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SKYJACK[™]

SERVICE MANUAL

SJ60AJ+

ARTICULATING BOOMS



238275AAA

March 2021
ANSI/CSA, CE, AS

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This manual is for MEWPs with serial numbers:

SJ60 AJ+: A302 100 001 - A302 199 999

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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	13
1.1 Read and Heed	13
1.1-1 <i>Mobile Elevating Work Platform (MEWP) Definition</i>	13
1.1-2 <i>Purpose of Equipment</i>	13
1.1-3 <i>Use of Equipment</i>	13
1.1-4 <i>Manual</i>	13
1.1-5 <i>Service Policy and Warranty</i>	13
1.1-6 <i>Operator Safety Reminders, Warnings and Precautions</i>	13
1.2 Maintenance and Service	14
1.2-1 <i>Maintenance and Inspection Schedule</i>	14
1.2-2 <i>Owner's Annual Inspection Record</i>	14
1.2-3 <i>Replacement Parts</i>	14
1.2-4 <i>Maintenance and Service Safety Tips</i>	14
1.2-5 <i>Hydraulic System & Component Maintenance and Repair</i>	15
1.2-6 <i>Hydraulic Maintenance Hints</i>	15
1.2-7 <i>Railing Maintenance and Repair</i>	16
1.3 Scheduled Maintenance	17
1.3-1 <i>Service Bulletins</i>	17
1.3-2 <i>Maintenance and Inspection</i>	17
1.3-3 <i>Maintenance Instructions</i>	17
1.4 Owner's Annual Inspection Record	18
1.5 Pre-Delivery/Maintenance Inspection Checklist	19
1.6 Scheduled Maintenance Inspections	20
1.6-1 <i>Electrical</i>	20
1.6-2 <i>Hydraulic</i>	20
1.6-3 <i>Labels</i>	20
1.6-4 <i>Limit switches</i>	20
1.6-5 <i>Engine Compartment</i>	21
1.6-6 <i>Base</i>	26
1.6-7 <i>Platform</i>	28
1.6-8 <i>Boom Assembly</i>	29
1.6-9 <i>Optional equipment</i>	30
1.7 Function Tests	31
Section 2 – Maintenance Tables and Diagrams	33
2.1 Standard Hose Numbering System	33
2.2 Torque Specifications for Fasteners (US Imperial)	35
2.3 Torque Specifications for Fasteners (Metric)	36

2.4	Torque Specifications for Hydraulic Couplings & Hoses	37
2.5	Axle Torque Specifications	38
2.6	Axles Maintenance Intervals	39
2.7	MEWP Torque Specifications	40
2.8	Maximum Platform Capacity	41
2.9	Tire Specifications	41
2.10	Floor Loading Pressure	42
2.11	Hydraulic Specifications	43
2.12	Fluids	44
2.13	Engines	44
2.14	MEWP Specifications	45
2.15	Platform Capacities	46
2.16	Reach Diagram	47
2.17	Dimension Diagrams	48
2.18	Axle Oscillation Diagrams	50
Section 3 – System Component Identification and Schematics		51
3.1	Electrical Symbol Chart	52
3.2	Hydraulic Symbol Chart	53
3.3	Wire Number and Color Code	54
3.4	Hydraulic Parts List	55
3.5	Electrical Component Parts List	59
3.6	Rotary Manifold Port Identification	62
3.7	Brake Manifold Port Identification	63
3.8	Drive and System Pump and Port Identifications	64
3.9	Drive Motor and Port Identifications	65
3.10	Jib Valve and Port Identifications	66
3.11	Main Manifold Port Identification - ANSI/CSA	67
3.12	Main Manifold Electrical Component Identification - ANSI/CSA	68
3.13	Main Manifold Hydraulic Component Identification - ANSI/CSA	69
3.14	Main Electrical Harness and Fuel Level Switch Harness	70
3.15	Engine Harness - Kubota D1305	71
3.16	Engine Harness Wiring Diagram - Kubota D1305	72
3.17	Engine Harness - Kubota WG972	73
3.18	Engine Harness Wiring Diagram - Kubota WG972	74
3.19	Lowering Throttle Valve Harness	75
3.20	Platform Harnesses	76
3.21	Limit Switch Connections	77
3.22	All Motion Alarm Connections - CE & AS	78
3.23	Welder Wiring - ANSI/CSA	79
3.24	Positive Air Shutoff Harness	80
3.25	Hydraulic Schematic	81
3.26	Platform Control Box Wiring	82

3.27	Base Control Box Wiring - ANSI/CSA & AS	83
3.28	Base Control Box Wiring - CE	84
3.29	Electrical Schematic - ANSI/CSA & AS	85
3.30	Electrical Schematic - CE	86
3.31	Engine Schematic - Kubota D1305	87
3.32	Engine Schematic - Kubota WG972	88
Section 4 – Troubleshooting Information		89
4.1	Introduction	89
4.2	Electrical System	90
4.2-1	<i>All Controls are Inoperative from the Base or Platform Console</i>	90
4.2-2	<i>All Controls are Inoperative from the Base Console</i>	92
4.2-3	<i>The Engine will not Crank from the Base or Platform</i>	92
4.2-4	<i>The Engine will not Crank from the Base</i>	93
4.2-5	<i>The Engine will not Crank from the Platform</i>	93
4.2-6	<i>The Boom Controls are Inoperative (Drive Operates)</i>	93
4.2-7	<i>No Boom Up from the Base or Platform Controls</i>	94
4.2-8	<i>No Boom Up from the Base Console</i>	94
4.2-9	<i>No Boom Up from the Platform Console</i>	94
4.2-10	<i>No Boom Down from the Base or Platform Consoles</i>	94
4.2-11	<i>No Boom Down from the Base Console</i>	95
4.2-12	<i>No Boom Down from the Platform Console</i>	95
4.2-13	<i>No Turret Rotate Right from the Base or Platform Consoles</i>	95
4.2-14	<i>No Turret Rotate Right from the Base Console</i>	95
4.2-15	<i>No Turret Rotate Right from the Platform Console</i>	96
4.2-16	<i>No Turret Rotate Left from the Base or Platform Consoles</i>	96
4.2-17	<i>No Turret Rotate Left from the Base Console</i>	96
4.2-18	<i>No Turret Rotate Left from the Platform Console</i>	96
4.2-19	<i>No Riser Up from the Base or Platform Consoles</i>	97
4.2-20	<i>No Riser Up from the Base Console</i>	97
4.2-21	<i>No Riser Up from the Platform Console</i>	97
4.2-22	<i>No Riser Down from the Base or Platform Consoles</i>	97
4.2-23	<i>No Riser Down from the Base Console</i>	98
4.2-24	<i>No Riser Down from the Platform Console</i>	98
4.2-25	<i>No Telescope Out from the Base or Platform Consoles</i>	98
4.2-26	<i>No Telescope Out from the Base Console</i>	98
4.2-27	<i>No Telescope Out from the Platform Console</i>	99
4.2-28	<i>No Telescope In from the Base or Platform Consoles</i>	99
4.2-29	<i>No Telescope In from the Base Console</i>	99
4.2-30	<i>No Telescope In from the Platform Console</i>	99
4.2-31	<i>No Platform Level Up from the Base or Platform Consoles</i>	100
4.2-32	<i>No Platform Level Up from the Base Console</i>	100
4.2-33	<i>No Platform Level Up from the Platform Console</i>	100

4.2-34	No Platform Level Down from the Base or Platform Consoles	100
4.2-35	No Platform Level Down from the Base Console	101
4.2-36	No Platform Level Down from the Platform Console	101
4.2-37	No Platform Rotate or Jib Functions from the Base or Platform Consoles	101
4.2-38	No Platform Rotate Right from the Base or Platform Consoles	102
4.2-39	No Platform Rotate Right from the Base Console	102
4.2-40	No Platform Rotate Right from the Platform Console	102
4.2-41	No Platform Rotate Left from the Base or Platform Consoles	103
4.2-42	No Platform Rotate Left from the Base Console	103
4.2-43	No Platform Rotate Left from the Platform Console	103
4.2-44	No Jib Up from the Base or Platform Consoles	103
4.2-45	No Jib Up from the Base Console	104
4.2-46	No Jib Up from the Platform Console	104
4.2-47	No Jib Down from the Base or Platform Consoles	104
4.2-48	No Jib Down from the Base Console	104
4.2-49	No Jib Down from the Platform Console	105
4.2-50	No Drive or Steer Functions	105
4.2-51	No Forward or Reverse Drive	105
4.2-52	No Forward Drive	105
4.2-53	No Reverse Drive	106
4.2-54	The Brake will not Release	106
4.2-55	No Left Steer	106
4.2-56	No Right Steer	107
4.2-57	The Direction Sensing is Inoperative	107
4.3	Hydraulic System	108
4.3-1	All Controls are Inoperative	108
4.3-2	All Boom Functions are Inoperative	108
4.3-3	No Main Boom Up	108
4.3-4	No Main Boom Down	108
4.3-5	No Riser Boom Up	109
4.3-6	No Riser Boom Down	109
4.3-7	No Turret Rotate Left	110
4.3-8	No Turret Rotate Right	110
4.3-9	No Boom Extend	111
4.3-10	No Boom Retract	111
4.3-11	No Jib Up	111
4.3-12	No Jib Down	112
4.3-13	No Platform Rotation Right	112
4.3-14	No Platform Rotation Left	112
4.3-15	The Platform will not Level Down Manually	113
4.3-16	The Platform will not Level Up Manually	113
4.3-17	The Brake will not Release	114
4.3-18	The Brake will not Engage	114

4.3-19	<i>The Differential Lock will not Engage</i>	115
4.3-20	<i>No Drive Forward or Reverse</i>	115
4.3-21	<i>No Forward Drive</i>	115
4.3-22	<i>No Reverse Drive</i>	115
4.3-23	<i>No High Speed Drive</i>	116
4.3-24	<i>No Right Steer</i>	116
4.3-25	<i>No Left Steer</i>	116
4.3-26	<i>The Axle will not Oscillate</i>	116
4.3-27	<i>Axle Will Not Lock</i>	117

