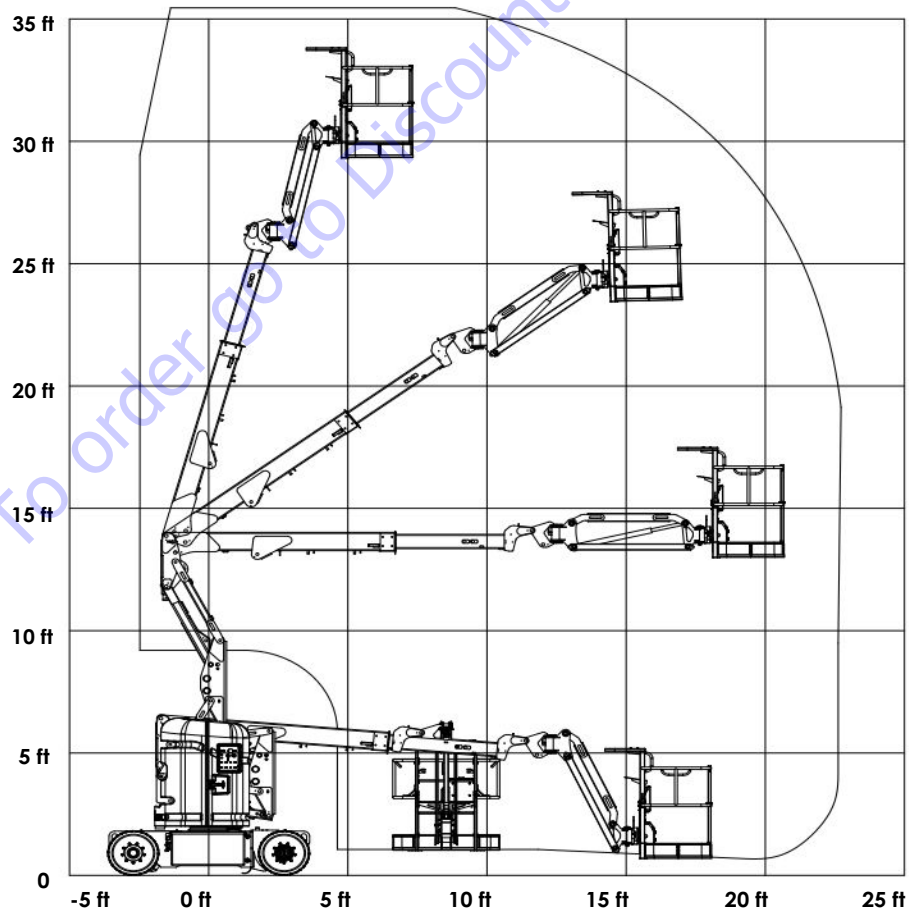
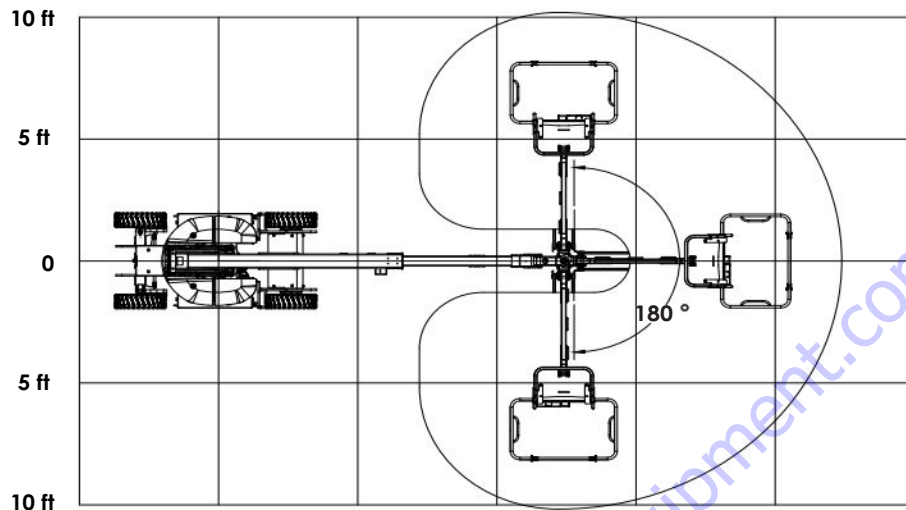
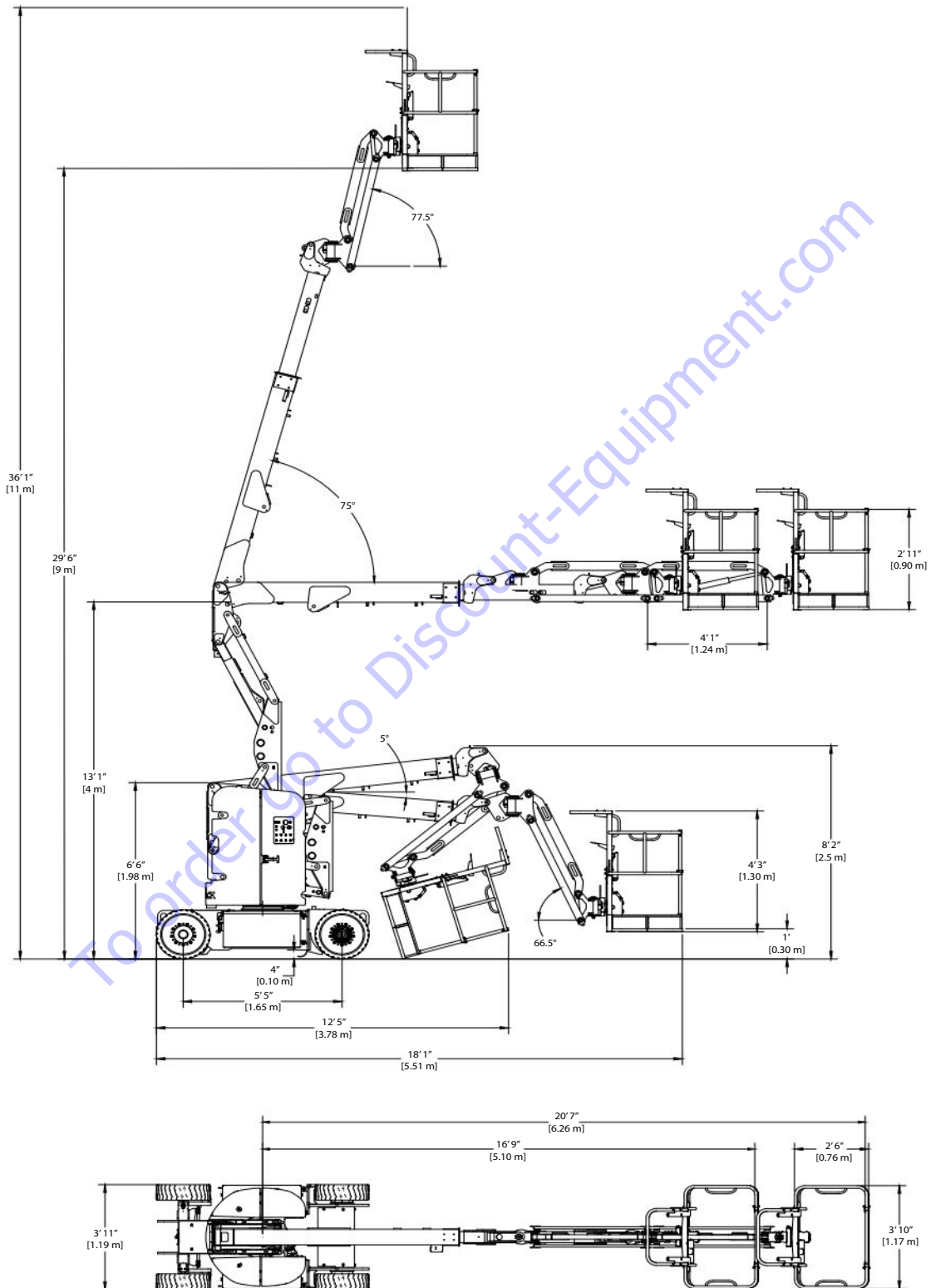


Diagram 2.15 Dimension Diagram - SJ30 ARJE



Section 3 – System Component Identification and Schematics

To order go to Discount-Equipment.com

Table 3.1 Electrical Symbol Chart




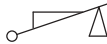


















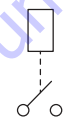
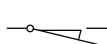
























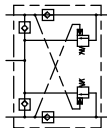







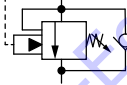












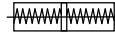








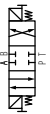
 CIRCUI TS CROSSING NO CONNECTION	 HOURMETER	 KEY SWITCH	 LIMIT SWITCH
 CIRCUI TS CONNECTED	 LIGHT	 FOOT SWITCH	 CAM OPERATED LIMIT SWITCH
 BATTERY	 HYDRAULIC VALVE COIL	 TOGGLE SWITCH	 LIMIT SWITCH N.O
 GROUND	 PROPORTIONAL HYDRAULIC VALVE COIL	 ANGLE TRANSDUCER & TILT SWITCH	 LIMIT SWITCH N.O HELD CLOSED
 FUSE	 ELECTRIC MOTOR	 TEMPERATURE SWITCH	 LIMIT SWITCH N.C.
 CIRCUIT BREAKER	 HORN	 SINGLE POLE SINGLE THROW RELAY	 LIMIT SWITCH N.C HELD OPEN
 VOLT METER	 PUSH BUTTON	 SINGLE POLE DOUBLE THROW RELAY	 BEEPER
 CAPACITOR	 ROTARY SWITCH	 DOUBLE POLE DOUBLE THROW RELAY	 DIODE
 POTENTIOMETER	 EMERGENCY STOP BUTTON	 DOUBLE POLE SINGLE THROW RELAY	
 RESISTOR	 RHEOSTAT	 TRIPLE POLE DOUBLE THROW RELAY	

Table 3.2 Hydraulic Symbol Chart

 LINE CROSSING	 FIXED DISPLACEMENT PUMP	 SHUTTLE VALVE	 THREE POSITION FOUR WAY CLOSED CENTER OPEN PORT
 LINE JOINED	 VARIABLE DISPLACEMENT PUMP	 PRESSURE SWITCH	 CUSHION CYLINDER
 MAIN LINES Solid	 HAND PUMP	 MOTION CONTROL VALVE	 DOUBLE ACTING CYLINDER
 PILOT LINES Dashed	 OIL COOLER	 FLOW DIVIDER COMBINER	 DOUBLE ACTING DOUBLE RODDED CYLINDER
 HYDRAULIC TANK	 VELOCITY FUSE	 COUNTER BALANCE VALVE	 BRAKE CYLINDER
 HYDRAULIC FILTER WITH BYPASS	 RELIEF VALVE	 VALVE COIL	 SPRING APPLIED HYDRAULIC RELEASED BRAKE
 ELECTRIC MOTOR	 PRESSURE REDUCING VALVE	 TWO POSITION TWO WAY NORMALLY OPEN VALVE	 ROTARY ACTUATOR
 ENGINE	 PRESSURE TRANSDUCER	 TWO POSITION TWO WAY NORMALLY CLOSED VALVE	 SERVO
 BI DIRECTIONAL HYDRAULIC MOTOR	 FIXED ORIFICE	 TWO POSITION THREE WAY VALVE	
 VARIABLE DISPLACEMENT HYDRAULIC MOTOR	 ADJUSTABLE FLOW CONTROL	 TWO POSITION THREE WAY VALVE	
 SERIES PARALLEL HYDRAULIC MOTOR	 CHECK VALVE	 THREE POSITION FOUR WAY CLOSED CENTER CLOSED PORT	

3.3 Wire Number and Color Code

WIRE NO.	WIRE COLOR	WIRE NO.	WIRE COLOR	WIRE NO.	WIRE COLOR	WIRE NO.	WIRE COLOR	WIRE NO.	WIRE COLOR
00	WHT	20	ORG/BLU	44	YEL/WHT	67	ORG/BRN	92	GRN SHLD
000	WHT	21	WHT/RED	45	YEL/ORG	68	GREY	93	BLK SHLD
B1	BLU/PINK	23	BLK/WHT	46	RED/BLK	69	WHT/GRN	95	YEL/GREY
01	PUR/BLK	24	BLU/BLK	47	PUR/ORG	70	ORG/PINK	96	WHT/GREY
02	WHT	25	BRN/BLK	48	YEL/GREY	71	RED/ORG	97	ORG/GREY
03	GRN/PUR	26	BLU/YEL	49	GRN/RED	72	RED/BRN	98	RED SHLD
04	RED/YEL	27	RED/BLK/WHT	50	BRN	73	RED/PINK	98A	BLK SHLD
05	PUR	28	GRN	51	BLK/GRN	74	GRN/GREY	99	BLK/GREY
06		29	GREY/ORG	52	GRN/BLU	75	GREY/PUR	103	BLK/PUR
07	RED	30	RED/GRN	53	BRN/RED	76	BRN/BLU	104	GRN/ORG
08	PUR/WHT	31	RED/WHT	54	PUR/RED	77	BRN/GREY	105	GRN/BRN
09	YEL	32	GRN/BLK	55	YEL/PUR	78	RED/BLU	106	GRN/PINK
10	BLU/WHT	33	GRN/WHT	56	YEL/BLK	79	BRN/PUR	107	BLK/BLU
11	WHT/ORG	34	ORG/BLK	57	BRN/GRN	80	GREY/WHT	108	YEL/BRN
12	RED/YEL/BLK	35	ORG/WHT	58	WHT/PUR	81	GREY/BLK	109	GRN/YEL
13	ORG	36	RED/PUR	59	YEL/BLU	82	BRN/WHT	110A	BLU
14	BLK	37	WHT/RED/BLK	60	WHT/BLU	83	BLU/GREY	110B	BRN
15	BLU	38	ORG/RED	61	GREY/BRN	84	WHT/BLK/PUR	111	GREY/GRN
16	WHT/BLK	39	BLK/RED	62	GREY/RED	85	GREY/BLU	112	BLU/ORG
17	BLU/GRN	40	BLU/RED	63	GREY/YEL	86/87	PUR/BLU	113	BLU/BRN
18	GRN/BLU	41	BLU/PUR	64	WHT/BRN	88	BLK/ORG	114	YEL/RED
19	ORG/GRN	42	PINK	65	YEL/PINK	90	RED/GREY	115	WHT/PUR
22	PUR/GRN	43	WHT/YEL	66	ORG/YEL	91	RED SHLD	118	PUR/PINK

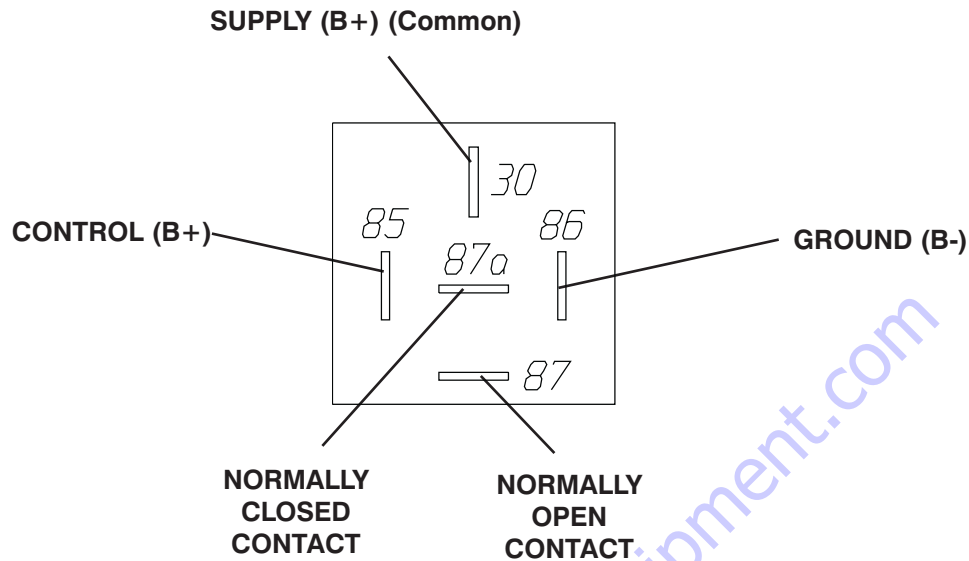
This table is to be used as a wire number/color reference for all electrical drawings and schematics. All wire numbers will retain their original color coding, for example if wire 7 is red, wire 7A, 7B, and 7C will also be red.

3.4 Hydraulic Parts List

Index No.	Skyjack Part No.	Qty.	Description
C1	192078	1	CYLINDER, Steer
C2	192073	1	CYLINDER, Main boom lift
C3	207328	1	CYLINDER, Riser
C4	192074	1	CYLINDER, Fly boom extension
C5	207339	1	CYLINDER, Jib
C6	192077	1	CYLINDER, Slave (platform levelling)
C7	192076	1	CYLINDER, Master
CB1	209153	1	VALVE, Counterbalance (main boom)
CB2	209153	1	VALVE, Counterbalance (main boom)
CB3	141453	1	VALVE, Counterbalance (fly boom extend)
CB4	141453	1	VALVE, Counterbalance (fly boom retract)
CB5	209153	1	VALVE, Counterbalance (platform level)
CB6	209153	1	VALVE, Counterbalance (platform level)
CB7	149372	1	VALVE, Counterbalance (jib elevation)
CB8	149372	1	VALVE, Counterbalance (jib elevation)
CB9	209153	1	VALVE, Counterbalance (platform rotary actuator)
CB10	209153	1	VALVE, Counterbalance (platform rotary actuator)
CB11	141453	1	VALVE, Counterbalance (jib rotary actuator)
CB12	141453	1	VALVE, Counterbalance (jib rotary actuator)
CV1	199471	1	VALVE, Check (main manifold)
CV2	208883	1	VALVE, Check (main manifold)
CV3	199471	1	VALVE, Check (riser cylinder)
CV4	197770	1	VALVE, Check (main manifold)
CV5	199471	1	VALVE, Check (main manifold)
F1	108628	1	FILTER, Hydraulic oil
M1	207350	1	MOTOR, Turret rotation swing drive
MB1	192161	1	MANIFOLD, Main
MB2	192162	1	MANIFOLD, Jib - SJ30 AJE
MB2	192055	1	MANIFOLD, Jib - SJ30 ARJE
OR1	208880	1	ORIFICE (0.040") (main manifold)
OR2	209023	1	ORIFICE (0.025") (jib manifold)
OR3	192122	1	ORIFICE (0.020") (jib manifold)
OR4	192122	1	ORIFICE (0.020") (jib manifold)
OR5	208880	1	ORIFICE (0.040") (riser cylinder)
P1	209056	1	PUMP, Main
P2	192176	1	PUMP, Auxiliary
RA1	192206	1	ACTUATOR, Turret rotator
RA2	192208	1	ACTUATOR, Platform rotator

Index No.	Skyjack Part No.	Qty.	Description
RA3	192207	1	ACTUATOR, Jib rotator
RV1	208876	1	VALVE, Relief (main manifold)
RV2	208877	1	VALVE, Relief (main manifold)
RV3	208878	1	VALVE, Relief (main manifold)
RV4	208879	1	VALVE, Relief (main manifold)
RV5	209058	1	VALVE, Relief (main pump)
RV6	209058	1	VALVE, Relief (auxiliary pump)
RV7	209110	1	VALVE, Relief (riser cylinder)
V1	208872	1	VALVE, Control (steer cylinder)
V2	166036	1	VALVE, Control (master cylinder)
V3	166041	1	VALVE, Control (main boom lift)
V4	208875	1	VALVE, Control (turret rotary actuator)
V5	208874	1	VALVE, Control (riser cylinder)
V6	166050	1	VALVE, Control (flow enable)
V7	166036	1	VALVE, Control (fly boom)
V8	166036	1	VALVE, Control (jib cylinder)
V9	166036	1	VALVE, Control (platform rotary actuator)
V10	166036	1	VALVE, Control (jib rotary actuator)
V11	209109	1	VALVE, Counterbalance (riser cylinder)

3.5 Electrical Parts List

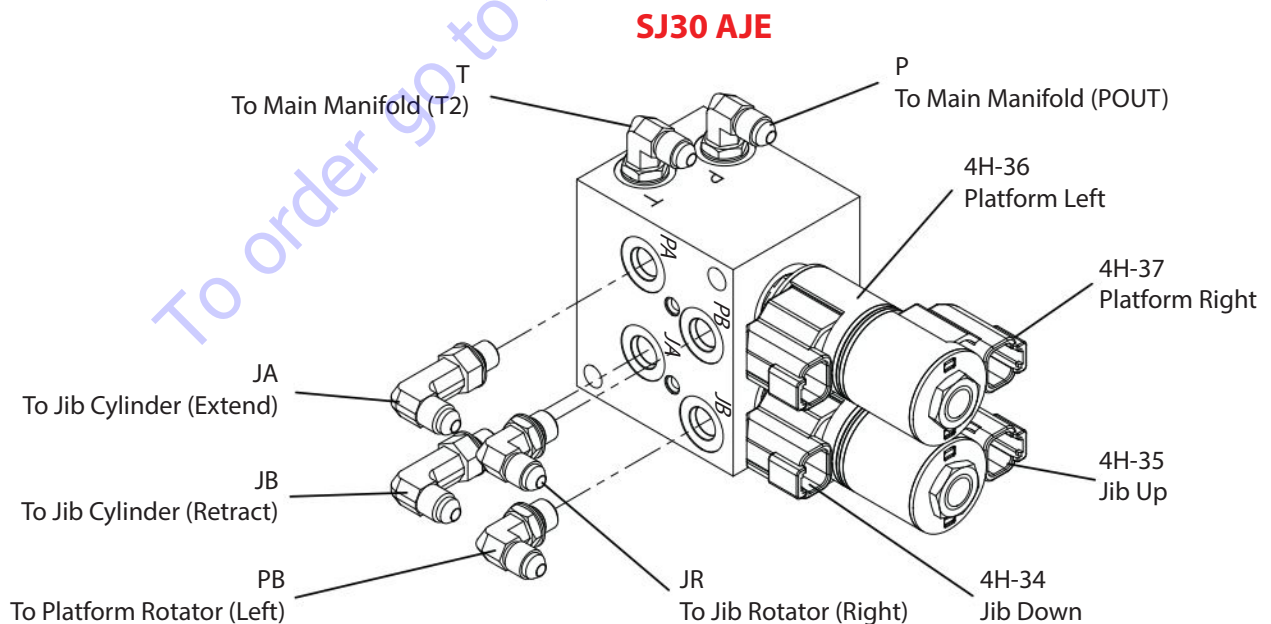
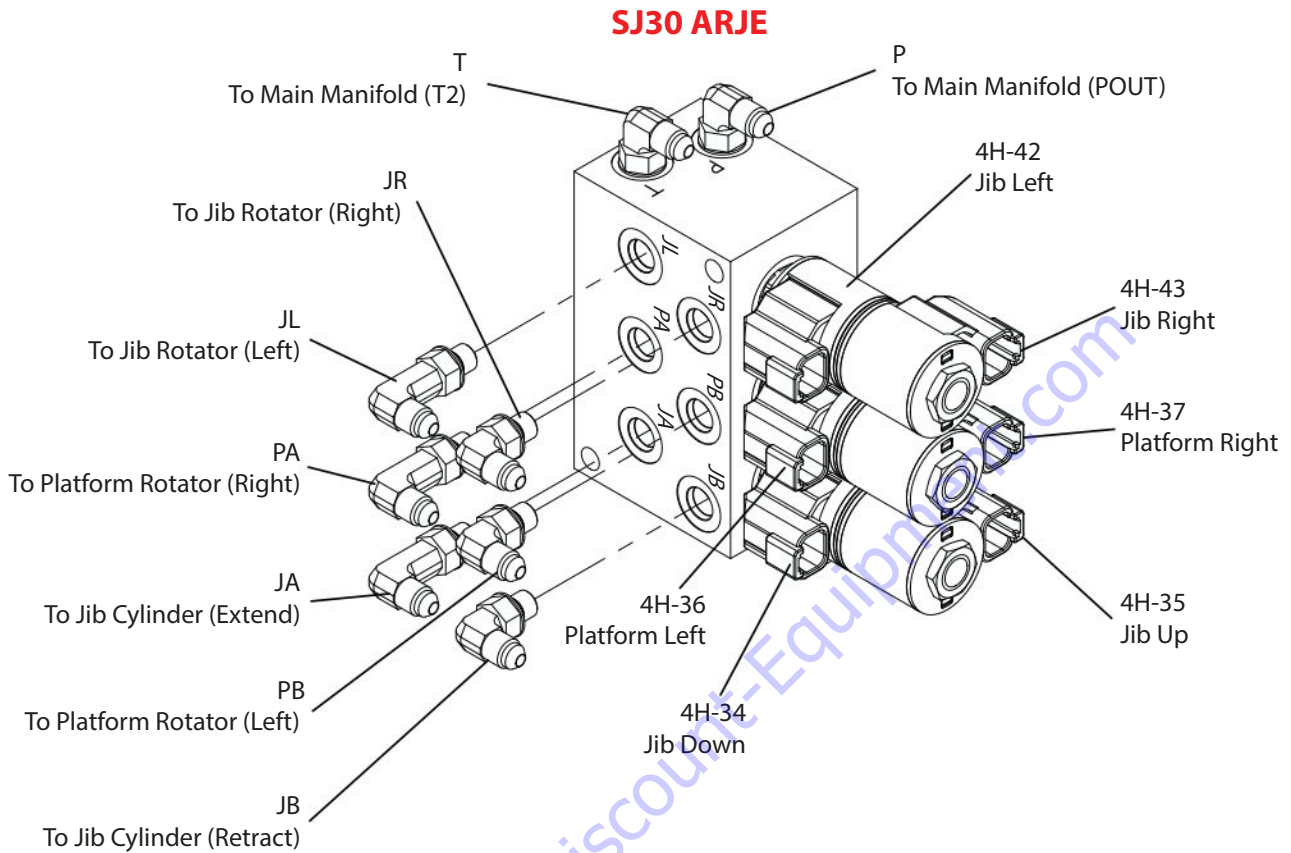


Index No.	Skyjack Part No.	Qty.	Description
51CCR1	127131	1	RELAY, 12V 40 amp (base controls) - KC
51CCR2	127131	1	RELAY, 12V 40 amp (base controls) - KC
51CCR3	127131	1	RELAY, 12V 40 amp (base controls) - KC
51CCR4	127131	1	RELAY, 12V 40 amp (platform controls) - KC
28CR	127131	1	RELAY, 12V 40 amp (platform controls)
60ACR	127131	1	RELAY, 12V 40 amp (base controls)
60CR	127131	1	RELAY, 12V 40 amp (base controls)
162BCR	127131	1	RELAY, 12V 40 amp (base controls) - CE
162CR	127131	1	RELAY, 12V 40 amp (base controls)
204CR	127131	1	RELAY, 12V 40 amp (platform controls)
208CR	127131	1	RELAY, 12V 40 amp (base controls)
208CR1	127131	1	RELAY, 12V 40 amp (platform controls)
259CR	127131	1	RELAY, 12V 40 amp (base controls)
2H-20A	166127	1	COIL, 12 Volt (flow enable)
2H-30	159821	1	COIL, 12 Volt (riser down)
2H-31	208881	1	COIL, 12 Volt (riser up)
4H-13	208881	1	COIL, 12 Volt (main boom down)
4H-14	208881	1	COIL, 12 Volt (main boom up)
4H-224	208881	1	COIL, 12 Volt (steer left)
4H-223	208881	1	COIL, 12 Volt (steer right)
4H-34	209028	1	COIL, 24 Volt (jib down) - SJ30 AJE
4H-34	208882	1	COIL, 12 Volt (jib down) - SJ30 ARJE

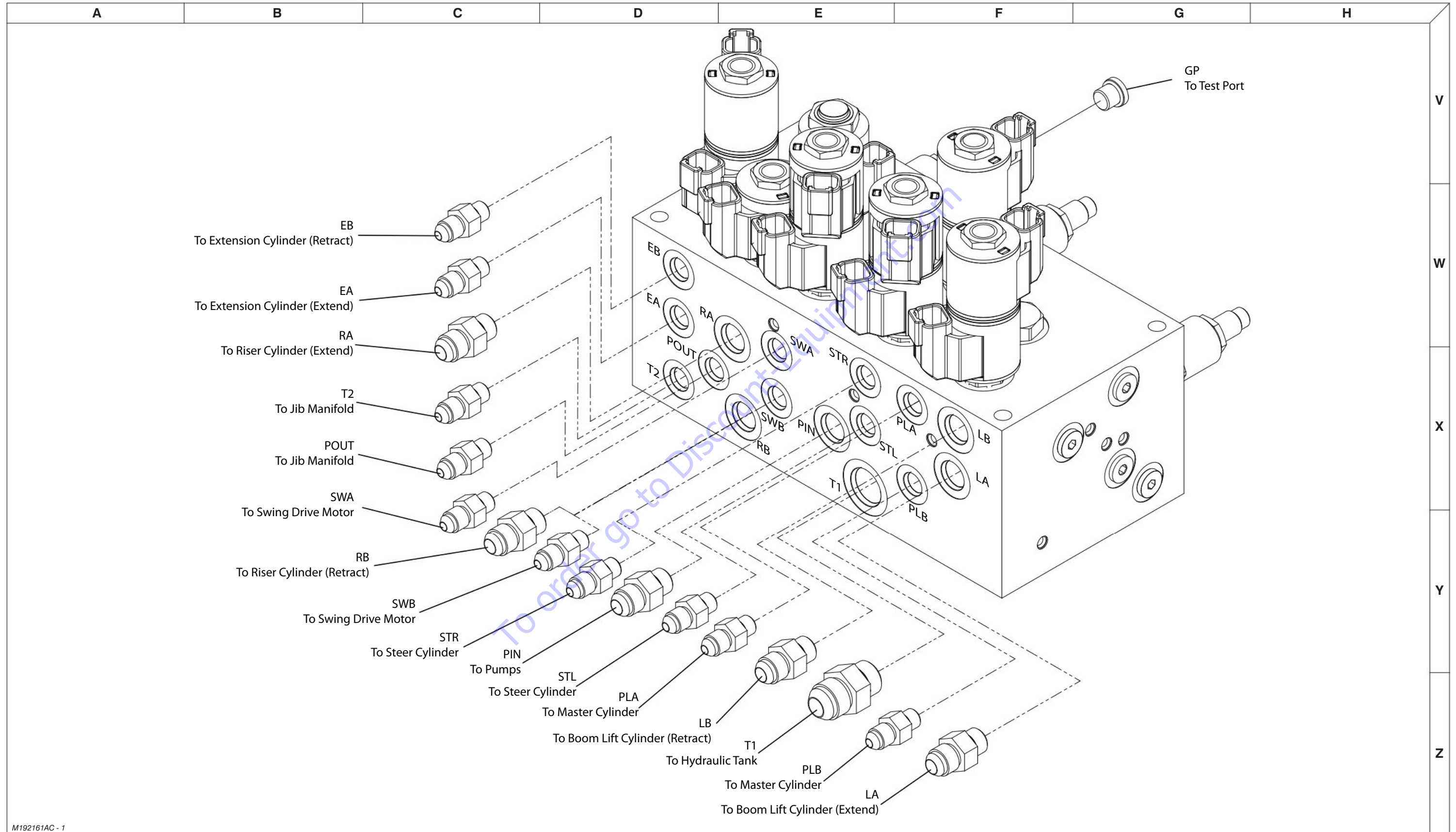
Index No.	Skyjack Part No.	Qty.	Description
4H-35	209028	1	COIL, 24 Volt (jib up) - SJ30 AJE
4H-35	208882	1	COIL, 12 Volt (jib up) - SJ30 ARJE
4H-36	209028	1	COIL, 24 Volt (platform left) - SJ30 AJE
4H-36	208882	1	COIL, 12 Volt (platform left) - SJ30 ARJE
4H-37	209028	1	COIL, 24 Volt (platform right) - SJ30 AJE
4H-37	208882	1	COIL, 12 Volt (platform right) - SJ30 ARJE
4H-38	208882	1	COIL, 12 Volt (fly boom retract)
4H-39	208882	1	COIL, 12 Volt (fly boom extend)
4H-40	208881	1	COIL, 12 Volt (platform level down)
4H-41	208881	1	COIL, 12 Volt (platform level up)
4H-42	208882	1	COIL, 12 Volt (jib rotate left)
4H-43	208882	1	COIL, 12 Volt (jib rotate right)
5H-32	208881	1	COIL, 12 Volt (turret rotate left)
5H-33	208881	1	COIL, 12 Volt (turret rotate right)
A1	138224	1	JOYSTICK, Drive/steer
A2	138225	1	JOYSTICK, Boom/turret
A3	138226	1	SWITCH, Speed control
BP1	144387	1	ALARM, Tilt
BP2	103057	1	ALARM, All motion
BP3	144387	1	ALARM, Overload
BP4	166110	1	BEEPER, SGE
CAP1	164511	1	CAPACITOR, 10 000 μ F
CB1	137919	1	CIRCUIT BREAKER, 25 amp
CB2	137919	1	CIRCUIT BREAKER, 25 amp
DXX	102921	A/R	DIODE
H	167234	1	HOURMETER
LB1	144078	1	LIGHT, Flashing
LB2	171888	1	LIGHT, Work
LB3	171888	1	LIGHT, Work
LB4	166110	1	BEACON, SGE
LS1	192758	1	LIMIT SWITCH, Direction sensing
LS2	192177	1	LIMIT SWITCH, Riser Down
LS3	192177	1	LIMIT SWITCH, Boom down
LS4	192178	1	LIMIT SWITCH, Fly in
PL2	147229	1	LIGHT, LED block (emergency stop)
PL3	164832	1	LIGHT, Pilot (tilt)
PL4	171501	1	LIGHT, Pilot (enable active)
PL5	164832	1	LIGHT, Pilot (overload)
PL6	171502	1	LIGHT, Pilot (low battery)

Index No.	Skyjack Part No.	Qty.	Description
PL7	164832	1	LIGHT, Pilot (overload)
R1	151643	1	RESISTOR, 250 ohm
R2	151643	1	RESISTOR, 250 ohm
R3	151643	1	RESISTOR, 250 ohm
R4	151643	1	RESISTOR, 250 ohm
R5	151643	1	RESISTOR, 250 ohm
R6	151643	1	RESISTOR, 250 ohm
R7	151643	1	RESISTOR, 250 ohm
R8	151643	1	RESISTOR, 250 ohm
R9	151643	1	RESISTOR, 250 ohm
R10	151643	1	RESISTOR, 250 ohm
R11	151643	1	RESISTOR, 250 ohm
R12	151643	1	RESISTOR, 250 ohm
R13	144492	1	RESISTOR, 680 ohm
S2	144647	1	SWITCH, Emergency stop (base)
S3	138277	1	SWITCH, Base/off/platform (base) - ANSI/CSA, AS & KC
S3	144366	1	SWITCH, Base/off/platform (base) - CE
S4	144647	1	SWITCH, Emergency stop (platform)
S5	144648	1	SWITCH, Horn (platform)
S6	700187	1	FOOTSWITCH (platform)
S7	102853	1	SWITCH, Riser up/down (platform)
S8	102853	1	SWITCH, Telescope in/out (platform)
S9	102853	1	SWITCH, Jib up/down (platform)
S10	102853	1	SWITCH, Jib rotate (platform) - SJ30 ARJE
S11	102853	1	SWITCH, Platform rotate (platform)
S12	102853	1	SWITCH, Platform leveling (platform)
S13	102853	1	SWITCH, Platform leveling (base)
S14	102853	1	SWITCH, Platform rotate (base)
S15	102853	1	SWITCH, Jib rotate (base)
S16	102853	1	SWITCH, Jib up/down (base)
S17	102853	1	SWITCH, Telescope in/out (base)
S18	102853	1	SWITCH, Riser up/down (base)
S19	102853	1	SWITCH, Turret left/right (base)
S20	102853	1	SWITCH, Boom up/down (base)
S21	102853	1	SWITCH, Function enable (base)
S22	102853	1	SWITCH, Work light (platform)
S23	102853	1	SWITCH, Emergency pump (base)
S24	102853	1	SWITCH, Emergency pump (platform)
S25	166087	1	SWITCH, SGE reset (platform)