Section 5 – Procedures **119**

5.1	General	119
5.1-1	<i>Safety and Workmanship</i>	119
5.2	Platform	120
5.2-1	<i>Human Machine Interface (HMI)</i>	120
5.2-2	<i>User Interface Keys</i>	120
5.2-3	<i>OCM Character Functions Charts</i>	121
5.2-4	<i>OCM Pin Reference</i>	122
5.2-5	<i>SCM Calibration</i>	128
5.2-6	<i>SCM Calibration Flowchart</i>	129
5.2-7	<i>Platform Controller Voltage References</i>	131
5.3	Boom	133
5.3-1	<i>Check Wear Pads</i>	133
5.3-2	<i>Shim Wear Pads</i>	133
5.3-3	<i>Cable Carrier Repair</i>	133
5.3-4	<i>Rotary Actuator Bolt Torque Procedure</i>	133
5.3-5	<i>Boom Section Wear Pad Replacement</i>	134
5.3-6	<i>Platform and Jib Boom Removal</i>	135
5.3-7	<i>Operating Machine Functions from the Base Controls</i>	136
5.3-8	<i>Fly Boom Removal</i>	136
5.3-9	<i>Change Wear Pads on Extension Cylinder Support</i>	138
5.3-10	<i>Fly Boom Installation</i>	139
5.3-11	<i>Platform/Jib Installation</i>	140
5.3-12	<i>Platform Control Console Connection</i>	140
5.3-13	<i>Extension Cylinder Removal</i>	141
5.3-14	<i>Extension Cylinder Installation</i>	144
5.3-15	<i>Main Boom Lift Cylinder Removal</i>	145
5.3-16	<i>Lift Cylinder Installation</i>	146
5.3-17	<i>Riser Cylinder Removal</i>	147
5.3-18	<i>Riser Cylinder Installation</i>	147
5.3-19	<i>Replace Limit Switch - Main Boom</i>	148
5.3-20	<i>Test Main Boom Limit Switch</i>	149
5.3-21	<i>Replace Limit Switch - Riser Boom</i>	149

5.3-22	Test Riser Boom Limit Switch	150
5.3-23	Replace Limit Switch - Fly Boom	150
5.3-24	Test Fly Boom Limit Switch	151
5.3-25	Limit Switch Locations	152
5.4	Turret	153
5.4-1	Check and Replace the High Pressure Filter	153
5.4-2	Adjust the Turret Rotation Gear Backlash	153
5.4-3	Swing Drive Motor Removal	154
5.4-4	Check the Swing Drive Oil	155
5.4-5	Change the Swing Drive Oil	155
5.4-6	Check Rotation Bearing for Axial Wear	156
5.4-7	Turret Rotation Gear Bolt Torque Sequence	156
5.4-8	Electronic Tilt Switch Setup Procedure	157
5.4-9	Battery Replacement	159
5.5	Engine	160
5.5-1	Replace Engine Oil and Filter	160
5.5-2	Replace the Fuel Filter	160
5.5-3	Replace the Air Filter	160
5.5-4	Check the Engine Belt	161
5.6	Hydraulic Tank	162
5.6-1	Change the Hydraulic Tank Filter	162
5.6-2	Change the Hydraulic Oil	162
5.7	Manifold and Hydraulic Pumps	163
5.7-1	Hydraulic Brake Pressure Adjustment	163
5.7-2	Hydraulic System Relief Valve Adjustment (RV1)	164
5.7-3	Turret Rotate Relief Valve Adjustment (RV2)	164
5.7-4	Platform Level Relief Valve Adjustment (RV3)	165
5.7-5	Riser Boom Down Relief Valve Adjustment (RV4)	165
5.7-6	Main Boom Down Relief Valve Adjustment (RV5)	166
5.7-7	Fly Boom Relief Valve Adjustment (RV6)	166
5.7-8	Test Charge Pump Pressure on Drive Pump (RV10)	167
5.7-9	Test Forward Drive Pressure on Drive Pump	167
5.7-10	Test Reverse Drive Pressure on Drive Pump	168
5.7-11	Hydraulic Standby Pressure Adjustment	168
5.7-12	Hydraulic High Pressure Adjustment	169
5.8	Axles	170
5.8-1	Change the Oil in the Axles	170
5.8-2	Check the Oil Level in the Torque Hubs	170
5.8-3	Change the Oil in the Torque Hubs	170
5.8-4	Check the Oil Level in the Axle Gearbox	171
5.8-5	Change the Oil in the Axle Gearbox	171
5.8-6	Oscillating Cylinder Bolt Replacement	172
5.8-7	Oscillating Cylinder Replacement	172

5.8-8	<i>Bleed the Oscillating Axle Cylinders</i>	174
5.8-9	<i>Pin Brake Adjustments</i>	174
5.8-10	<i>Brake Inspection</i>	176
5.9	Grease Points	177
5.9-1	<i>Grease the Turret Ring Gear</i>	177
5.9-2	<i>Grease the Turret Swing Drive</i>	177
5.9-3	<i>Grease the Axles</i>	178
5.9-4	<i>Grease the Drive Shaft</i>	178

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

1.1-2 Purpose of Equipment

The Skyjack 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 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 Skyjack dealer 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. The Owner's Annual Inspection Record ([1.4 Owner's Annual Inspection Record](#)) is to be used to record 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 service bulletins found in our web site: www.skyjack.com for updates related to 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 maintaining on an MEWP. Inspection schedule frequency is shown below:















Issue or Symptom		
PDI/Frequent	B	Perform PDI prior to each delivery, or 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 – Scheduled Maintenance](#).
- 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 _____											
Inspection Date 											
Inspector Signature 	SKYJACK 										

⚠ 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.

1.5 Pre-Delivery/Maintenance Inspection Checklist



Frequent/Periodic/Annual/PDI Checklist Articulating Booms and Telescopic 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: _____

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

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 Schedule	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
PDI/Frequent/Periodic	B	
Annual	B+C	

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

Put a check mark in the "Pass" column as you meet the requirements of the inspection for 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	
ENGINE COMPARTMENT		
Main Power Disconnect Switch. Cables and switch tight and in working order.	B	
Battery. No damage, tight connections and sufficient fluid levels. Clean terminals and cable ends.	B	
Swing Drive. Tight fittings, hoses and bolts. No damage, missing components or leaks.	B	
Hydraulic Pump and Motor. Tight fittings, hoses and bolts. No damage, missing components or leaks.	B	
Engine and Components. Do a check of the engine and components for any loose, missing, damaged, or failed items. Do a check of the oil and coolant levels. Make sure you do not exceed the recommended oil and coolant change intervals.	B	
Air Filter. Do a check of the filter. Replace the air filter if necessary.	C	
Fuel Filter. Do a check of the filter. Replace the fuel filter if necessary.	C	
Radiator. Do a check of the coolant condition and replace if necessary.	C	
CONTROL COMPARTMENT		
Turret Transportation Lock. Unlocked and no damage or missing components.	B	
Base Control Console. Operate the switches and make sure they all operate correctly. No damage or missing components.	B	
Hydraulic Tank. Filler cap closed tightly and no damage or leaks.	B	
Hydraulic Oil. Level between min. and max. marks.	B	
Hydraulic Oil. Do a check and replace oil and filters if necessary.	C	
Hydraulic Return Filter. Correctly attached and no damage, missing components or leaks.	B	
Hydraulic Return Filter. Do a check of the filter. Replace the filter if necessary.	C	
Manifolds. Tight fittings and hoses and no damage or leaks. Tight wire connections, no missing components and correctly working valves.	B	
High-pressure Filter. Do a check of the filter. Replace the filter if necessary.	C	
Emergency Power Unit. Tight fittings and hoses. No leaks. Tight wire connections and no damage or missing components.	B	
Fuel Tank and Lines. Filler cap, tank, fittings and hoses are closed tightly and no damage or leaks.	B	
BASE		
Base Weldment. No deformation or cracks.	B	
Rotary Manifold. Tight fittings and hoses, and no leaks.	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	

Items for Inspection	P	N/A
Axles. Correctly attached and no missing components. Tight fittings and hoses and no leaks.	B	
Axles. Do a check of the brakes.	C	
Oscillating Cylinders. Correctly attached and no missing components. Tight fittings and hoses and no leaks.	B	
Oscillating Cylinders. Correctly attached and no missing components. Tight fittings and hoses and no leaks. Do a check of the mounting bolts torque seal.	C	
Steer Cylinder. Correctly attached and no missing components. Tight fittings and hoses and no leaks.	B	
Steer Linkage. No damage/wear or missing components.	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	
PLATFORM		
Railings and Gates. 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	
Manual Storage Box. Manuals and documents are in the storage the box, in good condition, and you can read them.	B	
BOOM		
Rotary Actuator. No damage or missing components. Tight fittings, hoses and bolts and no leaks.	B	
Jib. No damage or missing components. Tight hoses and bolts and no leaks.	B	
Boom. No damage or missing components. No deformation or cracks in welds. Tight fittings, hoses, bolts, and pins. No leaks.	B	
Cable Track. No damage or missing components.	B	
Wear Pads. No damage, wear or missing components. Fasteners tight.	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	
Control Cables and Hoses. No damage or missing components. No leaks.	B	
Wire Ropes. No damage or missing components. Tight jam nuts. No spring gaps. Do not exceed the inspection interval.	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

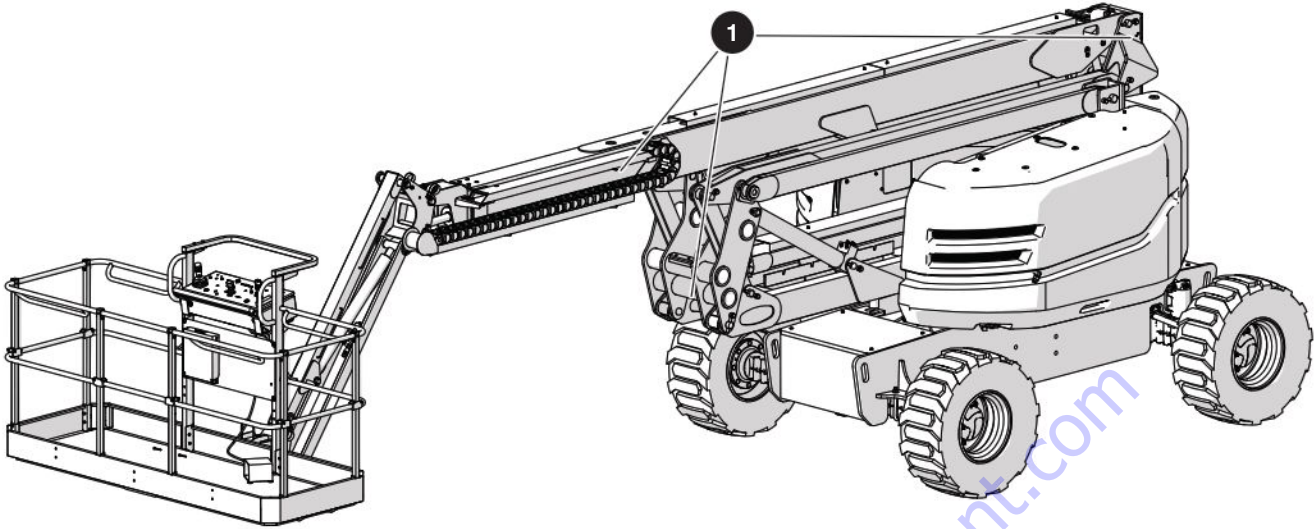
199342AA

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) _____



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

Turn the main power disconnect switch to the off position 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 surface
- Engine compartment fittings, hoses, primary pump, filter, turret and base surface
- All hydraulic cylinders
- All hydraulic manifolds
- The ground area below the MEWP.

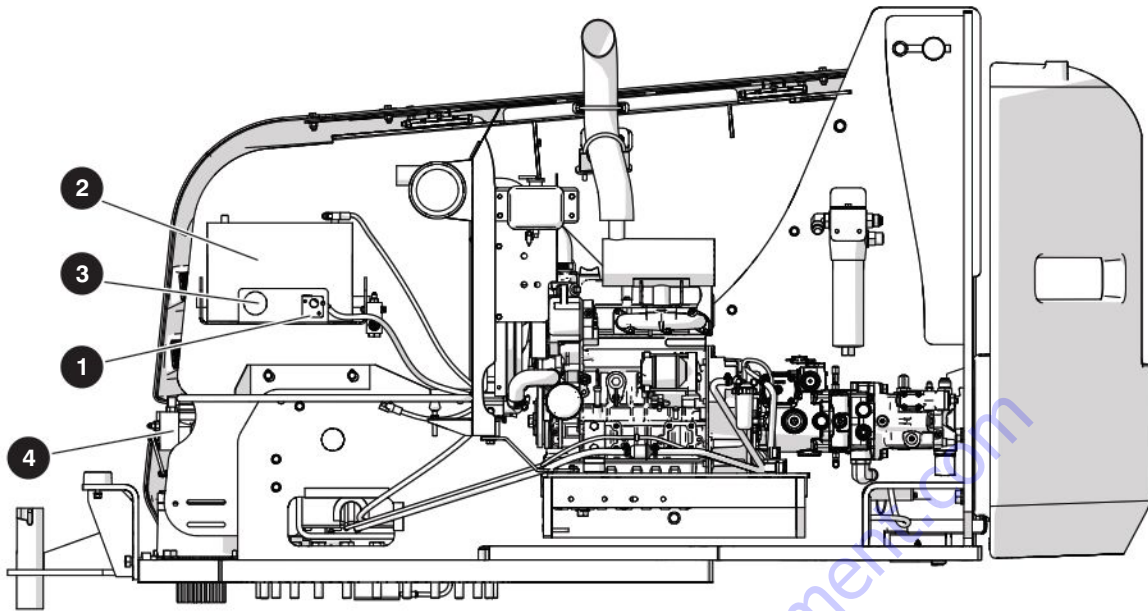
1.6-3 Labels (B)

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 Engine Compartment

Do the inspection that follows:

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

1 Main power disconnect switch (B)

- Turn the **main power disconnect** switch to the off position.
- Make sure the switch rotates and stays in the on and off position.
- Make sure the cables are not loose.

2 Battery (B)

⚠ 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.

B - Frequent Inspection

1. 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.

2. Make sure all the battery connections are tight.

3. 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

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.

3 Charge Indicator - CE (B)

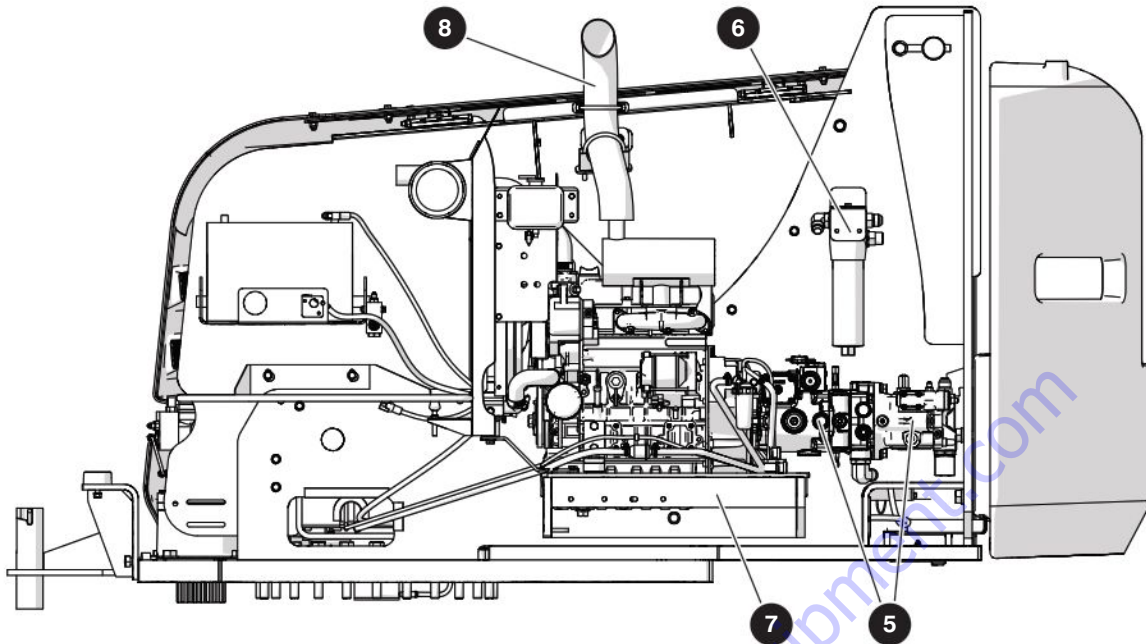
- Make sure there are no loose or missing parts.
- Make sure there is no visible damage.

4 Swing drive motor (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.
- Make sure all fittings and hoses are correctly tightened and there are no hydraulic leaks.

C - Annual Inspection

- For the brake/motor oil replacement procedure, refer to [5.4-5 Change the Swing Drive Oil](#).



5 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.

6 High-pressure filter (B,C)

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

C - Annual Inspection

- For the filter element replacement procedure, refer to 5.4-1 Check and Replace the High Pressure Filter.

Engine and Components

7 Engine tray (B)

- Make sure there are no loose or missing parts.
- Make sure there is no visible damage.
- Make sure that the engine is correctly attached to the pivot tray.
- Make sure the tray-securing bolt is in place.

8 Muffler and exhaust (B)

- Make sure that the muffler and exhaust systems are correctly attached with no visible damage.

Engine fuel leaks (B,C)

- Make sure that there no fuel leaks at the engine.
- Make sure there is no visible damage.

⚠ WARNING

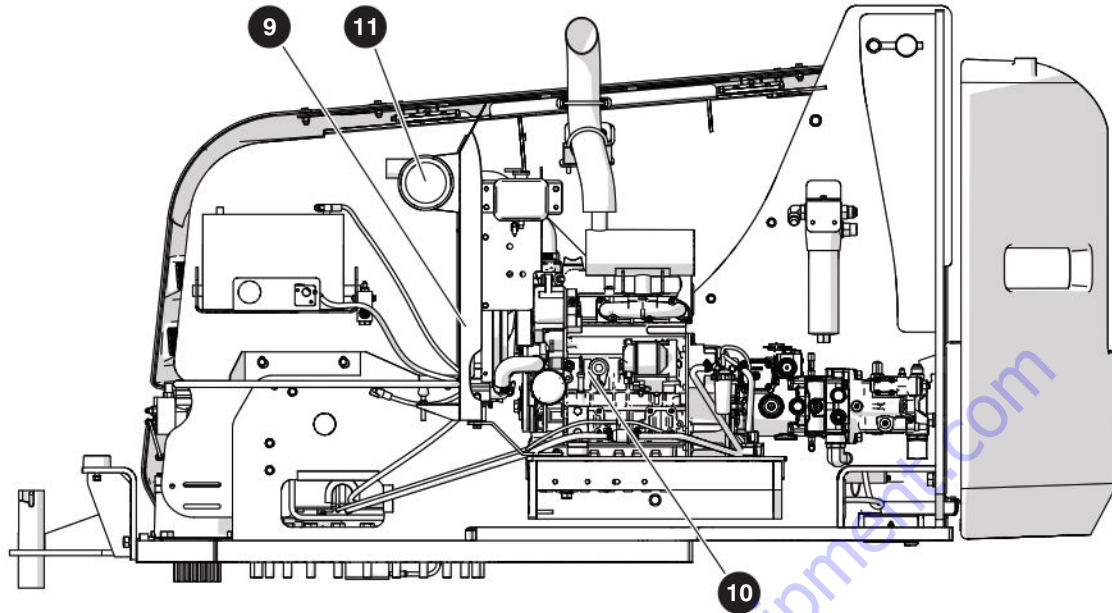
Explosion or fire hazard. Do not smoke near the fuel system. If you do not obey, there is a risk of death or serious injury.