3.6 Jib Valves and Port Identifications

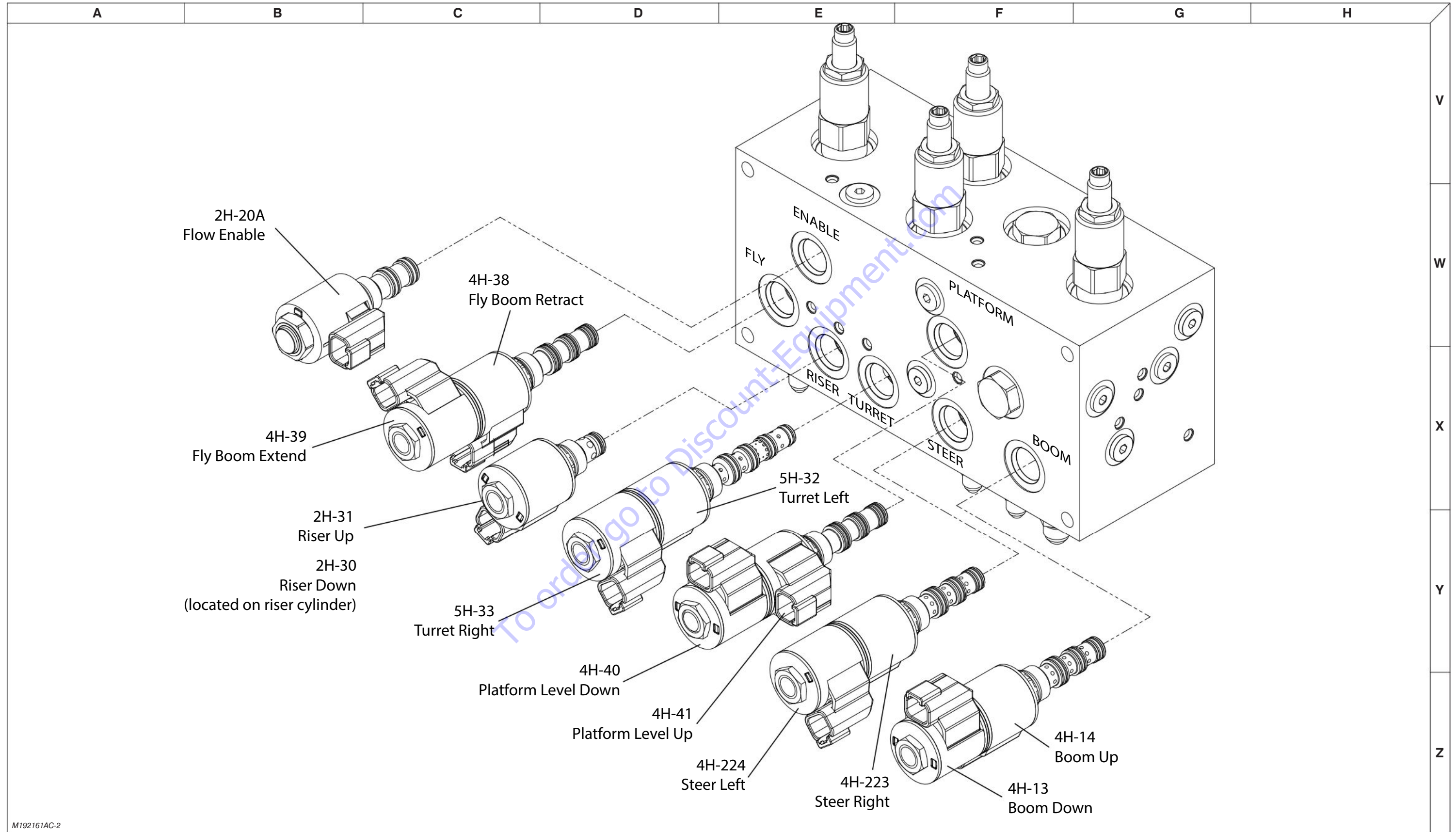


3.7 Main Manifold Hose Port Identification



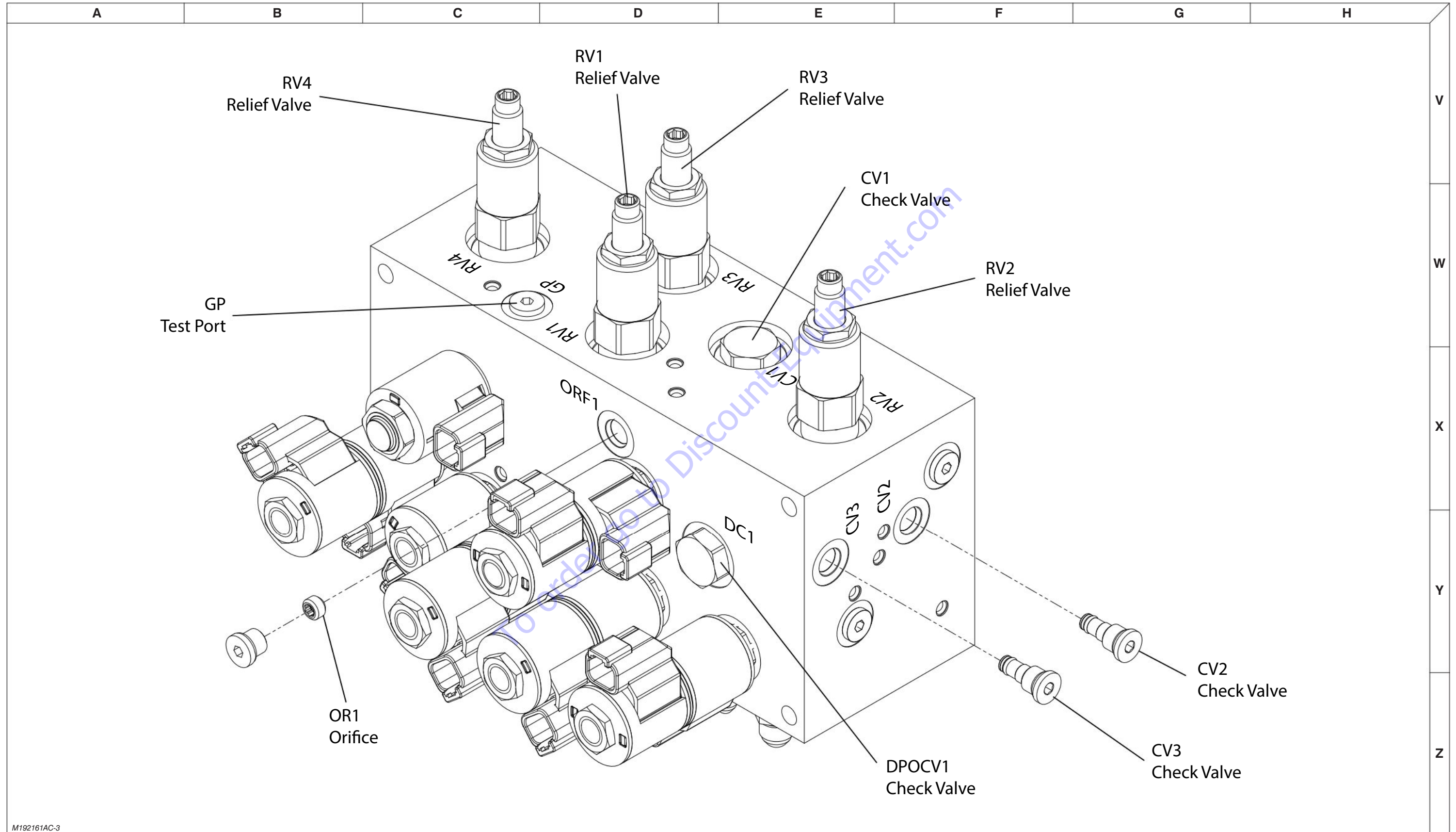
M192161AC - 1

3.8 Main Manifold Electrical Component Identification



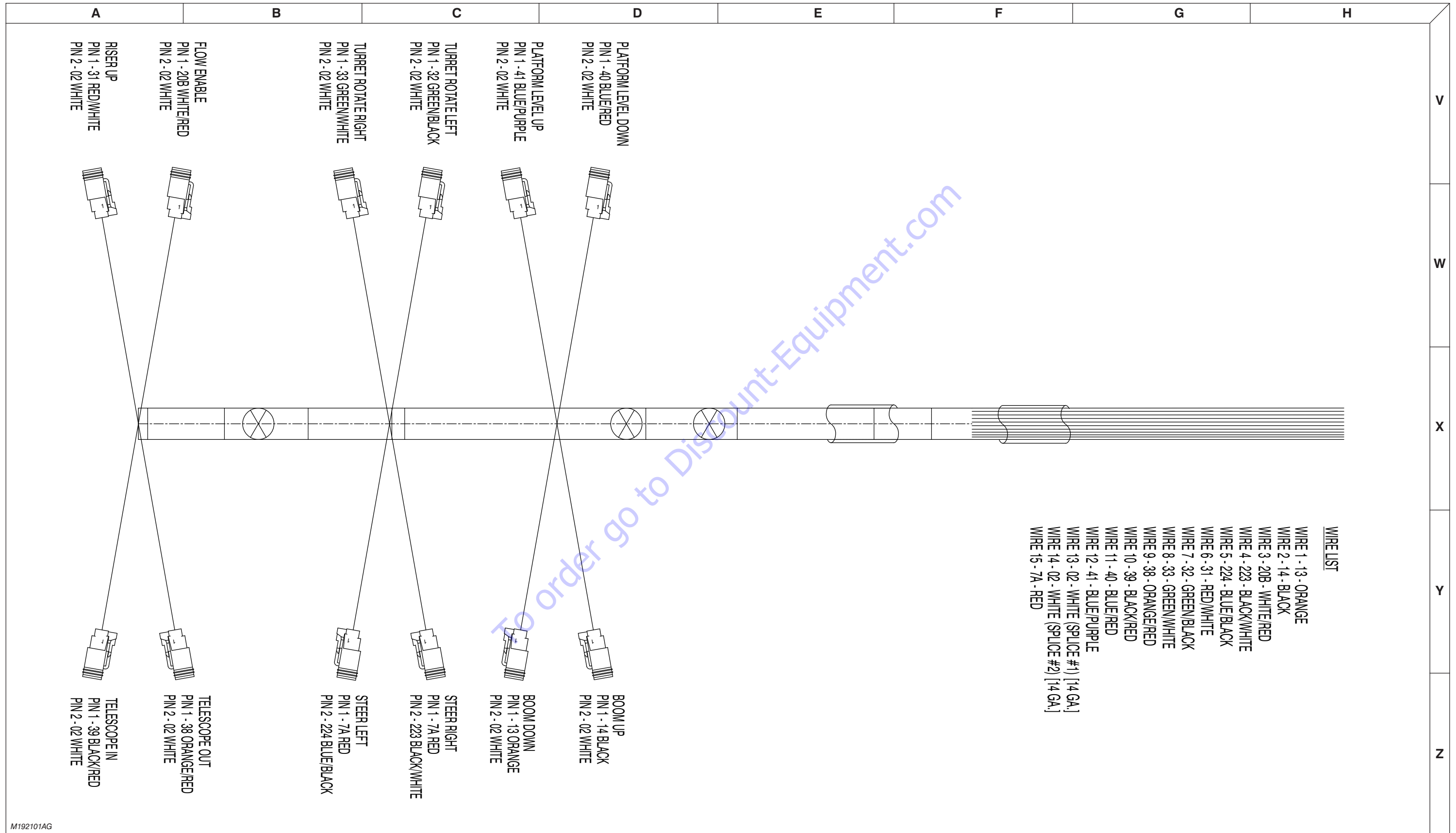
M192161AC-2

3.9 Main Manifold Component Identification



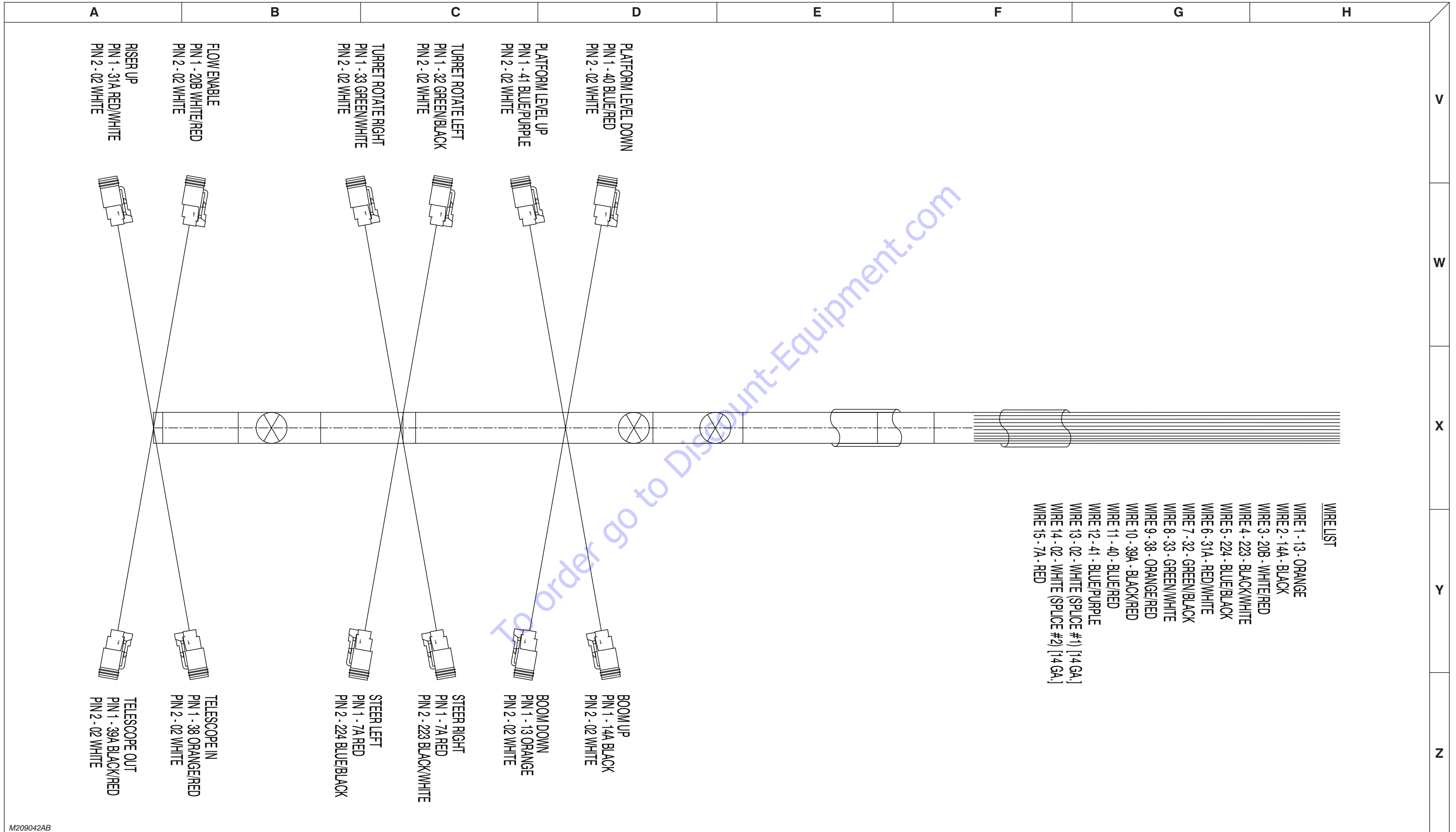
M192161AC-3

3.10 Main Manifold Harness - ANSI/CSA, CE & AS



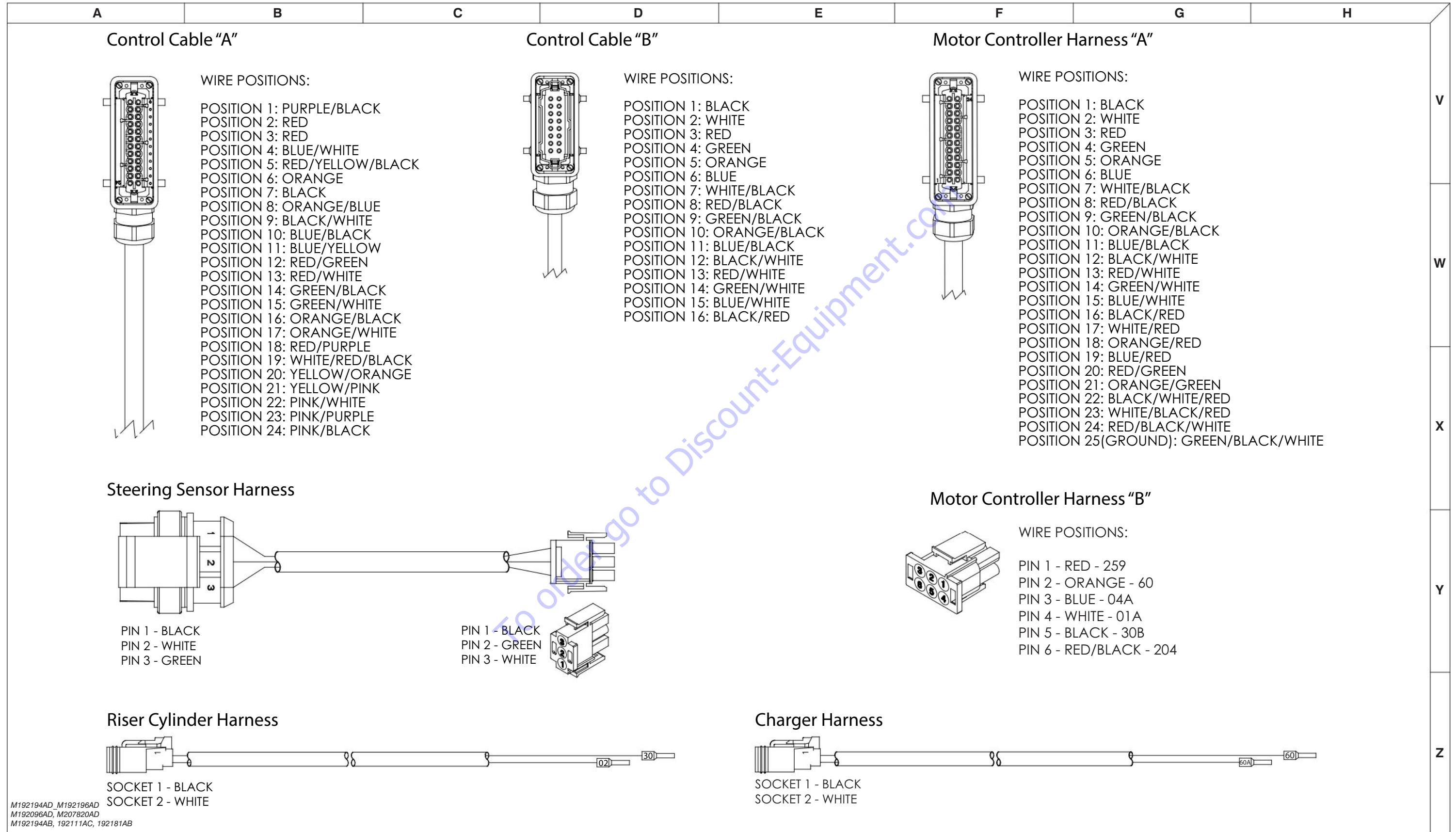
M192101AG

3.11 Main Manifold Harness - KC

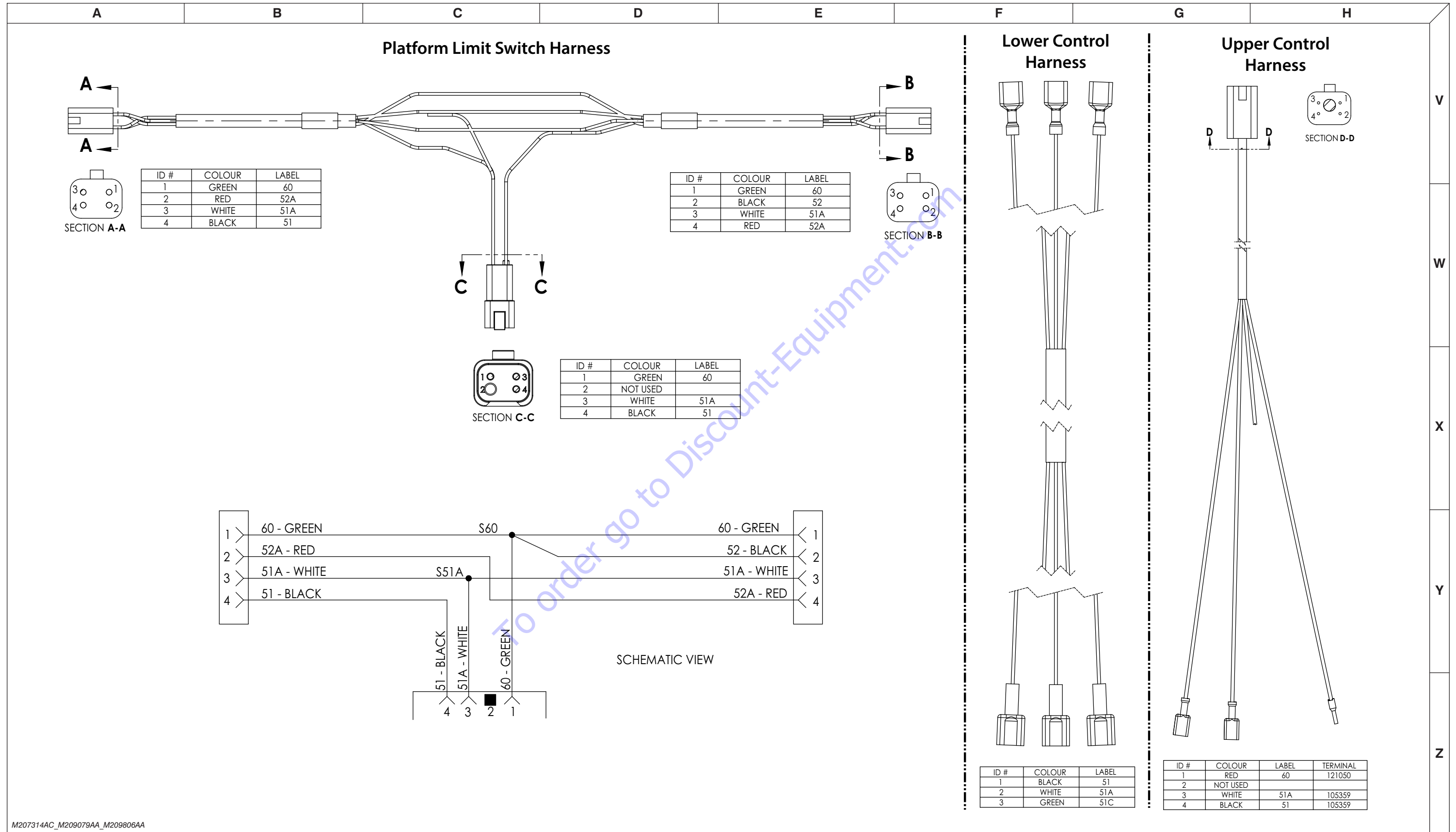


M209042AB

3.12 Control Cables & Harnesses

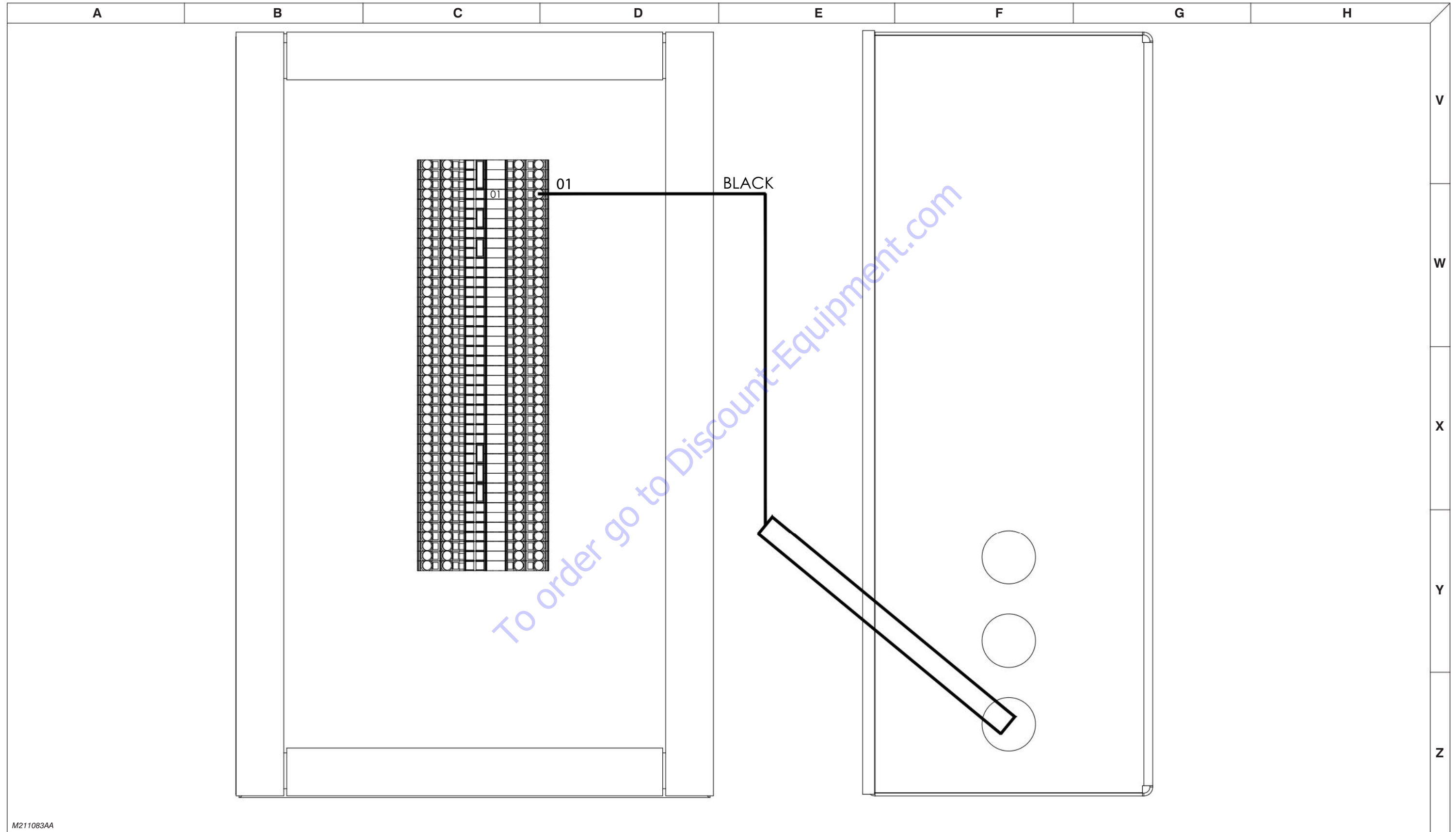


3.13 Platform Limit Switch Harness - KC



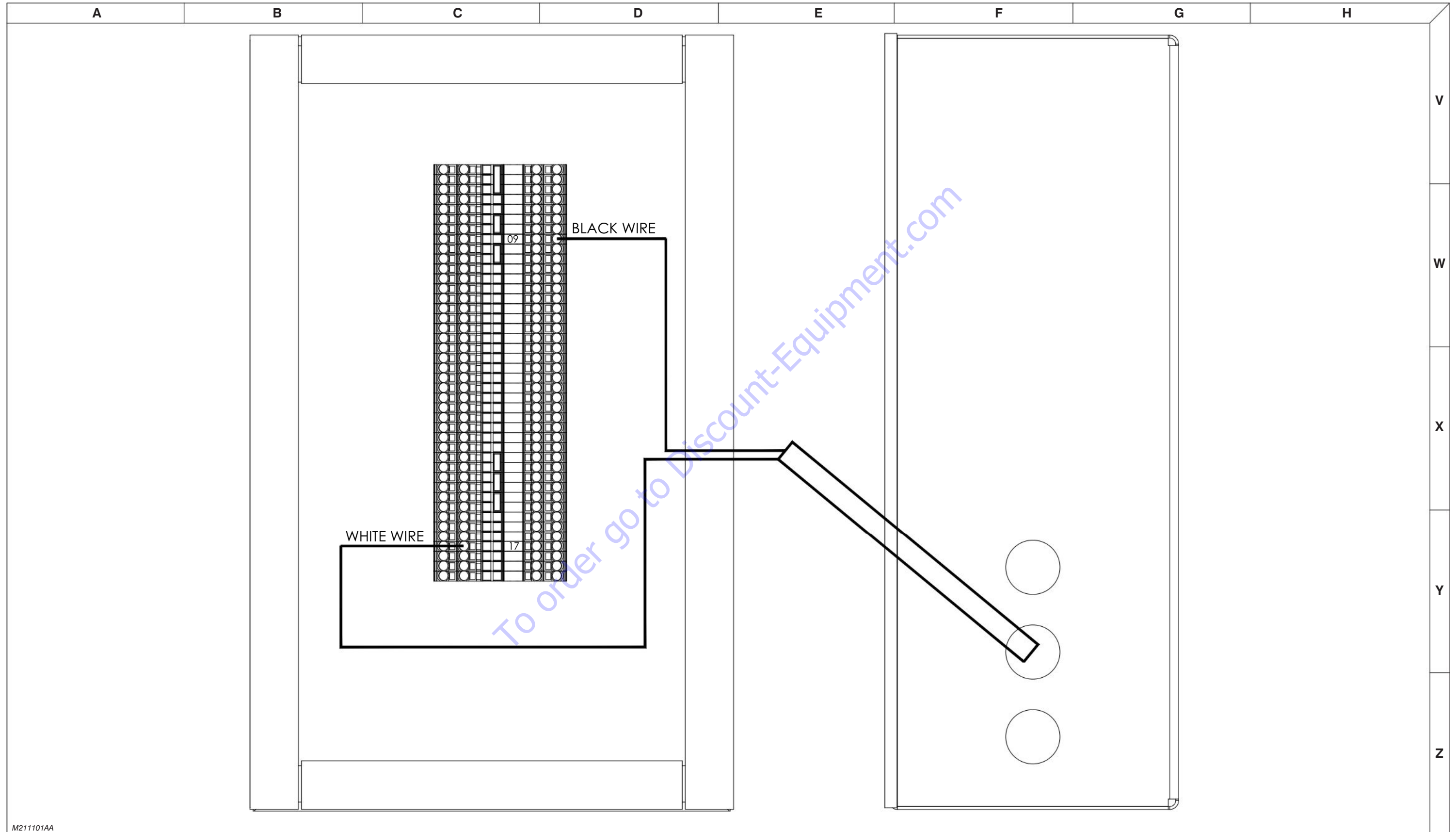
M207314AC_M209079AA_M209806AA

3.14 Emergency Pump Base Controls Wiring



M211083AA

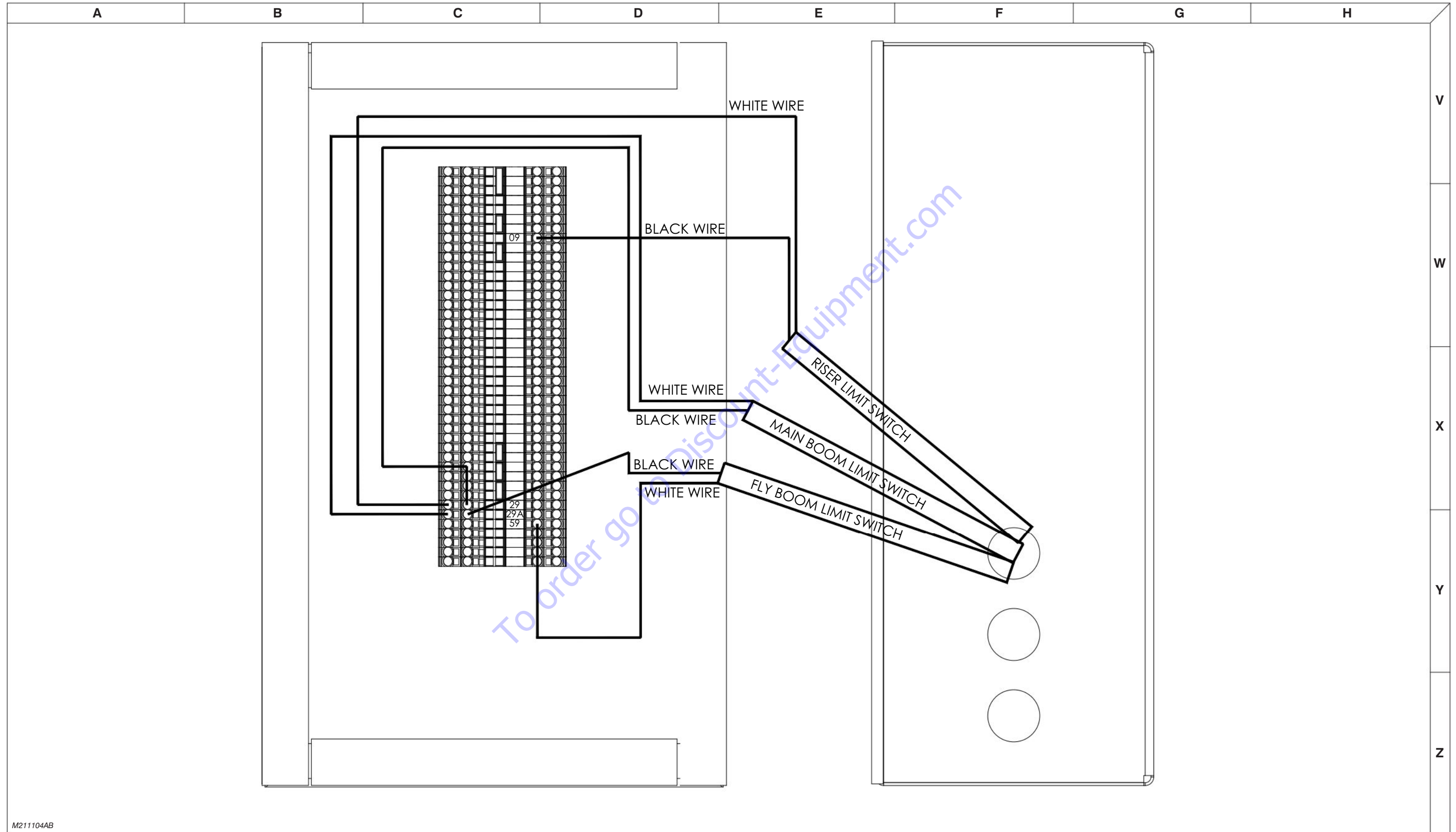
3.15 Direction Sensing Limit Switch Base Control Wiring



M211101AA

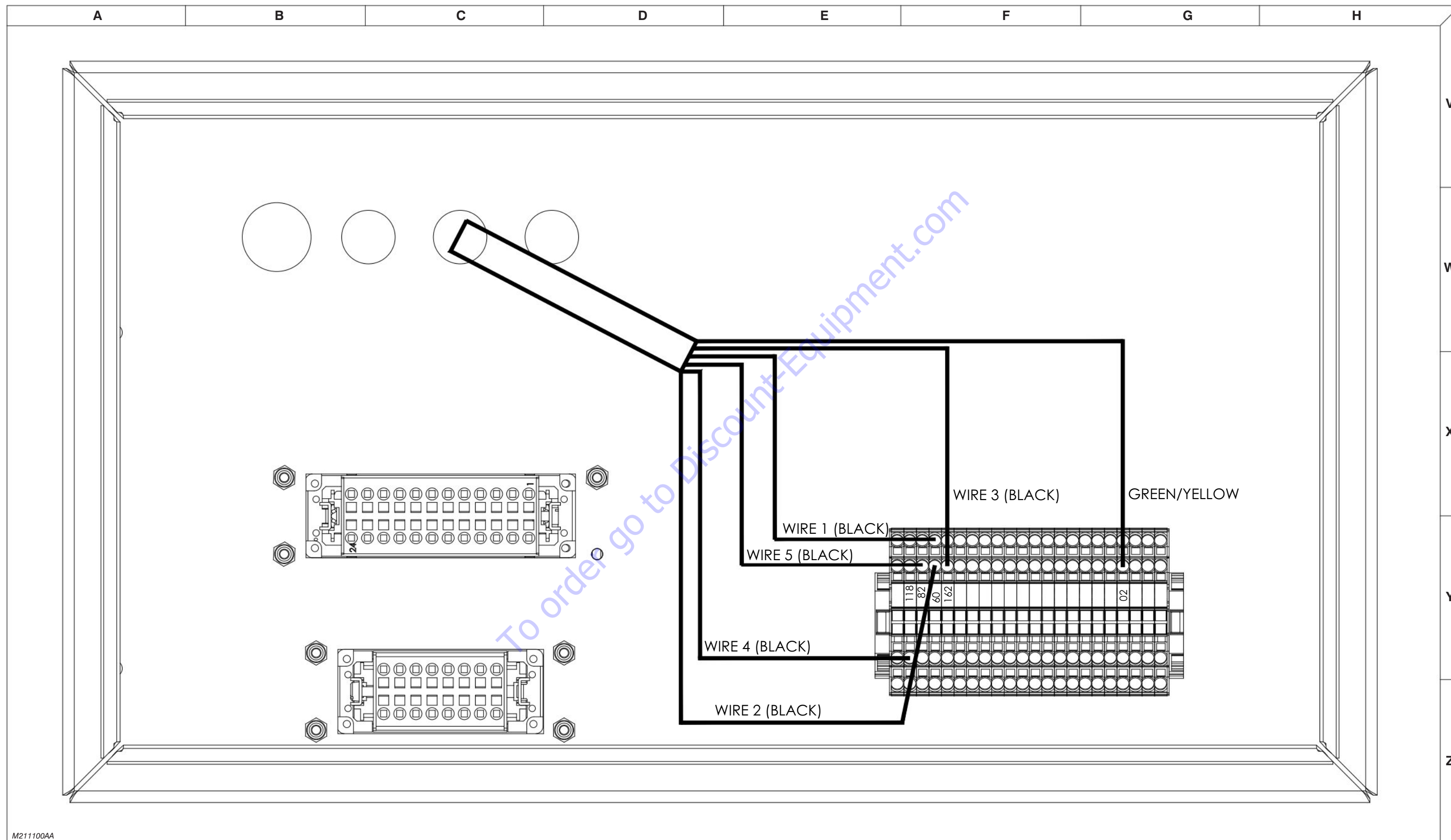
3.16 High Speed Cut - Out Limit Switches Base Controls Wiring

AB



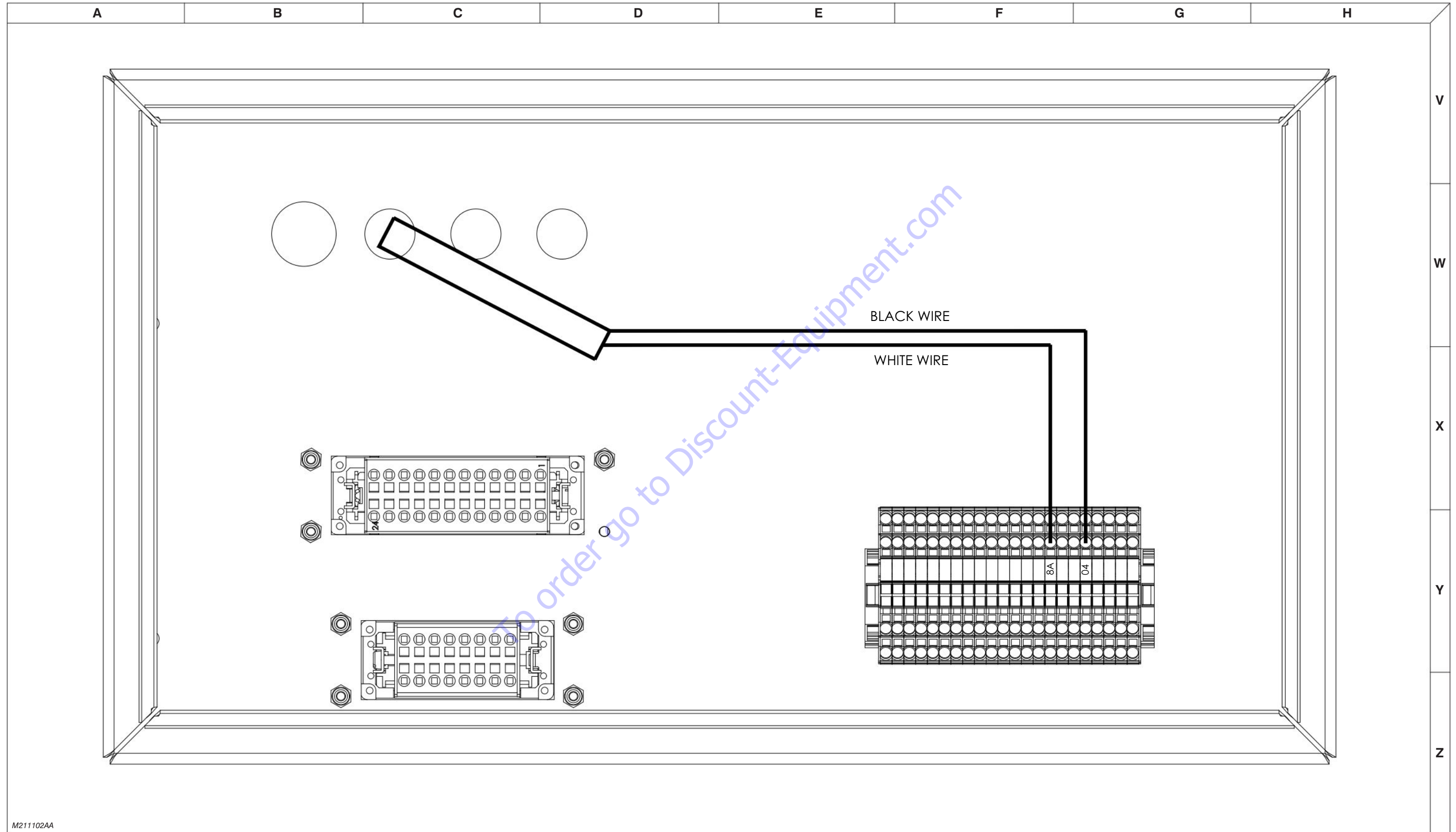
M211104AB

3.17 Overload Sensor Platform Controls Wiring



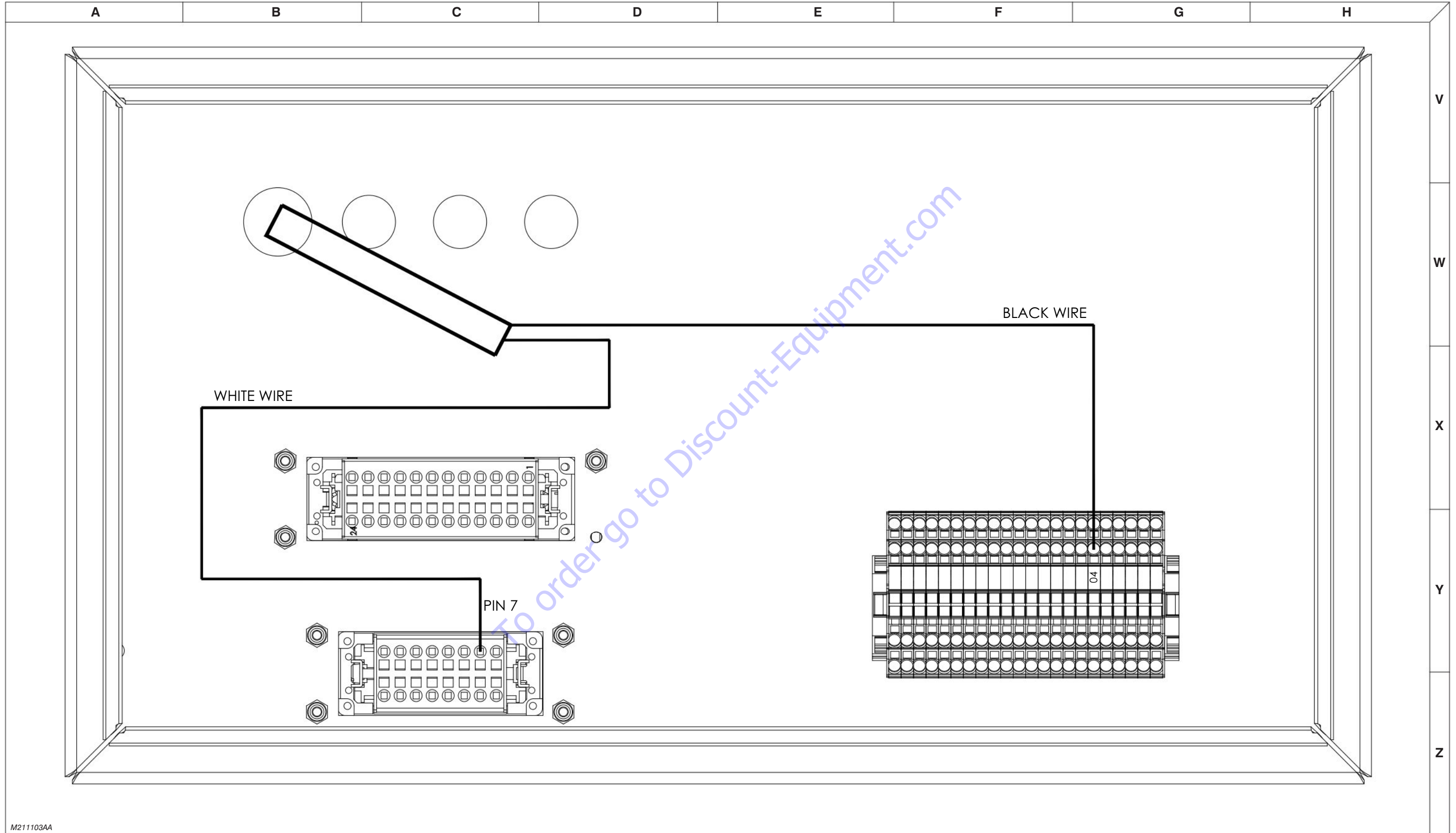
M211100AA

3.18 Footswitch Platform Controls Wiring



M211102AA

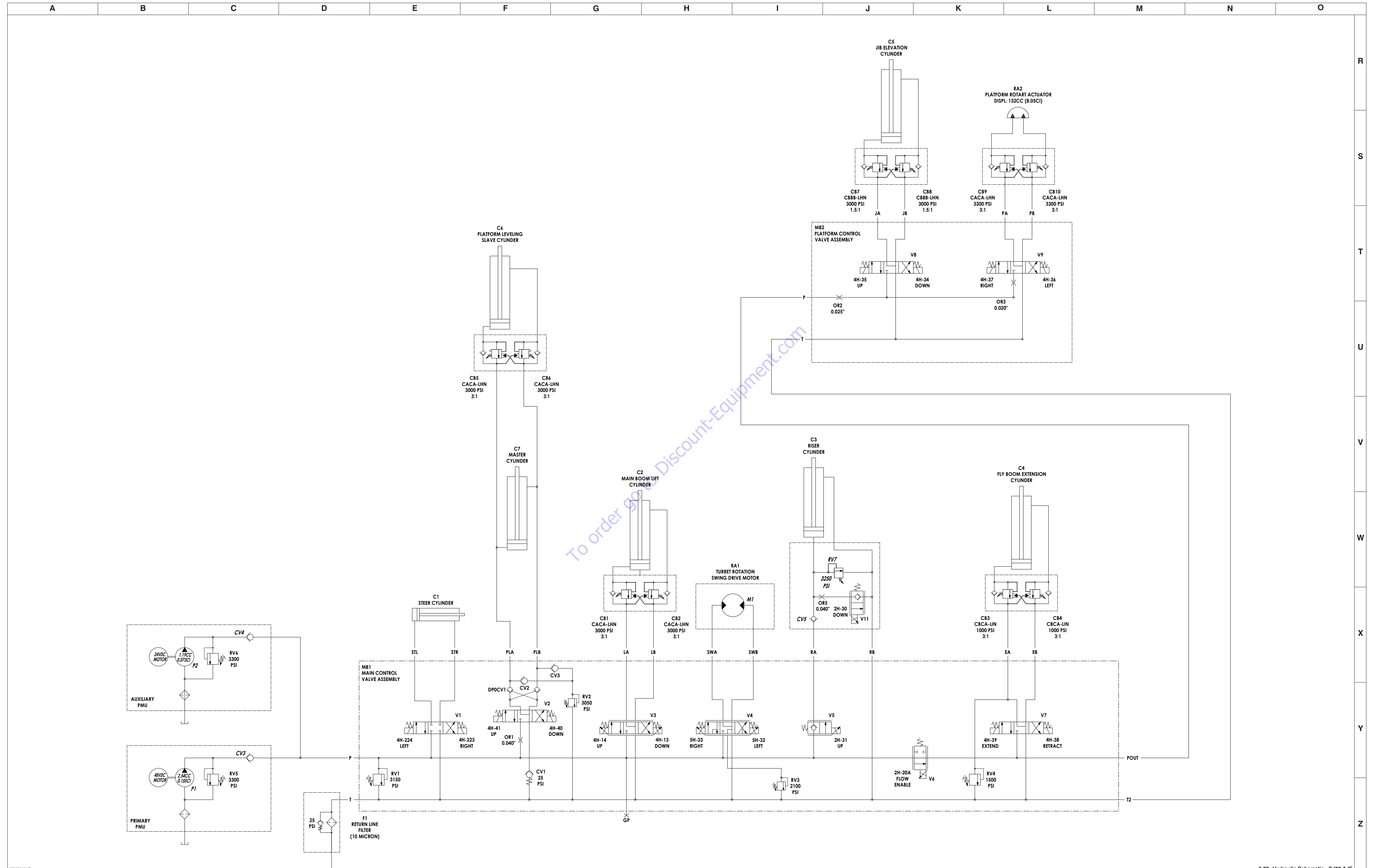
3.19 SGE Platform Controls Wiring



M211103AA

A	B	C	D	E	F	G	H	
<p>To order go to Discount-Equipment.com</p>								V
								W
								X
								Y
								Z

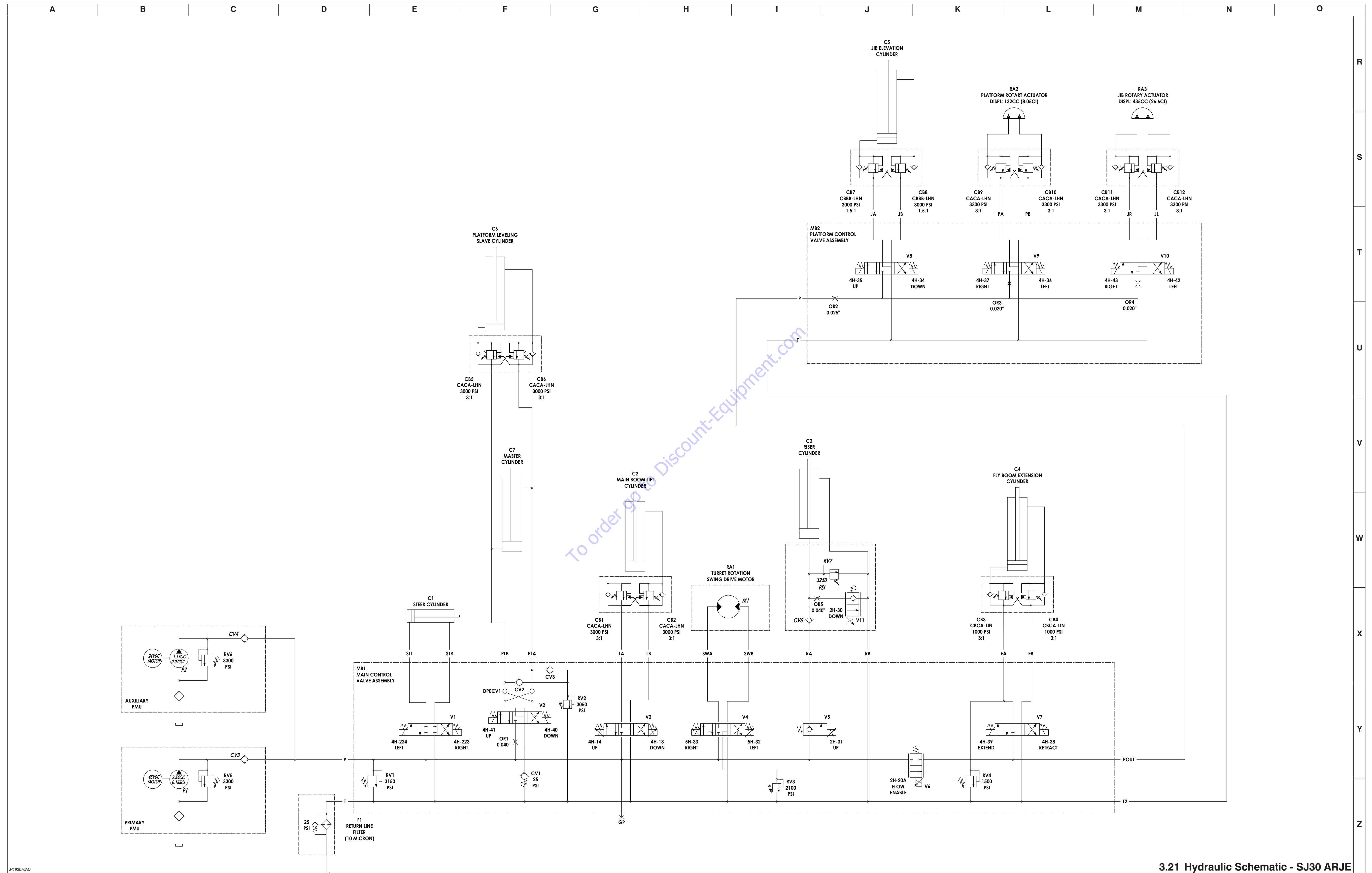
3.20 Hydraulic Schematic - SJ30 AJE



M207302AC

3.20 Hydraulic Schematic - SJ30 AJE

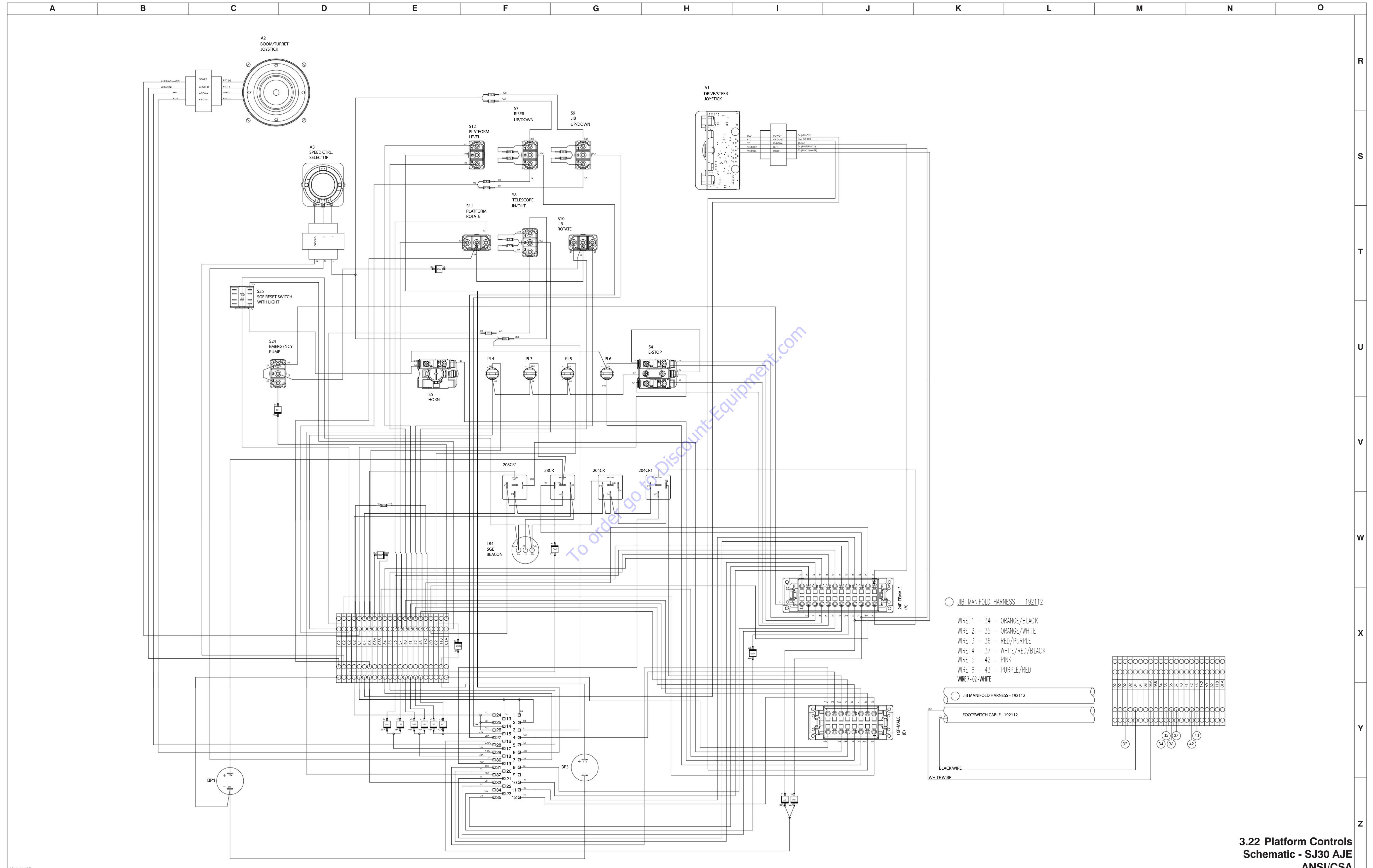
3.21 Hydraulic Schematic - SJ30 ARJE



M192079AD

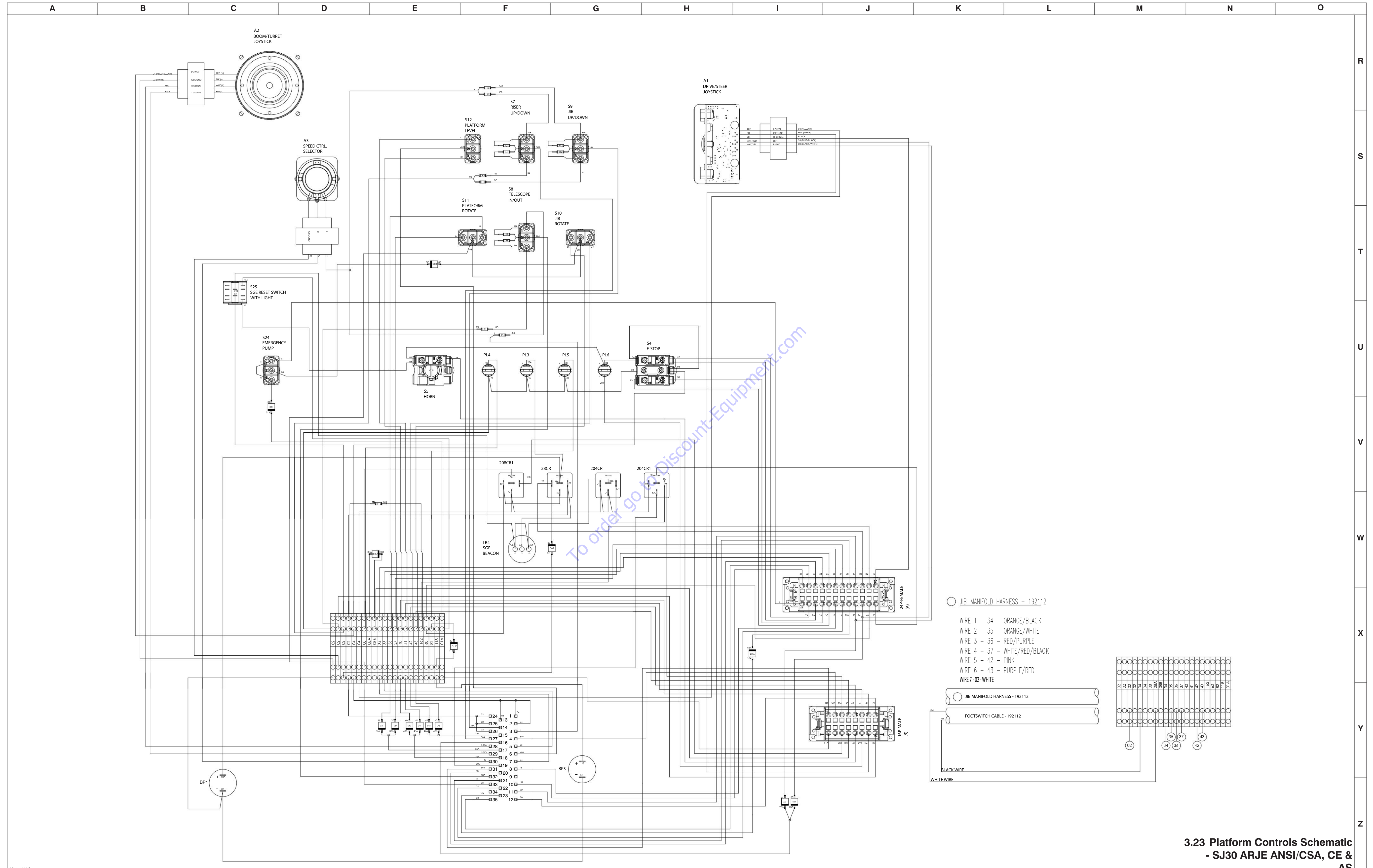
3.21 Hydraulic Schematic - SJ30 ARJE

3.22 Platform Controls Schematic - SJ30 AJE ANSI/CSA



3.22 Platform Controls Schematic - SJ30 AJE ANSI/CSA

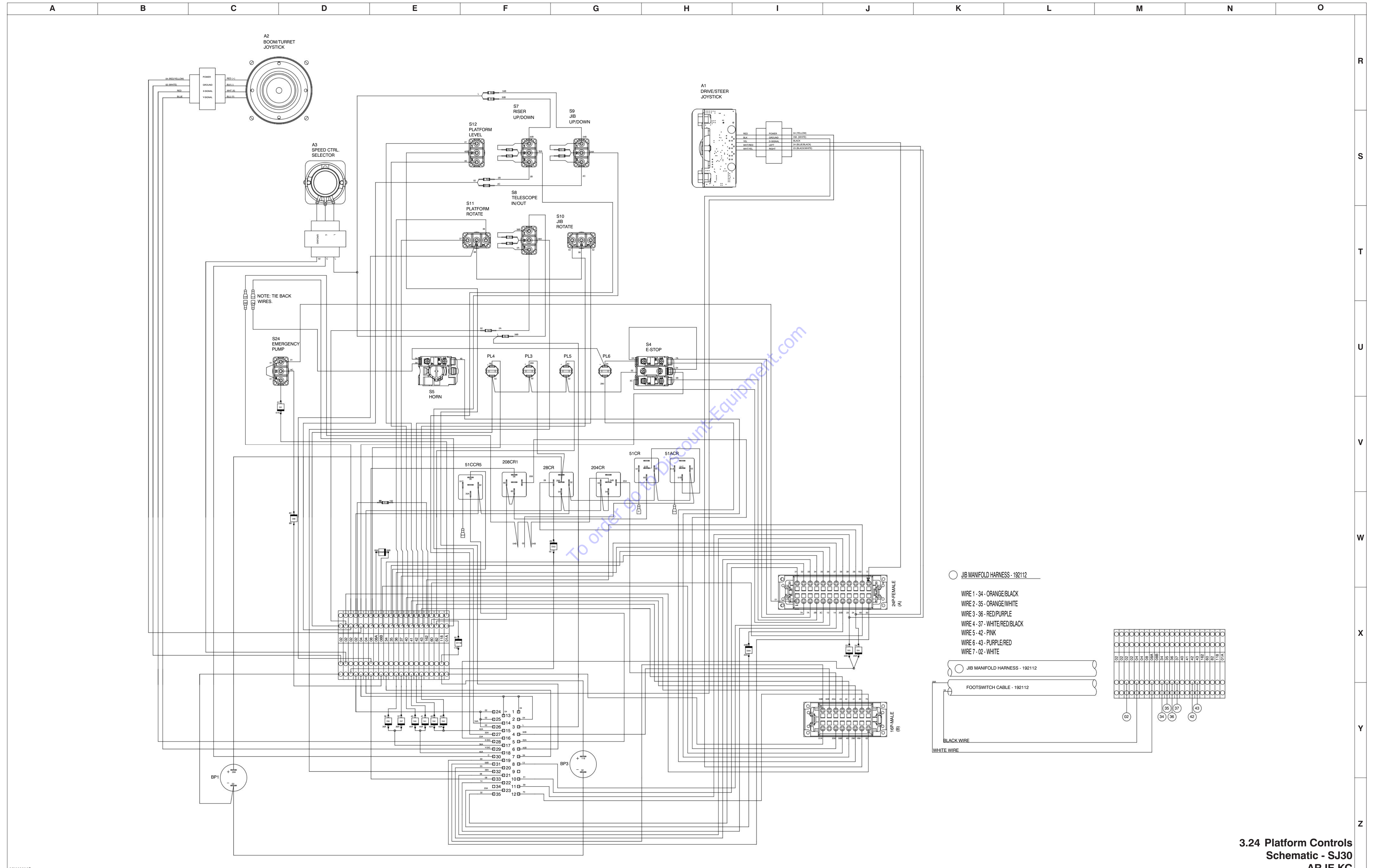
3.23 Platform Controls Schematic - SJ30 ARJE ANSI/CSA, CE & AS