Engine fuel filter (B,C)

- Make sure there are no loose or missing parts.
- Make sure there is no visible damage.

C - Annual Inspection

- For the engine fuel filter replacement procedure, refer to the engine manual.



9 Radiator (B, C)

- Make sure there are no loose or missing parts.
- Make sure there is no visible damage.
- Make sure that the radiator is correctly attached to the engine tray.
- Check the coolant level and add more if necessary.

C - Annual Inspection

- Check the coolant strength. For recommended coolant change intervals, refer to the engine manual.

10 Engine oil level (B)

WARNING

Burn hazard. Do not touch hot engine components without the correct PPE. Let the engine cool before you do an inspection or servicing. If you do not obey, there is a risk of death or serious injury.

- Use the dipstick to check the oil level.
- The oil level must be between the marks L (low) and H (high). Add oil if it is necessary. Refer to [2.13 Engines](#).

B - Frequent Inspection

- For recommended oil change intervals, refer to the engine manual.

11 Air filter (B,C)

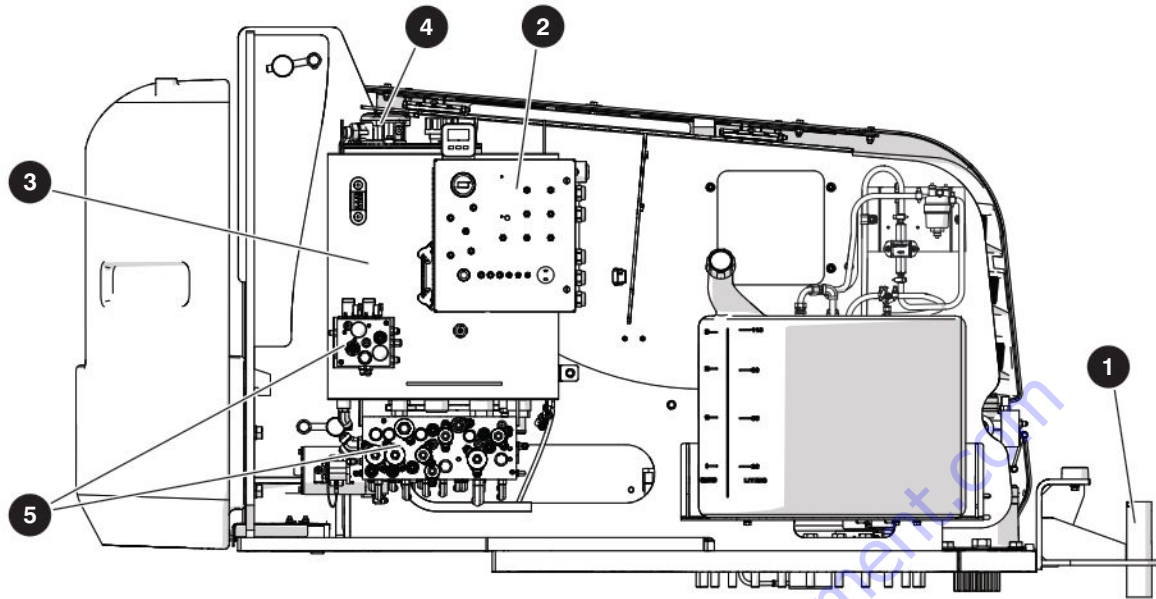
- Make sure there are no loose or missing parts.
- Make sure there is no visible damage.
- Squeeze the lips of the vacuator valve to remove the dirt and dust.
- Do an inspection of the service indicator on the air cleaner. Replace the filter element if necessary.

B - Frequent Inspection

- For the engine air filter maintenance procedure, refer to the engine manual.

C - Annual Inspection

- For the engine air filter replacement procedure, refer to the engine manual.



Do the inspection that follows:

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

1 Turret transportation lock (B)

- Make sure the turret transportation lock is unlocked.
- Make sure there are no loose or missing parts.
- Make sure there is no visible damage

2 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.

3 Hydraulic Tank (B)

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

Hydraulic Oil (B, C)

- 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 [2.12 Fluids](#).

C - Annual Inspection

- For the hydraulic oil replacement procedure, refer to [5.6-2 Change the Hydraulic Oil](#).

4 Hydraulic Return Filter (B,C)

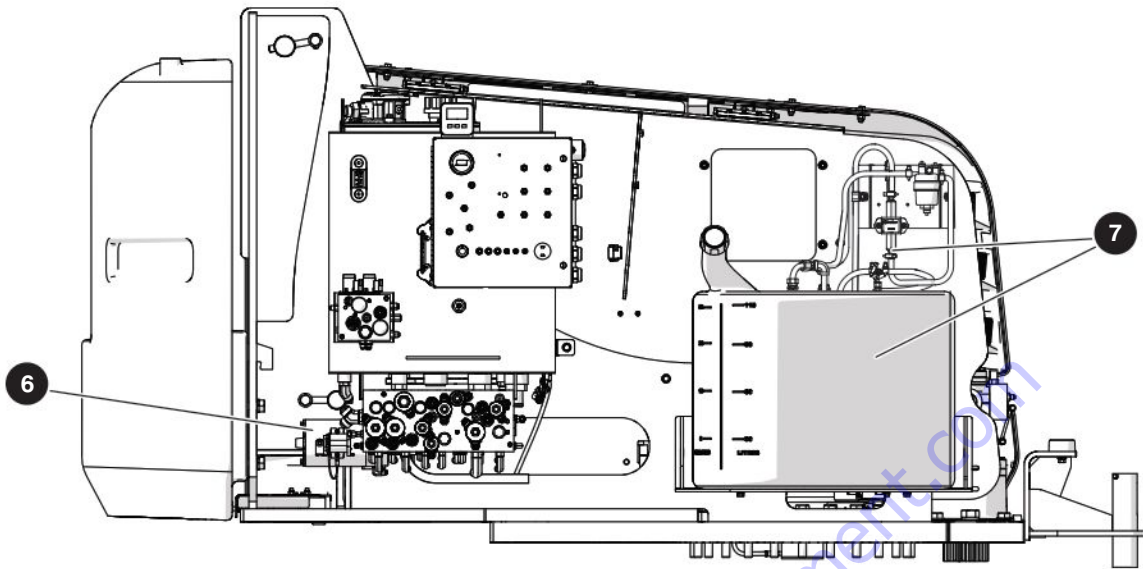
- Make sure the filter element is attached and tight.
- Make sure there is no visible damage or hydraulic leaks.

C - Annual Inspection

- For the hydraulic tank filter replacement procedure, refer to [5.6-1 Change the Hydraulic Tank Filter](#).

5 Manifolds (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.
- Ensure all fittings and hoses are properly tightened and there is no evidence of hydraulic leakage.



6 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.

7 Fuel Tank and Lines (B)

IMPORTANT

Before you use the MEWP, make sure there is sufficient fuel for the estimated task.

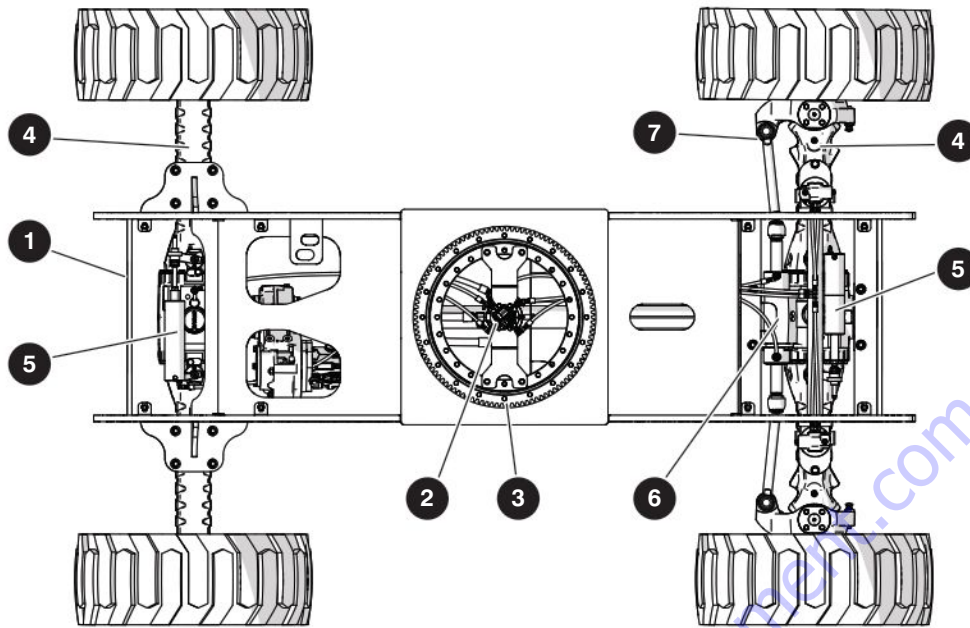
⚠ DANGER

Explosion or fire hazard. Do not smoke near the fuel system. If you do not obey, there is a risk of death or serious injury.

- Make sure that the fuel filler cap closes tightly.
- Make sure there is no visible damage to the tank, gauge, hoses, or fittings.
- Make sure there is no indication of fuel leakage from the tank, gauge, hoses, fittings, pump, and filter.

⚠ WARNING

Environmental hazard. Immediately remove gasoline, diesel fuel, engine oil, and hydraulic fluid spills and leaks with rags. Discard these rags in accordance with national, state/provincial/territorial, and local regulations. Spilled fluids can damage the environment. When spilled fluids go into the water (for example, a sewage system, streams, rivers, or other surface water), they can kill aquatic life.