M207832AG

3.23 Platform Controls Schematic
- SJ30 ARJE ANSI/CSA, CE & AS

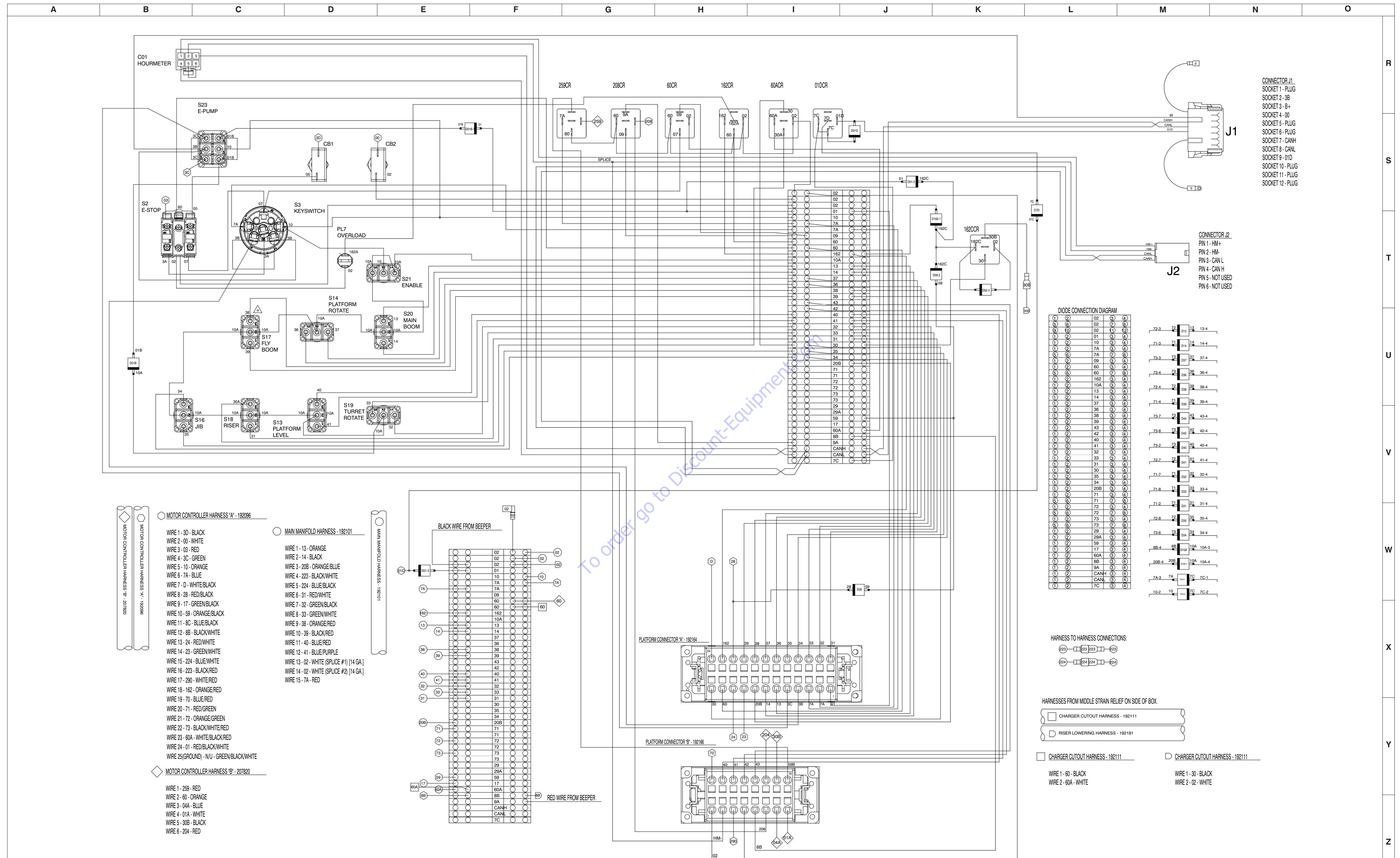
3.24 Platform Controls Schematic - SJ30 ARJE KC



3.24 Platform Controls Schematic - SJ30 ARJE KC

M208958AE

3.25 Base Controls Schematic - SJ30 AJE ANSI/CSA

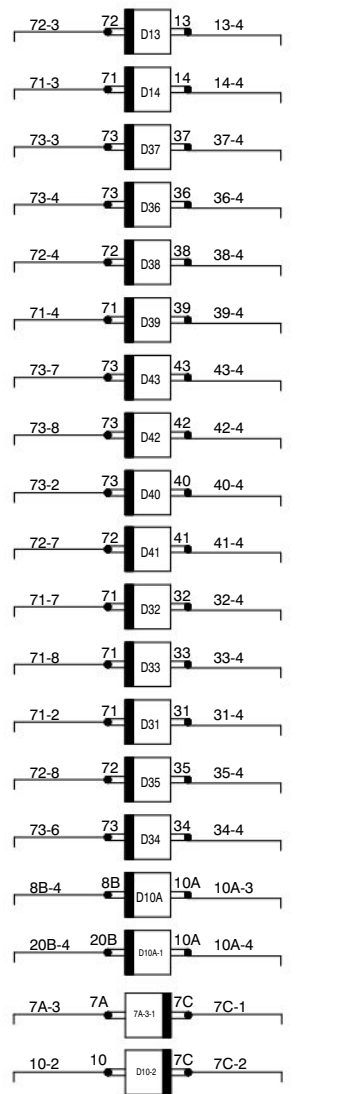


CONNECTOR J1
 SOCKET 1 - PLUG
 SOCKET 2 - 3B
 SOCKET 3 - B+
 SOCKET 4 - 00
 SOCKET 5 - PLUG
 SOCKET 6 - PLUG
 SOCKET 7 - CANH
 SOCKET 8 - CANL
 SOCKET 9 - 01D
 SOCKET 10 - PLUG
 SOCKET 11 - PLUG
 SOCKET 12 - PLUG

CONNECTOR J2
 PIN 1 - HM+
 PIN 2 - HM-
 PIN 3 - CAN L
 PIN 4 - CAN H
 PIN 5 - NOT USED
 PIN 6 - NOT USED

DIODE CONNECTION DIAGRAM

01	02	03	04
05	06	07	08
09	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100



HARNESS TO HARNESS CONNECTIONS:

223 - 223 223 223

224 - 224 224 224

HARNESSES FROM MIDDLE STRAIN RELIEF ON SIDE OF BOX:

CHARGER CUTOFF HARNESS - 192111

RISER LOWERING HARNESS - 192181

CHARGER CUTOFF HARNESS - 192111

CHARGER CUTOFF HARNESS - 192111

WIRE 1 - 60 - BLACK

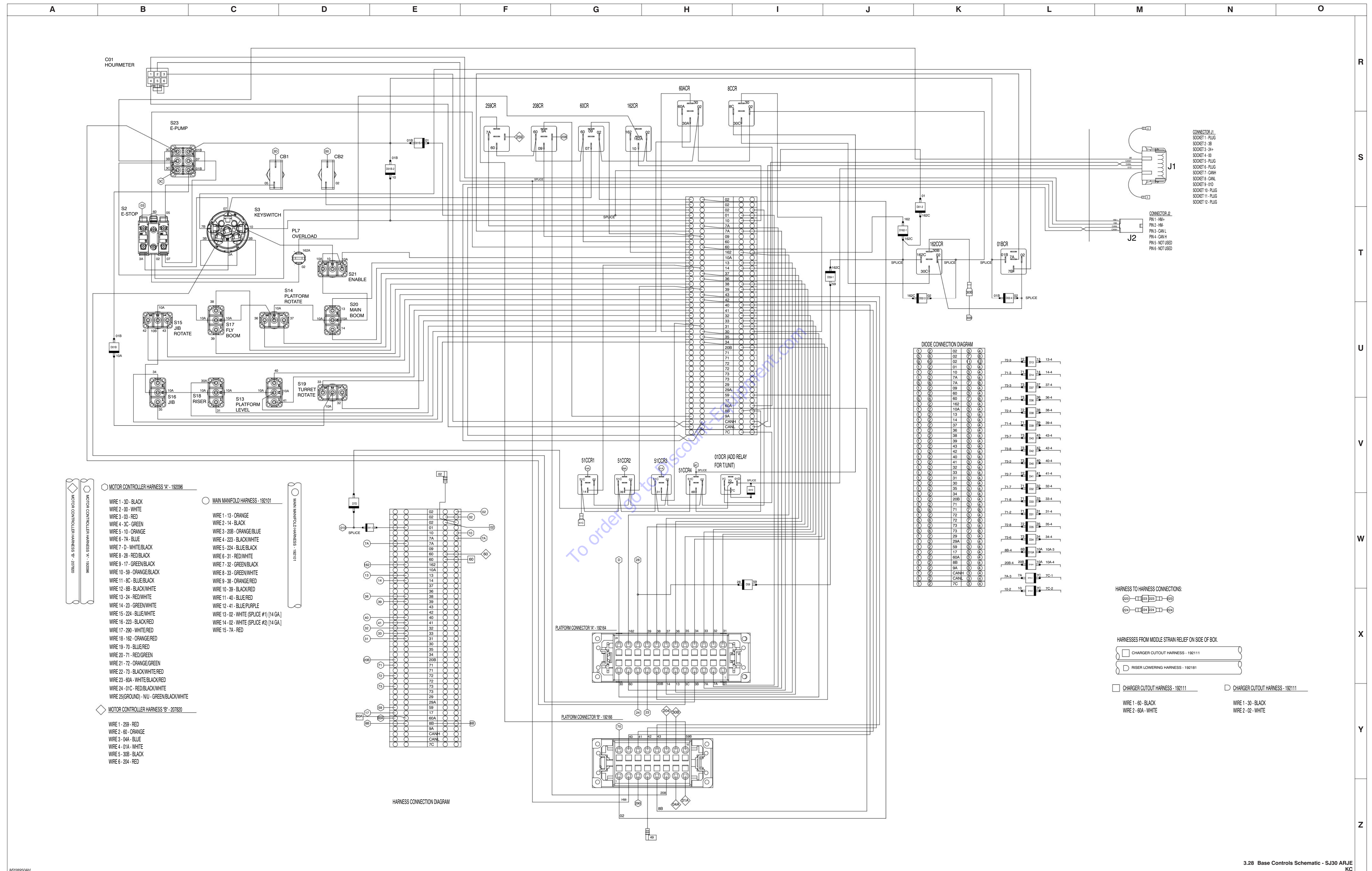
WIRE 2 - 60A - WHITE

WIRE 1 - 30 - BLACK

WIRE 2 - 02 - WHITE

- MOTOR CONTROLLER HARNESS 'A' - 192096
 - WIRE 1 - 3D - BLACK
 - WIRE 2 - 00 - WHITE
 - WIRE 3 - 03 - RED
 - WIRE 4 - 3C - GREEN
 - WIRE 5 - 10 - ORANGE
 - WIRE 6 - 7A - BLUE
 - WIRE 7 - D - WHITE/BLACK
 - WIRE 8 - 28 - RED/BLACK
 - WIRE 9 - 17 - GREEN/BLACK
 - WIRE 10 - 59 - ORANGE/BLACK
 - WIRE 11 - 8C - BLUE/BLACK
 - WIRE 12 - 8B - BLACK/WHITE
 - WIRE 13 - 24 - RED/WHITE
 - WIRE 14 - 23 - GREEN/WHITE
 - WIRE 15 - 224 - BLUE/WHITE
 - WIRE 16 - 223 - BLACK/RED
 - WIRE 17 - 290 - WHITE/RED
 - WIRE 18 - 162 - ORANGE/RED
 - WIRE 19 - 70 - BLUE/RED
 - WIRE 20 - 71 - RED/GREEN
 - WIRE 21 - 72 - ORANGE/GREEN
 - WIRE 22 - 73 - BLACK/WHITE/RED
 - WIRE 23 - 60A - WHITE/BLACK/RED
 - WIRE 24 - 01 - RED/BLACK/WHITE
 - WIRE 25 (GROUND) - NU - GREEN/BLACK/WHITE
- MOTOR CONTROLLER HARNESS 'B' - 207820
 - WIRE 1 - 259 - RED
 - WIRE 2 - 60 - ORANGE
 - WIRE 3 - 04A - BLUE
 - WIRE 4 - 01A - WHITE
 - WIRE 5 - 30B - BLACK
 - WIRE 6 - 204 - RED
- MAIN MANIFOLD HARNESS - 192101
 - WIRE 1 - 13 - ORANGE
 - WIRE 2 - 14 - BLACK
 - WIRE 3 - 20B - ORANGE/BLUE
 - WIRE 4 - 223 - BLACK/WHITE
 - WIRE 5 - 224 - BLUE/BLACK
 - WIRE 6 - 31 - RED/WHITE
 - WIRE 7 - 32 - GREEN/BLACK
 - WIRE 8 - 33 - GREEN/WHITE
 - WIRE 9 - 38 - ORANGE/RED
 - WIRE 10 - 39 - BLACK/RED
 - WIRE 11 - 40 - BLUE/RED
 - WIRE 12 - 41 - BLUE/PURPLE
 - WIRE 13 - 02 - WHITE (SPlice #1) [14 GA.]
 - WIRE 14 - 02 - WHITE (SPlice #2) [14 GA.]
 - WIRE 15 - RED

3.28 Base Controls Schematic - SJ30 ARJE KC

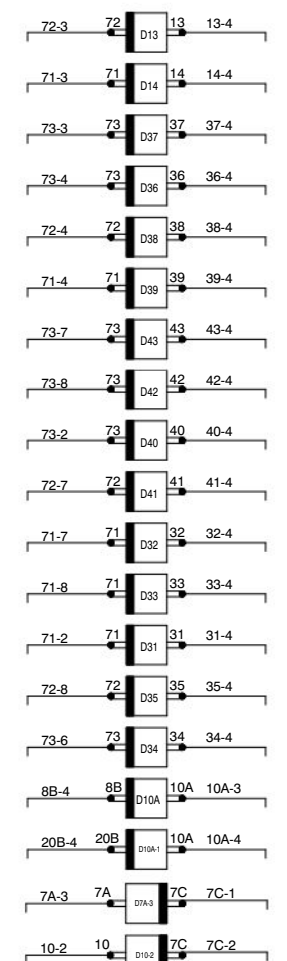


- CONNECTOR J1
 SOCKET 1 - PLUG
 SOCKET 2 - 3B
 SOCKET 3 - 2H
 SOCKET 4 - 0U
 SOCKET 5 - PLUG
 SOCKET 6 - PLUG
 SOCKET 7 - CANH
 SOCKET 8 - CANL
 SOCKET 9 - 0D
 SOCKET 10 - PLUG
 SOCKET 11 - PLUG
 SOCKET 12 - PLUG

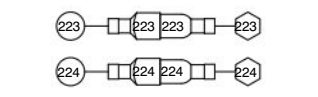
- CONNECTOR J2
 PIN 1 - HM+
 PIN 2 - HM-
 PIN 3 - CANL
 PIN 4 - CANH
 PIN 5 - NOT USED
 PIN 6 - NOT USED

DIODE CONNECTION DIAGRAM

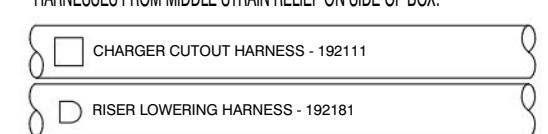
02	02	02	02
03	03	03	03
04	04	04	04
05	05	05	05
06	06	06	06
07	07	07	07
08	08	08	08
09	09	09	09
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
14	14	14	14
15	15	15	15
16	16	16	16
17	17	17	17
18	18	18	18
19	19	19	19
20	20	20	20
21	21	21	21
22	22	22	22
23	23	23	23
24	24	24	24
25	25	25	25
26	26	26	26
27	27	27	27
28	28	28	28
29	29	29	29
30	30	30	30
31	31	31	31
32	32	32	32
33	33	33	33
34	34	34	34
35	35	35	35
36	36	36	36
37	37	37	37
38	38	38	38
39	39	39	39
40	40	40	40
41	41	41	41
42	42	42	42
43	43	43	43
44	44	44	44
45	45	45	45
46	46	46	46
47	47	47	47
48	48	48	48
49	49	49	49
50	50	50	50
51	51	51	51
52	52	52	52
53	53	53	53
54	54	54	54
55	55	55	55
56	56	56	56
57	57	57	57
58	58	58	58
59	59	59	59
60	60	60	60
61	61	61	61
62	62	62	62



HARNESSES TO HARNESSES CONNECTIONS:



HARNESSES FROM MIDDLE STRAIN RELIEF ON SIDE OF BOX:



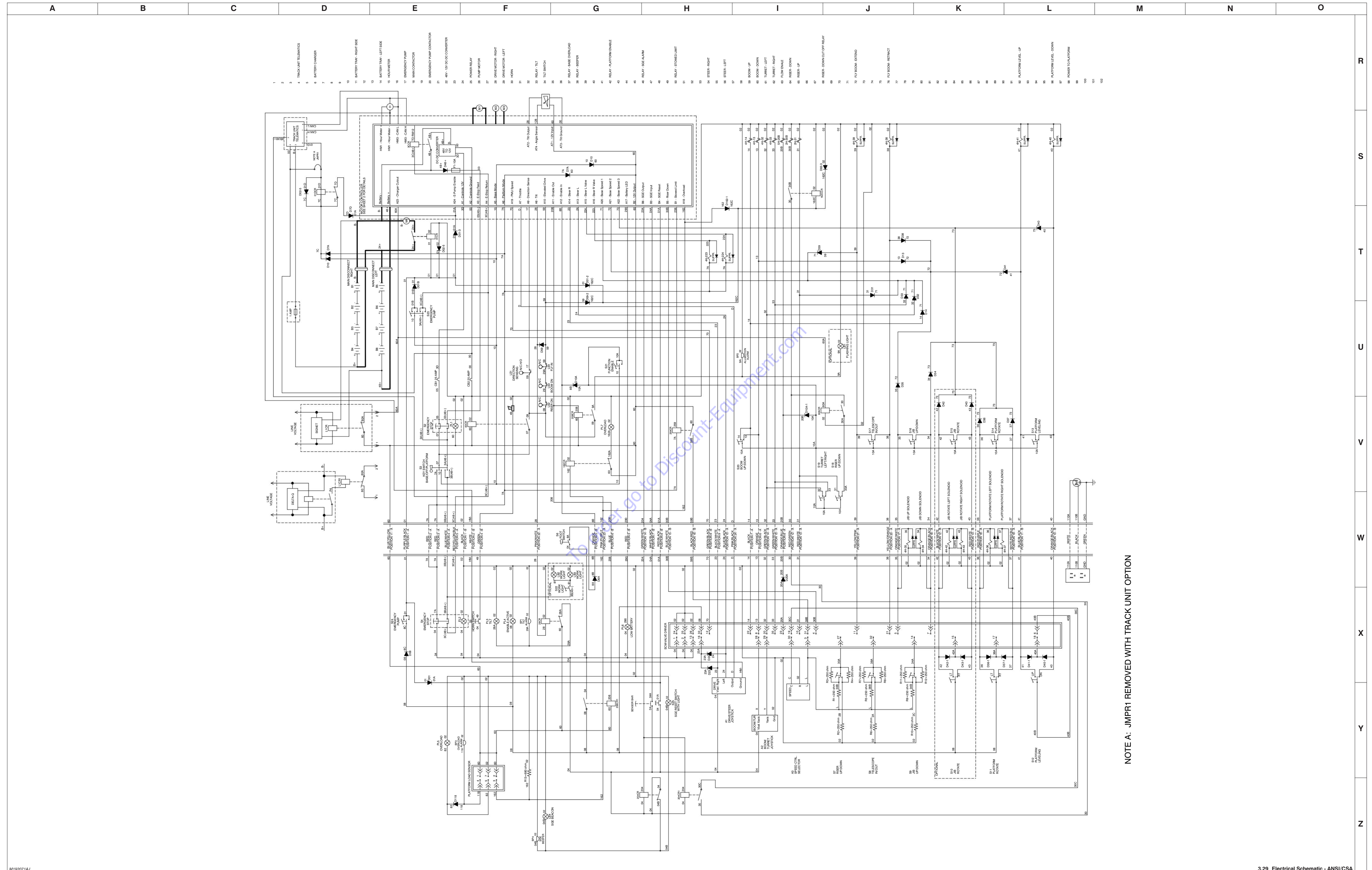
CHARGER CUTOFF HARNESSES - 192111

- WIRE 1 - 60 - BLACK
- WIRE 2 - 60A - WHITE

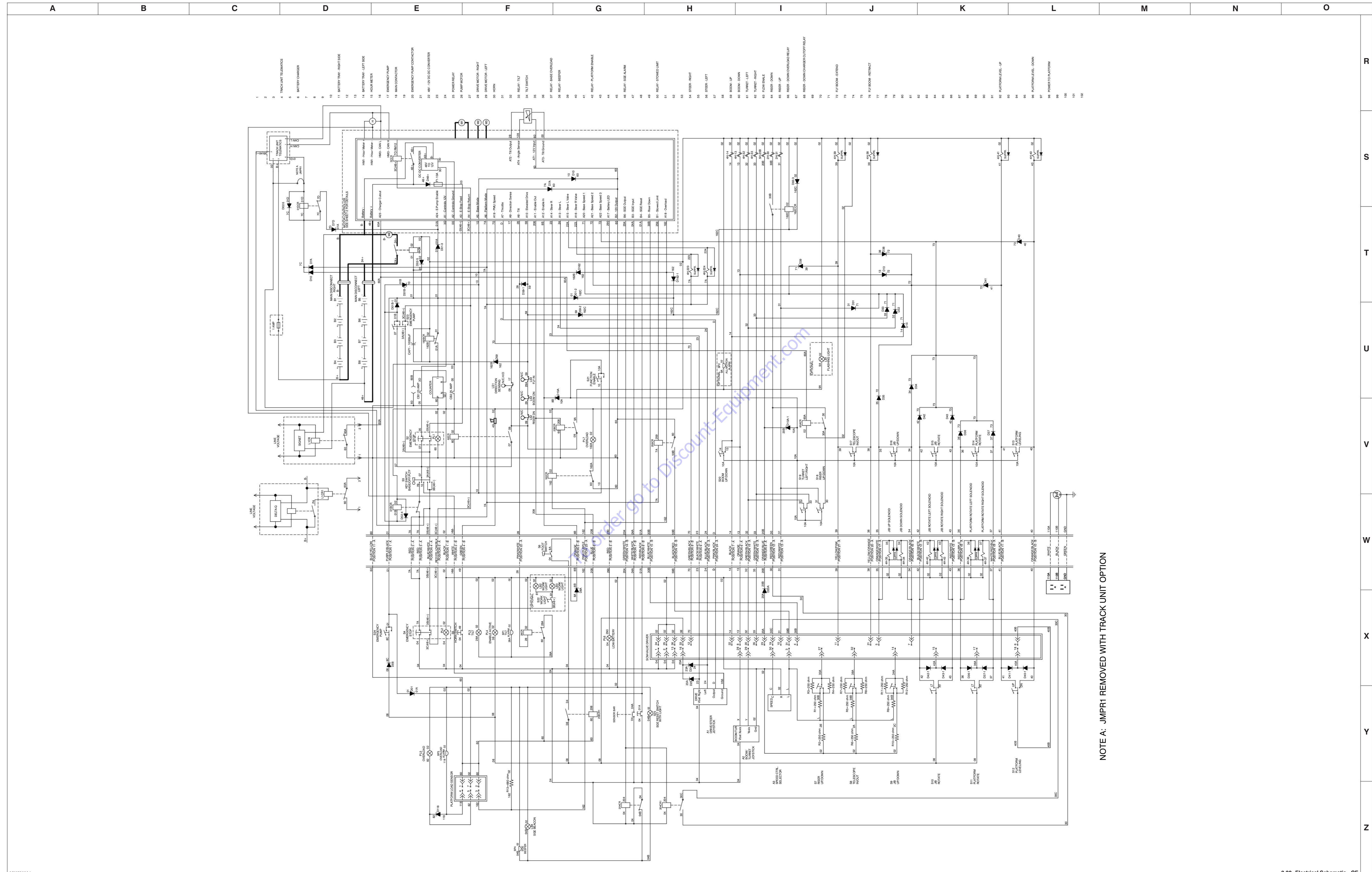
CHARGER CUTOFF HARNESSES - 192111

- WIRE 1 - 30 - BLACK
- WIRE 2 - 02 - WHITE

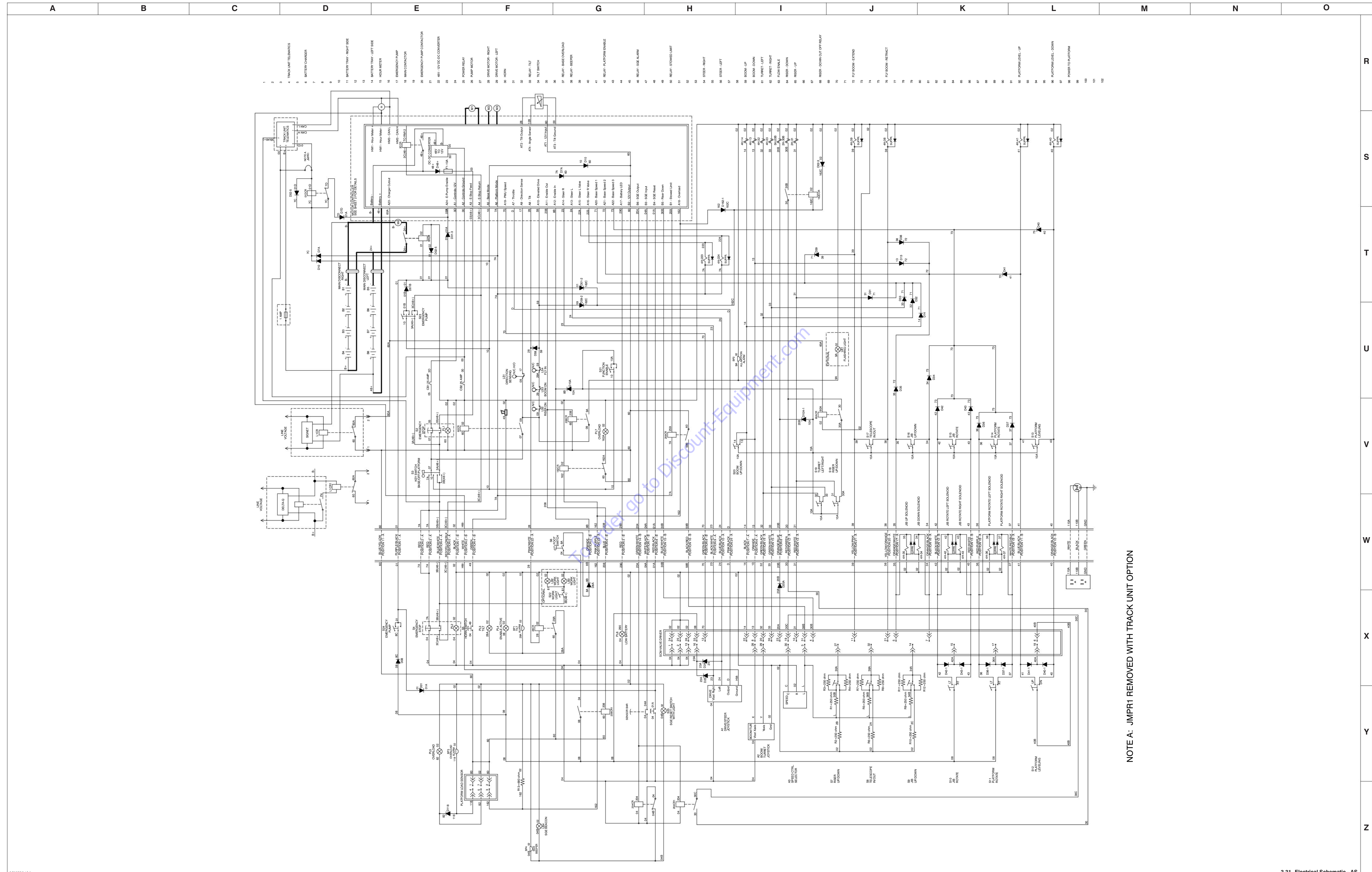
3.29 Electrical Schematic - ANSI/CSA



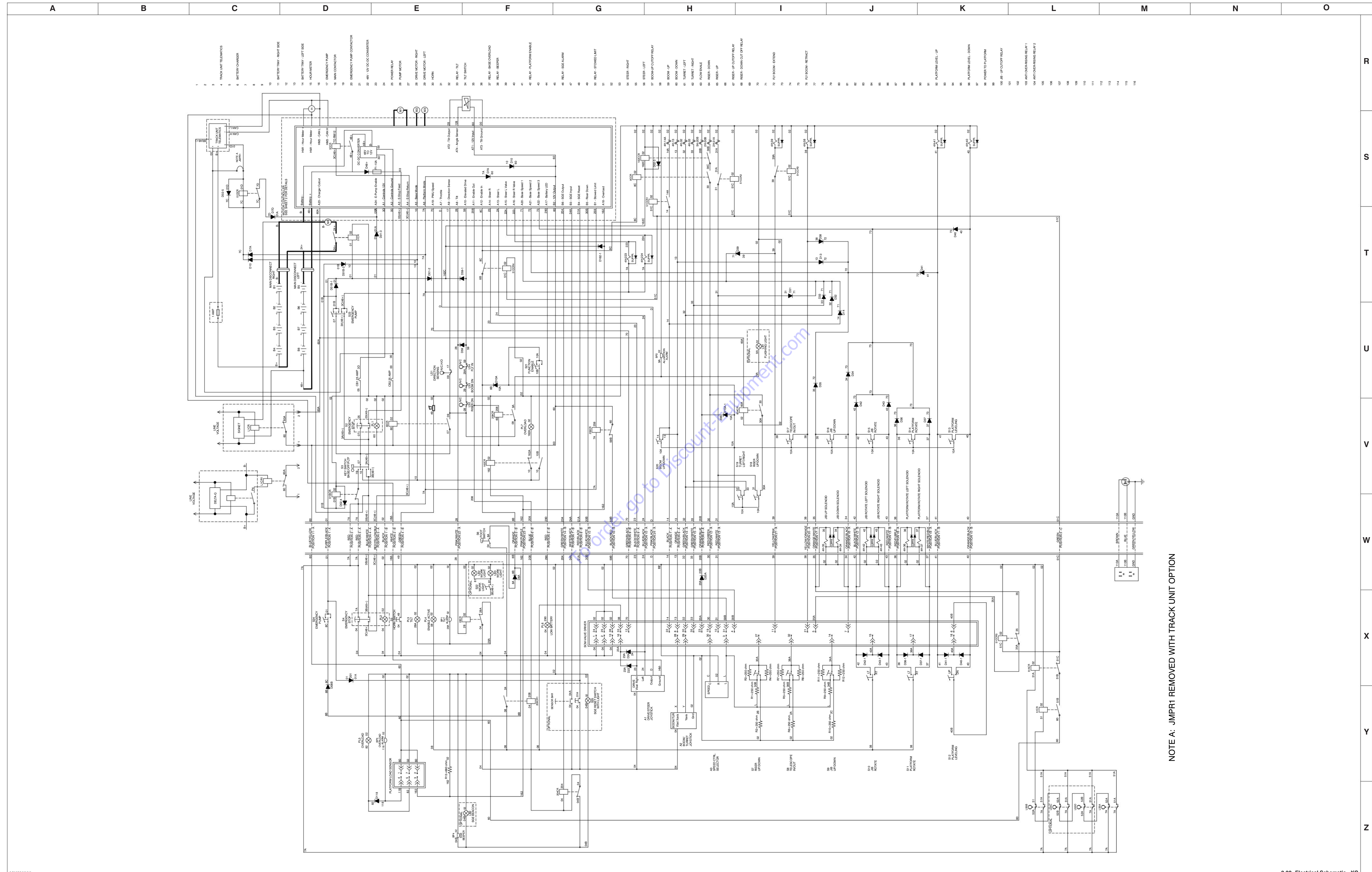
NOTE A: JMPR1 REMOVED WITH TRACK UNIT OPTION



NOTE A: JMPR1 REMOVED WITH TRACK UNIT OPTION

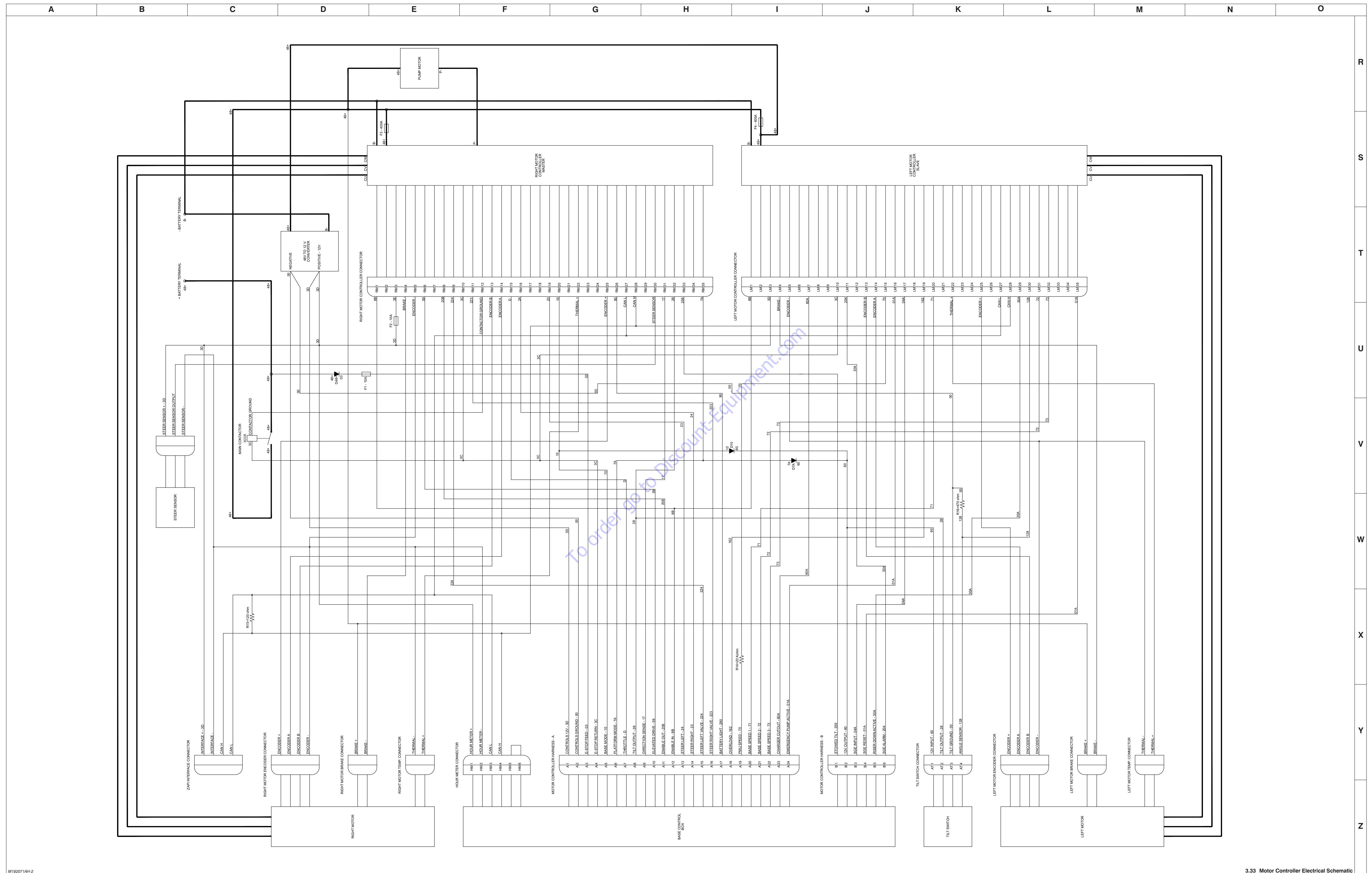


NOTE A: JMPRT1 REMOVED WITH TRACK UNIT OPTION



NOTE A: JMPRI REMOVED WITH TRACK UNIT OPTION

3.33 Motor Controller Electrical Schematic



M192071AH-2

3.33 Motor Controller Electrical Schematic

Section 4 – Troubleshooting Information

4.1 Introduction

The following pages contain a table of Troubleshooting for locating and correcting most service trouble which can develop. Careful and accurate analysis of the systems listed in the table of Troubleshooting will localize the trouble more quickly than any other method. This manual cannot cover all possible troubles and deficiencies that may occur. If a specific trouble is not listed, isolate the

major component in which the trouble occurs, isolate whether the problem is electrical or hydraulic, and then isolate and correct the specific problem.

The content of this section is separated into “probable cause” and “remedy.” The information preceded by a number represents the “probable cause.” The following line, noted by a dash represents the “remedy” to the “probable cause” directly above it. See example below for clarification.

1. Probable cause.

Remedy.

To order go to Discount-Equipment.com

4.2 Electrical System

4.2-1 All Controls Inoperative

1. Battery disconnected or discharged.	Reconnect battery. Recharge if discharged.
2. Loose or dirty battery cables.	Clean and tighten battery cables.
3. Open or defective main power disconnect right or left.	Close disconnect. Replace if defective.
4. Charger plugged into AC source.	Make sure batteries are charged. Unplug from AC source.
5. Loose or broken wire #60 from base terminal block to charger cutout relay L1CR.	Check continuity. Replace if defective.
6. Defective relay L1CR.	Check relay. Replace if defective.
7. Loose or broken wire #60A from charger cutout relay L1CR to base terminal block.	Check continuity. Replace if defective.
8. Loose or broken wire #60A from base terminal block to motor control harness A.	Check continuity. Replace if defective.
9. Loose or broken wire #60A from motor control harness A pin #23 to left motor controller pin #LM7.	Check continuity. Replace if defective.
10. Loose or broken wire #48+ from motor contactor 3CCR to diode D48+.	Check continuity. Replace if defective.
11. Open or defective diode D48+.	Check diode. Replace if defective.
12. Loose or broken wire #48+ from diode D48+ to fuse F1.	Check continuity. Replace if defective.
13. Defective fuse F1 (10Amp).	Check fuse. Replace if defective.
14. Loose or broken wire #03 from fuse F1 to base emergency stop switch S6.	Check continuity. Replace if defective.
15. Defective base emergency stop switch S6.	Check switch. Replace if defective.
16. Loose or broken wire #3A from base emergency stop switch S6 to base key switch S3.	Check continuity. Replace if defective.
17. Defective base key switch S3.	Check switch. Select either base or platform. Replace if defective.
18. Loose or broken wire #3B from base emergency stop switch S6 to platform plug A pin #4 in base control console.	Check continuity. Replace if defective.
19. Loose or broken wire #3B in boom cable A or its connectors.	Check for continuity between pins #4 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.

20. Loose or broken wire #3B from plug A pin #4 to emergency stop switch S4 in platform control console.	Check continuity. Replace if defective.
21. Defective platform emergency stop switch S4.	Check continuity. Replace if defective.
22. Loose or broken wire #3C from platform emergency stop switch S4 to platform plug A pin #5 in platform control console.	Check continuity. Replace if defective.
23. Loose or broken wire #3C in boom cable A or its connectors.	Check for continuity between pins #5 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
24. Loose or broken wire #3C from plug A pin #5 to base emergency pump switch S23.	Check continuity. Replace if defective.
25. Loose or broken wire #3C from base emergency pump switch S23 to motor control harness A.	Check continuity. Replace if defective.
26. Loose or broken wire #3C from motor control harness A pin #4 to right motor controller pin #RM10, left motor controller pin #LM10 and contactor 3CCR.	Check continuity. Replace if defective.
27. No negative output from right motor controller pin #RM12 to contactor 3CCR.	Check continuity. Replace if defective.
28. Defective contactor 3CCR.	Check contactor. Replace if defective.
29. Defective main fuse F3 or F4 (400Amp).	Check fuse. Replace if defective.
30. Defective DC/DC converter.	Check continuity. Replace if defective.
31. Loose or broken wire #3D from DC/DC converter to fuse F2.	Check continuity. Replace if defective.
32. Defective fuse F2 (10Amp).	Check fuse. Replace if defective.
33. Loose or broken wire #3D from fuse F2 to right motor controller pin #RM3 or left motor controller pin #LM3.	Check continuity. Replace if defective.
34. Loose or broken wire #3D from DC/DC converter to circuit breaker CB1.	Check continuity. Replace if defective.
35. Tripped or defective circuit breaker CB1.	Reset breaker. Check for defective wiring. Replace breaker if defective.
36. Loose or broken wire #5 from circuit breaker CB1 to base emergency stop switch S2.	Check continuity. Replace if defective.
37. Defective base emergency stop switch S2.	Check switch. Replace if defective.
38. Loose or broken wire #7 from base key switch S3 to relay 60CR.	Check continuity. Replace if defective.

4.2-2 All Controls Inoperative If Equipped with Elevate/Trackunit Telematics



NOTE

If the unit is equipped with an Access keypad, a passcode is required from the machine owner.

1. Loose or broken B+ wire from battery + to telematics pin 3.	Check continuity. Replace if defective.
2. Loose or broken B- wire 00 from battery - to telematics pin 4.	Check continuity. Replace if defective.
3. Loose or broken wire 07A and/or 10 from base terminal strip to Diode(s) D7A and D10.	Check continuity. Replace if defective.
4. Defective diode(s) D7A and or D10.	Check diode. Replace if defective.
5. Loose or broken wire 7C from diode(s) D7A and/or D10 to 01DCR pin 86.	Check continuity. Replace if defective.
6. Loose or broken wire 7C from diode(s) D7A and/or D10 to 01DCR pin 30.	Check continuity. Replace if defective.
7. Loose or broken wire 01D from telematics pin 9 to 01DCR pin 85.	Check continuity. Replace if defective.
8. If telematics device is not installed: loose, broken or missing Jumper JMPR1 from 57DCR pin 85 to ground 00.	Check continuity. Replace if defective or missing.
9. Missing output from telematics pin 9.	Check for ground on pin 9. If no ground; contact the machine owner.
10. Defective relay 01DCR.	Check relay. Replace if defective.
11. Loose or broken wire 7D from 01DCR pin 87A to diode D7D.	Check continuity. Replace if defective.
12. Defective diode D7D.	Check diode. Replace if defective.
13. Loose or broken wire 01A from D7D to motor controller pin A24.	Check continuity. Replace if defective.
14. Defective telematics module.	Check telematics assembly, repair or replace as required.

4.2-3 No Power To Platform

1. Open or defective key select switch S3.	Close switch. Replace if defective.
2. Loose or broken wire #07A from key select switch S2 to platform plug A pins #2 & 3 in base control console.	Check continuity. Replace if defective.
3. Loose or broken wire #07A from plug A pins #2 & 3 in platform control console to platform emergency stop switch S4.	Check continuity. Replace if defective.
4. Open or defective platform emergency stop switch S4.	Check switch. Replace if defective.

4.2-4 All Functions Inoperative from Base Control Console

1. Loose or broken wire #10 from base key switch S3 to base terminal block.	Check continuity. Replace if defective.
2. Loose or broken wire #10 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
3. Loose or broken wire #10 from motor control harness A pin #5 to right motor controller pin #RM20.	Check continuity. Replace if defective.
4. Loose or broken wire #10 from right motor controller pin #RM20 to diode D10 in tilt switch harness.	Check continuity. Replace if defective.
5. Open or defective diode D10. (Diode is in tilt switch harness close to the tilt switch)	Check diode. Replace if defective.
6. Loose or broken wire #60 from diode D10 in tilt switch harness to motor control harness B pin #2.	Check continuity. Replace if defective.
7. Loose or broken wire #60 from motor control harness B pin #2 to base terminal block.	Check continuity. Replace if defective.
8. Loose or broken wire #60 or #02 from base terminal block to relay 60CR.	Check continuity. Replace if defective.
9. Loose or broken wire #07 from base key switch S3 to relay 60CR.	Check continuity. Replace if defective.
10. Loose or broken wire #09 from relay 60CR to base terminal block.	Check continuity. Replace if defective.
11. Defective relay 60CR.	Check relay. Replace if defective.
12. Loose or broken wire #10 from base terminal block to relay 162CR.	Check continuity. Replace if defective.
13. Platform overloaded.	Remove excessive weight.

14. Loose or broken wire #162 or #02 from base terminal block to relay 162CR.	Check continuity. Replace if defective.
15. Loose or broken wire #10B from relay 162CR to base enable switch S21.	Check continuity. Replace if defective.
16. Open or defective base enable switch S21.	Close switch. Replace if defective.
17. Loose or broken wire #10A from base enable switch S21 to base terminal block.	Check continuity. Replace if defective.
18. Open or defective diode D10A or D10A-1.	Check diode. Replace if defective.

4.2-5 No Boom Up from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to boom switch S20.	Check continuity. Replace if defective.
2. Defective boom switch S20.	Check continuity through switch while activating up function between wires #10A and #14. Replace switch if no continuity found.
3. Loose or broken wire #14 from boom switch S20 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D14.	Check diode. Replace if defective.
5. Loose or broken wire #71 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #71 from motor control harness A pin #20 to left motor controller pin #LM20.	Check continuity. Replace if defective.
7. Loose or broken wire #14 from base terminal block to main manifold harness pin #2.	Check continuity. Replace if defective.
8. Loose or broken wire #14 from main manifold harness plug pin #2 to boom up valve 4H-14.	Check continuity. Replace if defective.
9. Loose or broken wire #02 from main manifold harness plug to boom up valve 4H-14.	Check continuity. Replace if defective.
10. Defective boom up coil 4H-14.	Check continuity and resistance through coil. Replace if defective.

4.2-6 No Boom Down from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to boom switch S20.	Check continuity. Replace if defective.
2. Defective boom switch S20.	Check continuity through switch while activating down function between wires #10A and #13. If no continuity found, replace switch.
3. Loose or broken wire #13 from boom down switch S20 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D13.	Check diode. Replace if defective.
5. Loose or broken wire #72 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #72 from motor control harness A pin #21 to left motor controller pin #LM31.	Check continuity. Replace if defective.
7. Loose or broken wire #13 from base terminal block to main manifold harness pin #1.	Check continuity. Replace if defective.
8. Loose or broken wire #13 from main manifold harness plug pin #1 to boom down valve 4H-13.	Check continuity. Replace if defective.
9. Loose or broken wire #02 from main manifold harness plug to boom down valve 4H-13.	Check continuity. Replace if defective.
10. Defective boom down coil 4H-13.	Check continuity and resistance through coil. Replace if defective.

4.2-7 All Controls Inoperative

1. Loose or broken wire #10A from enable switch S21 to riser switch S18.	Check continuity. Replace if defective.
2. Defective riser switch S18.	Check continuity through switch while activating up function between wires #10A and #31. Replace switch if no continuity.
3. Loose or broken wire #31 from riser switch S18 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D31.	Check diode. Replace if defective.
5. Loose or broken wire #71 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #71 from motor control harness A pin #20 to left motor controller pin #LM20.	Check continuity. Replace if defective.
7. Loose or broken wire #31 from base terminal block to main manifold harness pin #6.	Check continuity. Replace if defective.

8. Loose or broken wire #31 from main manifold harness plug pin #6 to riser up valve 2H-31.	Check continuity. Replace if defective.
9. Loose or broken wire #02 from main manifold harness plug to riser up valve 2H-31.	Check continuity. Replace if defective.
10. Defective boom up coil 2H-31.	Check continuity and resistance through coil. Replace if defective.

4.2-8 No Riser Down from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to riser switch S18.	Check continuity. Replace if defective.
2. Defective riser switch S18.	Check continuity through switch while activating down function between wires #10A and #30. If no continuity found, replace switch.
3. Loose or broken wire #60A or #02 from base terminal block to relay 60ACR.	Check continuity. Replace if defective.
4. Loose or broken wire #30A from riser switch S18 to relay 60ACR.	Check continuity. Replace if defective.
5. Loose or broken wire #30 from relay 60ACR to base terminal block.	Check continuity. Replace if defective.
6. Defective relay 60ACR.	Check relay. Replace if defective.
7. Loose or broken wire #30 from base terminal block to relay 162CCR.	Check continuity. Replace if defective.
8. Loose or broken wire #162C from diodes D162-1 and D59-2 to relay 162CCR.	Check continuity. Replace if defective.
9. Loose or broken wire #02 from base terminal block to relay 162CCR.	Check continuity. Replace if defective.
10. Defective relay 162CCR.	Check relay. Replace if defective.
11. Loose or broken wire #02 from base terminal block to riser down harness.	Check continuity. Replace if defective.
12. Loose or broken wire #30B from relay 162CCR to riser down harness.	Check continuity. Replace if defective.
13. Loose or broken wire #30B or #02 from riser down harness to riser down valve 2H-30B.	Check continuity. Replace if defective.
14. Defective riser down coil 2H-30B.	Check continuity and resistance through coil. Replace if defective.

4.2-9 No Turret Rotate Left from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to turret rotate switch S19.	Check continuity. Replace if defective.
2. Defective turret rotate switch S19.	Check continuity through switch while activating rotate left function between wires #10A and #32. If no continuity found, replace switch.
3. Loose or broken wire #32 from turret rotate switch S19 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D32.	Check diode. Replace if defective.
5. Loose or broken wire #71 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #71 from motor control harness A pin #20 to left motor controller pin #LM20.	Check continuity. Replace if defective.
7. Loose or broken wire #32 from base terminal block to main manifold harness pin #7.	Check continuity. Replace if defective.
8. Loose or broken wire #32 from main manifold harness plug pin #7 to rotate left valve 5H-32.	Check continuity. Replace if defective.
9. Loose broken wire #02 from main manifold harness plug to rotate left valve 5H-32.	Check continuity. Replace if defective.
10. Defective rotate left coil 5H-32.	Check continuity and resistance through coil. Replace if defective.

4.2-10 No Turret Rotate Right from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to turret rotate switch S19.	Check continuity. Replace if defective.
2. Defective turret rotate switch S19.	Check continuity through switch while activating rotate right function between wires #10A and #33. If no continuity found, replace switch.
3. Loose or broken wire #33 from turret rotate switch S19 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D33.	Check diode. Replace if defective.
5. Loose or broken wire #71 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #71 from motor control harness A pin #20 to left motor controller pin #LM20.	Check continuity. Replace if defective.

7. Loose or broken wire #33 from base terminal block to main manifold harness pin #8.	Check continuity. Replace if defective.
8. Loose or broken wire #33 from main manifold harness plug pin #8 to rotate right valve 5H-33.	Check continuity. Replace if defective.
9. Loose or broken wire #02 from main manifold harness plug to rotate right valve 5H-33.	Check continuity. Replace if defective.
10. Defective rotate right coil 5H-33.	Check continuity and resistance through coil. Replace if defective.

4.2-11 No Telescope Retract from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to telescope switch S17	Check continuity. Replace if defective.
2. Defective telescope switch S17.	Check continuity through switch while activating retract function between wires #10A and #38. If no continuity found, replace switch.
3. Loose or broken wire #38 from telescope switch S17 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D38.	Check diode. Replace if defective.
5. Loose or broken wire #72 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #72 from motor control harness A pin #21 to left motor controller pin #LM31.	Check continuity. Replace if defective.
7. Loose or broken wire #38 from base terminal block to main manifold harness pin #9.	Check continuity. Replace if defective.
8. Loose or broken wire #38 from main manifold harness plug pin #9 to telescope retract valve 4H-38.	Check continuity. Replace if defective.
9. Loose or broken wire #02 from main manifold harness plug to telescope retract valve 4H-38.	Check continuity. Replace if defective.
10. Defective telescope retract coil 4H-38.	Check continuity and resistance through coil. Replace if defective.

4.2-12 No Telescope Extend from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to telescope switch S17.	Check continuity. Replace if defective.
2. Defective telescope switch S17.	Check continuity through switch while activating extend function between wires #10A and #39. If no continuity found, replace switch.
3. Loose or broken wire #39 from telescope switch S17 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D39.	Check diode. Replace if defective.
5. Loose or broken wire #71 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #71 from motor control harness A pin #20 to left motor controller pin #LM20.	Check continuity. Replace if defective.
7. Loose or broken wire #39 from base terminal block to main manifold harness pin #10.	Check continuity. Replace if defective.
8. Loose or broken wire #39 from main manifold harness plug pin #10 to telescope extend valve 4H-39.	Check continuity. Replace if defective.
9. Loose or broken wire #02 from main manifold harness plug to telescope extend valve 4H-39.	Check continuity. Replace if defective.
10. Defective telescope retract coil 4H-39.	Check continuity and resistance through coil. Replace if defective.

4.2-13 No Platform Rotate Left from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to platform rotate switch S14.	Check continuity. Replace if defective.
2. Defective platform rotate switch S14.	Check continuity through switch while activating rotate left function between wires #10A and #36. If no continuity found, replace switch.
3. Loose or broken wire #36 from platform rotate switch S14 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D36.	Check diode. Replace if defective.
5. Loose or broken wire #73 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #73 from motor control harness A pin #22 to left motor controller pin #LM32.	Check continuity. Replace if defective.
7. Loose or broken wire #36 from base control block to platform plug A pin #18 in base control console.	Check continuity. Replace if defective.

8. Loose or broken wire #36 in boom cable A or its connectors.	Check for continuity between pins #18 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #36 plug A pin #18 to platform terminal block.	Check continuity. Replace if defective.
10. Loose or broken wire #36 from platform terminal block to platform rotate left valve 4H-36.	Check continuity. Replace if defective.
11. Loose or broken wire #02 from platform terminal block to platform rotate left valve 4H-36.	Check continuity. Replace if defective.
12. Defective platform rotate left valve coil 4H-36.	Check continuity and resistance through coil. Replace if defective.

4.2-14 No Platform Rotate Right from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to platform rotate switch S14.	Check continuity. Replace if defective.
2. Defective platform rotate switch S14.	Check continuity through switch while activating rotate right function between wires #10A and #37. If no continuity found, replace switch.
3. Loose or broken wire #37 from platform rotate switch S14 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D37.	Check diode. Replace if defective.
5. Loose or broken wire #73 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #73 from motor control harness A pin #22 to left motor controller pin #LM32.	Check continuity. Replace if defective.
7. Loose or broken wire #37 from base control block to platform plug A pin #19 in base control console.	Check continuity. Replace if defective.
8. Loose or broken wire #37 in boom cable A or its connectors.	Check for continuity between pins #19 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #37 plug A pin #19 to platform terminal block.	Check continuity. Replace if defective.
10. Loose or broken wire #37 from platform terminal block to platform rotate left valve 4H-37.	Check continuity. Replace if defective.
11. Loose or broken wire #02 from platform terminal block to platform rotate left valve 4H-37.	Check continuity. Replace if defective.
12. Defective platform rotate left valve coil 4H-37.	Check continuity and resistance through coil. Replace if defective.

4.2-15 No Jib Up from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to jib switch S16.	Check continuity. Replace if defective.
2. Defective jib switch S16.	Check continuity through switch while activating jib up function between wires #10A and #35. If no continuity found, replace switch.
3. Loose or broken wire #35 from jib switch S16 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D35.	Check diode. Replace if defective.
5. Loose or broken wire #72 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #72 from motor control harness A pin #21 to left motor controller pin #LM31.	Check continuity. Replace if defective.
7. Loose or broken wire #35 from base control block to platform plug A pin #17 in base control console.	Check continuity. Replace if defective.
8. Loose or broken wire #35 in boom cable A or its connectors.	Check for continuity between pins #17 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #35 plug A pin #17 to platform terminal block.	Check continuity. Replace if defective.
10. Loose or broken wire #35 from platform terminal block to jib up valve 4H-35.	Check continuity. Replace if defective.
11. Loose or broken wire #02 from platform terminal block to jib up valve 4H-35.	Check continuity. Replace if defective. Check continuity. Replace if defective.
12. Defective platform jib up coil 4H-35.	Check continuity and resistance through coil. Replace if defective.

4.2-16 No Jib Down from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to jib switch S16.	Check continuity. Replace if defective.
2. Defective jib switch S16.	Check continuity through switch while activating jib down function between wires #10A and #34. If no continuity found, replace switch.
3. Loose or broken wire #34 from jib switch S16 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D34.	Check diode. Replace if defective.
5. Loose or broken wire #73 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #73 from motor control harness A pin #22 to left motor controller pin #LM32.	Check continuity. Replace if defective.
7. Loose or broken wire #34 from base control block to platform plug A pin #16 in base control console.	Check continuity. Replace if defective.
8. Loose or broken wire #34 in boom cable A or its connectors.	Check for continuity between pins #16 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #34 plug A pin #16 to platform terminal block.	Check continuity. Replace if defective.
10. Loose or broken wire #34 from platform terminal block to jib down valve 4H-34.	Check continuity. Replace if defective.
11. Loose or broken wire #02 from platform terminal block to jib down valve 4H-34.	Check continuity. Replace if defective.
12. Defective platform jib down coil 4H-34.	Check continuity and resistance through coil. Replace if defective.

4.2-17 No Jib Rotate Right from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to jib rotate switch S15.	Check continuity. Replace if defective.
2. Defective jib rotate switch S15.	Check continuity through switch while activating jib rotate right function between wires #10A and #43. If no continuity found, replace switch.
3. Loose or broken wire #43 from jib rotate switch S15 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D43.	Check diode. Replace if defective.
5. Loose or broken wire #73 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #73 from motor control harness A pin #22 to left motor controller pin #LM32.	Check continuity. Replace if defective.
7. Loose or broken wire #43 from base control block to platform plug B pin #13 in base control console.	Check continuity. Replace if defective.
8. Loose or broken wire #43 in boom cable B or its connectors.	Check for continuity between pins #13 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #43 plug B pin #13 to platform terminal block.	Check continuity. Replace if defective.
10. Loose or broken wire #43 from platform terminal block to jib rotate right valve 4H-43.	Check continuity. Replace if defective.
11. Loose or broken wire #02 from platform terminal block to jib rotate right valve 4H-43.	Check continuity. Replace if defective.
12. Defective platform jib rotate right coil 4H-43.	Check continuity and resistance through coil. Replace if defective.

4.2-18 No Jib Rotate Left from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to jib rotate switch S15.	Check continuity. Replace if defective.
2. Defective jib rotate switch S15.	Check continuity through switch while activating jib rotate left function between wires #10A and #42. If no continuity found, replace switch.
3. Loose or broken wire #42 from jib rotate switch S15 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D42.	Check diode. Replace if defective.
5. Loose or broken wire #73 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #73 from motor control harness A pin #22 to left motor controller pin #LM32.	Check continuity. Replace if defective.
7. Loose or broken wire #42 from base control block to platform plug B pin #12 in base control console.	Check continuity. Replace if defective.
8. Loose or broken wire #42 in boom cable B or its connectors.	Check for continuity between pins #12 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #42 plug B pin #12 to platform terminal block.	Check continuity. Replace if defective.
10. Loose or broken wire #42 from platform terminal block to jib rotate left valve 4H-42.	Check continuity. Replace if defective.
11. Loose or broken wire #02 from platform terminal block to jib rotate left valve 4H-42.	Check continuity. Replace if defective.
12. Defective platform jib rotate left coil 4H-42.	Check continuity and resistance through coil. Replace if defective.

4.2-19 No Manual Platform Level Up from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to platform level switch S13.	Check continuity. Replace if defective.
2. Defective platform level switch S13.	Check continuity through switch while activating platform level up function between wires #10A and #41. If no continuity found, replace switch.
3. Loose or broken wire #41 from platform level switch S13 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D41.	Check diode. Replace if defective.
5. Loose or broken wire #72 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #72 from motor control harness A pin #21 to left motor controller pin #LM31.	Check continuity. Replace if defective.
7. Loose or broken wire #41 from base terminal block to main manifold harness pin #12.	Check continuity. Replace if defective.
8. Loose or broken wire #41 from main manifold harness plug pin #12 to platform level up valve 4H-41.	Check continuity. Replace if defective.
9. Loose or broken wire #02 from main manifold harness plug to platform level up valve 4H-41.	Check continuity. Replace if defective.
10. Defective platform level up coil 4H-38.	Check continuity and resistance through coil. Replace if defective.
11. Loose or broken wire #10A from ignition/pump switch S5 to platform level switch S15.	Check continuity. Replace if defective.
12. Defective platform level switch S15.	Check continuity through switch while activating level up function between wires #10A and #41. If no continuity found replace switch.
13. Loose or broken wire #41 from platform level switch S15 to base terminal block.	Check continuity. Replace if defective.
14. Loose or broken wire #41 from base terminal block to main harness pin plug pin #16.	Check continuity. Replace if defective.
15. Loose or broken wire #41 from main harness pin plug pin #16 platform level up valve 4H-41.	Check continuity. Replace if defective.
16. Loose or broken wire #02 from turret harness pin plug platform level up valve 4H-41.	Check continuity. Replace if defective.
17. Defective platform level up valve coil 4H-41.	Check continuity and resistance through coil. Replace if defective.

4.2-20 No Manual Platform Level Down from Base Control Console

1. Loose or broken wire #10A from enable switch S21 to platform level switch S13.	Check continuity. Replace if defective.
2. Defective platform level switch S13.	Check continuity through switch while activating platform level down function between wires #10A and #40. If no continuity found, replace switch.
3. Loose or broken wire #40 from platform level switch S13 to base terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D40.	Check diode. Replace if defective.
5. Loose or broken wire #73 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
6. Loose or broken wire #73 from motor control harness A pin #22 to left motor controller pin #LM32.	Check continuity. Replace if defective.
7. Loose or broken wire #40 from base terminal block to main manifold harness pin #11.	Check continuity. Replace if defective.
8. Loose or broken wire #40 from main manifold harness plug pin #11 to platform level down valve 4H-40.	Check continuity. Replace if defective.
9. Loose or broken wire #02 from main manifold harness plug to platform level down valve 4H-40.	Check continuity. Replace if defective.
10. Defective platform level down coil 4H-40.	Check continuity and resistance through coil. Replace if defective.

4.2-21 All Controls Inoperative from Platform Control Console

1. Loose or broken wire #04 from emergency stop switch S4 to platform terminal block.	Check continuity. Replace if defective.
2. Loose or broken wire #04 from platform terminal block to footswitch S6.	Check continuity. Replace if defective.
3. Open or defective footswitch S6.	Check continuity through switch while activating footswitch function between wires #04 and if no continuity found replace switch.
4. Loose or broken wire #08A from footswitch S11 to platform terminal block.	Check continuity. Replace if defective.
5. Loose or broken wire #04 from platform terminal block to valve driver pin #1, 2 & 13.	Check continuity. Replace if defective.
6. Loose or broken wire #02 from platform terminal block to valve driver pin #24, 25 & 26.	Check continuity. Replace if defective.
7. Open or defective diode D8A.	Check diode. Replace if defective.
8. Loose or broken wire #8B from platform terminal block to plug B pin #5 in platform control console.	Check continuity. Replace if defective.
9. Loose or broken wire #8B in boom cable B or its connectors.	Check continuity. Replace if defective.
10. Loose or broken wire #8B from plug B pin #5 to base terminal block.	Check continuity. Replace if defective.
11. Loose or broken wire #8B from base terminal block to motor control harness A.	Check continuity. Replace if defective.
12. Loose or broken wire #8B from motor control harness A pin #12 to left motor controller pin #LM1 and right motor controller pin #RM1.	Check continuity. Replace if defective.
13. Loose or broken wire #208 from right motor controller pin #RM6 to motor control harness A pin #11.	Check continuity. Replace if defective.
14. Loose or broken wire #208 from motor control harness A to 208CR relay.	Check continuity. Replace if defective.
15. Loose or broken wire #208 from 208CR relay to platform plug B pin #6 in base control console.	Check continuity. Replace if defective.
16. Loose or broken wire #208 in boom cable B or its connectors.	Check for continuity between pins #6 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
17. Loose or broken wire #208 from plug B pin #5 in platform control console to relay 208CR1.	Check continuity. Replace if defective.

- | | |
|--|--|
| 18. Loose or broken wire #4 (2 places) or #8 from platform terminal block to 208CR1 relay. | Check continuity. Replace if defective. |
| 19. Defective relay 208CR1. | Check relay. Replace if defective. |

4.2-22 No Boom Up from Platform Control Console

- | | |
|---|--|
| 1. Loose or broken wire #04 from platform terminal block to joystick controller A2. | |
| 2. Loose or broken wire #02 from platform terminal block to joystick controller A2. | Check continuity. Replace if defective. |
| 3. No output on y-axis of joystick controller A2. | |
| 4. Loose or broken wire “Y” from joystick controller A2 to valve driver pin #29. | Check continuity. Replace if defective. |
| 5. No output on pin #12 of the valve driver to wire #70. | Check pin #12 for proportional voltage. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference. |
| 6. No output on pin #22 of the valve driver to wire #14. | Check pin #22 for minimum 7 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference. |
| 7. Loose or broken wire #14 from valve driver pin #22 to plug A pin #7 in platform control console. | Check continuity. Replace if defective. |
| 8. Loose or broken wire #14 in boom cable A or its connectors. | Check for continuity between pins #7 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective. |
| 9. Loose or broken wire #14 from base connector plug A pin #7 to base terminal block. | Check continuity. Replace if defective. |
| 10. Loose or broken wire #14 from base terminal block to main manifold harness. | Check continuity. Replace if defective. |
| 11. Loose or broken wire #14 from main harness to boom up valve 4H-14. | Check continuity. Replace if defective. |
| 12. Loose or broken wire #02 from main harness to boom up valve 4H-14. | Check continuity. Replace if defective. |
| 13. Defective boom up valve coil 4H-14. | Check continuity and resistance through coil. Replace if defective. |

4.2-23 No Boom Down from Platform Control Console

1. Loose or broken wire #04 from platform terminal block to joystick controller A2.	Check continuity. Replace if defective.
2. Loose or broken wire #02 from platform terminal block to joystick controller A2.	Check continuity. Replace if defective.
3. No output on y-axis of joystick controller A2.	Refer to joystick test procedure in section 5.
4. Loose or broken wire “Y” from joystick controller A2 to valve driver pin #29.	Check continuity. Replace if defective.
5. No output on pin #12 of the valve driver to wire #70.	Check pin #12 for proportional voltage. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
6. No output on pin #8 of the valve driver to wire #13.	Check pin #8 for minimum 5.5 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
7. Loose or broken wire #13 from valve driver pin #8 to plug A pin #6 in platform control console.	Check continuity. Replace if defective.
8. Loose or broken wire #13 in boom cable A or its connectors.	Check for continuity between pins #6 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #13 from base connector plug A pin #6 to base terminal block.	Check continuity. Replace if defective.
10. Loose or broken wire #13 from base terminal block to main manifold harness.	Check continuity. Replace if defective.
11. Loose or broken wire #13 from main manifold harness to boom down valve 4H-13.	Check continuity. Replace if defective.
12. Loose or broken wire #02 from main manifold harness to boom down valve 4H-13.	Check continuity. Replace if defective.
13. Defective boom down valve coil 4H-13.	Check continuity and resistance through coil. Replace if defective.

4.2-24 No Riser Up from Platform Control Console

1. Loose or broken L wire from speed controller to resistor R1 in platform control console.	Check continuity. Replace if defective.
2. Open or defective resistor R1.	
3. Loose or broken wire #30B from resistor R1 to riser switch S7.	Check continuity. Replace if defective.
4. Defective riser switch S7.	Check continuity through switch while activating the function between wires #30B and #30A.
5. Loose or broken wire #30A from riser switch S7 to valve driver pin #27.	Check continuity. Replace if defective.
6. Voltage out of range at valve driver pin #32.	Check voltage while operating riser up. Voltage should be 2.41 volts. Refer to toggle switch voltage reference worksheet in section 5 if out of range.
7. No output on pin #23 of the valve driver to wire #20A.	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
8. No output on pin #23 of the valve driver to wire #20A.	Check pin #10 for minimum 4.5 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
9. Loose or broken wire #31 from valve driver pin #10 to plug A pin #13 in platform control console.	Check continuity. Replace if defective.
10. Loose or broken wire #31 in boom cable A or its connectors.	Check for continuity between pins #13 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
11. Loose or broken wire #31 from base connector plug A pin #13 to base terminal block.	Check continuity. Replace if defective.
12. Loose or broken wire #31 from base terminal block to main manifold harness.	Check continuity. Replace if defective.
13. Loose or broken wire #31 from main manifold harness to riser up valve 2H-31.	Check continuity. Replace if defective.
14. Loose or broken wire #02 from main manifold harness to riser up valve 2H-31.	Check continuity. Replace if defective.
15. Defective riser up valve coil 2H-31.	Check continuity and resistance through coil. Replace if defective.

4.2-25 No Riser Down from Platform Control Console

1. Loose or broken L wire from speed controller to resistor R1 in platform control console.	Check continuity. Replace if defective.
2. Open or defective resistor R1.	Check resistor. Replace if defective.
3. Loose or broken wire #30B from resistor R1 to riser switch S7.	Check continuity. Replace if defective.
4. Defective riser switch S7.	Check continuity through switch while activating the function between wires #30B and #30A.
5. Loose or broken wire #30A from riser switch S7 to valve driver pin #27.	Check continuity. Replace if defective.
6. Voltage out of range at valve driver pin #32.	Check voltage while operating riser down. Voltage should be 4.83 volts. Refer to toggle switch voltage reference worksheet in section 5 if out of range.
7. No output on pin #23 of the valve driver to wire #20A.	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
8. No output on pin #19 of the valve driver to wire #30C.	Check pin #19 for minimum 6.2 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
9. Loose or broken wire #30C from valve driver pin #19 to relay 204CR1.	Check continuity. Replace if defective.
10. Defective N/C contacts in relay 204CR1.	Check continuity between wires #30C and #30. Replace if continuity not found.
11. Loose or broken wire #30 from relay 204CR1 to plug A pin #12 in platform control console.	Check continuity. Replace if defective.
12. Loose or broken wire #30 in boom cable A or its connectors.	Check for continuity between pins #12 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
13. Loose or broken wire #30 from base connector plug A pin #12 to base terminal block.	Check continuity. Replace if defective.
14. Loose or broken wire #30 from base terminal block to relay 162CCR.	Check continuity. Replace if defective.
15. Loose or broken wire #162C from diodes D162-1 and D59-2 to relay 162CCR.	Check continuity. Replace if defective.
16. Loose or broken wire #02 from base terminal block to relay 162CCR.	Check continuity. Replace if defective.
17. Defective relay 162CCR.	Check relay. Replace if defective.
18. Loose or broken wire #02 from base terminal block to riser down harness.	Check continuity. Replace if defective.

- | | |
|--|---|
| 19. Loose or broken wire #30B from relay 162CCR to riser down harness. | Check continuity. Replace if defective. |
| 20. Loose or broken wire #30B or #02 from riser down harness to riser down valve 2H-30B. | Check continuity. Replace if defective. |
| 21. Defective riser down coil 2H-30B. | Check continuity and resistance through coil. Replace if defective. |

4.2-26 No Turret Left from Platform Control Console

- | | |
|--|--|
| 1. Loose or broken wire #04 from platform terminal block to joystick controller A2. | Check continuity. Replace if defective. |
| 2. Loose or broken wire #02 from platform terminal block to joystick controller A2. | Check continuity. Replace if defective. |
| 3. No output on x-axis of joystick controller A2. | Refer to joystick test procedure in section 5. |
| 4. Loose or broken wire "X" from joystick controller A2 to valve driver pin #28. | Check continuity. Replace if defective. |
| 5. No output on pin #12 of the valve driver to wire #70. | Check pin #12 for proportional voltage. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference. |
| 6. No output on pin #20 of the valve driver to wire #32. | Check pin #20 for minimum 6.2 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference. |
| 7. Loose or broken wire #32 from valve driver pin #20 to plug A pin #14 in platform control console. | Check continuity. Replace if defective. |
| 8. Loose or broken wire #32 in boom cable A or its connectors. | Check for continuity between pins #14 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective. |
| 9. Loose or broken wire #32 from base connector plug A pin #14 to base terminal block. | Check continuity. Replace if defective. |
| 10. Loose or broken wire #32 from base terminal block to main manifold harness. | Check continuity. Replace if defective. |
| 11. Loose or broken wire #32 from main manifold harness to turret left valve 5H-32. | Check continuity. Replace if defective. |
| 12. Loose or broken wire #02 from main manifold harness to turret left valve 5H-32. | Check continuity. Replace if defective. |
| 13. Defective turret left valve coil 5H-32. | Check continuity and resistance through coil. Replace if defective. |

4.2-27 No Turret Right from Platform Control Console

1. Loose or broken wire #04 from platform terminal block to joystick controller A2.	Check continuity. Replace if defective.
2. Loose or broken wire #02 from platform terminal block to joystick controller A2.	Check continuity. Replace if defective.
3. No output on x-axis of joystick controller A2.	Refer to joystick test procedure in section 5.
4. Loose or broken wire "X" from joystick controller A2 to valve driver pin #28.	Check continuity. Replace if defective.
5. No output on pin #12 of the valve driver to wire #70.	Check pin #12 for proportional voltage. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
6. No output on pin #35 of the valve driver to wire #33.	Check pin #35 for minimum 6.9 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
7. Loose or broken wire #33 from valve driver pin #35 to plug A pin #15 in platform control console.	Check continuity. Replace if defective.
8. Loose or broken wire #33 in boom cable A or its connectors.	Check for continuity between pins #15 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #33 from base connector plug A pin #15 to base terminal block.	Check continuity. Replace if defective.
10. Loose or broken wire #33 from base terminal block to main manifold harness.	Check continuity. Replace if defective.
11. Loose or broken wire #33 from main manifold harness to turret right valve 5H-33.	Check continuity. Replace if defective.
12. Loose or broken wire #02 from main manifold harness to turret right valve 5H-33.	Check continuity. Replace if defective.
13. Defective turret right valve coil 5H-33.	Check continuity and resistance through coil. Replace if defective.

4.2-28 No Telescope In from Platform Control Console

1. Loose or broken L wire from speed controller to resistor R5 in platform control console.	Check continuity. Replace if defective.
2. Open or defective resistor R5.	Check resistor. Replace if defective.
3. Loose or broken wire #38B from resistor R5 to telescope switch S8.	Check continuity. Replace if defective.
4. Defective telescope switch S8.	Check continuity through switch while activating the function between wires #38B and #38A.
5. Loose or broken wire #38A from riser switch S8 to valve driver pin #32.	Check continuity. Replace if defective.
6. Voltage out of range at valve driver pin #32.	Check voltage while operating telescope in. Voltage should be 4.83 volts. Refer to toggle switch voltage reference worksheet in section 5 if out of range.
7. No output on pin #23 of the valve driver to wire #20A.	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
8. No output on pin #21 of the valve driver to wire #38.	Check pin #21 for 12 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
9. Loose or broken wire #38 from valve driver pin #21 to plug A pin #20 in platform control console.	Check continuity. Replace if defective.
10. Loose or broken wire #38 in boom cable A or its connectors.	Check for continuity between pins #20 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
11. Loose or broken wire #38 from base connector plug A pin #20 to base terminal block.	Check continuity. Replace if defective.
12. Loose or broken wire #38 from base terminal block to main manifold harness.	Check continuity. Replace if defective.
13. Loose or broken wire #38 from main manifold harness to telescope in valve 4H-38.	Check continuity. Replace if defective.
14. Loose or broken wire #02 from main manifold harness to telescope in valve 4H-38.	Check continuity. Replace if defective.
15. Defective telescope in valve coil 4H-38.	Check continuity and resistance through coil. Replace if defective.

4.2-29 No Telescope Out from Platform Control Console

1. Loose or broken L wire from speed controller to resistor R5 in platform control console.	Check continuity. Replace if defective.
2. Open or defective resistor R5.	Check resistor. Replace if defective.
3. Loose or broken wire #38B from resistor R5 to telescope switch S8.	Check continuity. Replace if defective.
4. Defective telescope switch S8.	Check continuity through switch while activating the function between wires #38B and #38A.
5. Loose or broken wire #38A from riser switch S8 to valve driver pin #32.	Check continuity. Replace if defective.
6. Voltage out of range at valve driver pin #32.	Check voltage while operating telescope out. Voltage should be 2.41 volts. Refer to toggle switch voltage reference worksheet in section 5 if out of range.
7. No output on pin #23 of the valve driver to wire #20A.	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
8. No output on pin #11 of the valve driver to wire #39.	Check pin #11 for 12 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
9. Loose or broken wire #39 from valve driver pin #11 to plug A pin #21 in platform control console.	Check continuity. Replace if defective.
10. Loose or broken wire #39 in boom cable A or its connectors.	Check for continuity between pins #21 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
11. Loose or broken wire #39 from base connector plug A pin #21 to base terminal block.	Check continuity. Replace if defective.
12. Loose or broken wire #39 from base terminal block to main manifold harness.	Check continuity. Replace if defective.
13. Loose or broken wire #39 from main manifold harness to telescope out valve 4H-39.	Check continuity. Replace if defective.
14. Loose or broken wire #02 from main manifold harness to telescope out valve 4H-39.	Check continuity. Replace if defective.
15. Defective telescope out valve coil 4H-39.	Check continuity and resistance through coil. Replace if defective.

4.2-30 No Platform Rotate Left from Platform Control Console

1. Loose or broken wire #08 from platform terminal block to platform rotate switch S11.	Check continuity. Replace if defective.
2. Defective platform rotate switch S11.	Check continuity through switch while activating rotate left function between wires #08 and #36.
3. Loose or broken wire #36 from platform rotate switch S11 to platform terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D36-1.	Check diode. Replace if defective.
5. Loose or broken wire #36A from platform terminal block to valve driver pin #17.	Check for 12 volts at pin #17. Check continuity. Replace if defective.
6. No output on pin #23 of the valve driver to wire #20A	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
7. Loose or broken wire #36 or #02 from platform terminal block to rotate left valve 4H-36.	Check continuity. Replace if defective.
8. Defective rotate left valve coil 4H-36.	Check continuity and resistance through coil. Replace if defective.

4.2-31 No Platform Rotate Right from Platform Control Console

1. Loose or broken wire #08 from platform terminal block to platform rotate switch S11.	Check continuity. Replace if defective.
2. Defective platform rotate switch S11.	Check continuity through switch while activating rotate right function between wires #08 and #37.
3. Loose or broken wire #37 from platform rotate switch S11 to platform terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D37-1.	Check diode. Replace if defective.
5. Loose or broken wire #36A from platform terminal block to valve driver pin #17.	Check for 12 volts at pin #17. Check continuity. Replace if defective.
6. No output on pin #23 of the valve driver to wire #20A.	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
7. Loose or broken wire #37 or #02 from platform terminal block to rotate right valve 4H-37.	Check continuity. Replace if defective.
8. Defective rotate right valve coil 4H-37.	Check continuity and resistance through coil. Replace if defective.

4.2-32 No Jib Up from Platform Control Console

1. Loose or broken L wire from speed controller to resistor R9 in platform control console.	Check continuity. Replace if defective.
2. Open or defective resistor R9.	Check resistor. Replace if defective.
3. Loose or broken wire #34B from resistor R9 to riser switch S9.	Check continuity. Replace if defective.
4. Defective riser switch S9.	Check continuity through switch while activating the function between wires #34B and #34A.
5. Loose or broken wire #34A from riser switch S9 to valve driver pin #14.	Check continuity. Replace if defective.
6. Voltage out of range at valve driver pin #14.	Check voltage while operating jib up. Voltage should be 2.41 volts. Refer to toggle switch voltage reference worksheet in section 5 if out of range.
7. No output on pin #23 of the valve driver to wire #20A.	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
8. No output on pin #5 of the valve driver to wire #35 at the platform terminal block.	Check pin #5 for 12 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
9. Loose or broken wire #35 or #02 from platform terminal block to jib up valve 4H-35.	Check continuity. Replace if defective.
10. Defective jib up valve coil 4H-35.	Check continuity and resistance through coil. Replace if defective.

4.2-33 No Jib Down from Platform Control Console

1. Loose or broken L wire from speed controller to resistor R9 in platform control console.	Check continuity. Replace if defective.
2. Open or defective resistor R9.	Check resistor. Replace if defective.
3. Loose or broken wire #34B from resistor R9 to riser switch S9.	Check continuity. Replace if defective.
4. Defective riser switch S9.	Check continuity through switch while activating the function between wires #34B and #34A.
5. Loose or broken wire #34A from riser switch S9 to valve driver pin #14.	Check continuity. Replace if defective.

6. Voltage out of range at valve driver pin #14.	Check voltage while operating jib down. Voltage should be 4.83 volts. Refer to toggle switch voltage reference worksheet in section 5 if out of range.
7. No output on pin #23 of the valve driver to wire #20A.	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
8. No output on pin #7 of the valve driver to wire #34 at the platform terminal block.	Check pin #7 for 12 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
9. Loose or broken wire #34 or #02 from platform terminal block to jib down valve 4H-34.	Check continuity. Replace if defective.
10. Defective jib down valve coil 4H-34.	Check continuity and resistance through coil. Replace if defective.

4.2-34 No Jib Rotate Left from Platform Control Console

1. Loose or broken wire #08 from platform terminal block to jib rotate switch S10.	Check continuity. Replace if defective.
2. Defective jib rotate switch S10.	Check continuity through switch while activating rotate left function between wires #08 and #42.
3. Loose or broken wire #42 from jib rotate switch S10 to platform terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D42-1.	Check diode. Replace if defective.
5. Loose or broken wire #42A from platform terminal block to valve driver pin #15.	Check for 12 volts at pin #15. Check continuity. Replace if defective.
6. No output on pin #23 of the valve driver to wire #20A.	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
7. Loose or broken wire #42 or #02 from platform terminal block to rotate left valve 4H-42.	Check continuity. Replace if defective.
8. Defective rotate left valve coil 4H-42.	Check continuity and resistance through coil. Replace if defective.

4.2-35 No Jib Rotate Right from Platform Control Console

1. Loose or broken wire #08 from platform terminal block to jib rotate switch S10.	Check continuity. Replace if defective.
2. Defective jib rotate switch S10.	Check continuity through switch while activating rotate right function between wires #08 and #43.
3. Loose or broken wire #43 from jib rotate switch S10 to platform terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D43-1.	Check diode. Replace if defective.
5. Loose or broken wire #42A from platform terminal block to valve driver pin #15.	Check for 12 volts at pin #15. Check continuity. Replace if defective.
6. No output on pin #23 of the valve driver to wire #20A.	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
7. Loose or broken wire #43 or #02 from platform terminal block to rotate right valve 4H-43.	Check continuity. Replace if defective.
8. Defective rotate right valve coil 4H-43.	Check continuity and resistance through coil. Replace if defective.



NOTE

Platform level function will not operate if you are commanding any other boom function.

4.2-36 No Manual Platform Level Up from Platform Control Console

1. No output on pin #6 of the valve driver to platform level switch S12 on wire #40B.	Check pin #6 for 12 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
2. Defective platform leveling switch S12.	Check continuity through switch while activating level up function between wires #40B and #41.
3. Loose or broken wire #41 from platform level switch S12 to platform terminal block.	Check continuity. Replace if defective.
4. Open or defective diode D41.	Check diode. Replace if defective.
5. Loose or broken wire #40A from platform terminal block to valve driver pin #18.	Check for 12 volts at pin #18. Check continuity. Replace if defective.
6. No output on pin #23 of the valve driver to wire #20A.	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
7. Loose or broken wire #41 from platform terminal block to plug B pin #11 in platform control console.	Check continuity. Replace if defective.
8. Loose or broken wire #41 in boom cable B or its connectors.	
9. Loose or broken wire #41 from base connector plug B pin #11 to base terminal block.	Check continuity. Replace if defective.
10. Loose or broken wire #41 from base terminal block to main manifold harness.	Check continuity. Replace if defective.
11. Loose or broken wire #41 from main manifold harness to platform level up valve 4H-41.	Check continuity. Replace if defective.
12. Loose or broken wire #02 from main manifold harness to platform level up valve 4H-41.	Check continuity. Replace if defective.
13. Defective platform level up coil 4H-41.	Check continuity and resistance through coil. Replace if defective.

**NOTE**

Platform level function will not operate if you are commanding any other boom function.

4.2-37 No Manual Platform Level Down from Platform Control Console

1. No output on pin #6 of the valve driver to platform level switch S12 on wire #40B.	Check pin #6 for 12 volts. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
2. Defective platform leveling switch S12.	Check continuity through switch while activating level down function between wires #40B and #40.
3. Loose or broken wire #40 from platform level switch S12 to platform terminal block.	Check continuity. Replace if defective
4. Open or defective diode D40.	Check diode. Replace if defective.
5. Loose or broken wire #40A from platform terminal block to valve driver pin #18.	Check for 12 volts at pin #18. Check continuity. Replace if defective.
6. No output on pin #23 of the valve driver to wire #20A.	Check pin #23 for proportional voltage. This voltage varies with the A3 boom speed control. If no voltage present with foot on footswitch check section 5 for OCM pin voltage reference.
7. Loose or broken wire #40 from platform terminal block to plug B pin #10 in platform control console.	Check continuity. Replace if defective
8. Loose or broken wire #40 in boom cable B or its connectors.	Check for continuity between pins #10 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #40 from base connector plug B pin #10 to base terminal block.	Check continuity. Replace if defective
10. Loose or broken wire #40 from base terminal block to main manifold harness.	Check continuity. Replace if defective
11. Loose or broken wire #40 from main manifold harness to platform level down valve 4H-40.	Check continuity. Replace if defective
12. Loose or broken wire #02 from main manifold harness to platform level down valve 4H-40.	Check continuity. Replace if defective
13. Defective platform level down coil 4H-40.	Check continuity and resistance through coil. Replace if defective

4.2-38 Brake will not Release

- | | |
|---|--|
| 1. Loose or broken wire #48+ (yellow wire) from main contactor 3CCR to grey plug pin #1 at left and right drive motors. | Check continuity. Replace if defective. |
| 2. Loose or broken blue wire from grey plug pin #2 at left drive motor to left motor controller pin #LM4. | Check continuity. Replace if defective. |
| 3. Loose or broken blue wire from grey plug pin #2 at right drive motor to right motor controller pin #RM4. | Check continuity. Replace if defective. |

4.2-39 No Drive and Steer



NOTE

MEWP will not drive or steer if it is tilted and off limit switches.

- | | |
|--|--|
| 1. Loose or broken wire #04 from platform terminal block to drive joystick A1. | Check continuity. Replace if defective. |
| 2. Loose or broken wire #02 from platform terminal block to drive joystick A1. | Check continuity. Replace if defective. |

4.2-40 No Forward Drive

- | | |
|--|---|
| 1. No output on “D” when forward is selected on drive joystick A1. | See drive joystick test procedure in section 5. |
| 2. Loose or broken wire “D-signal” from drive joystick A1 to plug A pin #24 in platform control console. | Check continuity. Replace if defective. |
| 3. Loose or broken wire “D” in cable A or its connectors. | Check for continuity between pins #24 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective. |
| 4. Loose or broken wire “D” from base plug A pin #24 to motor control harness A. | Check continuity. Replace if defective. |
| 5. Loose or broken wire “D” from motor control harness A to right motor controller pin #RM15. | Check continuity. Replace if defective. |

4.2-41 No Reverse Drive

1. No output on “D” when reverse is selected on drive joystick A1.	See drive joystick test procedure in section 5.
2. Loose or broken wire “D-signal” from drive joystick A1 to plug A pin #24 in platform control console.	Check continuity. Replace if defective.
3. Loose or broken wire “D” in cable A or its connectors.	Check for continuity between pins #24 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
4. Loose or broken wire “D” from base plug A pin #24 to motor control harness A.	Check continuity. Replace if defective.
5. Loose or broken wire “D” from motor control harness A to right motor controller pin #RM15.	Check continuity. Replace if defective.

4.2-42 No High Speed Drive



NOTE

Aerial platform must be level and boom must be fully retracted and horizontal or below.

1. Loose or broken wire #09 from base terminal block to limit switch LS2.	Check continuity. Replace if defective.
2. Open or defective limit switch LS2.	Ensure boom is horizontal or below and fully retracted. Adjust switch if required. Check continuity through switch. Replace if required.
3. Loose or broken wire #29 from limit switch LS2 to base terminal block.	Check continuity. Replace if defective.
4. Loose or broken wire #29 from base terminal block to limit switch LS3.	Check continuity. Replace if defective.
5. Open or defective limit switch LS3.	Ensure boom is fully retracted and horizontal or below. Adjust switch if required. Check continuity through switch. Replace if defective.
6. Loose or broken wire #29A from limit switch LS3 to base terminal block.	Check continuity. Replace if defective.
7. Loose or broken wire #29A from base terminal block to limit switch LS4.	Check continuity. Replace if defective.
8. Open or defective limit switch LS4.	Ensure boom is fully retracted and horizontal or below. Adjust switch if required. Check continuity through switch. Replace if defective.
9. Loose or broken wire #59 from limit switch LS4 to base terminal block.	Check continuity. Replace if defective.

10. Loose or broken wire #59 from base terminal block to motor control harness A.	Check continuity. Replace if defective.
11. Loose or broken wire #59 from motor control harness to right motor controller pin #RM6 12 volt input from LS2 riser/ LS3 boom elevation limit switches and LS4 telescope limit switch on wire 59. 12 volts= full speed. 0 volts= creep speed (one or more limit switches open).	Check continuity. Replace if defective.