1.6-6 Base

1 Base weldment (B)

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

2 Rotary manifold (B)

- Make sure all hoses are correctly tightened and there is no sign of hydraulic leakage.

3 Turret rotation gear (B,C)

- Make sure there are no loose or missing parts.
- Make sure there is no visible damage.

C - Annual Inspection

- For the lube procedure, refer

4 Axles (B,C)

- Make sure the front and rear axles are correctly attached.
- Make sure there are no loose or missing parts.
- Make sure all the fittings and hose connections are tight.
- Make sure there is no sign of hydraulic leakage.

C - Annual Inspection

- Check the brakes annually. Refer to the procedure [5.8-10 Brake Inspection](#).

5 Brake Cylinder (B)

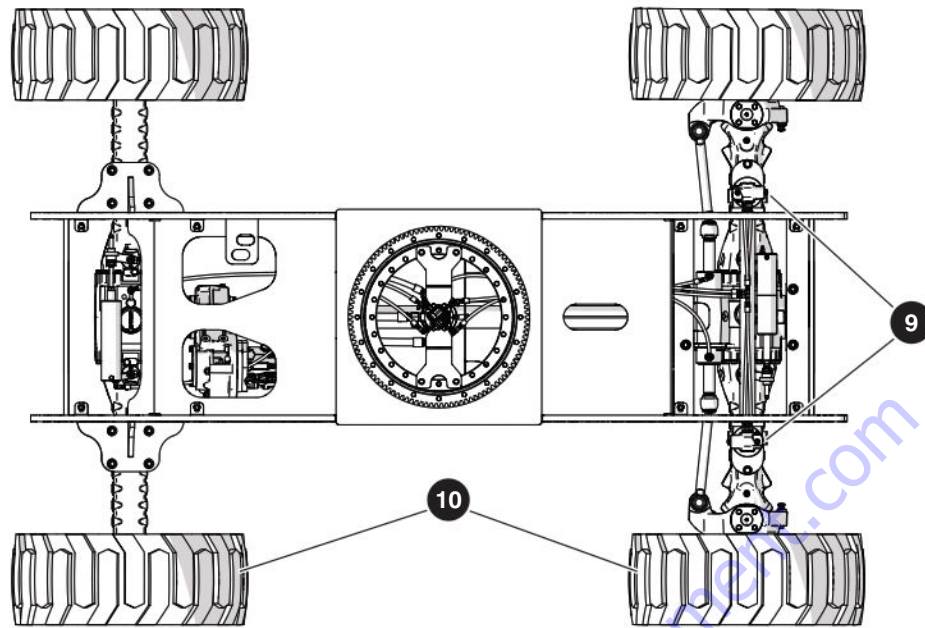
- Make sure there are no loose or missing parts.
- Make sure all the fittings and hoses are correctly tightened and there are no hydraulic leaks.

6 Steer cylinder (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.

7 Steer 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.



8 Oscillating cylinders (B,C)

- Make sure the oscillating cylinders are correctly attached, and there are no visible spaces.
- Make sure there are no loose or missing parts.
- Make sure all the fittings and hose connections are tight.
- Make sure there is no sign of hydraulic leakage.
- Do a check of the heads of the oscillating cylinder mounting bolts to make sure the torque seal is visible and undamaged. If the torque seal is damaged or is missing, remove and replace the affected bolts. Refer to [5.8-6 Oscillating Cylinder Bolt Replacement](#).



NOTE

The oscillating axle is locked when the MEWP is in the elevated travel position or at the elevated travel speed. Refer to [2.18 Axle Oscillation Diagrams](#).

9 Wheel/tires (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.

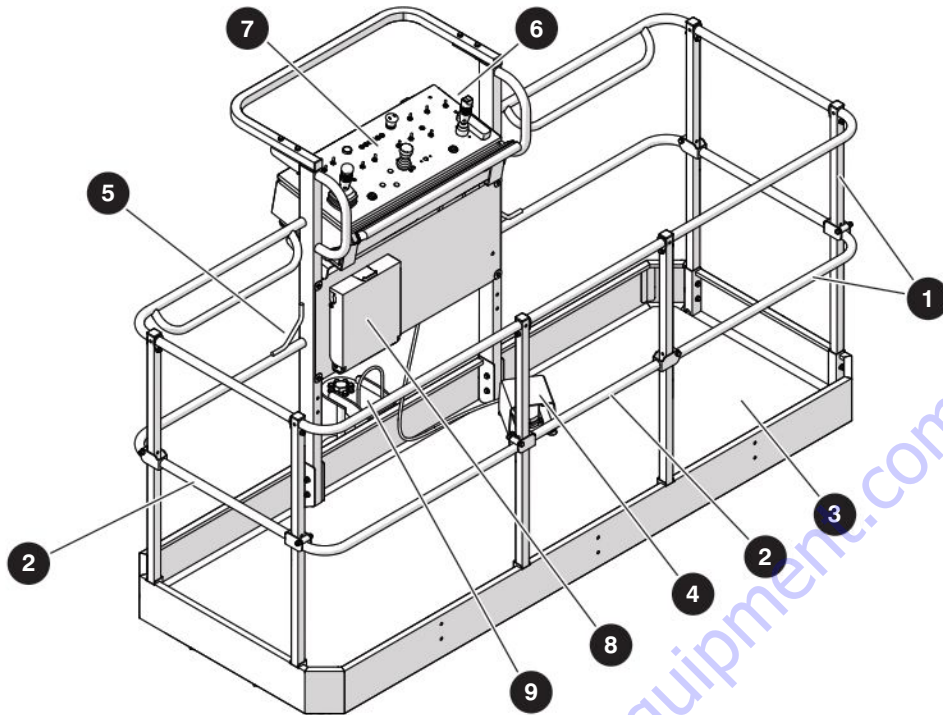
B - Frequent Inspection

- For proper torque information, 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 [2.9 Tire Specifications](#).



1.6-7 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)

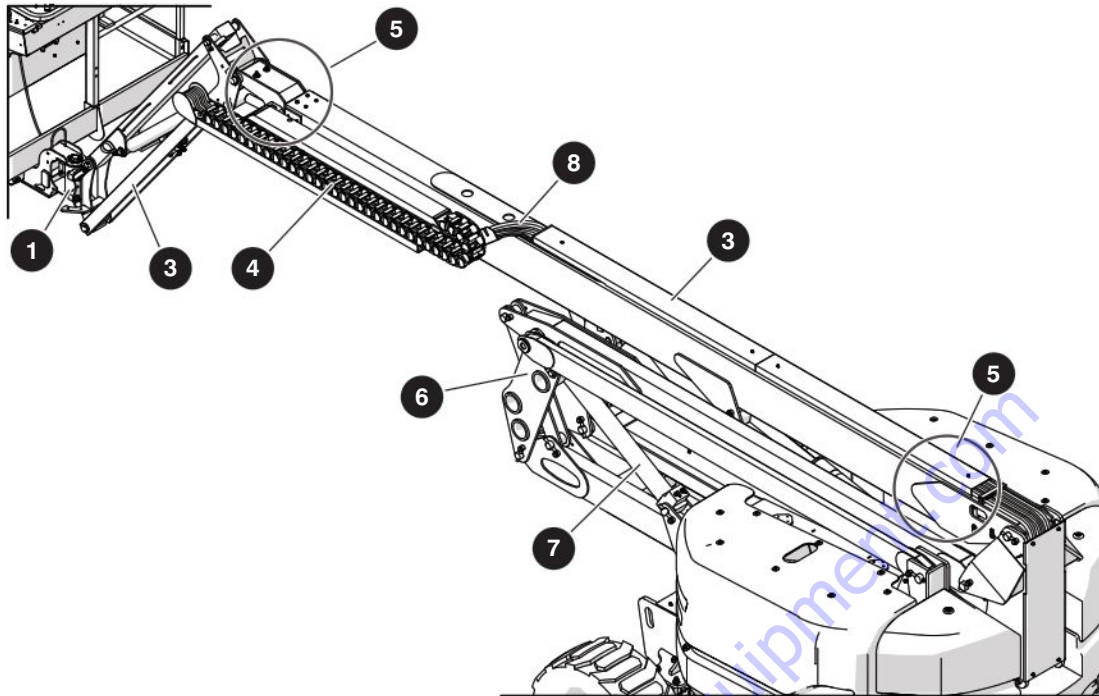
- Make sure all switches and controllers are in the neutral position.
- Make sure there are no loose or missing parts, and there is no visible damage.

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.

9 Load Cell - CE & AS (B)

- 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 cables are in good condition.
- Make sure the cable connections are tight.
- Make sure there is no debris lodged between the platform and the boom adaptor.



1.6-8 Boom Assembly

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 (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.

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 Riser (B)

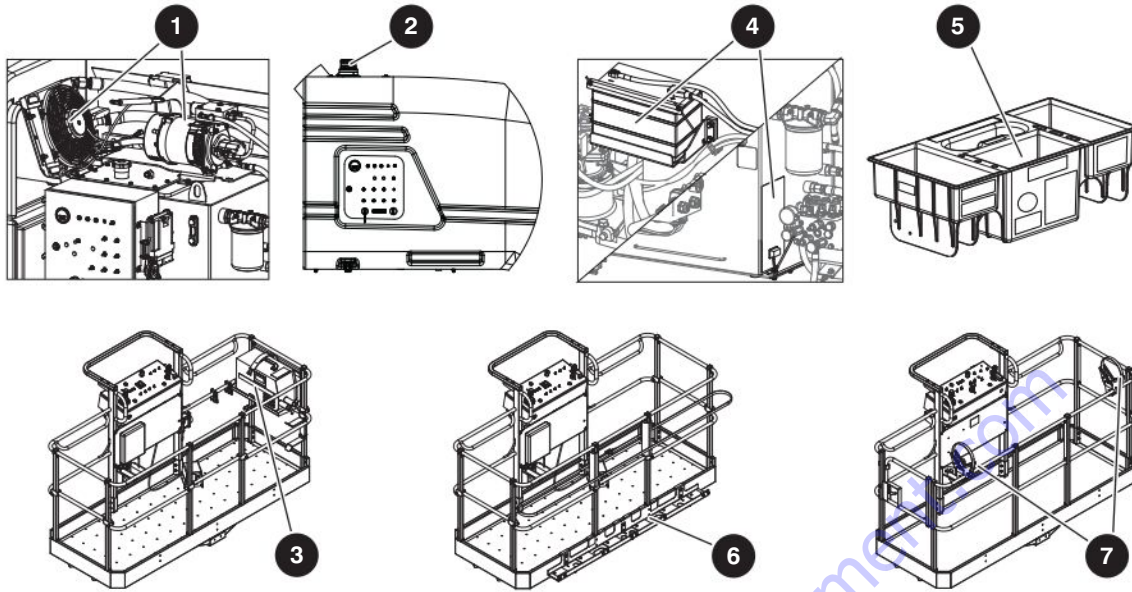
- There are no loose or missing parts.
- There is no visible damage.
- All fasteners and pins are correctly tightened.
- There are no visible cracks in welds or structure and there are no signs of deformation.

7 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.

8 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.



1.6-9 Optional equipment (B)

Do the inspection that follows, and make sure:

1 Generator

- 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.

2 Flashing amber light

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

3 Welder

- The welder and the welder tray are correctly attached.
- There are no loose or missing parts, and there is no visible damage.
- There are no loose wires or missing fasteners.

4 Cold or arctic weather package

- The heater plugs are correctly attached with no visible damage.
- There is no sign of engine oil leakage.

5 Tool tray

- The tray is correctly attached with lock-pins, and there is no visible damage.

6 Glazier

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

7 Pipe rack

- There are no loose or missing parts, 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 a MEWP may only be made by a qualified service technician.

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



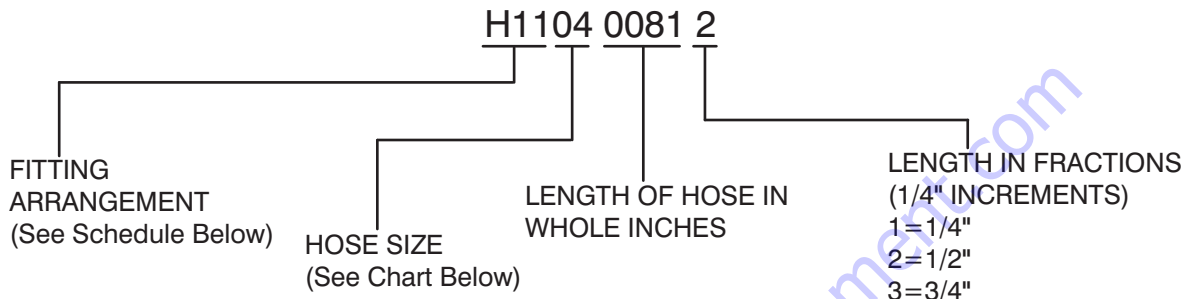
NOTE

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

To order go to Discount-Equipment.com

Section 2 – Maintenance Tables and Diagrams

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

2.2 Torque Specifications for Fasteners (US Imperial)

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 lubricizing, oil, grease, or uncured Loctite.

1374AA

2.3 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

2.4 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

2.5 Axle Torque Specifications

Size of Bolt		Type of Bolt					
		8.8		10.9		12.9	
		Normal Loctite 242 (Nm)	Loctite 270 (Nm)	Normal Loctite 242 (Nm)	Loctite 270 (Nm)	Normal Loctite 242 (Nm)	Loctite 270 (Nm)
Coarse Pitch	M6 x 1	9.5-10.5	10.5-11.5	14.3-15.7	15.2-16.8	16.2-17.8	18.1-20.0
	M8 x 1.25	23.8-26.2	25.6-28.4	34.2-37.8	36.7-40.5	39.0-43.0	43.7-48.3
	M10 x 1.5	48-53	52-58	68-75	73-81	80-88	88-97
	M12 x 1.75	82-91	90-100	116-128	126-139	139-153	152-168
	M14 x 2	129-143	143-158	182-202	200-221	221-244	238-263
	M16 x 2	200-221	219-242	283-312	309-341	337-373	371-410
	M18 x 2.5	276-305	299-331	390-431	428-473	466-515	509-562
	M20 x 2.5	390-431	428-473	553-611	603-667	660-730	722-798
	M22 x 2.5	523-578	575-635	746-824	817-903	893-987	974-1076
	M24 x 3	675-746	732-809	950-1050	1040-1150	1140-1260	1240-1370
	M27 x 3	998-1103	1088-1202	1411-1559	1539-1701	1710-1890	1838-2032
M30 x 3.5	1378-1523	1473-1628	1914-2115	2085-2305	2280-2520	2494-2757	
Fine Pitch	M8 x 1	25.7-28.3	27.5-30.5	36.2-39.8	40.0-44.0	42.8-47.2	47.5-52.5
	M10 x 1.25	49.4-54.6	55.2-61.0	71.5-78.5	78.0-86.0	86.0-94.0	93.0-103.0
	M12 x 1.25	90-100	98-109	128-142	139-154	152-168	166-184
	M12 x 1.5	86-95	94-104	120-132	133-147	143-158	159-175
	M14 x 1.5	143-158	157-173	200-222	219-242	238-263	261-289
	M16 x 1.5	214-236	233-257	302-334	333-368	361-399	394-436
	M18 x 1.5	312-345	342-378	442-489	485-536	527-583	580-641
	M20 x 1.5	437-483	475-525	613-677	674-745	736-814	808-893
	M22 x 1.5	581-642	637-704	822-908	903-998	998-1103	1078-1191
	M24 x 2	741-819	808-893	1045-1155	1140-1260	1235-1365	1363-1507
	M27 x 2	1083-1197	1178-1302	1520-1680	1672-1848	1834-2027	2000-2210
	M30 x 2	1511-1670	1648-1822	2138-2363	2332-2577	2565-2835	2788-3082

1373AA

Note: 1 Nm = 0.7376 ft-lb

Screw-locking, Sealing and Lubricating Materials

Loctite 242

- Anaerobic product apt to prevent the loosening of screws, nuts and plugs. Used for medium-strength locking. Before using it, completely remove any lubricant by using the specific activator.

Loctite 270

- Anaerobic product apt to prevent the loosening of screws, nuts and plugs. Used for medium-strength locking. Before using it, completely remove any lubricant by using the specific activator. To remove parts, it may be necessary to heat them at 80°C approx.

2.6 Axles Maintenance Intervals

Operation	Component	Frequency	Lubricants
Check Levels	Differential	monthly	SAE 80W-90 API GL-5
	Planetary reduction	every 200 hours	
	Gear box	monthly	
Oil Change	Differential	every 800 hours *	SAE 80W-90 API GL-5
	Planetary reduction	every 1000 hours *	
	Self-locking differential gear	every 700 hours * &	
	Gear box	once at 50 hours after every 1000 hours	
Tighten	Gear box screws/bolts	every 200 hours	N/A
	Wheel Nuts	every 200 hours	

Operation	Member	Conditions	Frequency	Lubricants
Grease	Articulations	Normal work	monthly	MOLIKOTE
		Awkward work	weekly	

Torque Wrench Settings (Nm)			
Size of Screw	8G/8.8	10K/10.9	12K/12.9
M4	2.9	4.1	-
M6	10	14	-
M8	25	35	-
M12	49	69	-
M10 X 1.25	-	73	-
M12	86	120	-
M14	135	190	-
M14 X 1.5	-	-	250
M16	210	295	-
A18	325	-	-

*Initially after 100 working hours
& when it starts sounding noisy

1376AB



NOTE

1 Nm = 0.7376 ft-lb

2.7 MEWP Torque Specifications

Location	Description	Torque (ft-lb)	Torque (Nm)
Base			
Trunnion Mount	BOLT, Hex head (3/4"-10 x 5", Grade 8)	210	285
Rear Axle Mount	NUT, Torque lock (3/4"-10, Grade C)	210	285
Axle Lock	BOLT, Hex head (1/2"-13 x 2.25", Grade 8)	80	108
Swing Drive Motor	SCREW, Socket head cap (3/4"-10 x 2.25")	280	380
Rotation Gear	BOLT, Hex head (3/4"-10 x 4 1/2", Grade 8)	280	380
Hydraulic Drive Motor	BOLT, Hex head (M14 x 2 x 30mm, ZP, Grade 8.8)	80	108
Wheel Nut	NUT, Wheel	247-302	335-410
Turret			
Rotation Gear	BOLT, Hex head (3/4"-10 x 4 1/2", Grade 8)	280	380
Engine			
Deutz Engine Mount	BOLT, Hex head (1/2"-13 x 4 1/2", Grade 5)	55	75
Coupling Assembly (Deutz)	BOLT (M10)	40	55
	COUPLING CLAMP BOLT	45	61
GM Engine Mount	NUT, Hex head (1/2"-13, Grade 5)	50	68
Drive Pump	BOLT, Hex head (1/2"-13 x 1 1/2", Grade 5)	55	75
System Pump	BOLT, Hex head (1/2"-13 x 1 1/2", Grade 5)	55	75
Cylinders			
Lift	ROD NUT	425	576
	GLAND	400	542
Extension, Master & Slave	ROD NUT	185	250
	GLAND	400	542
Axle Lock	BOLT, Hex head (1/2"-13 x 1 3/4", Grade 8)	80	108
Jib	BOLT, Hex head (0.312-18 x 2.5", Grade 5 \ ZP)	15	20
Riser	ROD NUT & GLAND	350	475
Platform			
Rotary Mount	BOLT, Hex head, patch (3/8"-16 x 7/8", ZP, Grade 8)	35	48
	BOLT, Hex head (1"-8 x 10 1/2", zinc, Grade 8)	480	569
Load Cell Mounting (CE)	BOLT, Hex head patch (M16-1.5 x 45mm, ZP, Grade 8.8)	130	177
	BOLT, Hex head (1/2"-13 x 2 1/2", ZP, Grade 8)	80	108

1411AB

2.8 Maximum Platform Capacity

		Regular Platform Capacity		Derated Platform Capacity*	
High-capacity zone	Capacity	454 kg	1000 lb	454 kg	1000 lb
	Maximum number of people	3	3	1	1
	Manual side force	400 N	90 lbf	200 N	45 lbf
Low-capacity zone	Capacity	300 kg	660 lb	272 kg	600 lb
	Maximum number of people	2	2	1	1
	Manual side force	400 N	90 lbf	200 N	45 lbf
Wind rating	-	12.5 m/s (28 mph)		12.5 m/s (28 mph)	
Tilt cutout setting	side-to-side x front-to-back	5 degrees x 5 degrees		5 degrees x 5 degrees	

2151AA

WARNING

* DRIVING ON A SLOPE

- When driving on a slope greater than 30%, the platform capacity is limited to 136 kg (300 lb).
- The platform must be between the non-steer wheels and must be on the downside of the hill.
- When the slope increases to above 45%, the forward drive is disabled but reverse drive remains active.