4.2-43 No Left Steer

1. Loose or broken wire #24 from drive joystick A1 to plug A pin #10 in platform control console.	Check continuity. Replace if defective.
2. Loose or broken wire #24 in boom cable A or its connectors.	Check for continuity between pins #10 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
3. Loose or broken wire #24 from base plug A pin #10 to motor control harness A.	Check continuity. Replace if defective.
4. Loose or broken wire #24 from motor control harness A pin #13 to right motor controller pin #RM19.	Check continuity. Replace if defective.
5. Loose or broken wire #224 from right motor controller pin #RM9 to motor control harness A pin #15.	Check continuity. Replace if defective.
6. Loose or broken wire #224 from motor control harness A to main manifold harness.	Check continuity. Replace if defective.
7. Loose or broken wire #7A from base terminal block to main manifold harness.	Check continuity. Replace if defective.
8. Loose or broken wire #224 or #7A from main manifold harness to left steer valve 4H-224.	Check continuity. Replace if defective.
9. Defective left steer valve coil 4H-224.	Check continuity and resistance through coil. Replace if defective.

4.2-44 No Right Steer

1. Loose or broken wire #23 from drive joystick A1 to plug A pin #9 in platform control console.	Check continuity. Replace if defective.
2. Loose or broken wire #23 in boom cable A or its connectors.	Check for continuity between pins #9 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
3. Loose or broken wire #23 from base plug A pin #9 to motor control harness A.	Check continuity. Replace if defective.
4. Loose or broken wire #23 from motor control harness A pin #14 to right motor controller pin #RM16.	Check continuity. Replace if defective.
5. Loose or broken wire #223 from right motor controller pin #RM11 to motor control harness A pin #16.	Check continuity. Replace if defective.
6. Loose or broken wire #223 from motor control harness A to main manifold harness.	Check continuity. Replace if defective.
7. Loose or broken wire #7A from base terminal block to main manifold harness.	Check continuity. Replace if defective.
8. Loose or broken wire #223 or #7A from main manifold harness to right steer valve 4H-223.	Check continuity. Replace if defective.
9. Defective right steer valve coil 4H-223.	Check continuity and resistance through coil. Replace if defective.

4.2-45 Direction Sensing Inoperative

1. Loose or broken wire #09 from base terminal block to limit switch LS1.	Check continuity. Replace if defective.
2. Open or defective limit switch LS1.	Adjust limit switch if required. Check continuity through switch. Replace if defective.
3. Loose or broken wire #17 from limit switch LS1 to base terminal block.	Check continuity. Replace if defective.
4. Loose or broken wire #17 from base terminal block to motor control harness.	Check continuity. Replace if defective.
5. Loose or broken wire #17 from motor control harness pin #9 to right motor controller pin #RM31. Turret position for direction sensor. 12 volt input from limit switch LS1 on wire 17. 0 volts= Platform over drive axle. 12 volts= Platform over steer axle.	Check continuity. Replace if defective.

4.3 Hydraulic System

4.3-1 All Controls Inoperative

1. Broken or defective drive pump shaft or coupling.	Check pump shaft and coupling. Replace if defective.
2. Hydraulic oil level low.	Check oil level. Fill to proper level.
3. Stuck or defective relief valve RV3.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
4. Stuck or defective relief valve RV1.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
5. Stuck or defective check valve CV4.	Clean valve. Check operation of valve. Repair or replace valve as required.
6. System pump P1 defective.	Test pump with flow meter. Replace if defective.

4.3-2 No Main Boom Up

1. Stuck or defective lift up valve 4H-14.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective counterbalance valve CB1 or CB2.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
3. Defective lift cylinder C2.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-3 No Main Boom Down

1. Stuck or defective lift down valve 4H-13.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective counterbalance valve CB1 or CB2.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
3. Defective lift cylinder C2.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-4 No Riser Boom Up

1. Stuck or defective riser up valve 2H-31.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV5.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective riser down valve 2H-30.	Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective relief valve RV7.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
5. Defective riser cylinder C3.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-5 No Riser Boom Down

1. Stuck or defective riser down valve 2H-30.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Plugged or defective orifice OR5.	Check orifice. Replace if plugged or defective.

4.3-6 No Turret Rotate Left

1. Stuck or defective rotate left valve 5H-32.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective relief valve RV3.	Set valve to specifications. Check o-rings and clean valve. Repair or replace valve as required.
3. Worn or defective swing drive motor RA1.	Check motor. Repair or replace if defective.

4.3-7 No Turret Rotate Right

1. Stuck or defective rotate right valve 5H-33.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective relief valve RV3.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
3. Worn or defective swing drive motor RA1.	Check motor. Repair or replace if defective.

4.3-8 No Boom Extend

1. Stuck or defective flow enable valve 2H-20A.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective boom extend valve 4H-39.	Clean valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective relief valve RV4.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB3 or CB4.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective extension cylinder C4.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-9 No Boom Retract

1. Stuck or defective flow enable valve 2H-20A.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective boom retract valve 4H-38.	Clean valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective counterbalance valve CB3 or CB4.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
4. Defective extension cylinder C4.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-10 No Jib Up

1. Stuck or defective flow enable valve 2H-20A.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Plugged or defective orifice OR2.	Check orifice. Replace if plugged or defective.
3. Stuck or defective jib up valve 4H-35.	Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB7 or CB8.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective extension cylinder C5.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-11 No Jib Down

1. Stuck or defective flow enable valve 2H-20A.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Plugged or defective orifice OR2.	Check orifice. Replace if plugged or defective.
3. Stuck or defective jib down valve 4H-34.	Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB7 or CB8.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective extension cylinder C5	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-12 No Platform Rotation Right

1. Stuck or defective flow enable valve 2H-20A.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Plugged or defective orifice OR3.	Check orifice. Replace if plugged or defective.
3. Stuck or defective rotate right valve 4H-37.	Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB9 or CB10.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective rotary actuator RA2.	Check actuator. Repair or replace as necessary.

4.3-13 No Platform Rotation Left

1. Stuck or defective flow enable valve 2H-20A.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Plugged or defective orifice OR3.	Check orifice. Replace if plugged or defective.
3. Stuck or defective rotate left valve 4H-36.	Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB9 or CB10.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective rotary actuator RA2.	Check actuator. Repair or replace as necessary.

4.3-14 No Jib Rotation Right

1. Stuck or defective flow enable valve 2H-20A.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Plugged or defective orifice OR4.	Check orifice. Replace if plugged or defective.
3. Stuck or defective rotate right valve 4H-43.	Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB11 or CB12.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective rotary actuator RA3.	Check actuator. Repair or replace as necessary.

4.3-15 No Jib Rotation Left

1. Stuck or defective flow enable valve 2H-20A.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Plugged or defective orifice OR4.	Check orifice. Replace if plugged or defective.
3. Stuck or defective rotate left valve 4H-42.	Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB11 or CB12.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective rotary actuator RA3.	Check actuator. Repair or replace as necessary.

4.3-16 Platform will not Level Down Manually

1. Plugged or defective orifice OR1.	Check orifice. Replace if plugged or defective.
--------------------------------------	---

2. Stuck or defective platform level down valve 4H-40.	Clean valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective dual pilot operated check valve DPOCV1.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective check valve CV2.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
5. Stuck or defective relief valve RV2.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
6. Stuck or defective counterbalance valve CB5 or CB6.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
7. Defective leveling cylinder C7 or slave cylinder C6.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-17 Platform will not Level Up Manually

1. Plugged or defective orifice OR1.	Check orifice. Replace if plugged or defective.
2. Stuck or defective platform level up valve 4H-41.	Clean valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective dual pilot operated check valve DPOCV1.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective check valve CV3.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
5. Stuck or defective relief valve RV2.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
6. Stuck or defective counterbalance valve CB5 or CB6.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
7. Defective leveling cylinder C7 or slave cylinder C6.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-18 No Left Steer

1. Stuck or defective left steer valve 4H-224.

Clean valve. Check operation of valve. Repair or replace valve as required.

2. Defective steer cylinder C1.

Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-19 No Right Steer

1. Stuck or defective right steer valve 4H-223.

Clean valve. Check operation of valve. Repair or replace valve as required.

2. Defective steer cylinder C1.

Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

To order go to Discount-Equipment.com

4.4 Load Sensing System

4.4-1 Green Power LED is not Flashing

- | | |
|--|--|
| 1. Loose or broken wires #60 and #02 at platform terminal block. | Check for connections. Check for voltage (12V). |
| 2. Load cell has lost its calibration. | Refer to calibration procedure for recalibration of load cell. |

4.4-2 Load Cell red Alarm LED is ON (with platform empty)

- | | |
|--|--|
| 1. Load cell has lost its calibration. | Refer to calibration procedure for recalibration of load cell. |
|--|--|

4.4-3 Red Error LED is ON

- | | |
|---------------------------------|---|
| 1. Open safety contact circuit. | Check for connections with wires #60 and #162 at platform terminal block and base terminal block.
Check resistor R13 for 680 ohms. |
|---------------------------------|---|

4.4-4 Load Cell red Alarm LED is OFF (with platform overloaded)

- | | |
|---------------------------------|---|
| 1. Open safety contact circuit. | Check for connections with wires #60 and #162 at platform terminal block and base terminal block.
Check resistor R13 for 680 ohms. |
|---------------------------------|---|

4.4-5 Platform Indicator Light does not turn ON

- | | |
|-------------------------|--|
| 1. Defective lamp. | Check lamp. Replace if defective. |
| 2. Defective load cell. | Defective if 0V is measured between wire #82 and #02 from platform terminal block. |

4.4-6 Audible Alarm does not turn ON

- | | |
|-------------------------------------|---|
| 1. Defective alarm BP3. | Check alarm. Replace if defective. |
| 2. Open or defective diode D118. | Check diode. Replace if defective. |
| 3. Load cell circuit not operating. | Check for connections with wires #02 and #118 at platform terminal block. |
| 4. Defective load cell. | Defective if 0V is measured between wire #118 and #02 from platform terminal block. |

Section 5 – Procedures

5.1 General

The following information is provided to assist you in the use and application of servicing and maintenance procedures contained in this chapter.

NOTE

The illustrations in this manual are for instructional purposes only. The models and components shown may appear somewhat different from those on your actual MEWP.

5.1-1 Safety and Workmanship



Your safety, and that of others, is the first consideration when engaging in the maintenance of equipment. Always be conscious of weight. Never attempt to move heavy parts without the aid of a mechanical device. Do not allow heavy objects to rest in an unstable position. When raising a portion of the equipment, ensure that adequate support is provided.

Before performing routine maintenance underneath the riser, support it using a suitably rated lifting device (refer to Figure 01), or a cylinder chock on the riser cylinder. Contact Skyjack Parts to order a chock.

WARNING

Remove all material and personnel from the platform while using the maintenance support.

Unless specifically noted otherwise, before beginning any procedure:

1. Park the MEWP on a firm, level surface.
2. Retract and lower the boom, riser, and platform until the MEWP is in the stowed position.
3. Pull out the emergency stop buttons  on the base controls and on the platform controls.
4. Turn the keyswitch to the off position .
5. Disconnect one of the battery connectors.

After completing any procedure which involves modifying, adjusting, or replacing any hydraulic or electrical components, perform all of the function tests given in your unit's Operating Manual.

WARNING

Make sure you maintain three points of contact when mounting/dismounting the platform.

WARNING

Do not operate any platform controls without the proper fall protection secured to the designated location in the platform. Failure to do so could result in death or serious injury!

WARNING

Make sure there are no people or obstructions in the test area, and there is sufficient space for the boom and drive functions required for the given procedures.

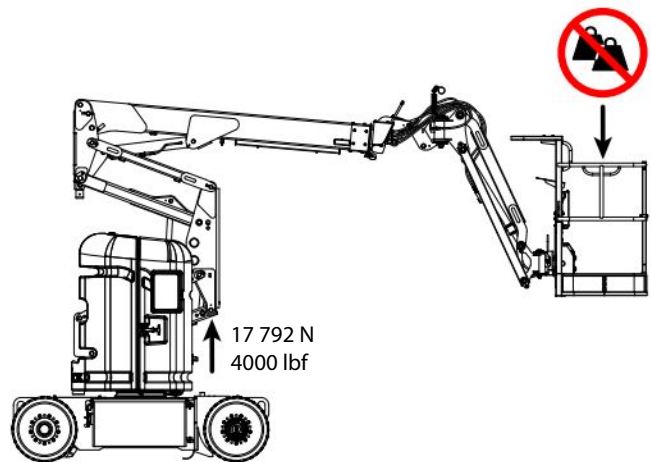


Figure 01 Support location

5.2 Platform

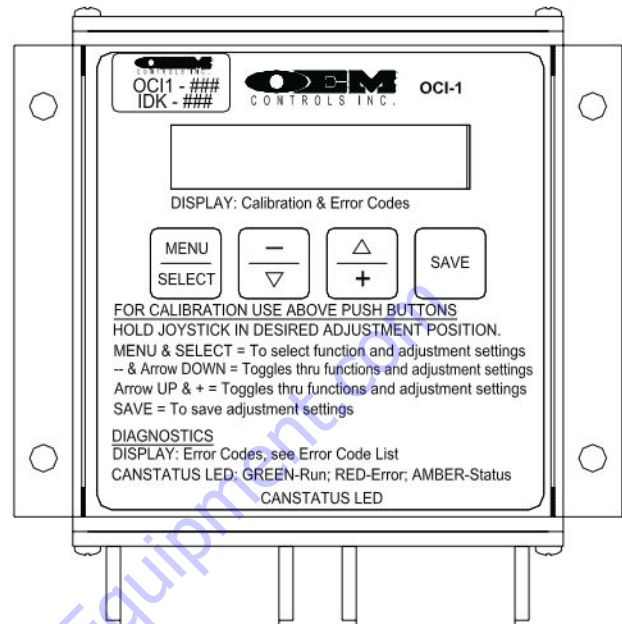
5.2-1 Human Machine Interface (HMI)

Maintaining proper calibration is essential for the good performance of the MEWP.

To access the SCM console, open the platform control cover.

The SCM has an integrated multi segment, two line display with membrane keys that allow it to be used as the main interface to system controls and adjustments. The Human Machine Interface (referred to as the HMI) will serve as your window into the application software to allow the operator to monitor/adjust the following information:

- Active Function Being Used
- Part Number and Serial Number
- Restore the Factory Default Settings
- Output Calibrations (Tresh, Max, Ramp.etc)
- I-O Status
- CANBus Status



5.1-2 User Interface Keys

1.0		1.0-1 <MENU> 1.0-2 <SELECT>	Enters a new menu screen and/or select the flashing item.
1.1		1.1-1 <MINUS> 1.1-2 <DOWN>	Decreases an adjustable parameter such as ramp time. Selects the previous item in the current menu's list.
1.2		1.2-1 <PLUS> 1.2-2 <UP>	Increases an adjustable parameter. selects the next item in the current menu's list.
1.3		1.3-1 <SAVE>	Saves the new data to EEPROM (permanent memory storage).
1.4			Simultaneously pressing <UP> and <DOWN> resets the HMI to menu screen 0.

5.2-2 SCM Character Functions Charts

SCM Keypad	
Keys	Short Form
Menu/Select	(M/S)
▼/-	(-)
▲/+	(+)
Save/Exit	(S/E)

Function Attribute	
THRESH	Threshold
RAMPDN	Ramp Down
RAMPUP	Ramp Up
LOWRNG	Low Range
MAXOUT	Maximum Output

1345AA

SCM Function (Channel) Names	
FLOW ENABLE Fn01A	Flow Enable
RISER DN 2A Fn05A	Riser Down
RISER UP 2B Fn05B	Riser Up
BOOM DOWN Fn03A	Main Boom Down
BOOM UP Fn03B	Main Boom Up
ROTATE L Fn04A	Turret Rotate Left
ROTATE R Fn04B	Turret Rotate Right

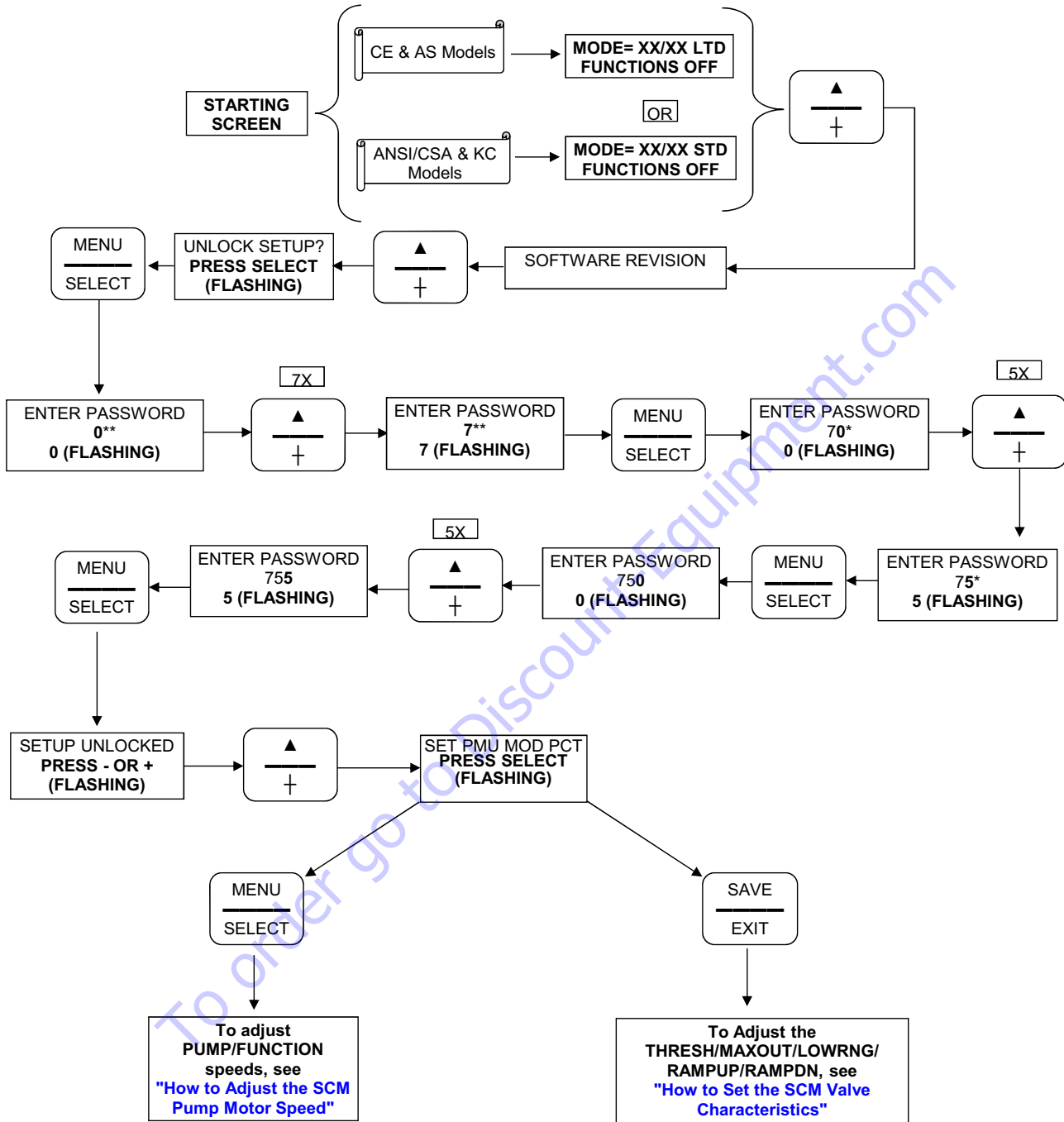
5.2-3 SCM Operating Values Chart

Input (Analog)	Expected Value	Description
AI 1	0.5V to 8.5V	Riser Switch (Resistors)
AI 2	0.5V to 8.5V	Turret Rotate Controller
AI 3	0.5V to 8.5V	Boom Elevation Controller
AI 4	0.5V to 8.5V	Rotary Speed Selector
AI 6	0.5V to 8.5V	Fly Boom Switch (Resistors)
AI 7	0.5V to 8.5V	Jib Elevation Switch (Resistors)
Input (Digital)	Expected Value	Description
DI 1	0 or 1	Jib Rotate Common
DI 3	0 or 1	Platform Rotate Common
DI 4	0 or 1	Platform Level Common
DI 5	0 or 1	Master Enable
DI 11	0 or 1	Stowed Limit
Output (Digital)	Expected Value	Description
DOUT 1	0 or 1	Riser Down Active
DOUT 2	0 or 1	Jib Up Valve
DOUT 3	0 or 1	Platform Level Allowed
DOUT 4	0 or 1	Jib Down Valve
DOUT 7	0 or 1	Fly Out Valve
DOUT 8	0 or 1	Fly In Valve

1387AA

For Output (PWM) values, refer to [5.2-6 How to Set the SCM Valve Characteristics](#).

5.2-4 How to Unlock and Modify the SCM Settings

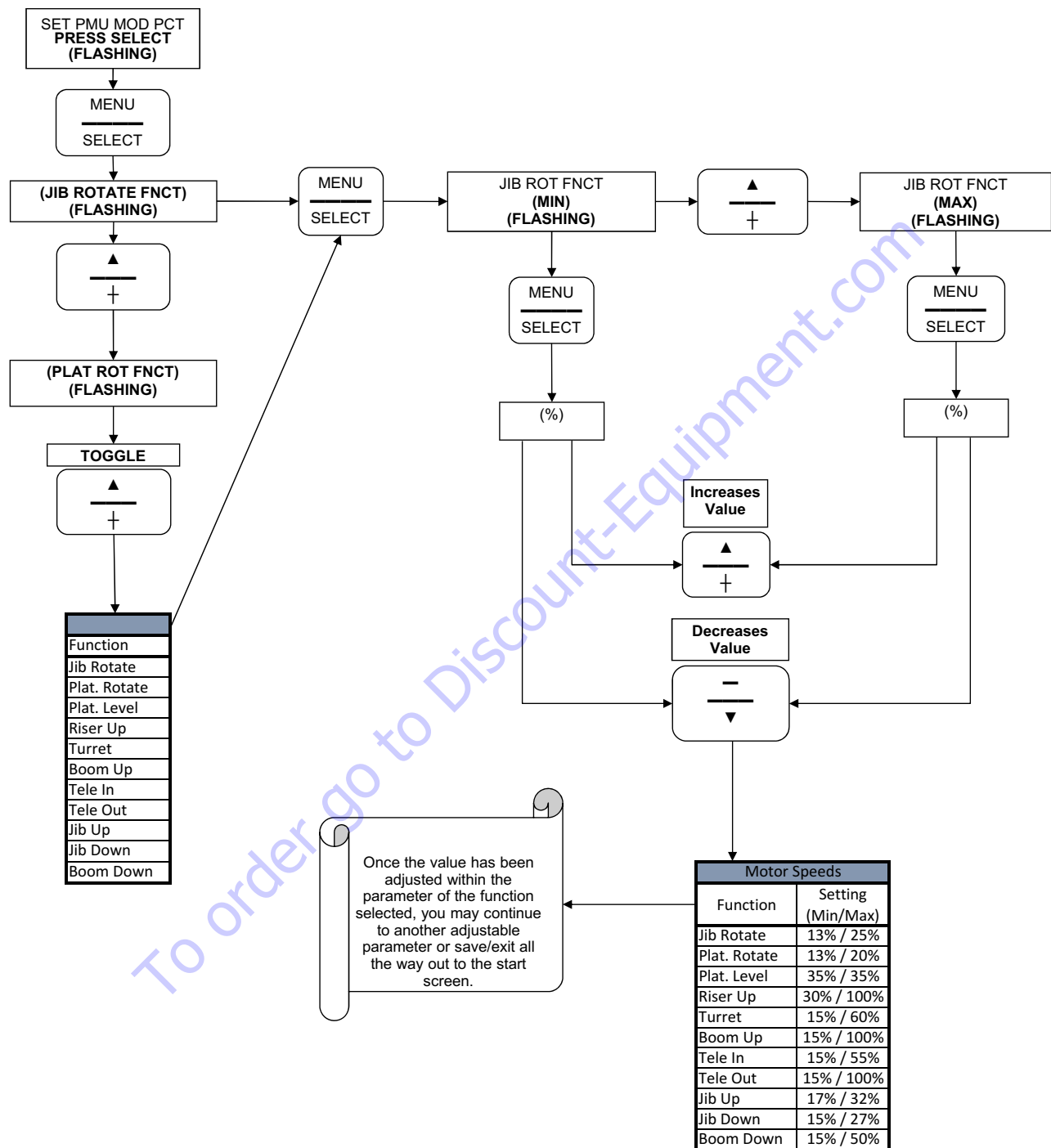


NOTE: 1. Recycle power to the OCM with the e-stop to re-enable the password protection.
 2. If the OCM is inactive for more than 5 minutes, the password must be re-entered.

1217AB

5.2-5 How to Adjust the SCM Pump Motor Speed

Continued from the previous page.



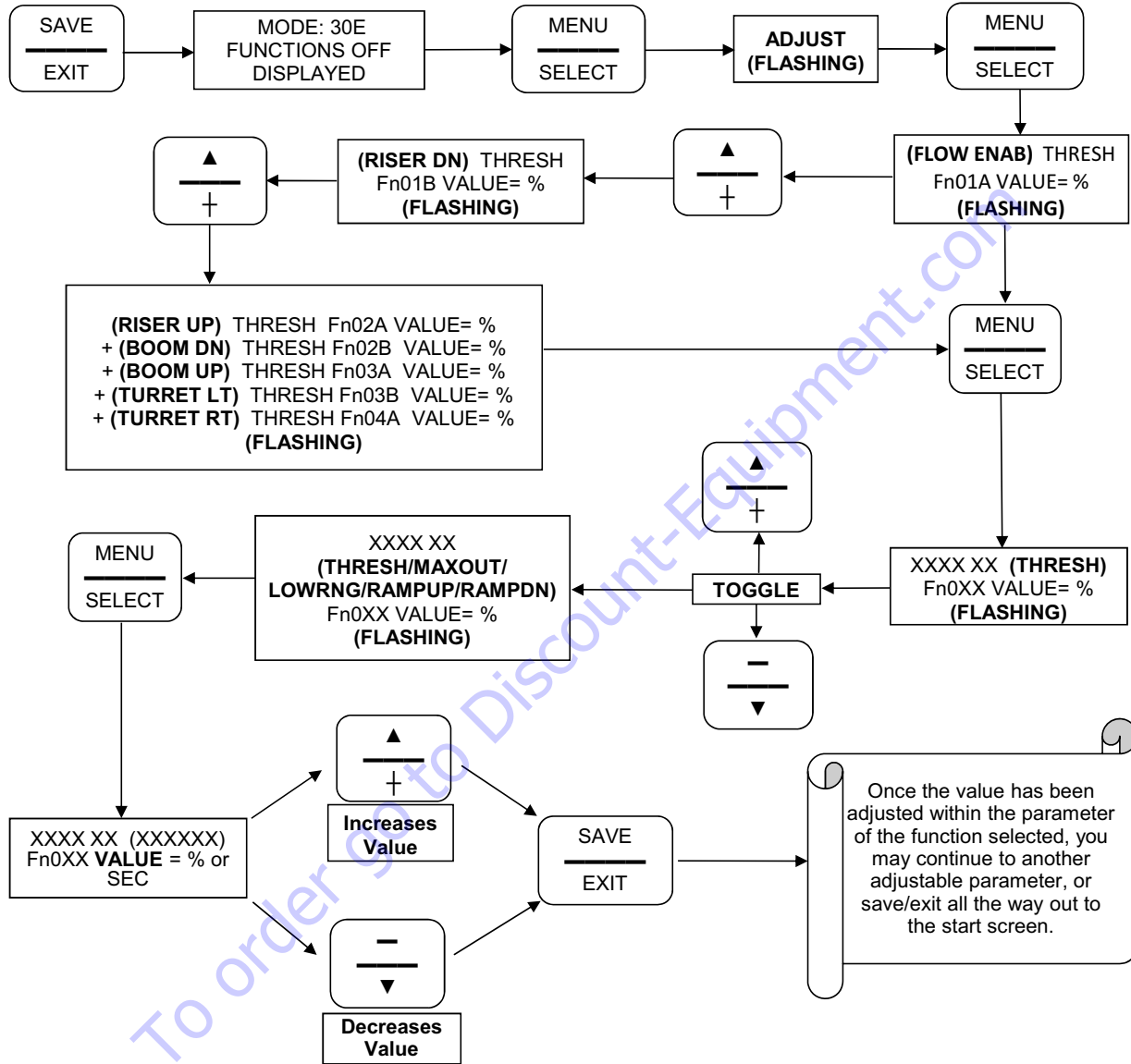
NOTE: 1. Recycle power to the OCM with the e-stop to re-enable the password protection.
 2. If the OCM is inactive for more than 5 minutes, the password must be re-entered.

1216AB

5.2-6 How to Set the SCM Valve Characteristics

Continued from page 133.

This page is to adjust the THRESHOLD, MAX OUT, LOW RANGE, RAMP UP, RAMP DOWN for FLOW ENABLE, RISER DOWN, RISER UP, BOOM DOWN, BOOM UP, TURRET LEFT, TURRET RIGHT.



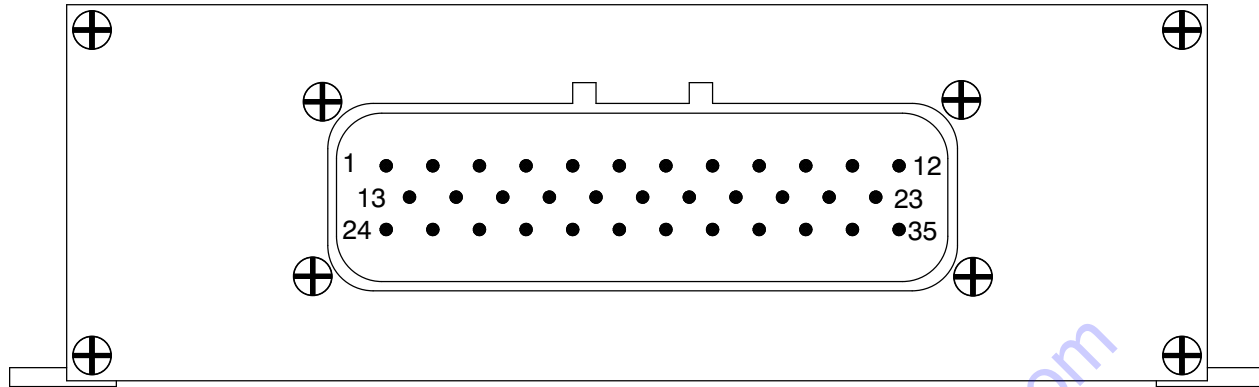
Output (PWM)	Expected Valve	Description
PWM 1	30% - 100%	Flow Enable
PWM 2	29% - 65%	Riser Down
PWM 3	35% - 100%	Riser Up
PWM 4	25% - 100%	Main Boom Down
PWM 5	40% - 100%	Main Boom Up
PWM 6	45% - 100%	Turret Rotate Left
PWM 7	45% - 100%	Turret Rotate Right
PWM 8	0% - 100%	PMU Speed

Function	THRESH	MAXOUT	LOWRNG	RAMPUP	RAMPDN
FLOW ENAB	30%	100%	30%	2	0.6
RISER DN	29%	65%	100%	0.6	0.8
RISER UP	35%	100%	50%	1	0.6
BOOM DN	25%	100%	20%	1.5	1.2
BOOM UP	40%	100%	8%	2	1
TURRET LT	45%	100%	2%	0.5	0.8
TURRET RT	45%	100%	16%	0.5	0.8

- NOTE:**
1. Recycle power to the OCM with the e-stop to re-enable the password protection.
 2. If the OCM is inactive for more than 5 minutes, the password must be re-entered.

1307AB

5.2-7 SCM Pin Voltage Reference



All voltages given are with the SCM controller at maximum % adjustable settings.
 All voltages should be tested with the key on and the foot switch depressed.
 All tests should be performed with the platform over the drive axle, the boom fully stowed, and on flat level surface.

- Pin 1 - 12 volt input from wire 4.
 Test between pin 1 and 02 wire.
- Pin 2 - 12 volt input from wire 4.
 Test between pin 2 and 02 wire.
- Pin 3 - 8 volt output from wire L to boom speed controller.
 7.5 volts= speed controller in circuit.
 Test between pin 3 and 02 wire.
- Pin 4 - 12 Volt output on wire 30B to motor controller. Riser active signal. Gravity down.
 Test between pin 4 and 02 wire.
- Pin 5 - 12 volt output on wire 35 to jib up valve 4H-35.
 Test between pin 5 and 02 wire while operating jib up.
- Pin 6 - 12 volt output on wire 40B to platform level switch S12 (no output if operating another boom function).
 Test between pin 6 and 02 wire.
- Pin 7 - 12 volt output on wire 34 to jib down valve 4H-34.
 Test between pin 7 and 02 wire while operating jib down.
- Pin 8 - Boom down selected. Proportional output on wire 13 to boom down valve 4H-13.
 0 volts to 11.1 volts depending on position of joystick. Threshold= 5.5 volt.
 Test between pin 8 and 02 wire while operating boom down.
- Pin 9 - Not used.
- Pin 10 - Riser up selected. Proportional output on wire 31 to riser up valve 4H-31.
 0 volts to 11.2 volts depending on position of joystick. Threshold= 4.5 volts.
 Test between pin 10 and 02 wire while operating boom down.

- Pin 11 - Telescope out selected. 12 volt output on wire 39 to telescope out valve 4H-39.
Test between pin 11 and 02 wire while operating telescope out.
- Pin 12 - PMU accelerator output. Variable output on wire 70. 10-100% of maximum pump speed (PWM signal).
Test for varied output at pin 12 while operating from upper controls.
- Pin 13 - 12 volt input from wire 4.
Test between pin 13 and 02 wire.
- Pin 14 - Jib function selected. Input from wire 34A.
Neutral position= 3.58 volts.
Jib down function= 4.83 volts.
Jib up function= 2.41 volts.
Test between pin 14 and 02 wire.
- Pin 15 - Jib rotate selected. 12 volt input from wire 42A.
Test between pin 15 and 02 wire.
- Pin 16 - Not used.
- Pin 17 - Platform rotate selected. 12 volt input from wire 36A.
Test between pin 17 and 02 wire.
- Pin 18 - Platform level selected. 12 volt input from wire 40A.
Test between pin 18 and 02 wire.
- Pin 19 - Riser down selected. Proportional output on wire 30 to riser down valve 4H-30.
0 volts to 8.9 volts depending on boom speed control potentiometer position. Threshold= 6.2 volts.
Test between pin 19 and 02 wire.
- Pin 20 - Turret rotate left selected. Proportional output on wire 32 to turret rotate left valve 4H-32.
0 volts to 11.2 volts depending on position of joystick. Threshold= 6.2 volts.
Test between pin 20 and 02 wire while operating turret rotate left.
- Pin 21 - Telescope in selected. 12 volt output on wire 38 to telescope in valve 4H-38.
Test between pin 21 and 02 wire while operating telescope in.
- Pin 22 - Boom up selected. Proportional output on wire 14 to boom up valve 4H-14.
0 volts to 11.2 volts depending on joystick position. Threshold= 7.0 volts.
Test between pin 22 and 02 wire while operating boom up.
- Pin 23 - Proportional Flow Enable Valve. Variable output on wire 20A (PWM signal).
Depending on position of Boom speed control potentiometer.
Test between pin 23 and 02 wire while operating reverse drive.
- Pin 24 - Battery negative. Wire 02.
- Pin 25 - Battery negative. Wire 02.
- Pin 26 - Battery negative. Wire 02.

Pin 27 - Riser function selected. Input from wire 30A.

Neutral position= 3.58 volts.

Riser down function= 2.41 volts.

Riser up function= 4.83 volts.

Test between pin 27 and 02 wire.

Pin 28 - Turret rotate input. Wire X from boom joystick controller.

Neutral position= 4.2 volts to 4.8 volts.

Rotate right function= 4.9 volts to 8.5 volts.

Rotate left function= 4.1 volts to .5 volts.

Test between pin 28 and 02 wire.

Pin 29 - Boom elevation input. Wire Y from boom joystick controller.

Neutral position= 4.2 volts to 4.8 volts.

Boom up function= 4.9 volts to 8.5 volts.

Boom down function= 4.1 volts to .5 volts.

Test between pin 29 and 02 wire.

Pin 30 - Accelerator input. Signal wire C from boom speed controller.

Proportional voltage. .5 volts= slow speed up to 7.5 volts= fast speed.

Test between pin 30 and 02 wire while operating jib, telescope or platform rotate junctions.

Pin 31 - Drive/ Boom function Enable- 12 volt input on wire 59B.

- Machine stowed and tilted= Boom up, riser up and telescope out functions allowed until limit switches are activated (LS2, LS3 or LS4). Drive remains active.

- Machine elevated and tilted= All boom functions remain active. Drive is cut out.

Test between pin 31 and 02 wire.

Pin 32 - Telescope function selected. Input from wire 38A.

Neutral position= 3.58 volts.

Telescope in function= 4.83 volts.

Telescope out function= 2.41 volts.

Test between pin 32 and 02 wire.

Pin 33 - 12 volt input from 208CR1 on wire 8. Foot switch activated (inactive after 7 seconds= times out).

Test between pin 33 and 02 wire.

Pin 34 - Not used.

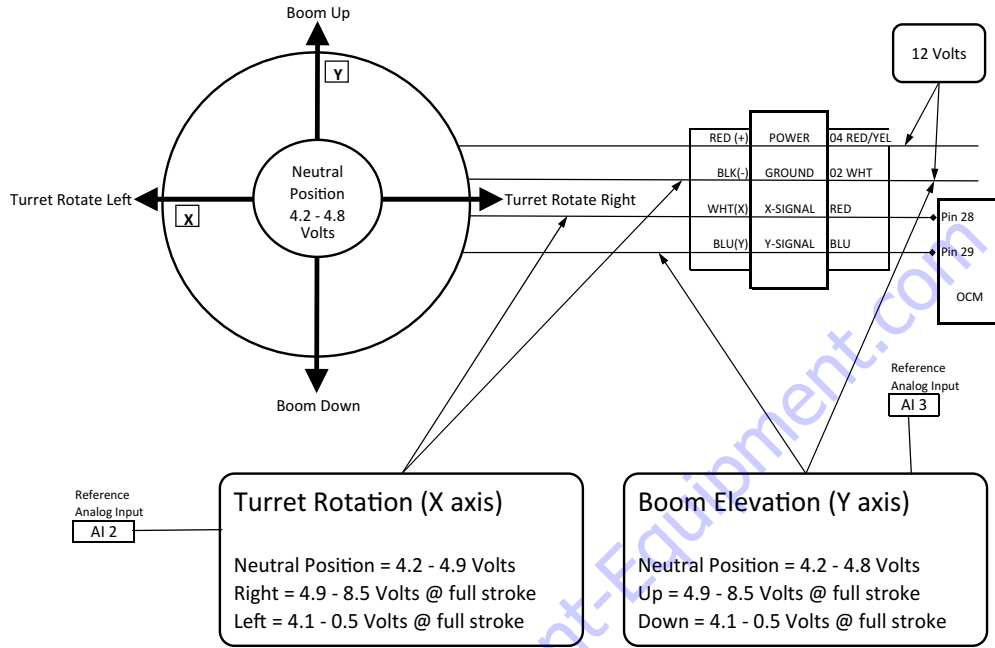
Pin 35 - Turret rotate right selected. Proportional output on wire 33 to turret rotate right valve 4H-33.

0 volts to 11.2 volts depending on position of joystick. Threshold= 6.9 volts.

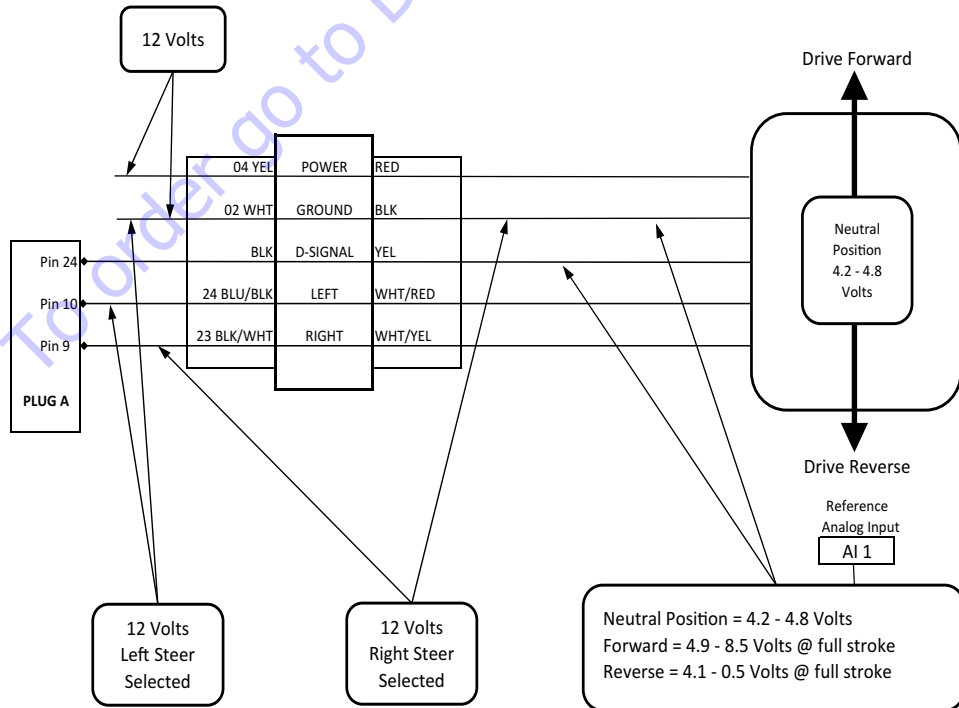
Test between pin 35 and 02 wire while operating turret rotate right.

5.2-8 Platform Controller Voltage References

Boom/Turret (A2) Controller

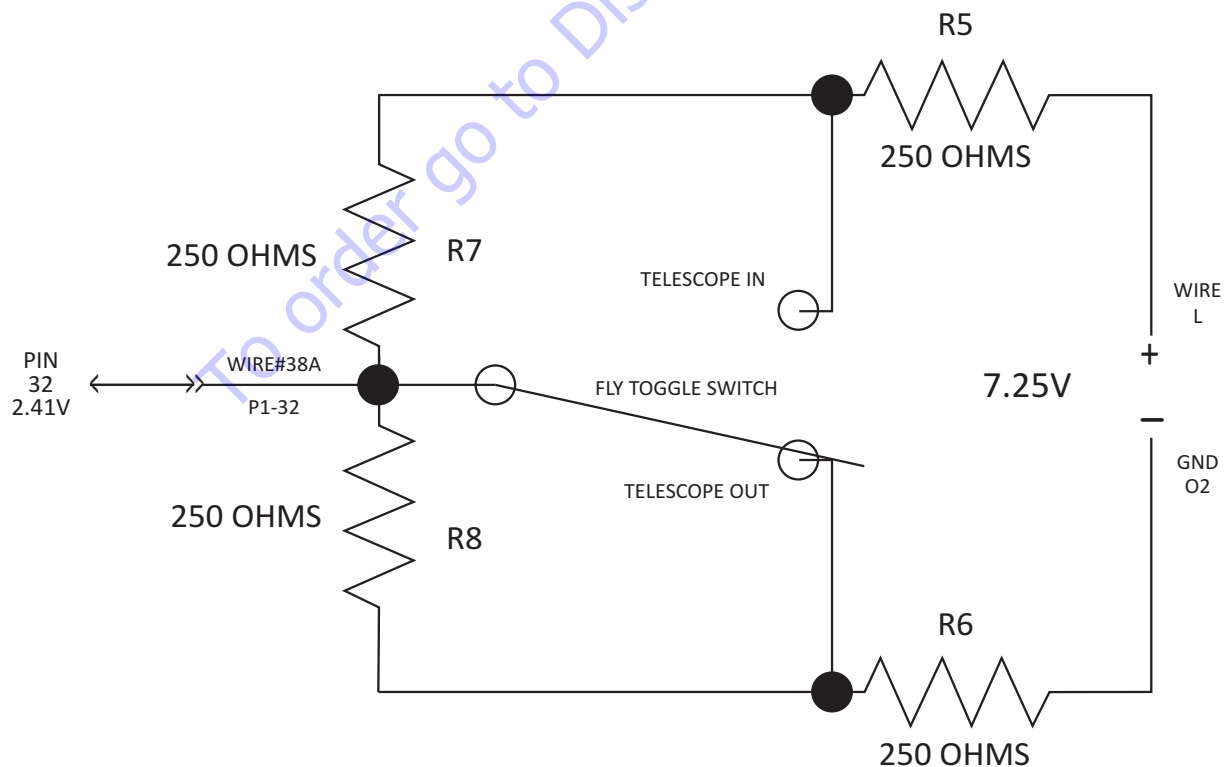
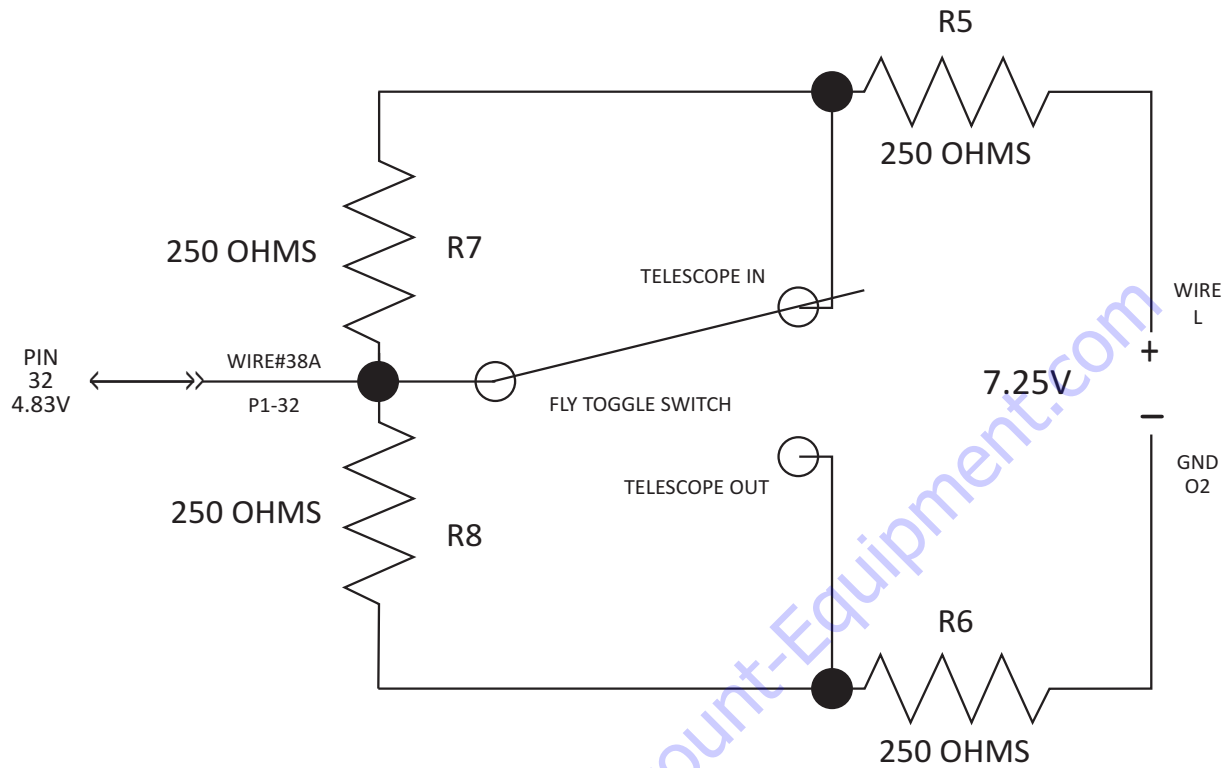


Drive (A1) Controller



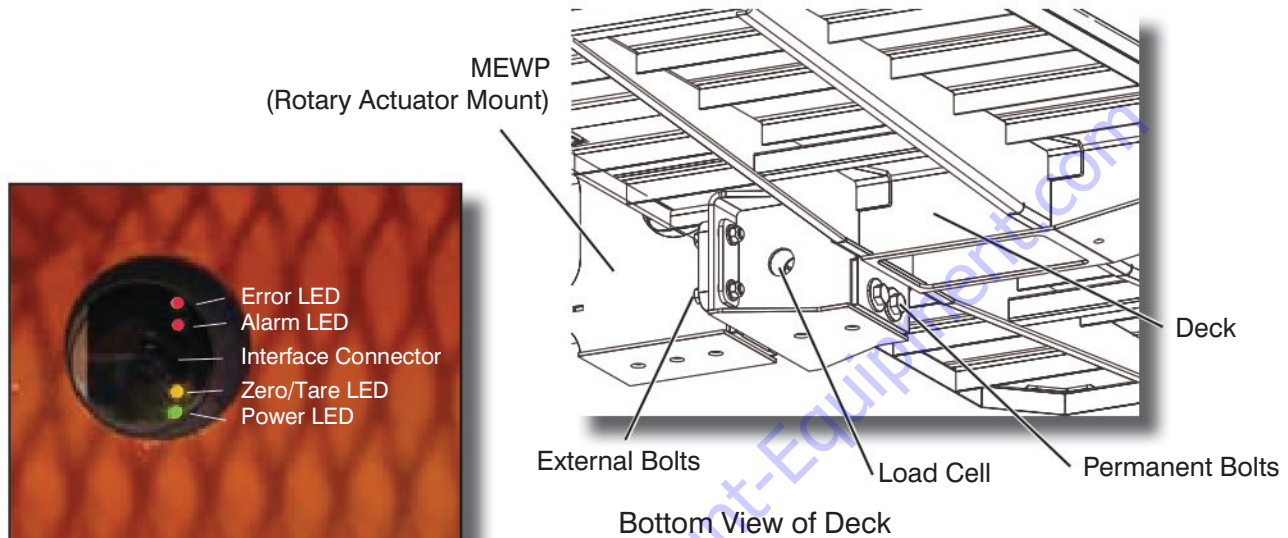
5.2-9 Telescope, Riser & Jib Switch Voltage References

This example shows the Telescopic Switch Voltage Divider Circuit

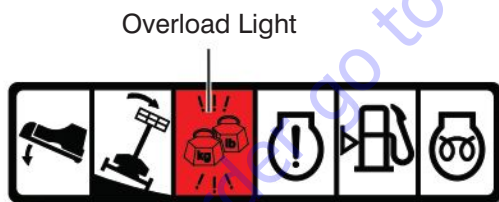


5.3 Load Sensing System

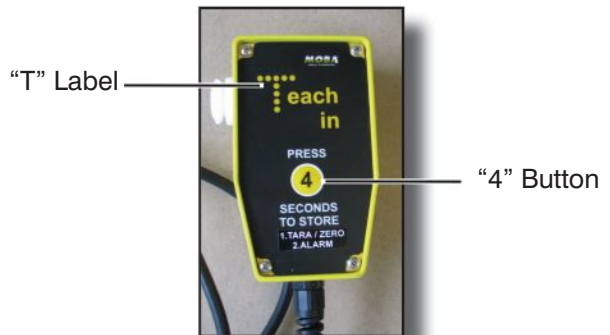
The Skyjack boom platform overload sensing system is based on load cell or electronic scale technology. The deck steel structure is isolated from the MEWP. The load cell is permanently bolted between the deck and the rotary actuator mount. The load cell will only respond to the vertical component of the load in the platform. There are four external bolted connections that serve as a redundant back up system for the load cell connection. The system is first calibrated with an empty platform to set the tare weight to zero. The following steps of the process set the overload limit as regulated by applicable safety standards for Mobile Elevated Work Platforms.