Table 2.9 Tire Specifications

Tire	Type	Size	Ply Rating	Wheel Nuts Torque
SJ60 AJ+	Foam	36.6 cm x 91.4 cm (14 in x 36 in)	14	393 Nm (290 ft-lb)

2154AA

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.

IMPORTANT

For proper function of each axle differential, all four wheels must have same tire size installed at all times. Failure to comply with this requirement will reduce the life of the differentials and reduce overall mobility of the MEWP.

2.10 Floor Loading Pressure

Model		Weights				Pressures			
		Gross MEWP Weight		Weight per Wheel**		LCP***		OFL***	
		kg	lb	kg	lb	kPa	psi	kPa	psf
SJ60 AJ+	min*	8530	18 800	2177	4800	788	114	11.2	233
	max*	8980	19 800	4082	9000	1087	158	11.8	245

2153AA

- * **Min:** Minimum MEWP weight (Unloaded platform, no options/attachments)
- Max:** Maximum MEWP weight (Platform loaded to capacity with options/attachments)

****Wheel Load** is the weight that can be experienced on one wheel.

Note: This is more than 25% of the machine weight due to possible weight distribution over the machine and platform.

*****LCP:** Local Concentrated Pressure is a measure of how hard the MEWP presses on the area in direct contact with the floor/tire.

OFL: Overall Floor Load (Pressure) is a measure of the average load the MEWP imparts on the whole surface directly underneath the chassis. This has been calculated by dividing the MEWP weight by the overall floor area occupied by the MEWP (on wheels).

The welder option adds approximately 158.8 kg (350 lb) to total MEWP weight and 79.4 kg (175 lb) to the max. wheel load.

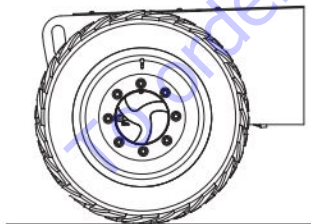
Note: The floor covering (e.g., tile, carpet, etc.) or the structure (e.g., beams) of the operating surface must be able to withstand more than the values indicated above.

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

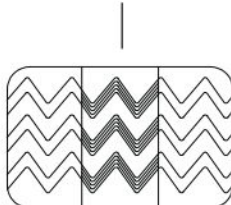
Locally Concentrated Pressure (LCP)

Foot Print Area identified by test

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



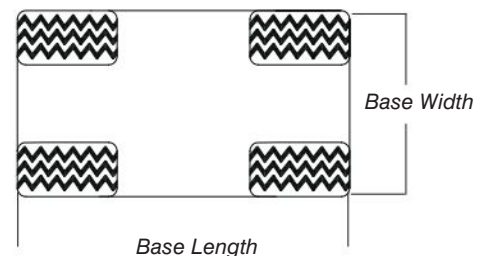
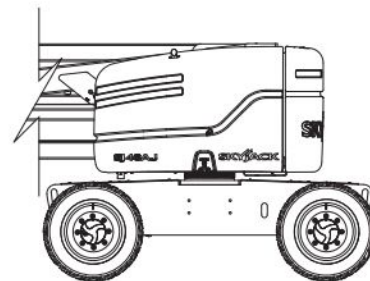
Foot Print Area



Overall Floor Load (OFL)

Base Area = Length x Width

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



2.11 Hydraulic Specifications

Description		Metric	US
Pumps			
Drive Pump	Displacement - 2675 rpm	13.5 CC	2.48 CIR 28.7 gpm @ 2675 rpm
	Drive Pump Pressure	344.7 bar	5000 psi
	Charge Pump Displacement	13.8 CC	0.84 CIR
	Charge Pump Pressure	21.5 bar	313 psi
System Pump	Displacement - Static	32 CC	1.98 CIR 22.8 gpm @ 2675 rpm
	System Pump Pressure	207 bar	3000 psi
Filters			
High Pressure Filter	Max. Operating Pressure	10 μ m/25	87 psi
Return Filter	Max. Operating Pressure	10 μ m/60	25 psi
Motors			
Drive Motor	Displacement - Low	29 CC	1.77 CIR
	Displacement - High	65 CC	3.97 CIR
Swing Motor	Motor Displacement	65.54 CC	4 CIR
	Maximum Swing Pressure	97 bar	1400 psi
Cylinders			
Extension Cylinder	Bore	6.3 cm	2.48 in
	Rod Diameter	4.0 cm	1.57 in
	Stroke	3.87 m	152.31 in
	Maximum Boom Pressure	206 bar	2987 psi
Main Lift Cylinder	Bore	11.0 cm	4.33 in
	Rod Diameter	7.0 cm	2.76 in
	Stroke	1.23 m	48.44 in
	Maximum Lift Pressure	206 bar	2987 psi
Riser Cylinder	Bore	9.0 cm	3.54 in
	Rod Diameter	5.0 cm	1.97 in
	Stroke	69.85 cm	27.5 in
	Maximum Lift Pressure	206 bar	2987 psi
Steering Cylinder	Steering Cylinder Stroke	10.9 cm	4.32 in
	Maximum Steer Pressure	150 bar	2175 psi

2046AB

2.12 Fluids

Fluid	Temperature Range		Recommended Type
Hydraulic Oil	Standard / Cold	-26°C to 38°C (-15°F to 100°F)	Petro-Canada ATF D3M, Shell ATF Donax TG
	Biodegradable	-29°C to 32°C (-20°F to 90°F)	Shell Naturelle HF-E 46
	Arctic	-40°C to 38°C (-40°F to 100°F)	Esso Univis HVI 26
Gear Oil	Standard / Cold	-29°C to 45°C (-20°F to 115°F)	80W-90 API GL5
	Arctic	-40°C to 45°C (-40°F to 115°F)	Shell Spirax S4 TXM 10W-30
Engine Oil	Standard / Cold	-18°C to 45°C (0°F to 115°F)	Petro-Canada Duron-E 10W-30, Esso XD-3 Extra Premium Heavy Duty 10W-30
	Arctic	-40°C to 45°C (-40°F to 115°F)	Petro-Canada Duron-E synthetic 0W-40, Esso XD-3 Extra 0W-40
Coolant	Standard / Cold	-40°C to 45°C (-40°F to 115°F)	Recochem 50/50 Premix (green)
	Arctic	-40°C to 45°C (-40°F to 115°F)	*Recochem 50/50 Premix (green) mixed with Recochem Extended Life Predilute 60/40 concentrate

*Add the concentrate antifreeze to the 50/50 mix to obtain a 60/40 concentration.

2146AA

2.13 Engines

Kubota D1305	RPM Settings	1300 Idle / 2000 Mid / 2600 High
	Horsepower @ 2000 rpm (intermittent)	29.8 kW / 40 Hp
	Fuel Type	Diesel
	Fuel Tank Capacity	32 gal (120 L)
	Lube Oil Sump Capacity	2.38 gal (9 L)
	Coolant Capacity	3.0 gal (11.4 L)
Kubota WG972	RPM Settings	1400 Idle / 2100 Mid / 3000 High
	Horsepower @ 2300 rpm (intermittent)	18.4 kW / 25 Hp
	Fuel Type	Diesel
	Fuel Tank Capacity	45 gal (170 L)
	Coolant Capacity	2.75 gal (10.4 L)
	Lube Oil Sump Capacity	2.11 gal (8.0 L)

2145AA

2.14 MEWP Specifications

Height & Reach	Working Height - maximum	20.11 m	66 ft 0 in
	Platform Height - maximum	18.29 m	60 ft 0 in
	Horizontal Reach - maximum	11.56 m	37 ft 11 in
	Horizontal Reach - at maximum height	6.2 m	20 ft 4 in
	Horizontal Reach - fly boom retracted	7.7 m	25 ft 3 in
	Tailswing	0.61 m	2 ft 0 in
	Up and Over Clearance - at platform	8.38 m	27 ft 6 in
	Up and Over Clearance - at main boom	8.31 m	27 ft 2 in
Platform	Platform Size	0.91 m x 2.44 m	36 in x 96 in
		0.91 m x 1.83 m	36 in x 72 in
	Platform Rotation	175°	
	Platform rotation radius	1.14 m	45 in
	Platform height - stowed	0.28 m	11 in
	Overall railing height	1.35 m	53 in
Jib	Jib Length	1.60 m	63 in
	Jib vertical Range of Motion	2.81 m	9 ft 2.5 in
	Jib Range of Motion - down	60°	
	Jib Range of Motion - up	65°	
Dimensional Data	Height - stowed min.	2.54 m	8 ft 4 in
	Stowed length @ min. height	8.6 m	28 ft 2 in
	Stowed length - min.	6.6 m	21 ft 8 in
	Width	2.44 m	8 ft
	Wheelbase	2.44 m	8 ft
	Ground Clearance - chassis	0.37 m	14.5 in
	Ground Clearance - front axle	0.33 m	13 in
	Axle Oscillation	0.06 m	2.5 in
	Turning Radius - inside	2.21 m	7 ft 3 in
	Turning Radius - outside	5.31 m	17 ft 5 in
Turret Rotation	360°		