Load Cell LED Display



Platform Control Console Indicator Module



“Teach in” Handset (Service only)




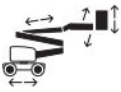







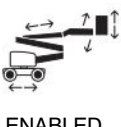
- Error LED** - Continuously on when there is a system error.
- Alarm LED** - Continuously on when the platform is overload or has base contact.
- Interface Connector** - Storage of limit valve (“Teach in” handset connects here).
- Orange LED** - Continuously on when the tare value is zero ± 15kg.
- Green LED** - Flashes slowly on when the system is powered and calibrated.






NOTE

When the power is turned on and after a four second time period elapses, the overload light and audible alarm pulses two times. This indicates the system is active and there are no faults.

5.3-1 Verify Proper Operation of the Load Sensing System

Overload Status Chart

Weight	Indicator Light	Load Cell LED Display	Audible Alarm	MEWP Functions
 (Zero)	 OFF	<ul style="list-style-type: none"> ● Error - OFF ● Alarm - OFF ● Zero/Tare - ON (orange) ● Power - FLASHING (green) 	 OFF	 ENABLED
 (Work Mode @ 244+)	 FLASHING	<ul style="list-style-type: none"> ● Error - OFF ● Alarm - FLASHING (red) ● Zero/Tare - OFF ● Power - FLASHING (green) 	 PULSING	 DISABLED
 (Travel Mode @ 244+)	 FLASHING	<ul style="list-style-type: none"> ● Error - OFF ● Alarm - FLASHING (red) ● Zero/Tare - OFF ● Power - FLASHING (green) 	 PULSING	 ENABLED

1. Ensure the MEWP is on firm, level ground.
2. Fully retract  and lower the boom .
3. Pull out both emergency stops .
4. Turn the keyswitch to the base position .
5. Activate the enable switch .

Result: The overload indicator light and audible alarm pulses two times.
6. Ensure the platform is unloaded and is free from any surface contact.

Result: The green power LED flashes, the orange LED is ON, the red alarm LED is OFF, and the red error LED is OFF.
7. Place a 244 kg (538 lb) load on the platform.

Result: The platform indicator light flashes, the load cell red alarm LED is ON, and the audible alarm pulses.
8. Using the base controls, extend the boom more than 30 cm (1 ft).

Result: All drive and boom function are disabled.
9. Remove the load from the platform.

Result: All drive and boom function are enabled and all warning indicators are OFF.








NOTE

Refer to [section 4](#) for load sensing system troubleshooting.

5.3-2 Calibration of Load Sensing System (with “Teach In” Handset)

WARNING

Do not interrupt the system power or rest your hand or foot on the platform during this procedure.

1. Ensure the MEWP is on firm, level ground.
2. Fully retract  and lower the boom .
3. Turn the keyswitch off .
4. Ensure both emergency stops  are pulled out and platform engine enable switch is in the on position .
Result: The overload indicator light and audible alarm pulse two times.
5. Ensure the platform is unloaded and is free from any surface contact.
6. Remove the cap from the load cell interface connector.
7. Connect the “Teach in” handset to the interface connector.
Result: The “T” label on the handset will flash at a high frequency of 5Hz. If not, recheck that power is on and the handset is properly connected.

WARNING

Do not disconnect the handset at any point of the following steps until instructed to do so.

8. On the “Teach in” handset, depress the “4” button for four seconds.
Result: The “T” label on the handset lights up constantly.
9. Add a test load of 244 kg (538 lb) onto the center of the platform.
10. Depress the “4” button for four seconds.
Result: The “T” label on the handset will go from flashing to constantly on.
11. Disconnect the “Teach in” handset from the interface connector.
12. Wait for four seconds and then add a test load exceeding 244 kg (538 lb) to test the load sensing system.
Result: On the platform control console, the overload light flashes and an audible alarm pulses.
13. Remove the test load from the platform.
Result: The green power LED flashes, the orange LED is ON, the red alarm LED is OFF, the audible alarm is OFF, and the red error LED is OFF.
14. Re-cap the interface connector and place the provided “calibrated” label over the interface connector.

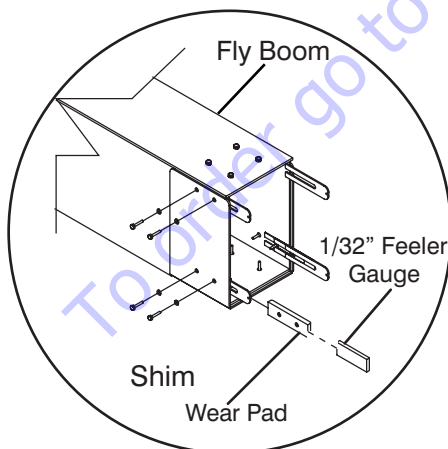
5.4 Boom & Jib

5.4-1 Check Wear Pads

1. Ensure the MEWP is on a firm level surface and is in the stowed position.
2. Activate the function enable switch (⚡) from the base control console.
3. Raise the main boom to a comfortable working height (chest high), and then extend the fly boom approximately 30 cm (1 ft).
4. Measure the thickness of each wear pad and replace wear pad if it is less than 11 mm (7/16").
5. If the wear pad is within the specified thickness, shim it as necessary.
6. Apply grease to the wear pads for smoother movement.

5.4-2 Shimming Wear Pads

1. Ensure the MEWP is on a firm level surface and is in the stowed position.
2. Raise the main boom to a comfortable working height (chest high) and the extend fly boom until the wear pads are accessible.
3. Loosen the wear pad fasteners.
4. Shim the wear pads as necessary to obtain zero to 0.8 mm (1/32") clearance and zero drag.



5. Extend and retract the fly boom through the entire range of motion and observe for loose points.

NOTE

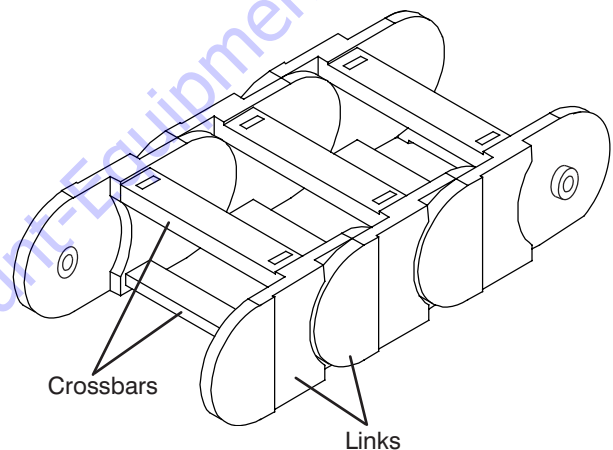
Always maintain squareness between the main and fly booms.

5.4-3 Cable Carrier Repair

The cable carrier can be repaired by simply using a screwdriver.

Each crossbar can be snapped off from either side of the links either by hand or by using a screwdriver as a lever. New crossbars may be installed by snapping them onto the link.

Links can be replaced by first removing the upper and lower crossbars, then unsnapping the old link and snapping in a new one. Reinstall the crossbars after the new link is in place.

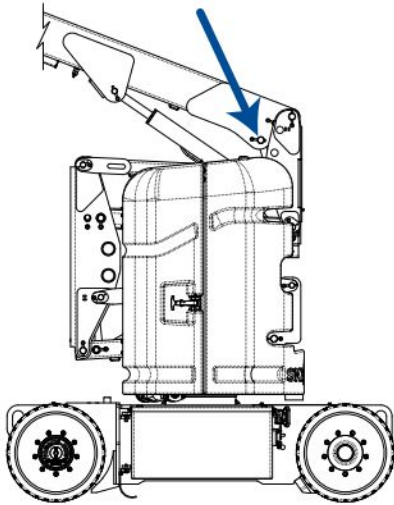


5.4-4 Master Cylinder Replacement

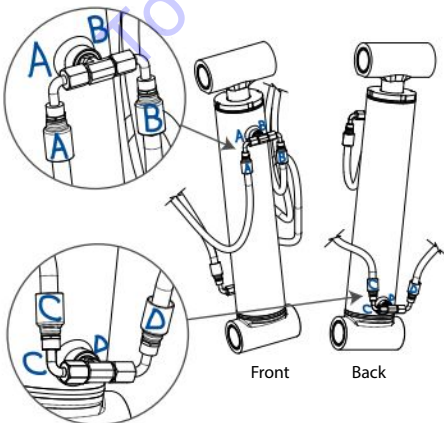
 **NOTE**

This procedure requires a suitably rated lifting device capable of supporting the boom arm.

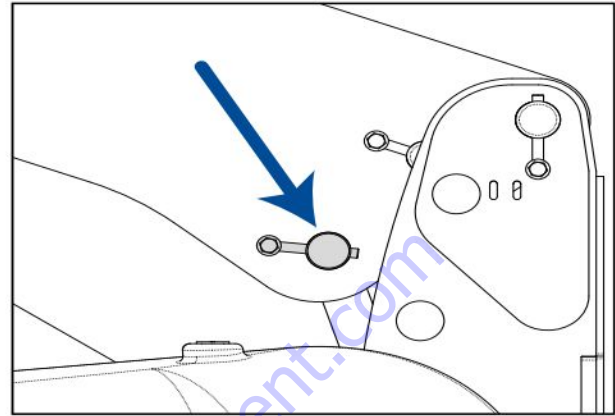
1. Park the MEWP on a firm and level surface and bring it to the stowed position. Lift the jib until the platform is about 30 cm (1 ft) off the ground.
2. Use the base controls to raise the riser and main boom until the master cylinder's upper pin is accessible.



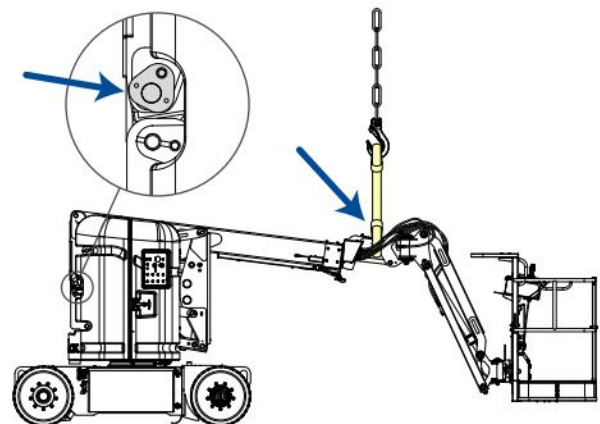
3. Place an oil pan inside the riser under the master cylinder to catch leaking oil.
4. Use tags or a paint marker to label the master cylinder hoses (x4), indicating where they are connected to the cylinder.



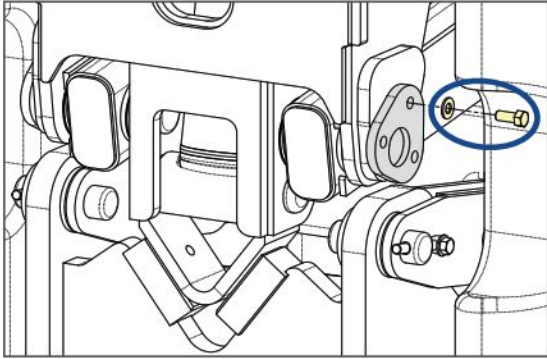
5. Disconnect the hoses one by one, being sure to plug the hoses and cap the fittings (size O4).
6. Remove the bolt, washer, and keeper pin securing the upper cylinder pin.



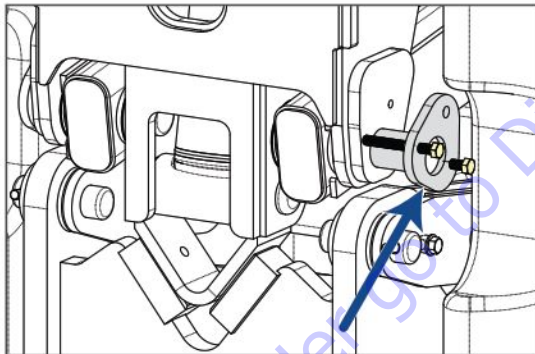
7. Use a rubber coated mallet and driver to tap out the cylinder's upper pin.
8. Remove the pin.
9. Pull the top of the cylinder back toward the knuckle.
10. Remove the oil pan, but leave some rags in place to catch dripping oil.
11. Lower the riser all the way until the lower knuckle pins are accessible, taking care not to crush the dangling hoses.
12. Place a sling around the tip of the fly boom (but not around the cylinder rod or hydraulic hoses). Attach the sling to a suitably rated lifting device, and raise it until there is no slack in the sling.



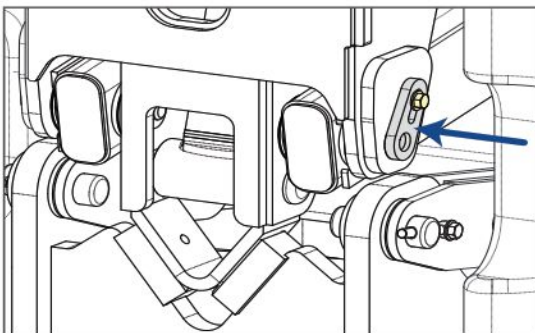
13. Lift the riser back up slightly to take the pressure off of the knuckle pins.
14. Remove the retaining bolt and washer from one of the lower knuckle pins.



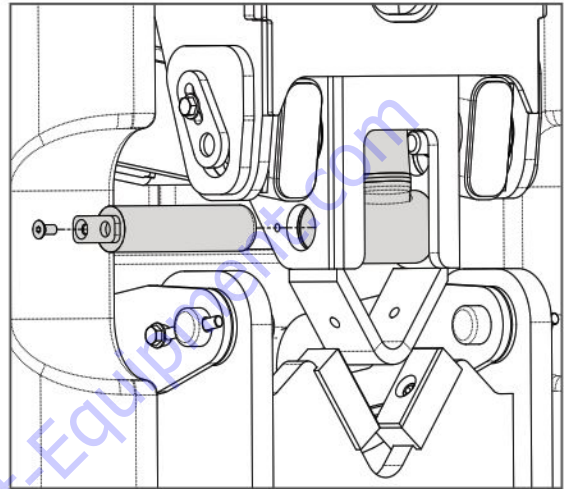
15. Use either a 3/8" threaded rod with a nut welded on the end, or two 3/8" fully threaded bolts about 3" (7.5 cm) long and thread them into one or both of the spare threaded holes on the pin flange.
16. Turn the rod/bolts clockwise, which will start forcing the pin out. Continue until the pin can be pulled out the rest of the way by hand.



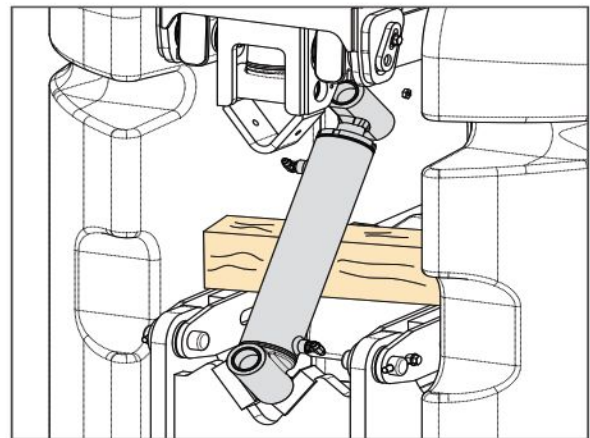
17. Place a temporary holding pin (**part 207288**) in place of the original pin, and secure it using the original bolt and washer. **NOTE:** This temporary pin is necessary to provide enough clearance for the master cylinder's lower pin to be removed.



18. Repeat steps 14 through 17 with the opposite pin. There will be more pressure on this pin, so use the lifting device to adjust the boom slightly as needed to make the pin easier to remove.
19. Lift the riser until the lower master cylinder pin is accessible.
20. Remove the screw securing the pin, then use a driver and mallet to tap out the pin.

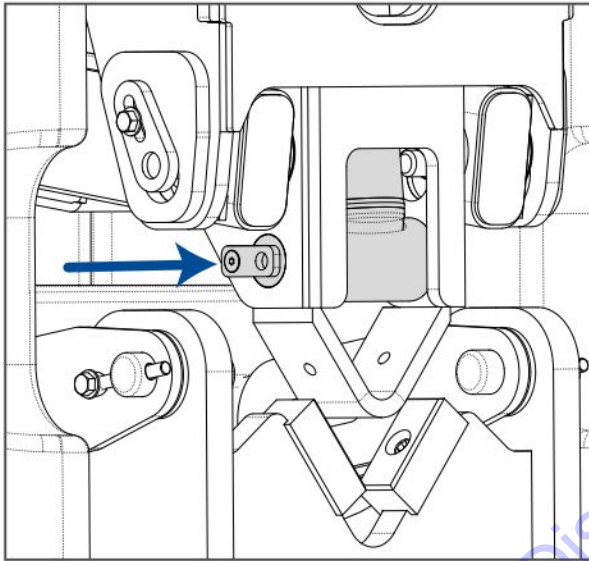


21. Lift the riser up about 46 cm (1.5'), and place a 4x4 block of wood in the riser.
22. Carefully push the master cylinder forward, then rotate it 1/4 turn. Bring the cylinder down and out through the gap in the riser.

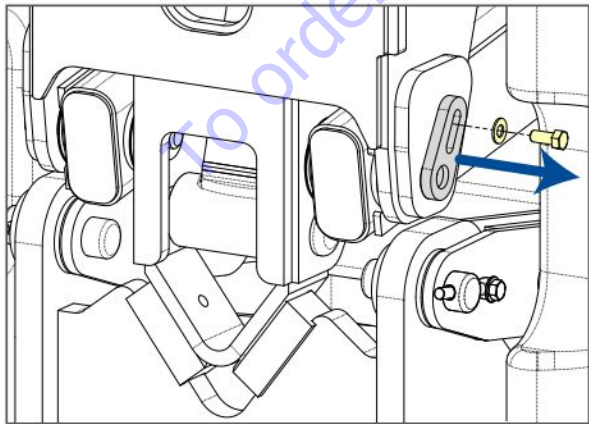


23. Working one at a time, remove the T fittings from the cylinder, and install port plugs in their place. Working one at a time, remove the port plugs from the new cylinder and install the T fittings from the old cylinder. Cap the fittings with size 04 caps. Transfer the hose markings to the new cylinder.

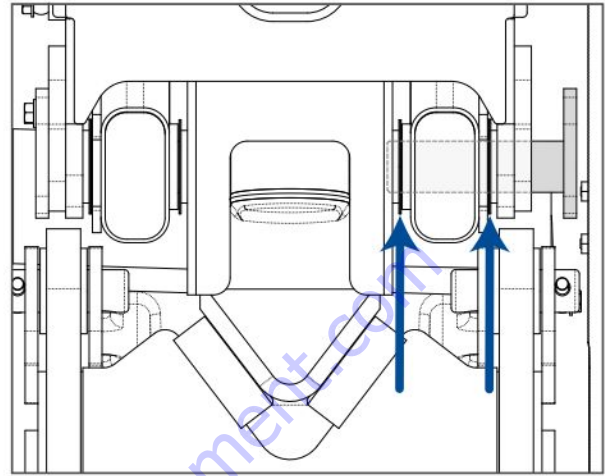
- 24. Bring the new cylinder over to the riser and orient it so the rod end is up, and the fitting ports are facing side-to-side. Lift it in through the gap in the riser, then rotate it so the lower port is facing away from you, and set it in place.
- 25. Remove the wooden block, and bring the riser down until the cylinder's lower pin is accessible for reinstallation.
- 26. Use a rubber mallet to tap in the original lower cylinder pin. Apply Loctite 242 to the original retaining bolt, and reinstall the bolt.



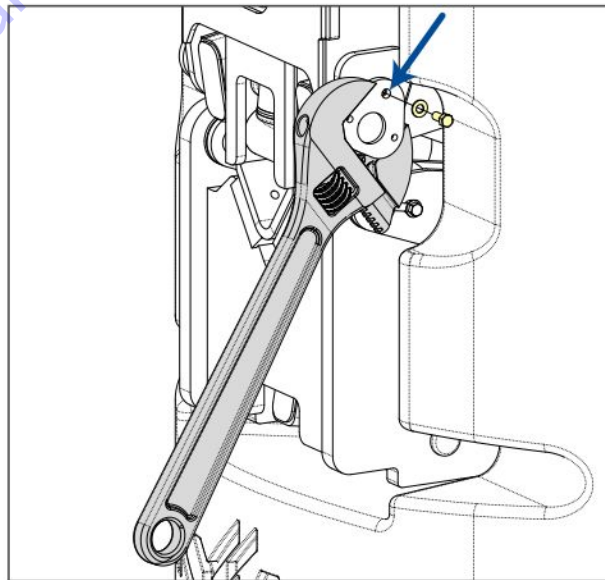
- 27. Lower the riser all of the way down, then raise it back up slightly to take the pressure off of the temporary knuckle pins.
- 28. Remove the bolt and washer holding one of the temporary pins, and remove the pin.



- 29. Set the original pin back in place and start tapping it in with a mallet, making sure the shims between the knuckle and arm are aligned while tapping the pin in.

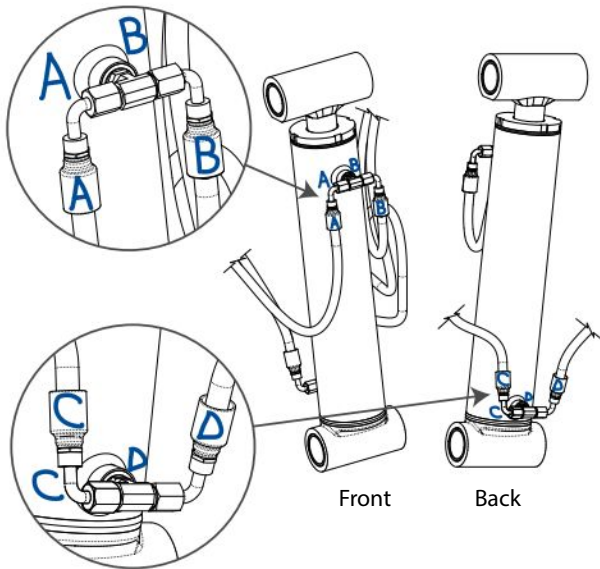


- 30. Use a large adjustable wrench on the pin flange to align the retaining screw holes on the pin and knuckle, and finish tapping the pin in. Apply Loctite 242 to the original retaining bolt, and reinstall the bolt and washer.

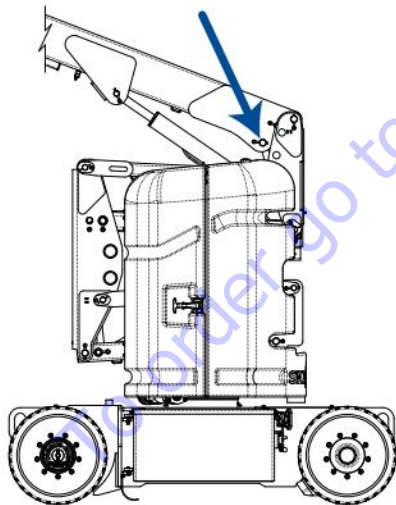


- 31. Repeat the process with the other pin, adjusting the boom as needed with the lifting device to assist in alignment.
- 32. Place an oil pan and/or rags inside the riser under the cylinder to catch leaking oil.

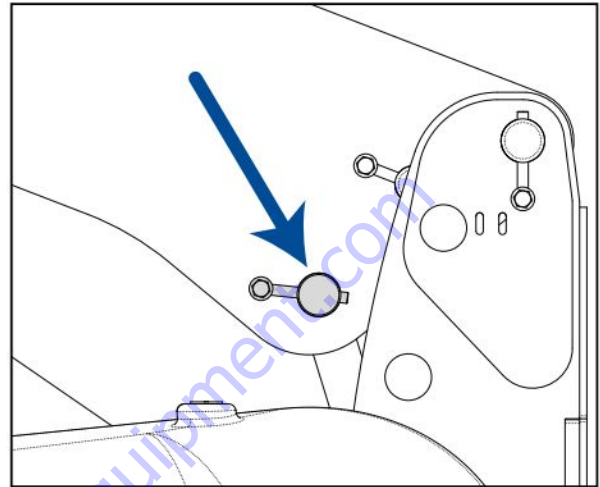
33. One by one, remove the cylinder fitting caps and reconnect the hoses (x4), lifting the riser if needed to access the lower fitting.



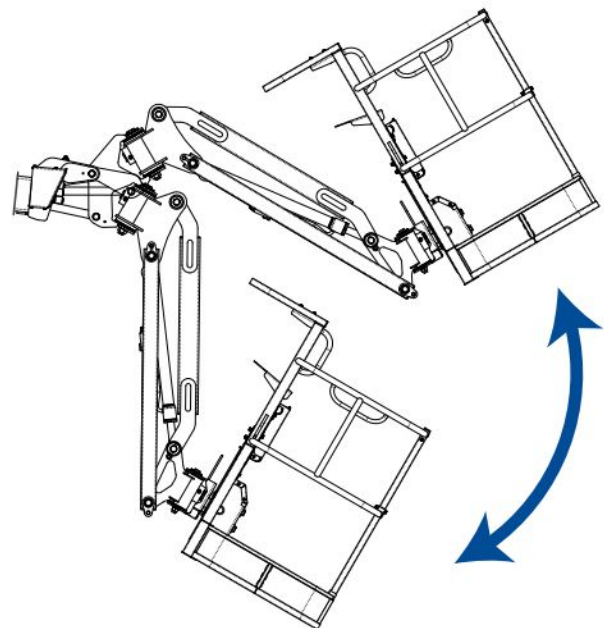
34. Lift the riser and main boom until the upper cylinder pin hole is accessible.



35. Align the cylinder rod end with the pin holes (use the riser lift/lower and/or platform up/down functions to help align the holes), and tap the original pin back in. Reinstall the keeper pin, bolt and washer, applying Loctite 242 to the bolt before installing it.



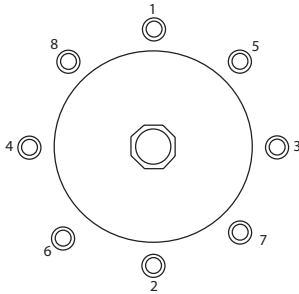
36. Remove the oil pan and clean up any leaked oil.
 37. Remove the sling from the fly boom.
 38. Raise the boom to provide clearance, then use the platform level switch on the base controls to fully raise and lower the platform 3 times.



39. Check for leaks at the master cylinder fittings and hoses.

5.4-5 Jib Rotary Actuator Bolt Torque Sequence

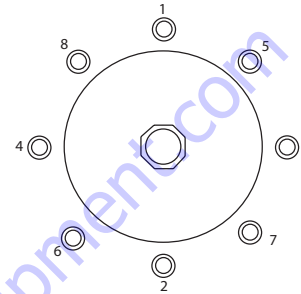
1. Park the MEWP on a firm level surface in the stowed position.
2. Disconnect one of the main power connectors.
3. Set the torque wrench to 23 Nm (17 ft-lb) and tighten the mounting bolts in a criss-cross pattern sequence.



4. Set the torque wrench to 47 Nm (35 ft-lb) and tighten the mounting bolts with the same sequence.
5. Torque the center bolt to 1044 Nm (770 ft-lb).

5.4-6 Platform Rotary Actuator Bolt Torque Sequence

1. Park the MEWP on a firm level surface in the stowed position.
2. Disconnect one of the main power connectors.
3. Set the torque wrench to 23 Nm (17 ft-lb) and tighten the mounting bolts in a criss-cross pattern sequence.



4. Set the torque wrench to 47 Nm (35 ft-lb) and tighten the mounting bolts with the same sequence.
5. Torque the center bolt to 512 Nm (380 ft-lb).

To order go to DiscountEquipment.com

5.5 Turret

Maintaining the hydraulic components and hydraulic oil at the proper level are essential to the good performance and service life of the MEWP.

5.5-1 Hydraulic Oil Replacement

1. Park the MEWP on a firm level surface in the stowed position.
2. Allow the hydraulic oil to warm up.
3. Disconnect one of the main power connectors.
4. Place a suitable container under the hydraulic tank.
5. Remove the oil drain plug and allow all of the hydraulic oil to drain into the container.
6. Reinstall the drain plug with a new seal ring and tighten the plug firmly.
7. Refill the hydraulic tank with new oil. Refer to [2.9 Hydraulic Specifications](#).
8. Check for leakage.
9. Clean up any oil that may have spilled during this procedure.
10. Check the hydraulic oil level. The hydraulic oil level should be at or slightly above the fill line on the tank.



NOTE

Refer to your national/local regulations on how to dispose of used filter and oil.

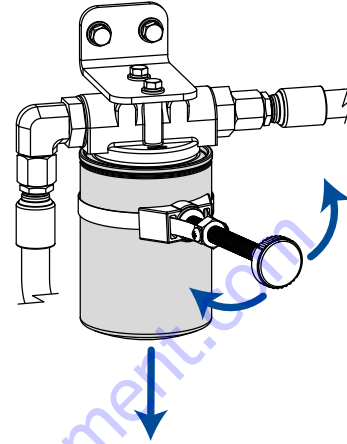


NOTE

Samples of hydraulic oil should be drawn from the reservoir and tested annually. These samples should be taken when the oil is warmed through normal operation of the system. The sample should be analyzed by a qualified lubrication specialist to determine if it is suitable for continued use. Oil change intervals will depend on the care used in keeping the oil clean, and the operating conditions. Dirt and/or moisture contamination will dictate that the oil should be changed more often. Under normal use and operating conditions, the hydraulic oil should be changed every two years. For oil specifications, refer to [2.9 Hydraulic Specifications](#).

5.5-2 Hydraulic Filter Replacement

1. Turn the MEWP off.
2. Place a suitable container under the filter.



3. Use a filter wrench to remove the filter from the head. Throw out the filter.
4. Apply hydraulic oil to the o-ring on the new filter, and screw the filter into place.
5. Tighten the filter with the filter wrench.

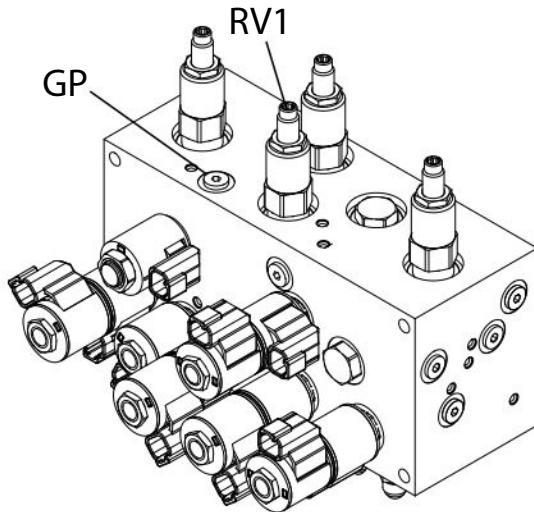


NOTE

Refer to your national/local regulations on how to dispose of used filters and oil.

5.5-3 Hydraulic System Main Relief Valve Adjustment (RV1)

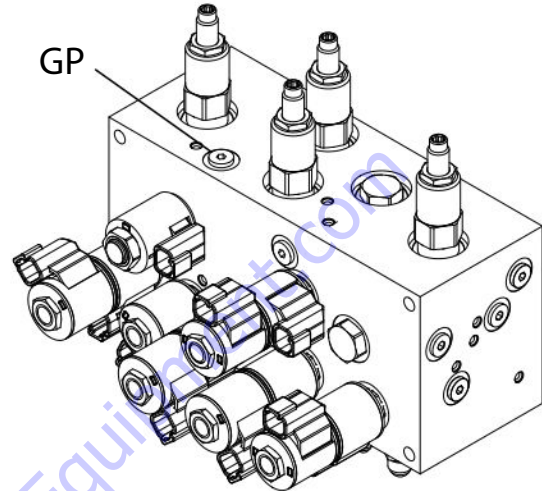
1. Locate test port **GP** on the main manifold, and connect a 350 bar (5000 psi) pressure gauge to it.



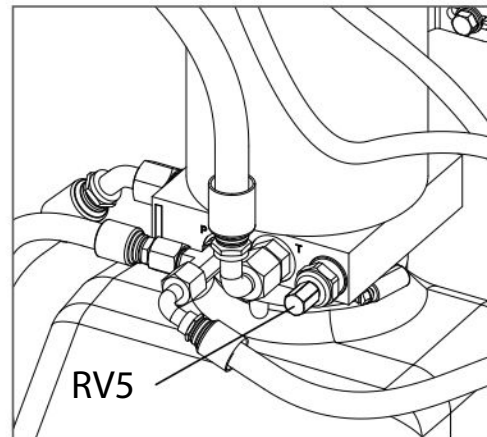
2. Pull out the base and platform e-stops.
3. From the base controls, use the telescope retract switch to activate the pressure on the gauge. Check the reading while still retracting.
4. The pressure should be 217 bar (3150 psi). Follow the next steps for adjusting the pressure if needed.
5. Locate the main system relief valve **RV1**.
6. Loosen the lock nut on the relief valve.
7. Turn the adjusting stem clockwise to increase the pressure and counterclockwise to decrease the pressure until 217 bar (3150 psi) is observed on the gauge.
8. Tighten the lock nut.

5.5-4 Main Pump Relief Valve Adjustment (RV5)

1. Locate test port **GP** on the main manifold, and connect a 350 bar (5000 psi) pressure gauge to it.



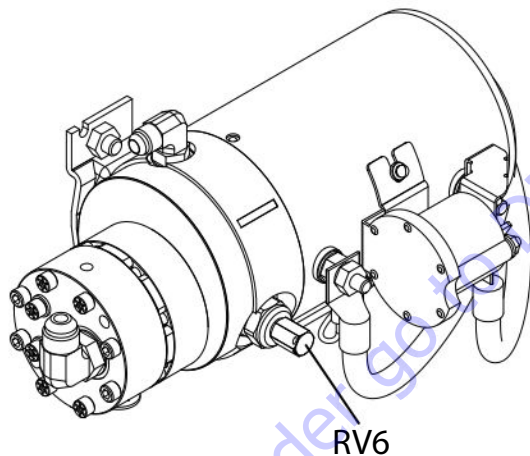
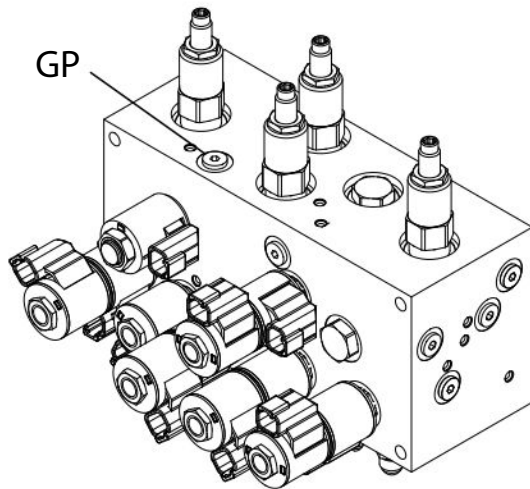
2. Pull out the base and platform e-stops.
3. From the base controls, use the telescope retract switch to activate the pressure on the gauge. Check the reading while still retracting.
4. The pressure should be 228 bar (3300 psi). Follow the next steps for adjusting the pressure if needed.
5. Locate relief valve **RV5** on the main pump.



6. Loosen the lock nut on the relief valve.
7. Turn the adjusting stem clockwise to increase the pressure and counterclockwise to decrease the pressure until 3300 psi is observed on the gauge.
8. Tighten the lock nut.

5.5-5 Emergency Pump Relief Valve Adjustment (RV6)

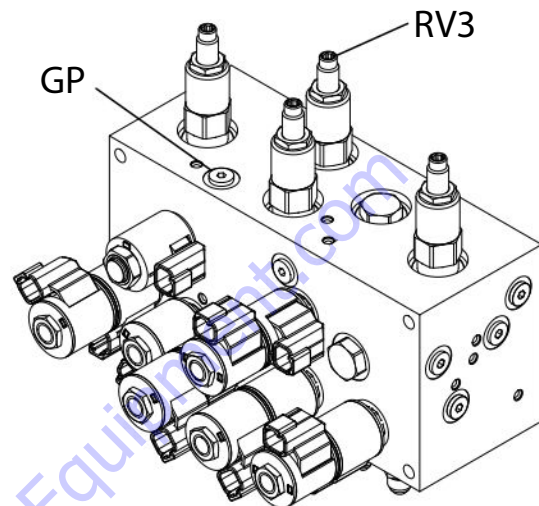
1. Locate test port **GP** on the main manifold, and connect a 350 bar (5000 psi) pressure gauge to it.



2. Pull out the base and platform e-stops.
3. From the base controls, use the e-pump switch in combination with the telescope retract switch to activate the pressure on the gauge. Check the reading while still retracting.
4. The pressure should be 228 bar (3300 psi). Follow the next steps for adjusting the pressure if needed.
5. Locate relief valve **RV6** on the e-pump.
6. Loosen the lock nut on the relief valve.
7. Turn the adjusting stem clockwise to increase the pressure and counterclockwise to decrease the pressure until 228 bar (3300 psi) is observed on the gauge.
8. Tighten the lock nut.

5.5-6 Turret Rotate Relief Valve Adjustment (RV3)

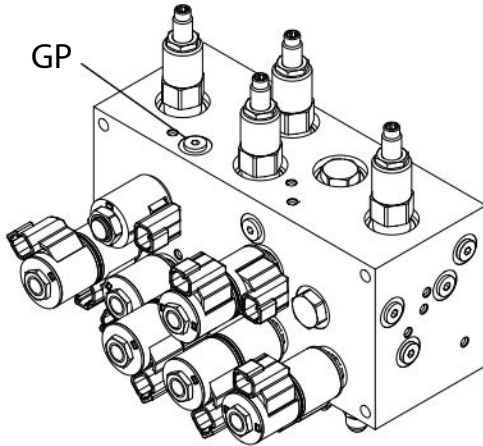
1. Locate test port **GP** on the main manifold, and connect a 350 bar (5000 psi) pressure gauge to it.



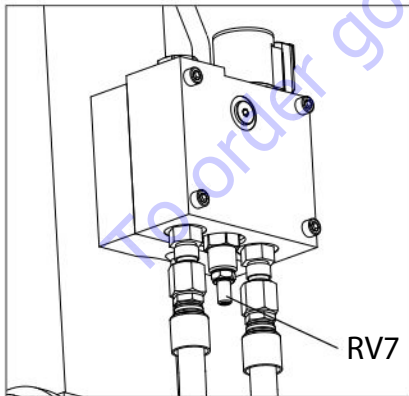
2. Pull out the base and platform e-stops.
3. Raise the jib to ensure the platform will not contact the ground.
4. Rotate the turret fully in one direction until it cannot go any further and hold the joystick there. Check the reading on the gauge.
5. The pressure should be 145 bar (2100 psi). Follow the next steps for adjusting the pressure if needed.
6. Locate turret rotate relief valve **RV3**.
7. Loosen the lock nut on the relief valve.
8. Turn the adjusting stem clockwise to increase pressure and counterclockwise to decrease pressure until 145 bar (2100 psi) is observed on the gauge.
9. Tighten the lock nut.

5.5-7 Riser Down Relief Valve Adjustment (RV7)

1. Locate test port **GP** on the main manifold, and connect a 350 bar (5000 psi) pressure gauge to it.



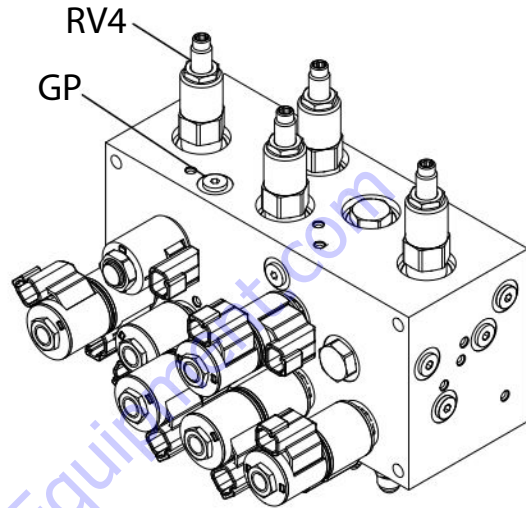
2. Pull out the base and platform e-stops.
3. Raise the jib to ensure the platform will not contact the ground.
4. Fully lower the riser, and with the toggle switch still held down, check the reading on the gauge.
5. The pressure should be 224 bar (3250 psi). Follow the next steps for adjusting the pressure if needed.
6. Locate relief valve **RV7** on the riser cylinder.



7. Loosen the lock nut on the relief valve.
8. While the toggle switch is pressed down, turn the adjusting stem clockwise to increase pressure and counterclockwise to decrease pressure until 3250 psi is observed on the gauge.
9. Tighten the lock nut.

5.5-8 Boom Extend Relief Valve Adjustment (RV4)

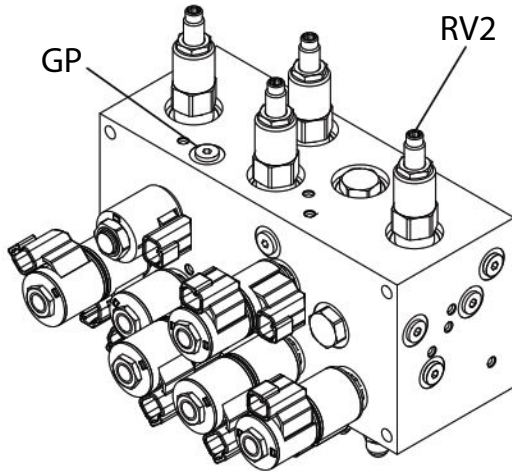
1. Locate test port **GP** on the main manifold, and connect a 5000 psi pressure gauge to it.



2. Pull out the base and platform e-stops.
3. Raise the jib to ensure the platform will not contact the ground.
4. Fully retract the boom, and with the toggle switch still pressed up, check the reading on the gauge.
5. The pressure should be 103 bar (1500 psi). Follow the next steps for adjusting the pressure if needed.
6. Locate platform leveling relief valve **RV4**.
7. Loosen the lock nut on the relief valve.
8. While the toggle switch is pressed upward, turn the adjusting stem clockwise to increase pressure and counterclockwise to decrease pressure until 103 bar (1500 psi) is observed on the gauge.
9. Tighten the lock nut.

5.5-9 Platform Level Relief Valve Adjustment (RV2)

1. Locate test port **GP** on the main manifold, and connect a 350 bar (5000 psi) pressure gauge to it.

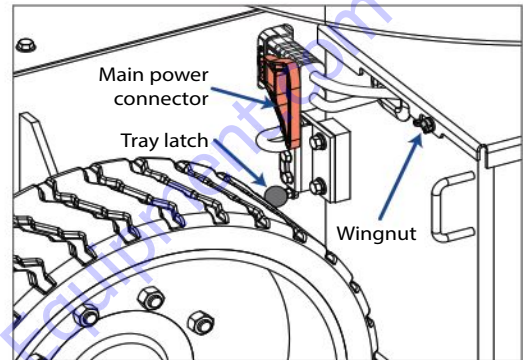


2. Pull out the base and platform e-stops.
3. Raise the jib to ensure the platform will not contact the ground.
4. Fully raise or lower the platform using the platform level toggle switch and with the toggle switch still held, check the reading on the gauge.
5. The pressure should be 210 bar (3050 psi). Follow the next steps for adjusting pressure if needed.
6. Locate platform leveling relief valve **RV2**.
7. Loosen the lock nut on the relief valve.
8. With the toggle switch still held, turn the adjusting stem clockwise to increase pressure and counterclockwise to decrease pressure until 210 bar (3050 psi) is observed on the gauge.
9. Tighten the lock nut.

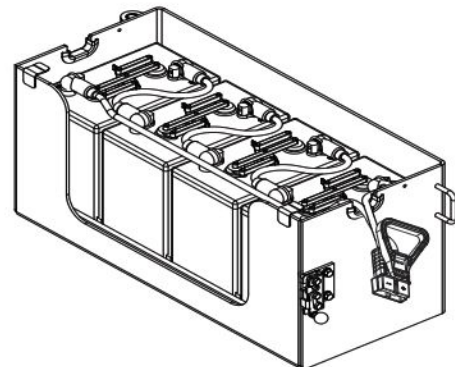
5.6 Base

5.6-1 Battery Replacement

1. Disconnect the main power connector by pulling the red handle straight back.
2. Pull the latch knob to unlock the battery tray. Swing the tray out.
3. Remove the wingnuts securing the battery tray lid (one on each end), and remove the lid.



4. Remove the positive and negative connectors from the battery.
5. Remove the battery.
6. Install the new battery.
7. Clean the terminal posts and clamps of the battery, and apply acid-free and acid-resistant grease.
8. Reconnect the battery with the positive and negative connector cables (ensure the clamps make good contact).



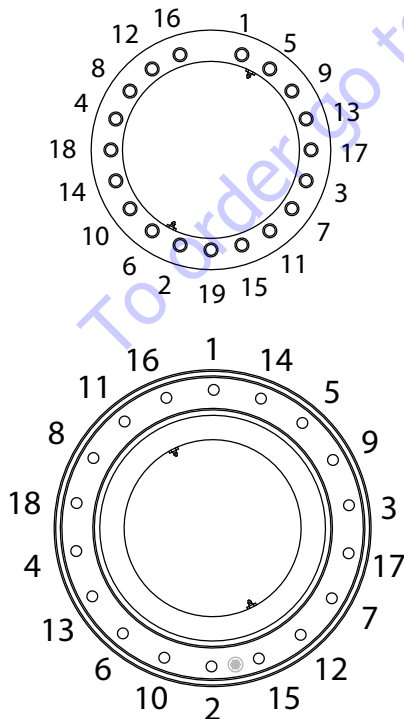
9. Reinstall the lid, securing it with the wingnuts.
10. Swing the battery tray back into place, ensuring the latch catches.
11. Reconnect the main power connector.

5.6-2 Ring Gear Bolt Torque Sequence

⚠ WARNING

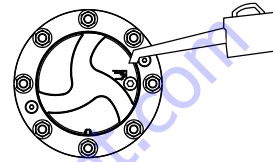
Maintaining proper torque is essential to safe MEWP operation. Improper bolt torque could result in an unsafe operating condition and component damage.

1. Park the MEWP on a firm level surface.
2. Raise the riser and support it with a suitably rated lifting device, or a cylinder chock on the riser cylinder rod.
3. Slowly lower the riser until it is just above the supportive device being used.
4. Disconnect one of the main power connectors.
5. Apply Loctite 242 blue to the inner (upper) gear mounting bolts, and hand tighten them.
6. Set a torque wrench to 68 Nm (50 ft-lb) and tighten the inner gear mounting bolts in a criss-cross sequence.
7. Repeat with the torque wrench set to 115 Nm (85 ft-lb).
8. Repeat with the torque wrench set to 230 Nm (170 ft-lb).
9. Repeat the previous steps with the outer (lower) gear mounting bolts.



5.6-3 Check Torque Hub Oil Level

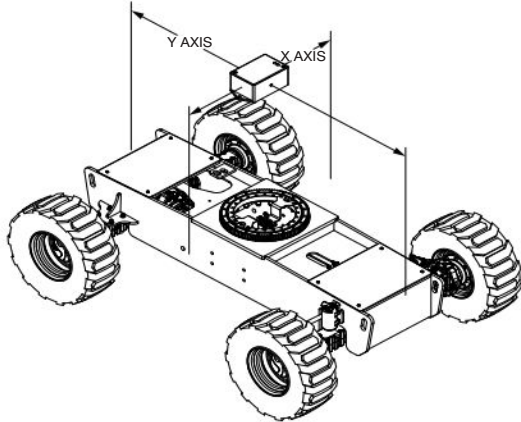
1. Drive the MEWP to rotate the hub until the plug is located at the 3 o'clock or 9 o'clock position.
2. Remove the plug and check the oil level. The oil level should be even with the bottom of the plug hole. Add oil if needed. For oil specifications, refer to [2.9 Hydraulic Specifications](#).




5.6-4 Electronic Tilt Switch Setup Procedure

The following information is supplied for replacement or reprogramming of the electronic tilt switch. Also included are test and verification instructions. Follow the appropriate procedures below.

Tilt Switch Replacement



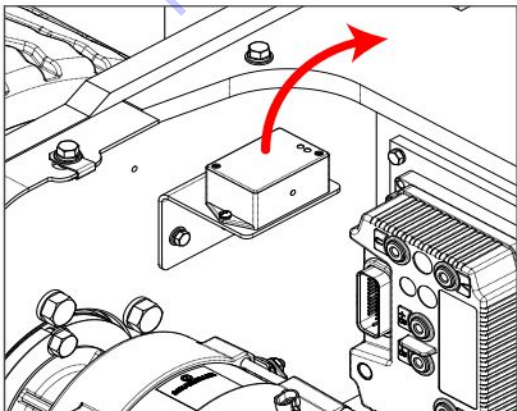
1. Ensure the MEWP is parked on a firm, level surface.
2. Fully lower the platform and retract the fly boom.
3. Chock or block the wheels to keep the MEWP from rolling forward or backward.
4. Push in the emergency stop  buttons and disconnect one of the main power connectors.
5. Disconnect the tilt switch from the 4 pin connector.



NOTE

Make sure the part number of the old tilt switch and the new tilt switch are the same.

6. Remove the old tilt switch from the mount.






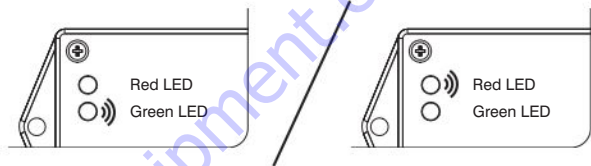
7. Install the new switch onto the mount and connect the switch plug to the 4 pin connector.



NOTE

The tilt circuit is only powered when the controls are powered up.

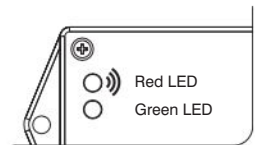
8. Turn the main disconnect switch to the ON position .
9. Turn the base/off/platform key switch to the base position .
10. Pull out both emergency stop buttons .
11. Verify the switch is powered (the red or green LED will be continually blinking).



12. Program the tilt switch:

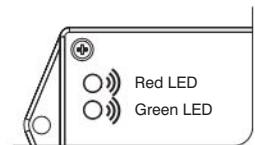
- a. Press and release the set to zero button 3 times. Observe the LED flash codes as shown below.

- b. Only the red LED blinks for 4 seconds.



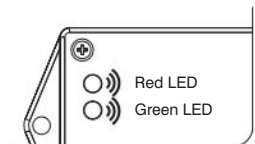
- c. Both LEDs flash for 1 second.

Results: The switch is learning the new zero position.



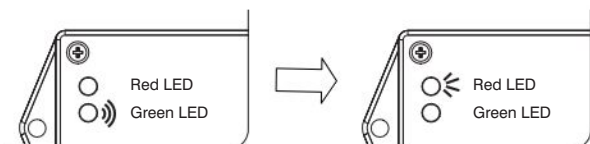
- d. Both LEDs turn on solid for 1 second.

Results: The new zero position has been learned.

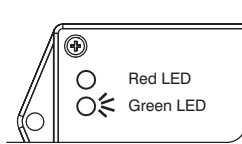


- e. The green LED flashes and then the red LED turns on solid for 2 seconds.

Results: The switch is verifying the new zero position.



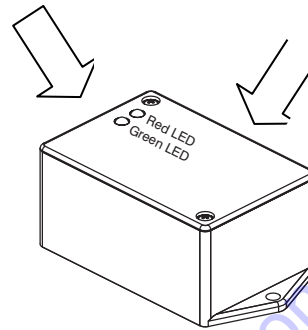
- f. Only the red LED blinks for 4 seconds.



- 13. Disconnect one of the main power connectors.
- 14. Push in the emergency stop buttons .
- 15. Remove the chock or wheel blocks.
- 16. Proceed to **Verify the Tilt Circuit**.

Reprogramming the Existing Tilt Switch

Light Indicators The set to zero button is located on this face next to the harness



- 1. Ensure the MEWP is parked on a firm level surface.
- 2. Fully lower the platform and retract the fly boom.
- 3. Chock or block the wheels to keep the MEWP from rolling forward or backward.

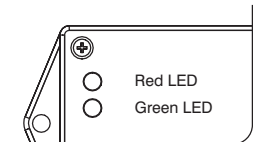


NOTE

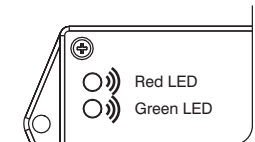
The tilt circuit is only powered when the controls are powered up.

- 4. Connect the main power connectors.
- 5. Pull out both emergency stop buttons .
- 6. Turn the base/off/platform key switch to the base position .
- 7. Verify the switch is powered (the red or green LED will be continually blinking).
- 8. Reprogram the Tilt Switch

- a. Press and hold the set to zero button for 5 seconds.
Results: Both LEDs are OFF.



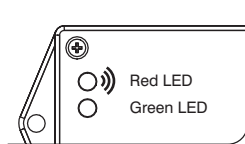
- b. Both LEDs flash.



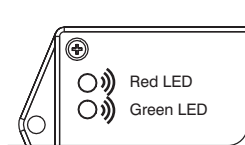
IMPORTANT

Step “c” must be completed within a 5 second period, or the switch will automatically exit program mode and return to normal operation using the previously stored data.

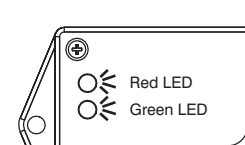
- c. Press and release the set to zero button 3 times.
- d. If the 5 second period has expired prior to completion, repeat steps “a”, “b” and “c”.
- e. Observe the program delay / stabilization time (only the red LED blinks for 4 seconds).



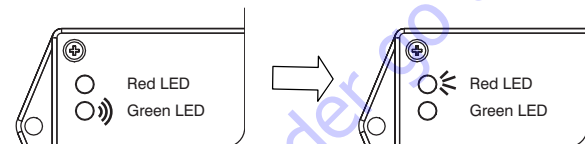
- f. Both LEDs flash for 1 second.
Results: The switch is learning the new zero position.



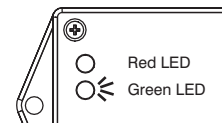
- g. Both LEDs turn on solid for 1 second.
Results: The new zero position has been learned.



- h. The green LED flashes and then the red LED turns on solid for 2 seconds.
Results: The switch is verifying the new zero position.



- i. The green LED turns on solid.
Results: The switch is ready for normal operation.

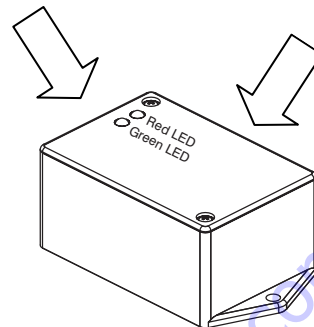


- 9. Disconnect one of the main power connectors.
- 10. Push in the emergency stop buttons .
- 11. Remove the chock or wheel blocks.
- 12. Proceed to Test and Verify Tilt Circuit.

Verify the Tilt Circuit

Indicator Lights

The set to zero button is located on this face next to the harness



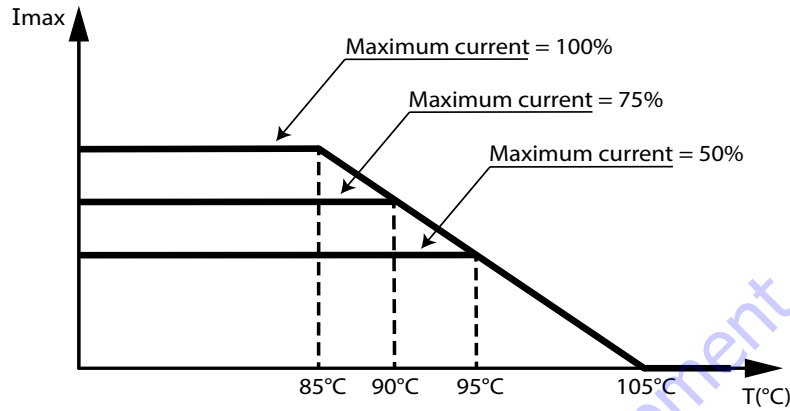
Operations of the Tilt Switch

The following describes the LED’s and what they indicate.

Green LED	Illuminated whenever both tilt axes are within the specified degrees of the zero/ home learned position. Flashes when transitioning in or out of tilt angle limits, but built in time delay has not fully occurred.
Red LED	Illuminated whenever tilt on one or more axes is more than the specified degrees out from the zero/ home position.
Green & Red LED	On together, no blinking when fault detected.

5.6-5 Motor Controller Thermal Sensor

If the controller temperature exceeds 85°C (185°F), the maximum current is reduced in proportion to the thermal increase. The temperature can never exceed 105°C (221°F).



Ambient Temperature		Resistance (ohm)		
°C	°F	Min	Typ	Max
-40	-40	340	359	379
-30	-22	370	391	411
-20	-4	403	424	446
-10	14	437	460	483
0	32	474	498	522
10	50	514	538	563
20	68	555	581	607
25	77	577	603	629
30	86	599	626	652
40	104	645	672	700
50	122	694	722	750
60	140	744	773	801
70	158	797	826	855
80	176	852	882	912
90	194	910	940	970
100	212	970	1000	1030
110	230	1029	1062	1096
120	248	1089	1127	1164
130	266	1152	1194	1235
140	284	1216	1262	1309
150	302	1282	1334	1385

5.6-6 Motor Controller Panel Pin Interface - Connector A

Pin 1 - 12 volt output on wire 3D to CB1 circuit breaker.

Test between pin 1 and battery negative.

Pin 2 - 00/ battery negative to CB2 circuit breaker.

Test for continuity between pin 2 and battery negative.

Pin 3 - 48 volt output on wire 3 from line contactor to E stop switch. (Fused 10amp)

Test between pin 3 and battery negative.

Pin 4 - 48 volt input on wire 3C to motor controller and line contactor when key on selected.

Test between pin 5 and battery negative with key on.

Pin 5 - Base Mode input. 12 volt input on wire 10 = Base control mode.

Test for 12 volts between pin 5 and battery negative while in Base position.

Pin 6 - Platform Mode input. 12 volt input on wire 7A = Platform control mode.

Test for 12 volts between pin 6 and battery negative while in Platform position.

Pin 7 - Accelerator input. Wire D from drive joystick controller.

Neutral position= 4.2 volts to 4.8 volts.

Forward function= 4.9 volts to 8.5 volts.

Reverse function= 4.1 volts to .5 volts.

Test between pin 7 and 02 wire.

Pin 8 - Tilt sensor output to tilt relay 28CR on wire 28. 12V= Level. 0V= Tilted.

Test between pin 8 and 02 wire.

Pin 9 - Turret position for direction sensor. 12 volt input from limit switch LS1 on wire 17.

0 volts= Platform over drive axle.

12 volts= Platform over steer axle.

Test between pin 9 and 02 wire.

Pin 10 - 12 volt input from LS2 riser/ LS3 boom elevation limit switches and LS4 telescope limit switch on wire 59.

12 volts= full speed. 0 volts= creep speed (one or more limit switches open).

Test for continuity between pin 10 and battery negative while in drive mode.

Pin 11 - Enable out- Negative output on wire 208 to relays 208CR and 208CR1.

Test for negative at pin 11 while operating from base or upper controls.

Pin 12 - Enable in- 12 volt input on wire 8B from footswitch S6 or base enable switch S21.

Test between pin 12 and battery negative while activating footswitch or base enable switch.

Pin 13 - 12 volt input on wire 24 from left steer switch.

Test between pin 13 and battery negative while operating left steer.

Pin 14 - 12 volt input on wire 23 from right steer switch.

Test between pin 14 and battery negative while operating right steer.

Pin 15 - Negative output on wire 224 to left steer valve 4H-224.

Test pin 15 for negative while operating left steer. (Platform must be over drive axle)

Pin 16 - Negative output on wire 223 to right steer valve 4H-223.

Test pin 16 for negative while operating right steer. (Platform must be over drive axle)

Pin 17 - Variable negative output on wire 90 to battery condition light PL4.

(No light= Charged... Solid light= Warning... Blinking light= Limp mode)

Test for negative at pin 17.

Pin 18 - 12 volt input from platform Load cell on wire 162.

12 volts= within platform capacity. 0 volts= overload.

Test for continuity between pin 18 and battery negative while no load in platform. Refer to Load Sense troubleshooting in section 5 for additional information.

Pin 19 - PMU accelerator input. Variable input from wire 70. 10-100% of maximum pump speed. (PWM signal)

Test for varied input at pin 19 while operating from upper controls.

Pin 20 - Base speed 1 input on wire 71. 70% of pump speed.

Test continuity on wire 71 between pin 20 and base terminal block.

Pin 21 - Base speed 2 input on wire 72. 50% of pump speed.

Test continuity on wire 72 between pin 21 and base terminal block.

Pin 22 - Base speed 3 input on wire 73. 8% of pump speed.

Test continuity on wire 73 between pin 22 and base terminal block.

Pin 23 - Charger cutout. 12 volt input on wire 60A from charger interlock relay L1CR.

12 volts= machine operable. 0 volts= machine disabled.

Test for 12 volts between pin 23 and battery negative without charger plugged in.

Pin 24 - 12 volt input on wire 01. 12 volts= Main PMU disabled and Emergency PMU available.

Test for 12 volts between pin 24 and battery negative while operating Emergency controls.

5.6-7 Motor Controller Panel Pin Interface - Connector B

Pin 1 - Drive/ Boom function Enable- Negative output on wire 259 to relay 259CR.

- Machine stowed and tilted= Boom up, riser up and telescope out functions allowed until limit switches are activated (LS2, LS3 or LS4). Drive remains active.

- Machine elevated and tilted= All boom functions remain active. Drive is cut out.

Test for negative at pin 1 while machine is stowed.

Pin 2 - 12 volt output on wire 60 from diodes D7A or D10.

Test for 12 volts between pin 2 and battery negative.

Pin 3 - SGE input - 12 volt input on wire 04A from SGE sensor bar.

SGE sensor bar active for less than 1 second= Functions automatically return.

SGE sensor bar active for more than 1 second= Reset is required.

Test between pin 3 and battery negative while pressing sensor bar.

Pin 4 - SGE reset- 12 volt input on wire 01A from SGE reset switch S25. (Emergency controls also provides reset)

Test between pin 4 and battery negative while activating reset switch.

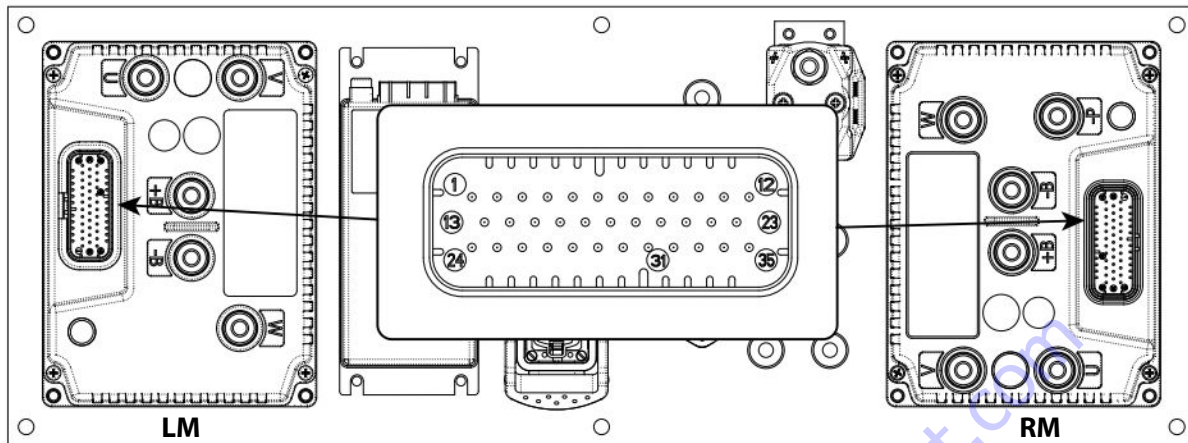
Pin 5 - 12 volt input from riser down function on wire 30B. (Enable timer- Riser is gravity down No PMU active)

Test for 12 volts between pin 5 and battery negative while in Base position.

Pin 6 - Negative output on wire 204 to relay 204CR for SGE system. No negative = Alarm and Light activated.

Test for negative at pin 6 while SGE is not activated.

5.6-8 Motor Controller Connectors Pin Reference



Right Motor Controller Connector

- RM 1 - Enable in - 12 volt input on wire 8B from motor controller harness A pin #A12.
Test between RM 1 and battery negative while activating footswitch or base enable switch.
- RM 2 - Not used.
- RM 3 - 12 volt input on wire 3E through fuse F2 from DC/DC converter on wire 3D.
Test between RM 3 and battery negative with both upper and lower E stop switches activated.
- RM 4 - Negative output to right motor brake connector.
Test for 48 volts between brake positive and brake negative. If no voltage found test for continuity between RM 4 and brake negative at right motor brake connector. Replace if defective.
- RM 5 - Negative output to right motor encoder connector.
Test for continuity between RM 5 and encoder negative at right motor encoder connector. Replace if defective.
- RM 6 - 12 volt input through motor controller harness A pin #A10 from LS2 riser/ LS3 boom elevation limit switches and LS4 telescope limit switch on wire 59.
12 volts= full speed. 0 volts= creep speed (one or more limit switches open).
Test for 12 volts at RM6 and battery negative while in drive mode and boom fully stowed.
- RM 7 - Not used.
- RM 8 - Negative output on wire 208 through motor controller harness A pin #A11 to relays 208CR and 208CR1.
Test for negative at pin RM 8 while operating from base or upper controls.
- RM 9 - Negative output on wire #224 through motor controller harness A pin #A15 to left steer valve.
Test for negative at RM 9 while operating left steer.
- RM 10 - E stop return- 48 volt input on wire 3C from motor controller harness A pin #A4.
Test between RM 10 and battery negative with both upper and lower E stop switches activated.
- RM 11 - Negative output on wire #223 through motor controller harness A pin #A16 to right steer valve.
Test for negative at RM 11 while operating right steer.

RM 12 - Negative output to main contactor 3CCR. Must see 48V on pins RM10 and LM10 before negative is supplied.
Test for negative at RM 12.

RM 13 - Encoder B signal from right motor Encoder.
Test for 2.5 volts approximately between negative and RM 13 while driving. Replace encoder if no voltage found.

RM 14 - Encoder A signal from right motor Encoder.
Test for 2.5 volts approximately between negative and RM 14 while driving. Replace encoder if no voltage found.

RM 15 - Accelerator input. Wire D from drive joystick controller.
Neutral position= 4.2 volts to 4.8 volts.
Forward function= 4.9 volts to 8.5 volts.
Reverse function= 4.1 volts to .5 volts.
Test between pin RM 15 and 02 wire.

RM 16 - 12 volt input on wire 24 from left steer switch.
Test between RM 16 and battery negative while operating left steer.

RM 17 - Not used.

RM 18 - Not used.

RM 19 - 12 volt input on wire 23 from right steer switch.
Test between RM 19 and battery negative while operating right steer.

RM 20 - Base Mode input. 12 volt input on wire 10 = Base control mode.
Test for 12 volts between RM 20 and battery negative while in Base position.

RM 21 - Not used.

RM 22 - Thermal sensor input.
Refer to thermal sensor resistance table in section 5 of this manual. Replace if out of range.

RM 23 - Not used.

RM 24 - Not used.

RM 25 - 5 volt signal to right motor Encoder.
Test for 5 volts between negative and RM 25 while driving.

RM 26 - Variable negative output through motor controller harness A pin #A17 on wire 290 to battery condition light PL4.
(No light= Charged... Solid light= Warning... Blinking light= Limp mode)
Test for negative at RM 26.

RM 27 - CAN L- Low level CAN-BUS voltage I/O.

RM 28 - CAN H- High level CAN-BUS voltage I/O.

RM 29 - Not used.

RM 30 - Variable voltage input from steer sensor. 3.3 volts to 4.1 volts.

(Steer hard right= 3.3 volts... Steered straight= 3.7 volts... Steer hard left= 4.1 volts)
Test between negative and RM 30.

RM 31 - Turret position for direction sensor. 12 volt input through motor controller harness A pin #A9 from limit switch LS1 on wire 17.

0 volts= Platform over drive axle.

12 volts= Platform over steer axle.

Test between RM 31 and 02 wire.

RM 32 - Tilt sensor input on wire 28. 12V= Level. 0V= Tilted.

Test between RM 32 and 02 wire.

RM 33 - Drive/ Boom function Enable- Negative output through motor controller harness B pin #B1 on wire 259 to relay 259CR.

Machine stowed and tilted= Boom up, riser up and telescope out functions allowed until limit switches are activated (LS2, LS3 or LS4). Drive remains active.

Machine elevated and tilted= All boom functions remain active. Drive is cut out.

Test for negative at RM 33 while machine is stowed.

RM 34 - Not used.

RM 35 - Platform Mode input. 12 volt input on wire 7A = Platform control mode.

Test for 12 volts between RM 35 and battery negative while in Platform position.

Left Motor Controller Connector

LM 1 - Enable in- 12 volt input on wire 8B from motor controller harness A pin #A12.

Test between LM 1 and battery negative while activating footswitch or base enable switch.

LM 2 - Not used.

LM 3 - 12 volt input on wire 3D from DC/DC converter.

Test between LM 3 and battery negative with both upper and lower E stop switches activated.

LM 4 - Negative output to left motor brake connector.

Test for 48 volts between brake positive and brake negative. If no voltage found test for continuity between LM 4 and brake negative at left motor brake connector. Replace if defective.

LM 5 - Negative output to left motor encoder connector.

Test for continuity between LM 5 and encoder negative at left motor encoder connector. Replace if defective.

LM 6 - Not used.

LM 7 - Charger cutout. 12 volt input through motor controller harness A pin #A23 on wire 60A from charger interlock relay L1CR.

12 volts= machine operable. 0 volts= machine disabled.

Test for 12 volts between LM 7 and battery negative without charger plugged in.

LM 8 - Not used.

LM 9 - Not used.

LM 10 - E stop return- 48 volt input on wire 3C from motor controller harness A pin #A4.

Test between LM 10 and battery negative with both upper and lower E stop switches activated.

LM 11 - Negative output on wire 204 through motor controller harness B pin #B6 to relay 204CR for SGE system.
No negative = Alarm and Light activated.
Test for negative at LM11 while SGE is not activated.

LM 12 - Not used.

LM 13 - Encoder B signal from right motor Encoder.
Test for 2.5 volts approximately between negative and LM 13 while driving. Replace encoder if no voltage found.

LM 14 - Encoder A signal from right motor Encoder.
Test for 2.5 volts approximately between negative and LM 14 while driving. Replace encoder if no voltage found.

LM 15 - PMU accelerator input. Variable input from wire 70. 10-100% of maximum pump speed. (PWM signal)
Test for varied input at LM 15 while operating from upper controls.

LM 16 - 12 volt input on wire 01. 12 volts= Main PMU disabled and Emergency PMU available.
Test for 12 volts between LM 16 and battery negative while operating Emergency controls.

LM 17 - SGE input- 12 volt input through motor controller harness B pin #B3 on wire 04A from SGE sensor bar.
SGE sensor bar active for less than 1 second= Functions automatically return.
SGE sensor bar active for more than 1 second= Reset is required.
Test between LM 17 and battery negative while pressing sensor bar.

LM 18 - Not used.

LM 19 - 12 volt input through motor controller harness A pin #A18 from platform Load cell on wire 162.
12 volts= within platform capacity. 0 volts= overload.
Test for continuity between LM 19 and battery negative while no load in platform. Refer to Load Sense troubleshooting in section 5 for additional information.

LM 20 - Base speed 1 input on wire 71. 70% of pump speed.
Test continuity on wire 71 between LM 20 and base terminal block.

LM 21 - Not used.

LM 22 - Thermal sensor input.
Refer to thermal sensor resistance table in section 5 of this manual. Replace if out of range.

LM 23 - Not used.

LM 24 - Not used.

LM 25 - 5 volt signal to left motor Encoder.
Test for 5 volts between negative and LM 25 while driving.

LM 26 - Not used.

LM 27 - CAN L- Low level CAN-BUS voltage I/O.

LM 28 - CAN H- High level CAN-BUS voltage I/O.

LM 29 - 12 volt input from riser down function on wire 30B. (Enable timer- Riser is gravity down No PMU active)

Test for 12 volts between LM 29 and battery negative while in Base position.

LM 30 - Variable voltage input from tilt sensor on wire #128.
(Level ground= 1.88 volts... 25% grade= 9.4 volts)
Test between negative and LM 30.

LM 31 - Base speed 2 input on wire 72. 50% of pump speed.
Test continuity on wire 72 between LM 31 and base terminal block.

LM 32 - Base speed 3 input on wire 73. 8% of pump speed.
Test continuity on wire 73 between LM 32 and base terminal block.

LM 33 - Not used.

LM 34 - Not used.

LM35 - SGE reset - 12 volt input through motor controller harness B pin #B4 on wire 01A from SGE reset switch S25. Emergency controls also provides reset.
Test between LM 35 and battery negative while activating reset switch.

To order go to Discount-Equipment.com

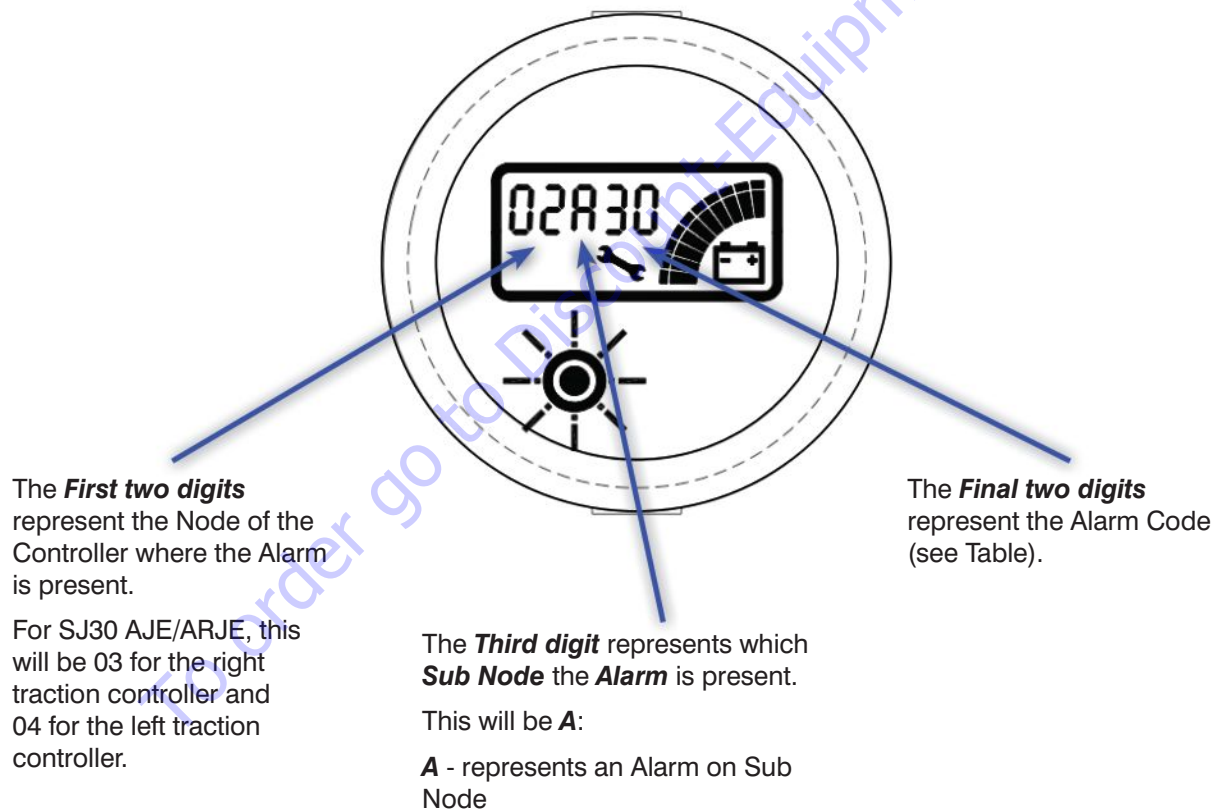
5.6-9 ZAPI MDI-CAN Display

The ZAPI Multi-function Digital Indicator (MDI)-CAN display gives indication of the **alarms** of the motor controller, which it is connected via CAN-BUS, with a corresponding code. When the display powers up, it shows the general information shown on the MDI display (if a **turtle** appears, it signifies Creep Mode which happens when the batteries are low on charge), then it flashes the software revision of the MDI display, followed by the software revision of the motor controller, and lastly, the machine hours used.

When an **alarm** is generated, the red LED blinks and the symbol of the monkey wrench appears, to attract the attention of the operator. **Note:** if the wrench symbol does not appear, the code shown is **not** a fault code.

Decoding the Alarms Displayed on the MDI-CAN

The format of the string shown on the display below is **XXAYY**, where **XX** and **AYY** represent the **alarmed node** and the **alarmed code** respectively.



With the Controller Alarm Codes on the MDI-CAN display referenced against the Controller Master Codes Table (refer to [5.6-10 ZAPI MDI-CAN Controller Master Codes](#)), the operator can solve the fault and correct the error. The codes tables contain the flash codes, the probable cause and the recommended remedy. If the Alarm information suggests a serious problem that can not be addressed by the codes tables, contact the Skyjack Service Department.

5.6-10 ZAPI MDI-CAN Controller Master Codes

Flash Code	Displayed on MDI	Probabable Cause	Remedy
0XA08	WATCHDOG	ACE3 Controller logic selfcheck	<ol style="list-style-type: none"> 1. Cycle keyswitch 2. Factory reset (Clear Eeprom) 3. Replace controller.
0XA08	FLASH CHECKSUM	The software is corrupted or the flash on the controller is damaged	<ol style="list-style-type: none"> 1. Cycle keyswitch 2. Factory reset (Clear Eeprom) 3. The software was not correctly written into the flash memory or the flash memory is damaged. Replace the controller.
0XA17	LOGIC FAIL #3	Failure in high current HW protection circuit	<ol style="list-style-type: none"> 1. Cycle keyswitch 2. Factory reset (Clear Eeprom) 3. Hardware problem in logic circuit card for high current (overload) protection. Internal issue. Replace controller.
0XA26	SENS. KO	The current sensor is damaged.	<ol style="list-style-type: none"> 1. Cycle keyswitch 2. Factory reset (Clear Eeprom) 3. One of the current sensor, used to measure the value on the motor phases, is damaged. Internal issue. Replace controller.
0XA27	PHASE KO	One of the phases on the drive motors is open	Check battery cables to the drive motors
0XA28	PUMP VMN LOW	Pump motor is low compared to PWM signal applied.	<ol style="list-style-type: none"> 1. Check wiring to Pump/ Motor 2. Test Motor 3. Replace Motor
0XA29	PUMP VMN HIGH	Pump motor is high compared to PWM signal applied.	<ol style="list-style-type: none"> 1. Check wiring to Pump/ Motor 2. Test Motor 3. Replace Controller if Motor tests OK.

ZAPI MDI-CAN Controller Master Codes (continued)

Flash Code	Displayed on MDI	Probable Cause	Remedy
0XA31	VMN HIGH	Self check of Power components and Motor	<p>Cause 1: Before switching the Line Contactor on, the software checks the power bridge: it turns on alternately the Low side Power Mosfets and expects the phases voltage to decrease down to -BATT. If the phases voltage is igher than 10% of nominal battery voltage, this alarm occurs.</p> <p>Cause 2: This alarm may occur also when the start up diagnosis is overcome, and so the Line Contactor is closed. In this condition, the phases' voltages are expected to be lower than 1/2 battery voltage. If it is higher than that value, fault status is entered.</p> <p>Troubleshooting:</p> <ul style="list-style-type: none"> - If the problem occurs at start up (the Line Contactor does not close at all), check: <ul style="list-style-type: none"> - Motor internal connections (ohm internal connections continuity) - Motor power cables connections - If the motor connection are OK, the problem is inside the controller, replace Controller. - If the problem occurs after closing the Line Contactor (the Line Contactor closed and then opens back again), check: <ul style="list-style-type: none"> - Motor connections - Make sure motor phases windings/cables do not have leakages towards chassis - If no problems are found on the motor/ cables, the problem is inside the controller, Replace controller.
0XA40	AUX. DRIV.SHRT.	Mos for electric brake is shorted	<ol style="list-style-type: none"> 1. Cycle keyswitch 2. Check for short or low - impedance to electric brakes 3. Replace controller that shows the fault.
0XA41	WRONG SET BAT.	Controller rejects the battery voltage reading	<p>At start-up, the controller checks the battery voltage and verify it is within a window around the nominal value.</p> <p>Troubleshooting:</p> <ul style="list-style-type: none"> - Check that the controller SET BATTERY parameter value matches the battery nominal voltage. - Check that TESTER MENU / BATTERY VOLTAGE parameter shows same value as the battery voltage measured with a voltmeter. If it does not match, then do an "ADJUST BATTERY" function.
0XA42	AUX. DRIV.OPEN.	Driver of electric brake is damaged (not able to close)	<ol style="list-style-type: none"> 1. Check wiring between controller and electric brake 2. Replace electric brakes 3. Replace controller that shows the fault.
0XA49	LIFT & LOWER	Lift and lower requested at the same time.	<p>Check joystick outputs.</p> <p>Factory reset (Clear Eeprom)</p>

ZAPI MDI-CAN Controller Master Codes (continued)

Flash Code	Displayed on MDI	Probable Cause	Remedy
0XA51	TILLER OPEN	No operator input, machine in standby	Warning when the joystick is released, after a fixed period of time of standby (30 seconds) the main contactor opens. Troubleshooting: At the next function request the warning will disappear.
0XA52	PUMP I=0 EVER	Pump motor is always 0 amps even when pump motor is running	1. Check wiring to Pump/ Motor 2. Recycle keyswitch 3. Replace Controller.
0XA53	STBY I HIGH	Internal Controller check	1. Cycle keyswitch (If code remains see next) Cause: The current transducer or the current feedback circuit is damaged in the Controller Troubleshooting: This type of fault is not related to external components so, when it is present, it is necessary to replace the controller
0XA53	WRONG ZERO	The outputs of the amplifiers (used to measure motor voltage) are checked. This alarm occurs when voltage signals >3V or <2V.	1. Cycle keyswitch 2. Factory reset (Clear Eeprom) 3. Replace controller.
0XA54	LOGIC FAIL #1	Over voltage/ under voltage condition has been detected	1. Check battery for load induced voltage drop. Low voltage could be causing an under voltage condition. Check battery cables. 2. Factory reset (Clear Eeprom) 3. Replace controller.
0XA55	LOGIC FAIL #2	Motor voltage feedback circuits are damaged	1. Cycle keyswitch 2. Factory reset (Clear Eeprom) 3. Replace controller.
0XA56	PUMP I NO ZERO	Pump current sensor feedback is out of permitted standby range	1. Cycle keyswitch 2. Factory reset (Clear Eeprom) 3. Replace controller.
0XA60	CAPACITOR CHARGE	Startup test	1. Check battery voltage 2. Check battery and motor cables
0XA61	THERMIC SENS. KO	Controller	Cause: The output of the controller thermal sensor is out of range. Troubleshooting: This type of fault is not related to external components; replace the controller.

ZAPI MDI-CAN Controller Master Codes (continued)

Flash Code	Displayed on MDI	Probable Cause	Remedy
0XA62	TH. PROTECTION	Controller High temp alarm, if high temp is not real proceed to remedy	<p>Cause: This alarm occurs when the temperature of the base plate is higher than 85°. Then the maximum current decreases proportionally with the temperature increases from 85° up to 105°. At 105° the Current is limited to 0 Amps.</p> <p>Troubleshooting: It is necessary to improve the controller cooling. In case of thermal dissipation realised with the controller base plate installed on chassis it is important the thickness of frame and the planarity and roughness of its surface. If the alarm is signalled when the controller is cold, the possible reasons are a thermal sensor failure or a failure in the logic card. In this case, it is necessary to replace the controller.</p>
0XA65	MOTOR TEMPERAT.	Motor temp high.	<p>Cause: This warning occurs when the temperature sensor has overtaken the threshold of 150°</p> <p>Troubleshooting: Check the thermal sensor inside the motor (use the MOTOR TEMPERATURE reading in the TESTER menu); check the sensor ohmic value and the sensor wiring. If the sensor is OK, improve the cooling of the motor. If the warning is present when the motor is cool, then the problem is inside the controller. Replace controller.</p>
0XA65	BATTERY LOW	Battery is <= 10% when the parameter BATTERY CHECK is set to 0.	<p>Check that the controller SET BATTERY parameter value matches the battery normal voltage. Check that the TESTER MENU/ BATTERY VOLTAGE parameter shows same value as the battery voltage measured with a volt meter. If it does not match, then do a "ADJUST BATTERY" function. If above OK, Replace controller.</p>
05X67	SENS MOT TEMP KO	Motor temp sensor damaged	<p>Cause: The output of the motor thermal sensor is out of range.</p> <p>Troubleshooting: Check the sensor ohm value (at 20C the Sensor should read approx 600 Ohms) and the sensor wiring. If the sensor is OK, then the problem is inside the controller Replace controller.</p>
05X68	WAITING FOR NODE	Alarm condition active. Waiting for communication between controllers	<ol style="list-style-type: none"> 1. Cycle keyswitch 2. Check that both nodes are present on the network using Can Console. 3. Check wiring to the missing controller. If everything OK. Replace controller with node missing.

ZAPI MDI-CAN Controller Master Codes (continued)

Flash Code	Displayed on MDI	Probable Cause	Remedy
0XA71	EEPROM KO	Error is detected in Eeprom or Eeprom management	1. Cycle keyswitch 2. Factory reset (Clear Eeprom) 3. Replace controller.
0XA72	VMN LOW	Self check of Power components and Motor	- If the problem occurs at start up (the Line Contactor does not close at all), check: - Motor internal connections (ohm internal connections continuity) - Motor power cables connections - If the motor connection are OK, the problem is inside the controller, replace Controller. - If the problem occurs during motor running check: - Motor connections - Make sure motor phases windings/cables do not have leakages towards chassis - If no problems are found on the motor/ cables, the problem is inside the controller, Replace controller.
0XA74	DRIVER SHORTED	Driver for line contactor coil is shorted or line contactor coil is disconnected	Make sure coil wires on line contactor are connected securely. Check for 48 volts at coil wires. Make sure harness to coil is not shorted. Replace controller.
0XA74	EV1/5 valve driver shorted (always ON)	Check valve/ wiring for any short	Replace valve. If no short found, Replace controller
0XA74	EV2 valve driver shorted (always ON)	Check valve/ wiring for any short	Replace valve. If no short found, Replace controller
0XA74	EV3 valve driver shorted (always ON)	Check valve/ wiring for any short	Replace valve. If no short found, Replace controller
0XA74	EV4 valve driver shorted (always ON)	Check valve/ wiring for any short	Replace valve. If no short found, Replace controller
0XA75	CONTACTOR CLOSED	Line contactor contacts are stuck	Replace contactor
0XA75	CONTACTOR DRIVER	Driver unable to close contactor	Check wiring to coil of contactor for a short Replace contactor
0XA75	CONT. DRV. EV1	Check coil/ check for open wiring	Repair wiring. Replace coil. If no issue found, Replace controller
0XA75	CONT. DRV. EV2	Check coil/ check for open wiring	Repair wiring. Replace coil. If no issue found, Replace controller
0XA75	CONT. DRV. EV3	Check coil/ check for open wiring	Repair wiring. Replace coil. If no issue found, Replace controller
0XA75	CONT. DRV. EV4	Check coil/ check for open wiring	Repair wiring. Replace coil. If no issue found, Replace controller
0XA75	CONT. DRV. EV5	Check coil/ check for open wiring	Repair wiring. Replace coil. If no issue found, Replace controller

ZAPI MDI-CAN Controller Master Codes (continued)

Flash Code	Displayed on MDI	Probabable Cause	Remedy
0XA76	MC COIL SHOR.	Check the Line Contactor and electric brake coil	This code is displayed when the coil of the line contactor or electric brake coil is shorted or the wiring to the coil is shorted. Check coil and wiring. If error code remains it is an internal fault in the controller. Replace ACE3.
0XA76	KEY-OFF SHORTED	Key off signal is low when key is on	1. Check battery voltage 2. Check aux equipment is not pulling key voltage low 3. Replace controller that shows the fault
0XA76	COIL SHORT EV	Short circuit on On/Off valves	1. Check coils and wiring for short circuits 2. Replace controller
0XA77	LC COIL OPEN	Contactor coil test	1. Make sure coil wires on line contactor are connected correctly. Replace line contactor. 2. Replace controller which shows the fault.
0XA78	VACC NOT OK	Incorrect signal from Joystick	Re-program VACC If condition is still present check joystick input wiring.
0XA79	INCORRECT START	Wrong input sequence	1. Moving Joystick, before Enable switch selected. Make sure enable is selected before any movement. 2. Joystick out of range. (Potentiometer not centered) - Check VACC calibration.
0XA80	FORWARD+BACWARD	Receives both forward and reverse signals at the same time	Re-program VACC If condition is still present check wiring. If OK replace controller
0XA80	EMERGENCY	No 12 volt input to controllers	1. Check for 12 volt output at DC/DC converter 2. Check fuse F2 3. Check for 12 volts at RM3 and LM3.
0XA82	ENCODER ERROR	Motor feedback sensor fault	Cause: This fault is signaled in following conditions: the frequency supplied to the motor is higher than 40 Hz and the signal feedback from the encoder has a jump higher than 40 Hz in few tens mSec. This condition is related to a malfunctioning of the encoder. Troubleshooting: - Check both the electric and the mechanical encoder functionality, the wires connections. - Check the encoder mechanical installation, if the encoder slips inside its compartment raising this alarm condition. - Also the electromagnetic noise on the sensor bearing can be a cause for the alarm. In these cases try to replace the encoder. - If the problem is still present after replacing the encoder, the failure is in the controller. Replace controller.
0XA89	POWERMOS SHORTED	Internal Controller check	1. Cycle keyswitch 2. Factory reset (Clear Eeprom) 3. Replace controller.

ZAPI MDI-CAN Controller Master Codes (continued)

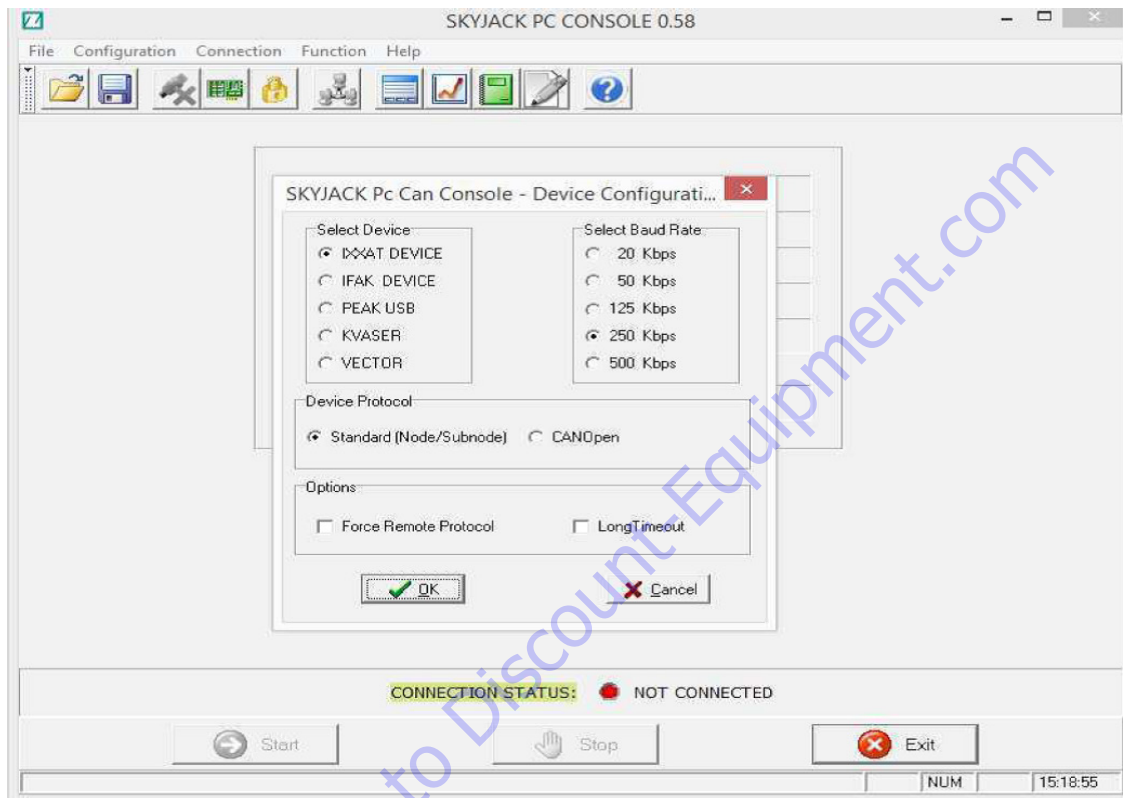
Flash Code	Displayed on MDI	Probable Cause	Remedy
0XA89	PUMP VACC NOT OK	The pump accelerator value is higher than the minimum value recorded, and the lift/ lower switches are open.	<ol style="list-style-type: none"> 1. Check wiring. 2. Acquire joystick VACC. 3. Replace joystick/ switch. Replace controller
0XA92	CURRENT GAIN	Internal Controller check	<ol style="list-style-type: none"> 1. Cycle keyswitch 2. Factory reset (Clear Eeprom) 3. Replace controller.
0XA96	ANALOG INPUT	Analog to digital failure	<p>Cause: This alarm occurs when the A/D conversion of the analog inputs gives frozen value, on all of the converted signals, for more than 400msec. The goal of this diagnosis is to detect a failure of the A/D converter or a problem in the code flow that omits the refreshing of the analog signal conversion.</p> <p>Troubleshooting: If the problem occurs permanently it is necessary to Replace controller</p>
0XA99	SLIP PROFILE	Error on the parameters of the slip profile setting.	<ol style="list-style-type: none"> 1. Cycle keyswitch 2. Factory reset (Clear Eeprom) 3. Replace controller.

5.6-11 ZAPI “Skyjack PC CAN Console” Software Guide

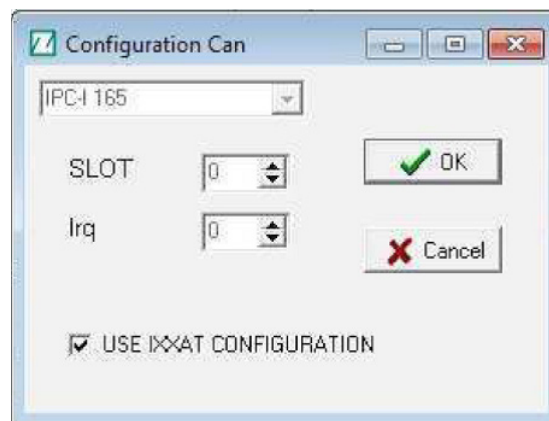
Configure the USB-to-CAN Device

After launching the software it is necessary to configure the USB-to-CAN device.

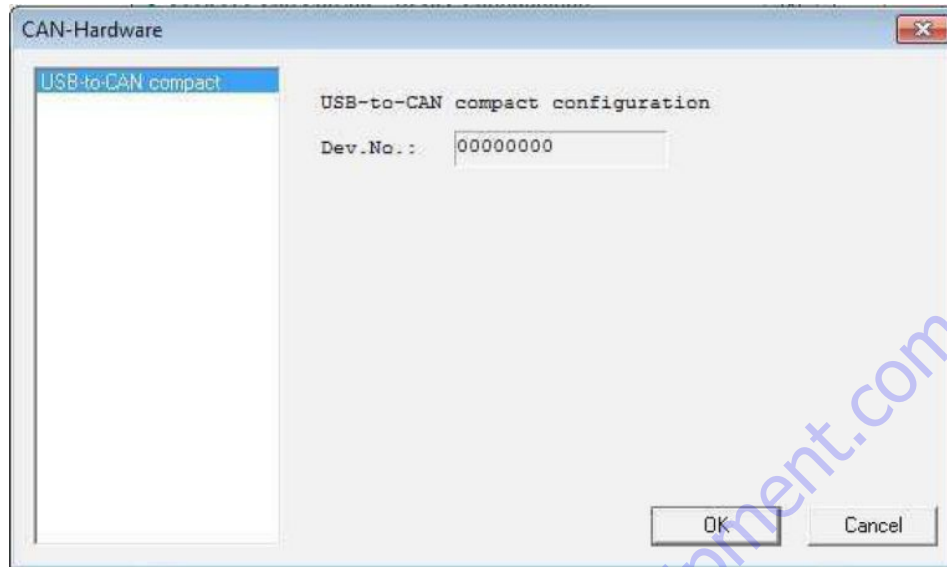
1. From the drop down menu **Configuration**, select **Can Device**. The following window will open.



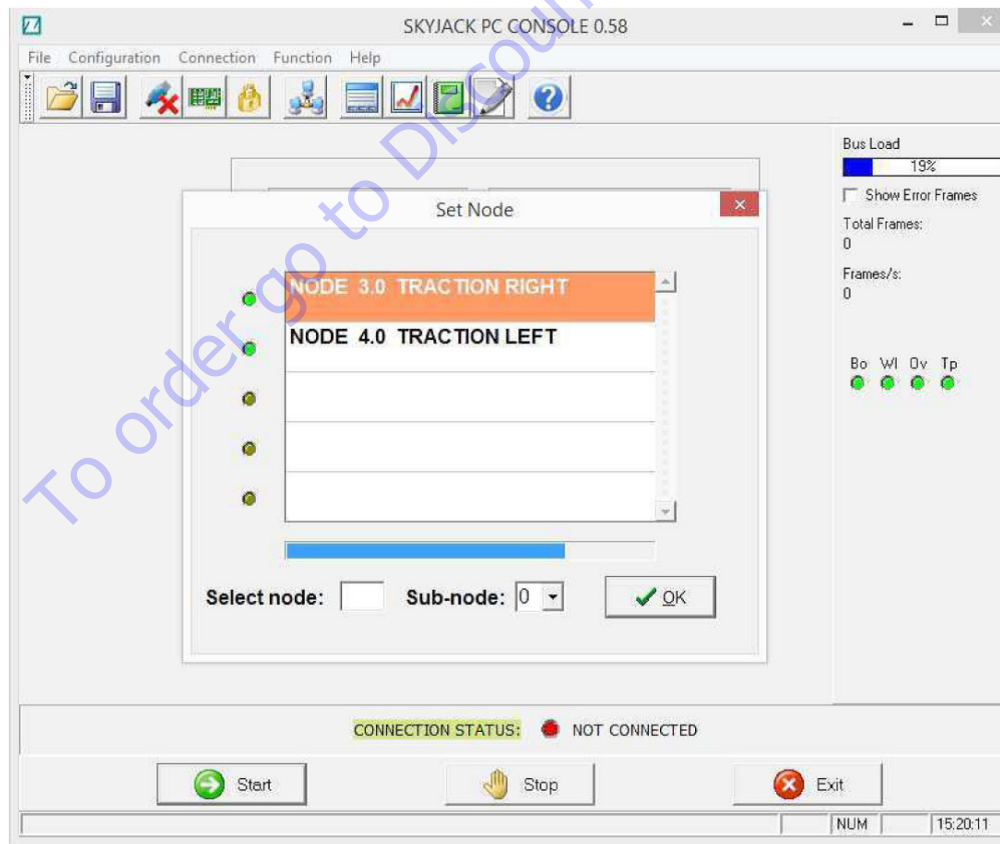
2. In this example, an IXXAT device set with a Baud Rate of 250 kbps (this depends on the controller) and with Standard Protocol (this means Zapi Protocol) is selected. After clicking the **OK** button, a configuration window opens. Tick the **USE IXXAT CONFIGURATION** box as shown.



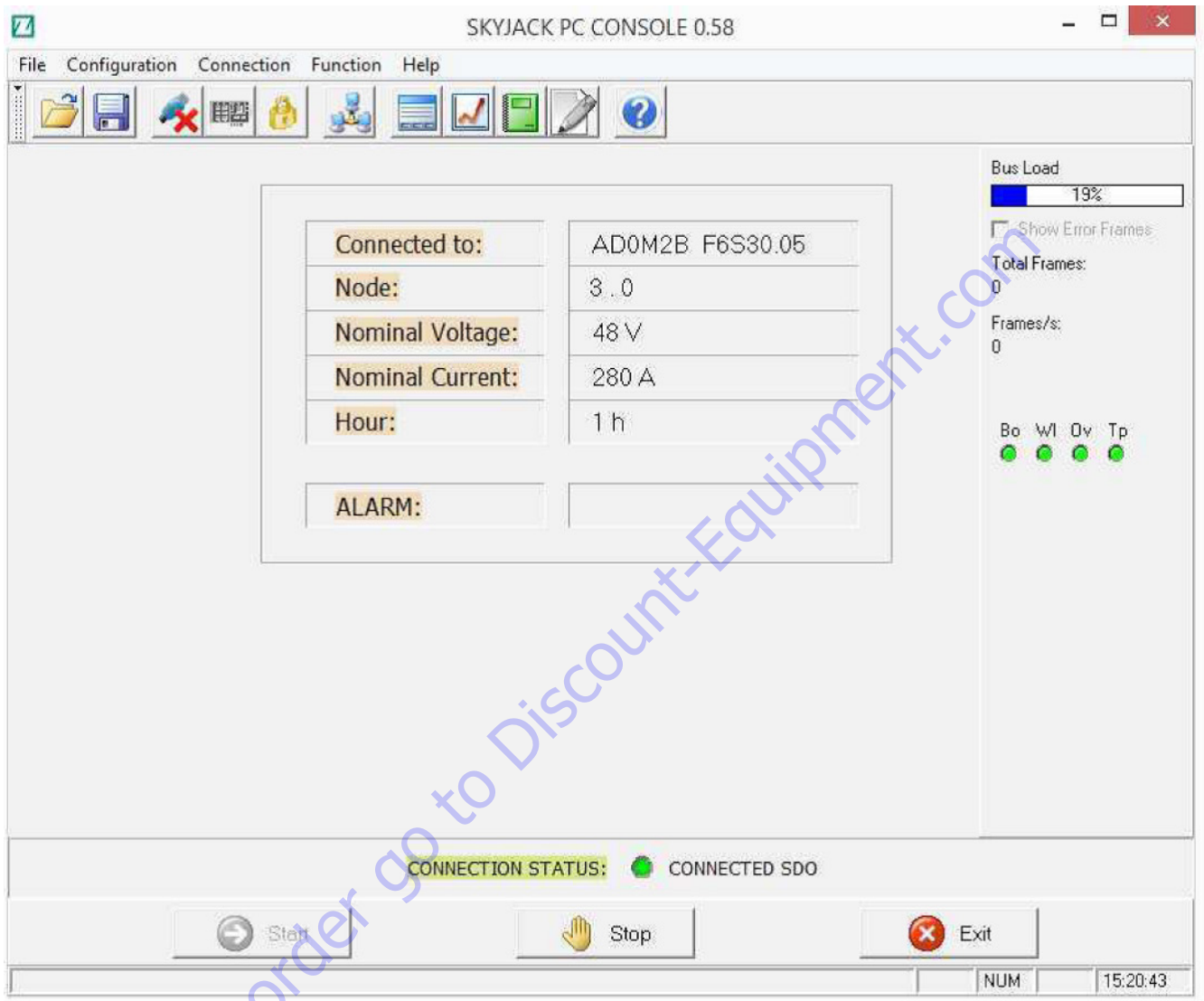
3. After clicking **OK**, the IXAAT device connected to the PC which is used for communication to the controller must be selected. In this example, there is only one device.



4. Proceed with the connection to the network nodes by clicking **Connection**, then **Set Node**. In the following example, there is a master node (node 3.0) and a slave node (node 4.0). Node 3.0 is the Master Combi AC0 and drives the Right Traction Motor and the Hydraulic Pump Motor. Node 4.0 is the Slave ACE0 Inverter and drives the Left Traction Motor.



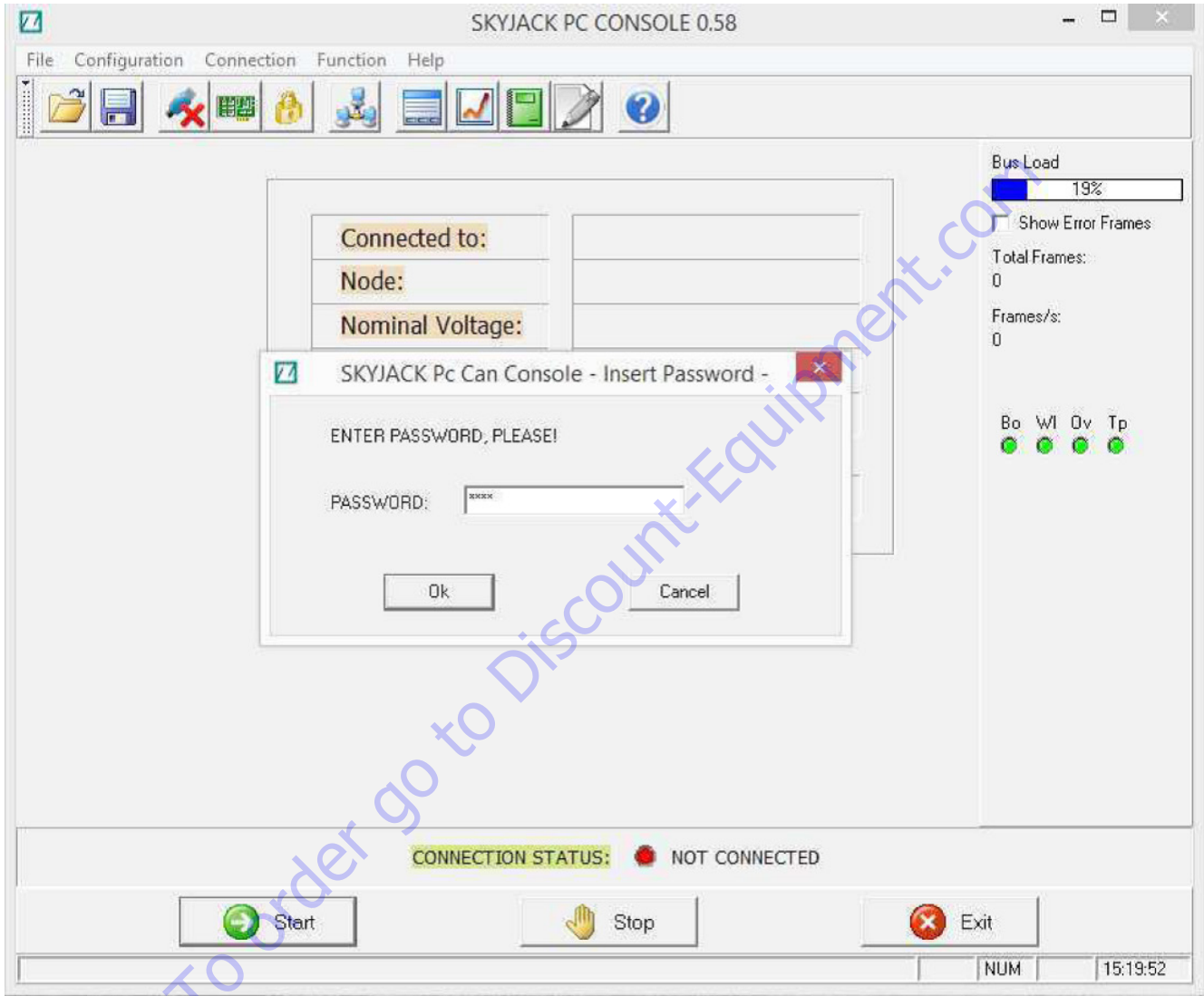
5. After selecting the node and the sub-node numbers, proceed making the connection by clicking the **Start** button in the main window. The status LED in the lower part of the window indicates successful operation, while the central part of the window contains information concerning the software version, node number, nominal battery voltage and current, the hour counter and finally, alarms (if present).



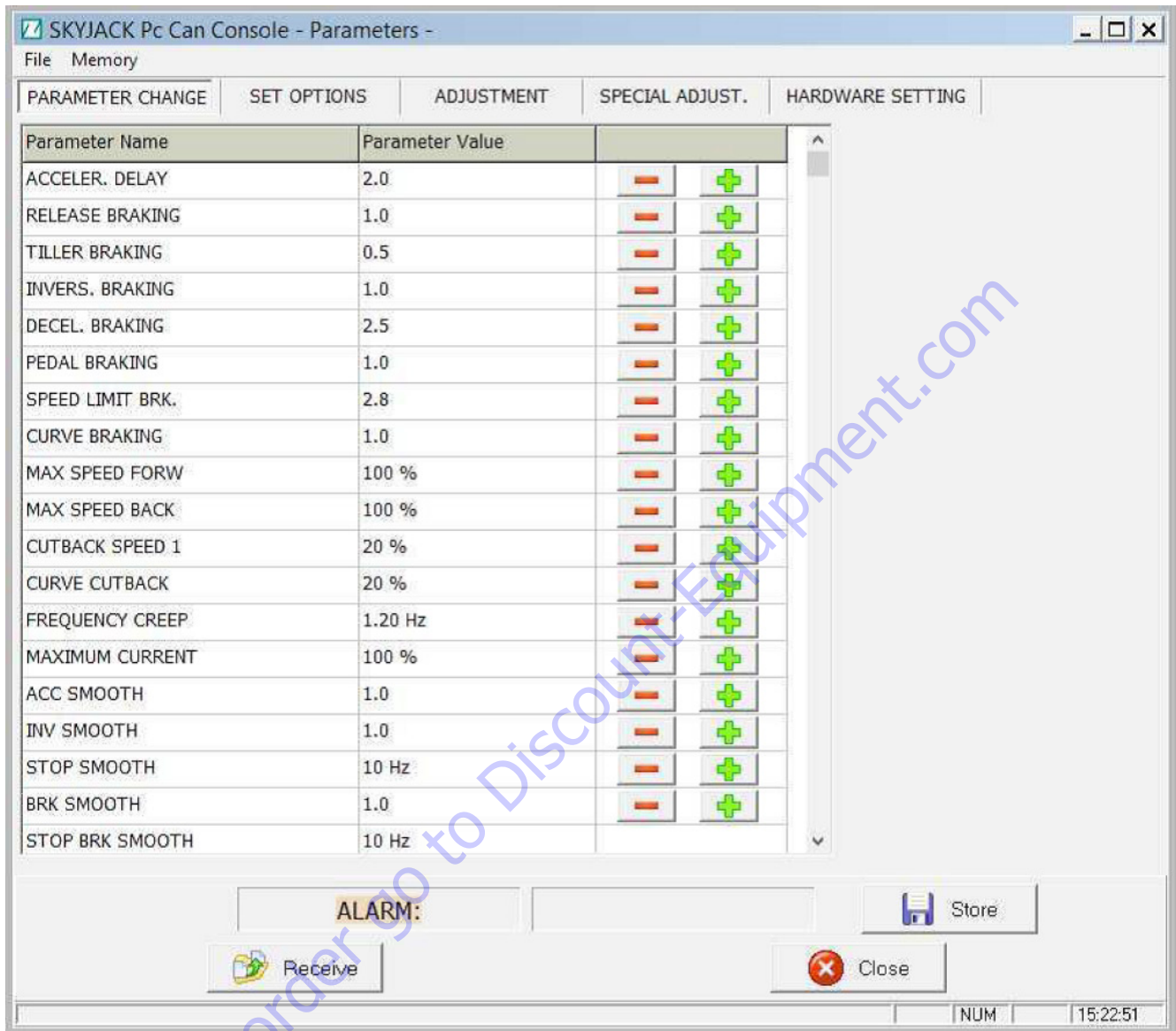
Making Changes to the Parameters

To make changes to the paramters, it is necessary to do both of the following:

1. From the drop down menu **Configuration**, select **Enter Password**. In the window that appears, enter the password **1122** and click **OK**.

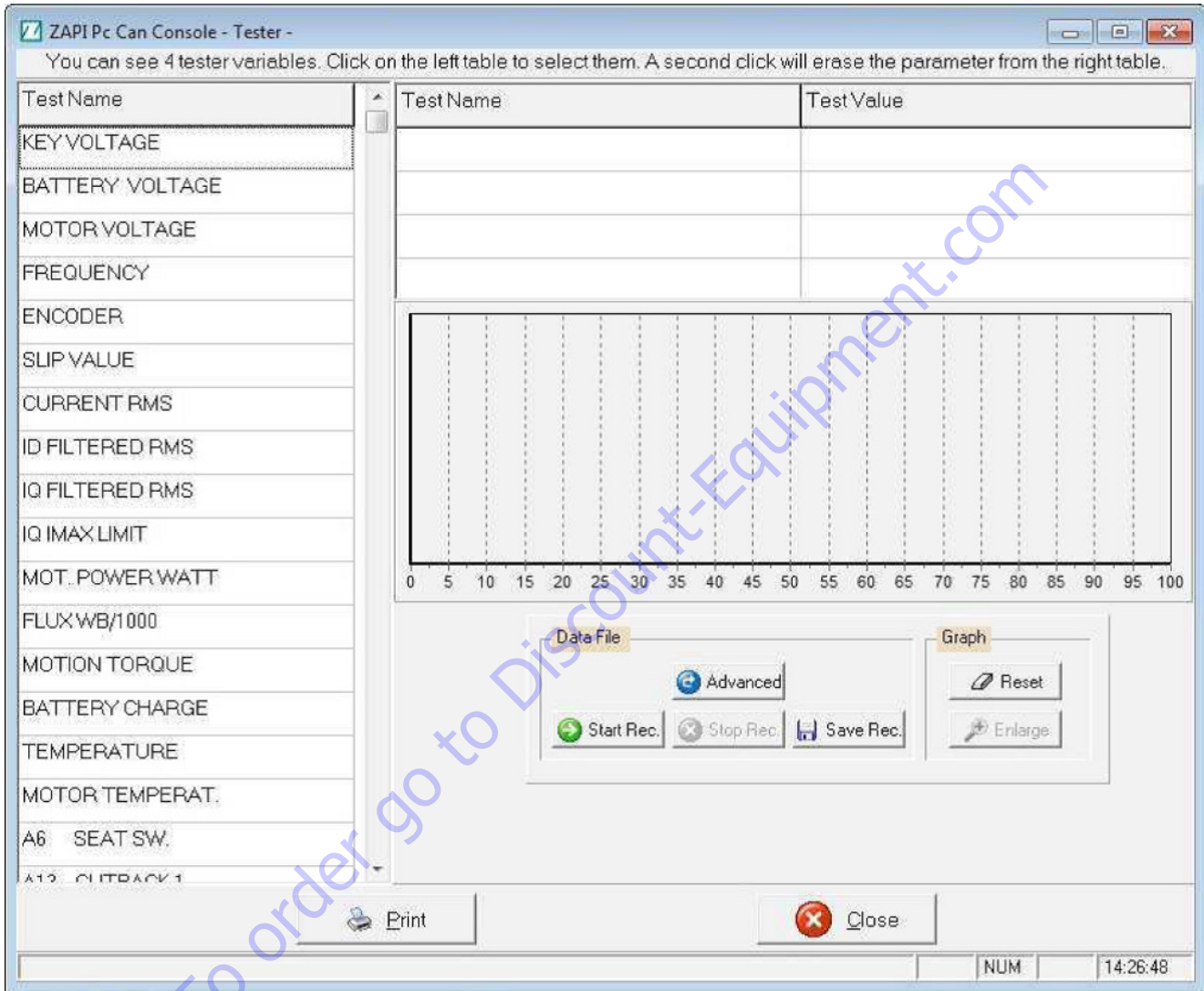


- From the main menu, select **Function**, then **Parameter** to open a new window that allows you to modify all the parameters (after clicking the **Receive** button).



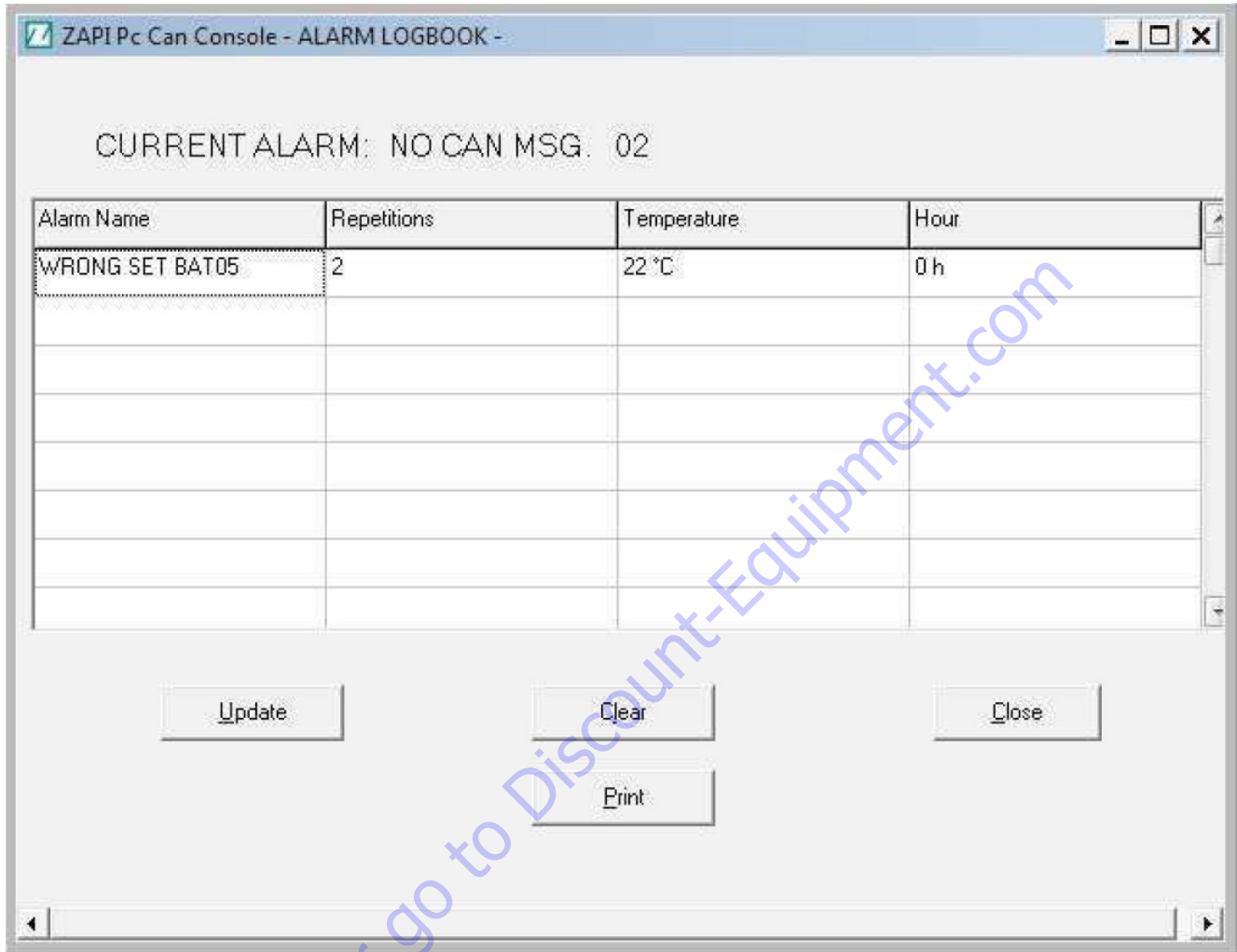
- You can modify the parameters manually in the different sub-menus: **Parameter Change**, **Set Options**, **Adjustment**, **Special Adjustment**, and **Hardware Setting**. Decrease and increase their values using the applicable - and + icons. To save the changes you must click on the **Store** icon.
- It is possible to save the parameters list. In the top left corner of the window, select **File**, then **Save**. Specify the folder and file name, selecting .csv format (so it can be opened as an Excel file).
- To reset to the default parameters, select **Memory**, then **Restore**.
- Lastly, you can load a parameters list into the controller from a previously saved .csv file by clicking **Open**, and choosing the specific file.
- To return to the main menu, you have to close the current window using the **Close** button.

- 8. Note: for some parameters (for example the ones in the **Special Adjustment** menus), it is necessary to have a key re-cycle in order to save them in the controller memory. This involves the loss of connection to the node, so a new connection to the node may be required.
- 9. In the **Tester** menu, it is possible to have some measurements in real time of the digital input and output stage (Active/Off), of analog input voltage valve, or the values of some variables used for the motor or hydraulic control.



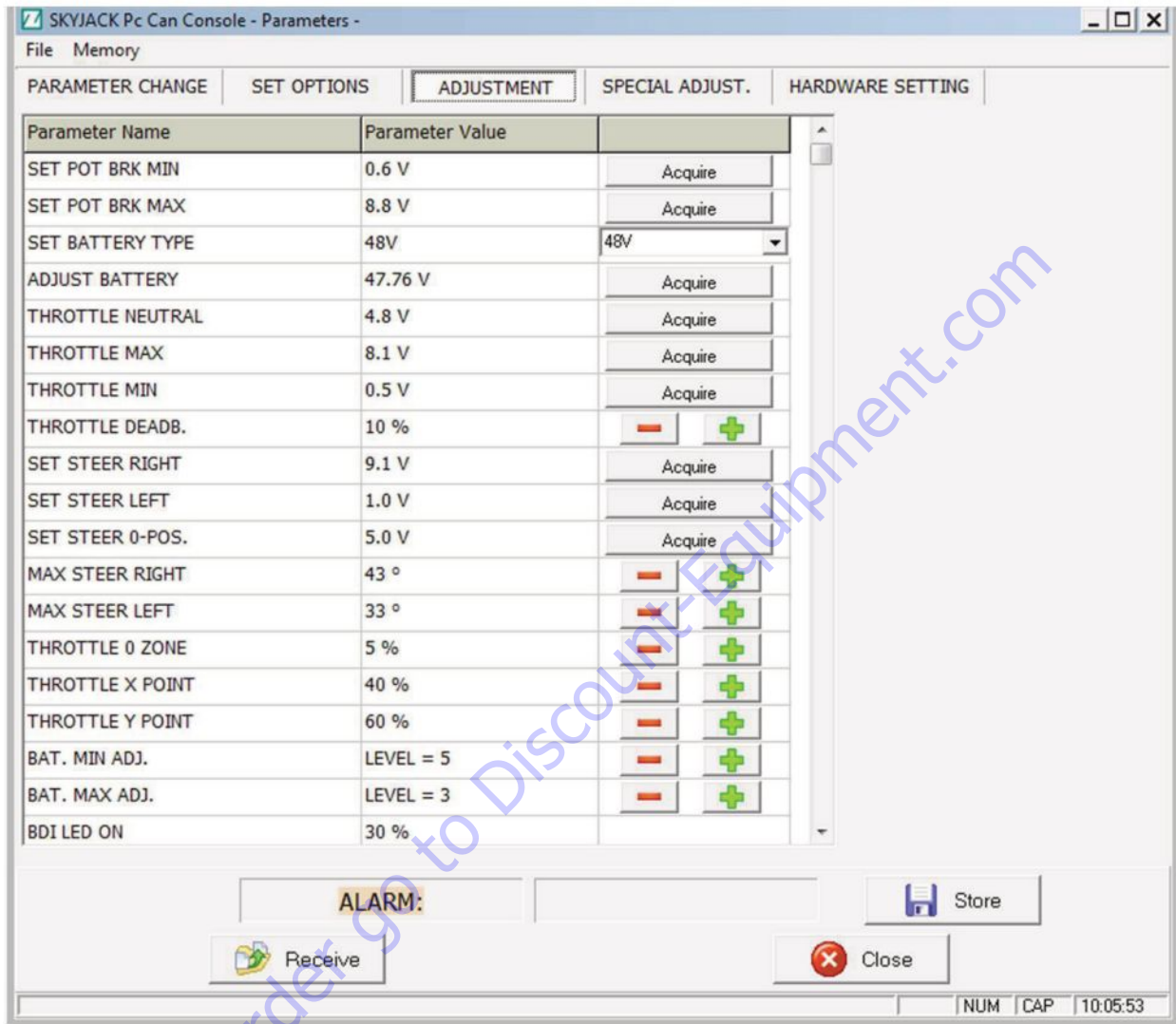
- 10. You can see up to four measured variables at the same time. When you select the desired variable, you will be able to see its value in real time in the **Test Value** column, and also in the graphic chart below it.

- 11. In the **Function** menu you can open the alarm **Logbook**. This lists all alarms present, or which have occurred during operation of the controller. In the table all alarms are listed with the number of occurrences, the inverter temperature, and the time at which the event occurs.

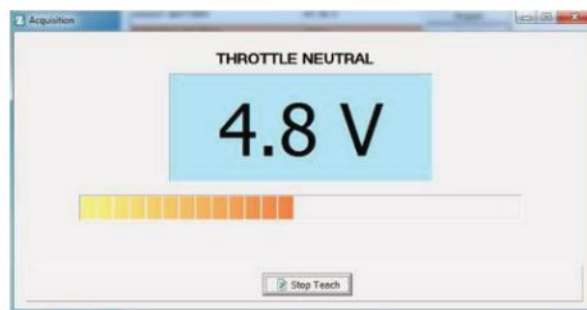


Programming the Traction Joystick

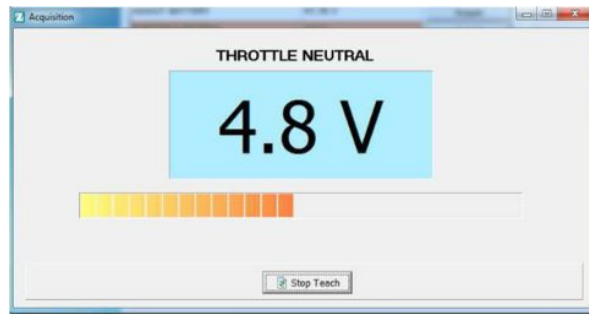
1. Receive the parameters and enter them into the **Adjustments** menu.



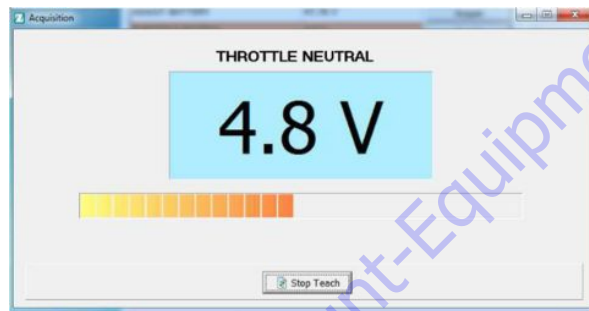
2. You will see three settings: **Throttle Neutral**, **Throttle Max**, and **Throttle Min**. It is necessary to program each setting individually.
3. **Throttle Neutral**: With the joystick in the neutral position, click **Acquire** next to **Throttle Neutral**. The following dialogue box appears.



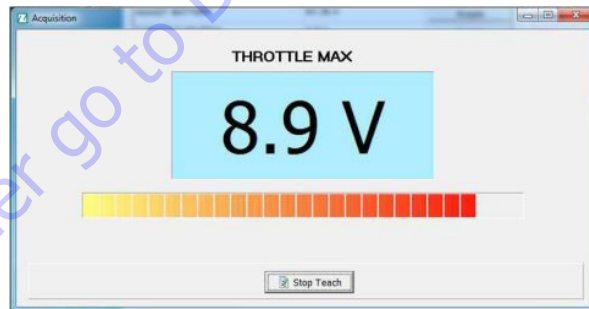
- Without moving the position of the joystick, click **Stop Teach**. The dialogue box closes and the value is stored. You may now move on to programming **Throttle Max**.



- Throttle Max:** Click **Acquire** next to **Throttle Max**. The same dialogue box appears, displaying the value of the neutral position.

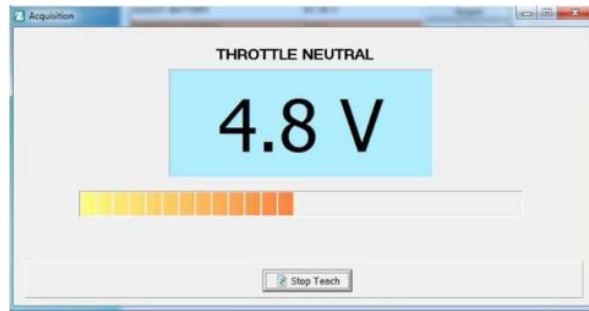


- Now push the joystick to its maximum position (fully forward). You will see the voltage rise as the joystick is moved.



- With the joystick at the maximum position, click **Stop Teach**. The dialogue box closes and the maximum value is stored. **Note:** do not release the joystick until **Stop Teach** has been pressed and the dialogue box closes.

8. **Throttle Min:** Click **Aquire** next to **Throttle Min**. The same dialogue box appears, displaying the value of the neutral position.



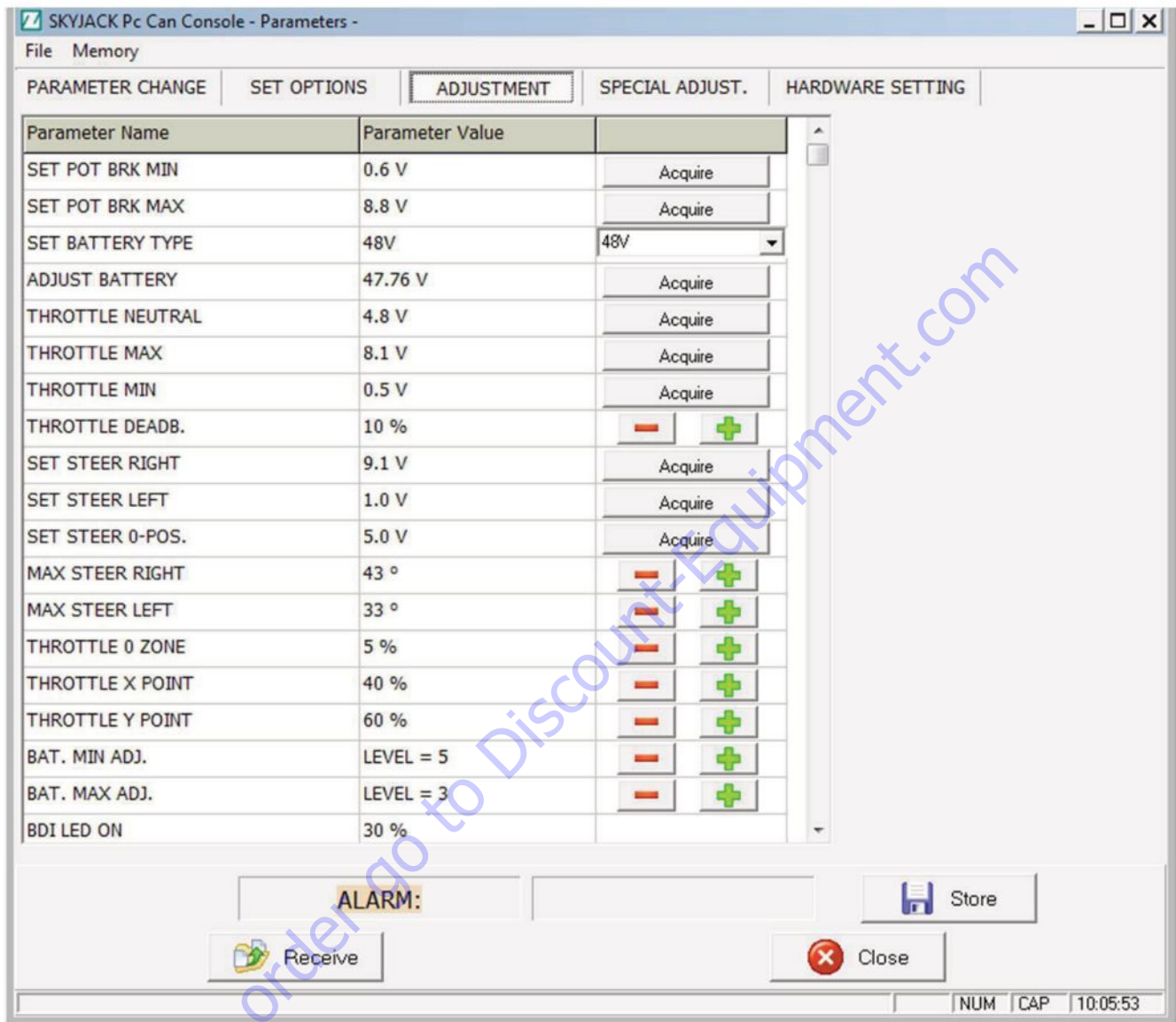
9. Now push the joystick to its minimum position (fully backwards). You will see the voltage drop as the joystick is moved.



10. With the joystick at the minimum position, click **Stop Teach**. The dialogue box closes and the minimum value is stored. **Note:** do not release the joystick until **Stop Teach** has been pressed and the dialogue box closes.
11. The traction joystick is now programmed.

Programming the Steer Potentiometer

1. Receive the parameters and enter them into the **Adjustments** menu.



2. You will see three settings: **Set Steer 0-Pos**, **Set Steer Right**, and **Set Steer Left**. It is necessary to program each setting individually.
3. Note that when installing the feedback device to the machine, when the wheels are in the straight ahead position, the reading from the device should be 1/2 the maximum value (approximately 5 V).

4. **Set Steer 0-Pos:** Ensure the steered wheels are in the straight ahead position and click **Acquire** next to **Steer 0-Pos**. The following dialogue box will be displayed.



5. The value should be in the region of 5 V when the wheels are straight. Now click **Stop Teach** to store the value and close the dialogue box.
6. **Set Steer Right:** First you need to steer the wheels fully to the right. Click **Acquire** next to **Set Steer Right**. The following dialogue box will be displayed.



7. With the wheels at the fully right position, the voltage should be higher than the **Set Steer 0-Pos** value. Press **Stop Teach** to store the value and close the dialogue box.
8. **Set Steer Left:** Steer the wheels fully to the left. Click **Acquire** next to **Set Steer Left**. The following dialogue box will be displayed.



9. With the wheels at the fully left position, the voltage should be lower than the **Set Steer 0-Pos** value. Now click **Stop Teach** to store the value and close the dialogue box.
10. The steering feedback device is now programmed.

5.7 Grease Points

5.7-1 Lubrication

Maintaining proper lubrication is essential for the good performance and service life of the mobile elevating work platform. If the bearing and gear of the MEWP are improperly greased, it could result in component damage.

Grease the Swing Drive

1. Pump grease into each of the three grease nipples located on the front of the swing drive housing.

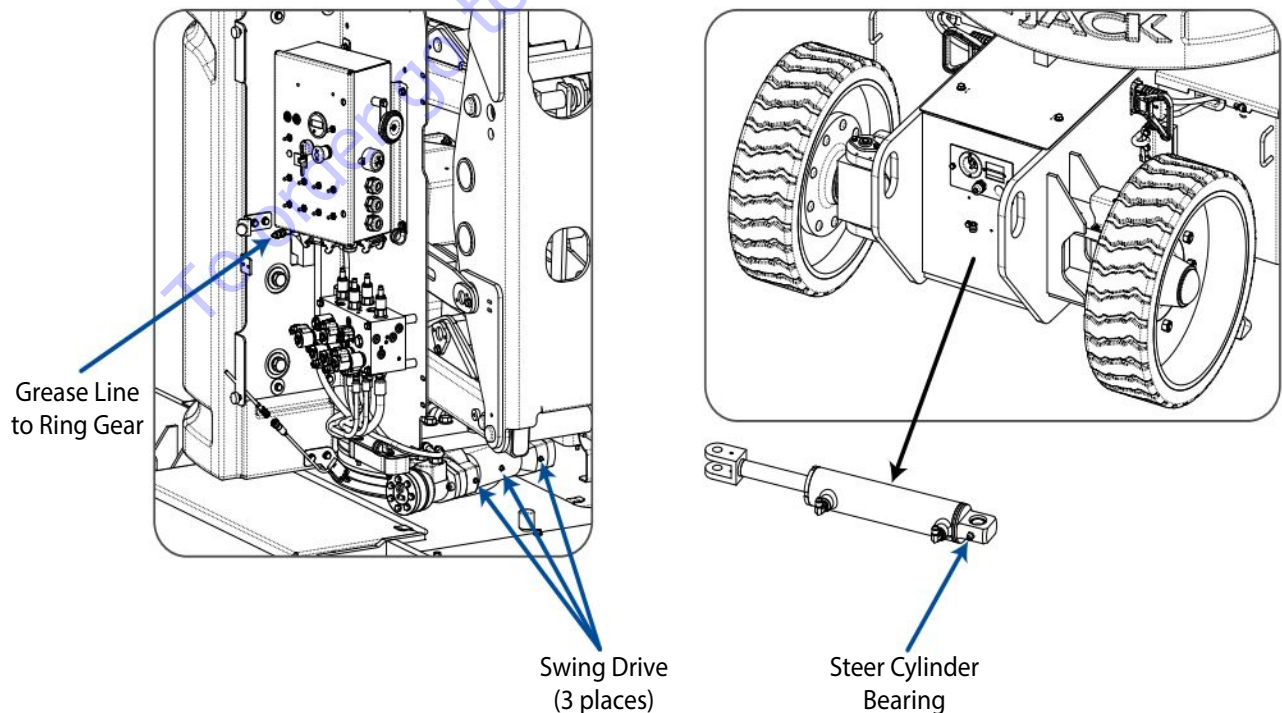
Grease the Turret Rotation Ring Gear

1. Open the control side cowling.
2. Locate the grease line attached to the lower left side of the base control box.
3. Pump grease into the line until new grease appears around the ring gear.
4. Rotate the turret in increments of 10 to 13 cm (4 to 5 inches) at a time, and repeat step 3 until the entire bearing has been greased.

Grease the Steer Cylinder Bearing

1. Remove the front base cover to access the steer cylinder.
2. Pump grease into the steer cylinder bearing grease nipple until new grease appears all around the bearing lip.

Recommended Grease	
Swing Drive	Mobilgrease XHP 462 Moly
Ring Gear	
Steer Cylinder	



TO PURCHASE THIS PRODUCT PLEASE CONTACT US



**Equipment Financing and
Extended Warranties Available**



**Discount-Equipment.com is your online resource for
commercial and industrial quality parts and equipment sales.**

561-964-4949

visit us on line @ www.discount-equipment.com

Select an option below to find your Equipment

Search by Manufacturer

Search by Product Type

Request a Quote

We sell worldwide for the brands: Genie, Terex, JLG, MultiQuip, Mikasa, Essick, Whiteman, Mayco, Toro Stone, Diamond Products, Generac Magnum, Airman, Haulotte, Barreto, Power Blanket, Nifty Lift, Atlas Copco, Chicago Pneumatic, Allmand, Miller Curber, Skyjack, Lull, Skytrak, Tsurumi, Husquvarna Target, Stow, Wacker, Sakai, Mi-T-M, Sullair, Basic, Dynapac, MBW, Weber, Bartell, Bennar Newman, Haulotte, Ditch Runner, Menegotti, Morrison, Contec, Buddy, Crown, Edco, Wyco, Bomag, Laymor, EZ Trench, Bil-Jax, F.S. Curtis, Gehl Pavers, Heli, Honda, ICS/PowerGrit, IHI, Partner, Imer, Clipper, MMD, Koshin, Rice, CH&E, General Equipment, Amida, Coleman, NAC, Gradall, Square Shooter, Kent, Stanley, Tamco, Toku, Hatz, Kohler, Robin, Wisconsin, Northrock, Oztec, Toker TK, Rol-Air, APT, Wylie, Ingersoll Rand / Doosan, Innovatech, Con X, Ammann, Mecalac, Makinex, Smith Surface Prep, Small Line, Wanco, Yanmar



www.Discount-Equipment.com

To order go to Discount-Equipment.com

SKYJACKTM