2149AA

2.14 MEWP Specifications (continued)

Performance & Speeds	Gradeability - maximum	45%	
	Drive Speed - stowed / low torque	4 km/h	2.5 mph
	Drive Speed - stowed / high torque	1.9 km/h	1.2 mph
	Drive Speed - elevated / low torque	0.6 km/h	0.36 mph
	Drive Speed - elevated / high torque	0.6 km/h	0.36 mph
	Turret Rotation Time - stowed	115 - 125 s (ANSI/CSA & AS) 109 - 135 s (CE)	
	Platform Rotation Time	5 - 9 s	
	Boom Up Time	32 - 35 s	
	Boom Down Time	40 - 43 s	
	Boom Extend Time	28 - 34 s	
	Boom Retract Time	20 - 26 s	
	Riser Up	36 - 42 s	
	Riser Down	26 - 32 s	
	Jib Up Time	18 - 28 s	
	Jib Down Time	10 - 16 s	
Steer Left Time	5 - 9 s		
Steer Right Time	5 - 9 s		
Electrical	System Voltage	12 V DC	
	Battery Type	Lead / Acid	

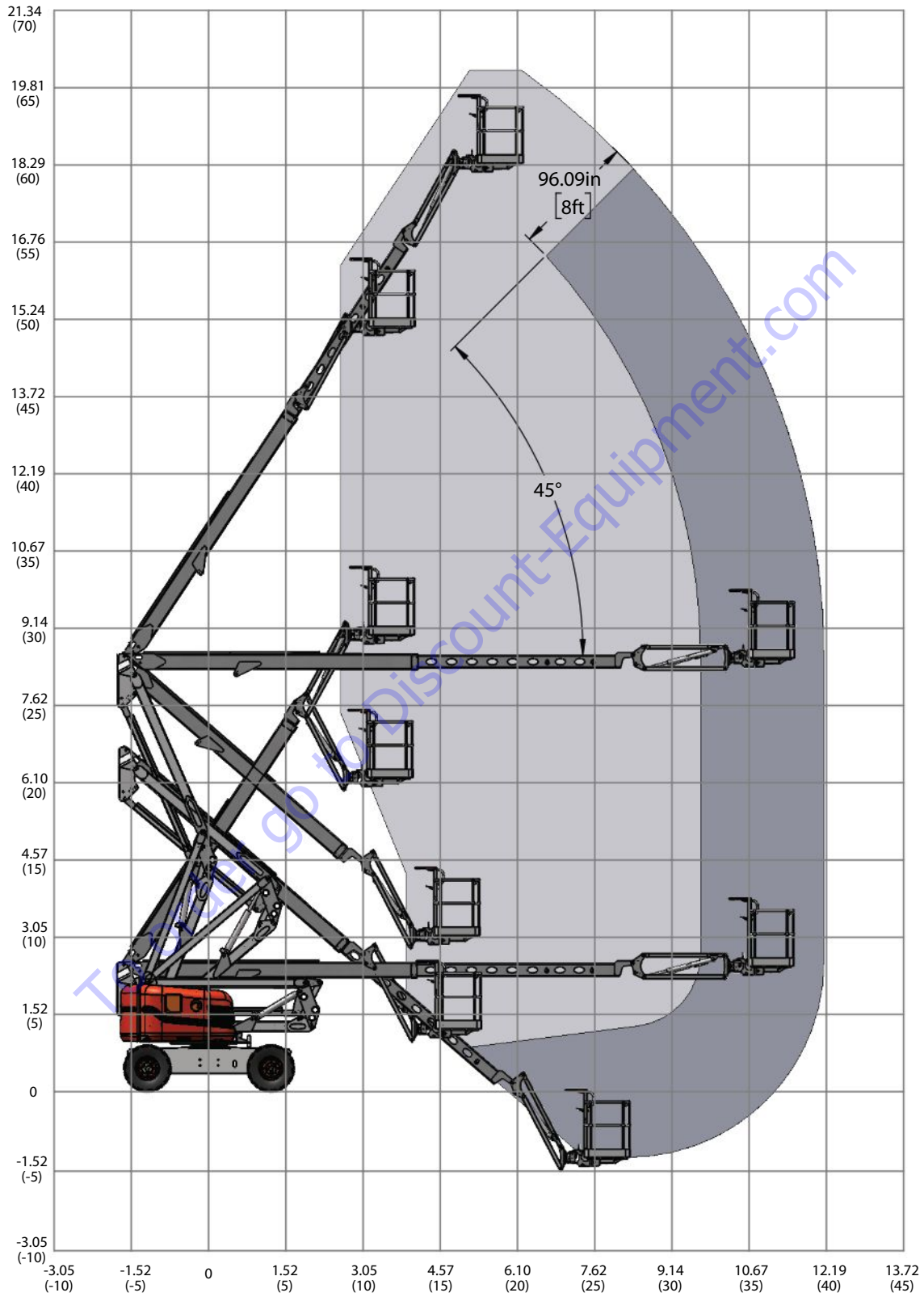
2149AA-2

2.15 Platform Capacities

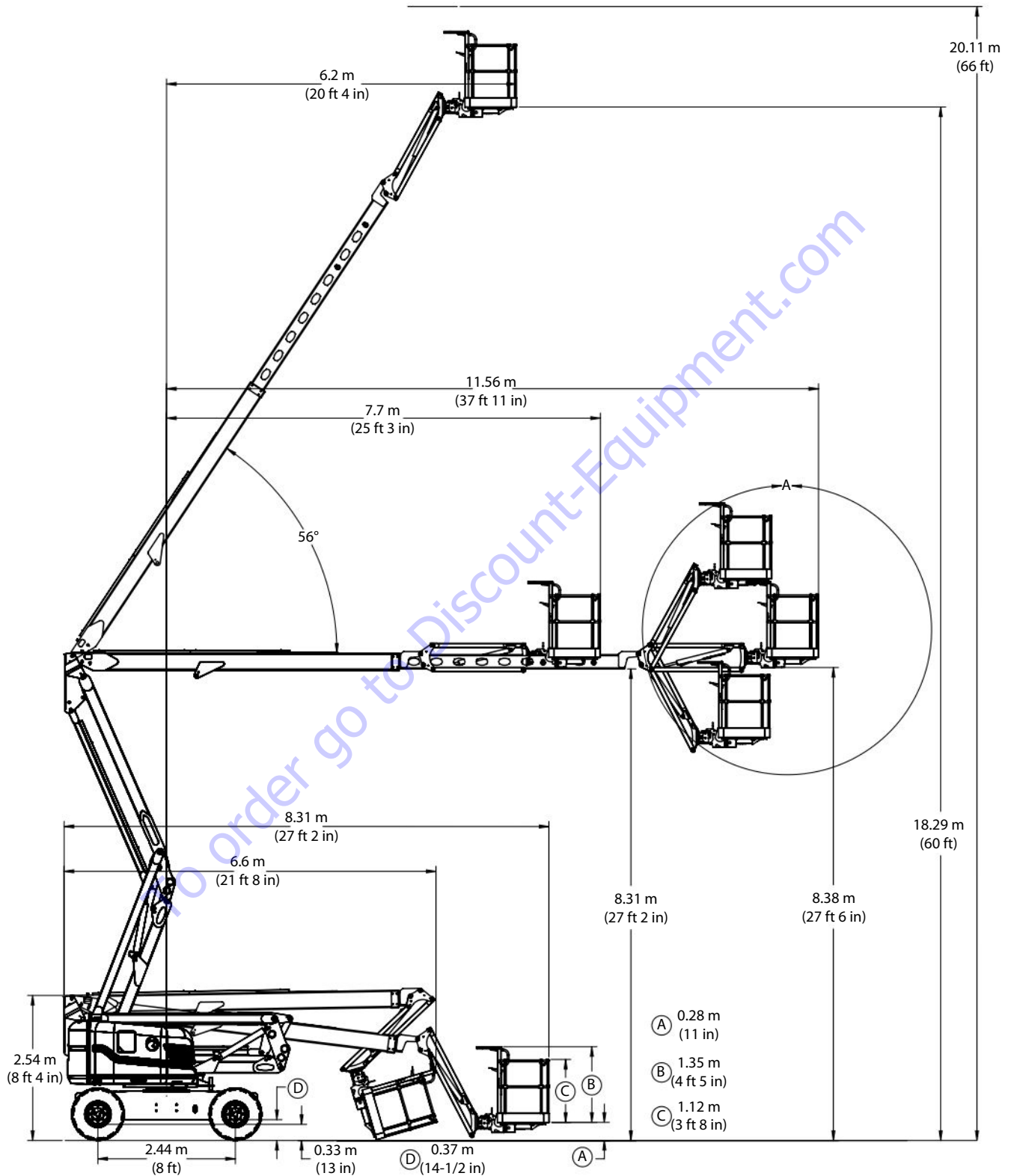
		Regular Platform Capacity		Derated Platform Capacity*	
High-capacity zone	Capacity	454 kg	1000 lb	454 kg	1000 lb
	Maximum number of people	3	3	1	1
	Manual side force	400 N	90 lbf	200 N	45 lbf
Low-capacity zone	Capacity	300 kg	660 lb	272 kg	600 lb
	Maximum number of people	2	2	1	1
	Manual side force	400 N	90 lbf	200 N	45 lbf
Wind rating	-	12.5 m/s (28 mph)		12.5 m/s (28 mph)	
Tilt cutout setting	side-to-side x front-to-back	5 degrees x 5 degrees		5 degrees x 5 degrees	

2151AA

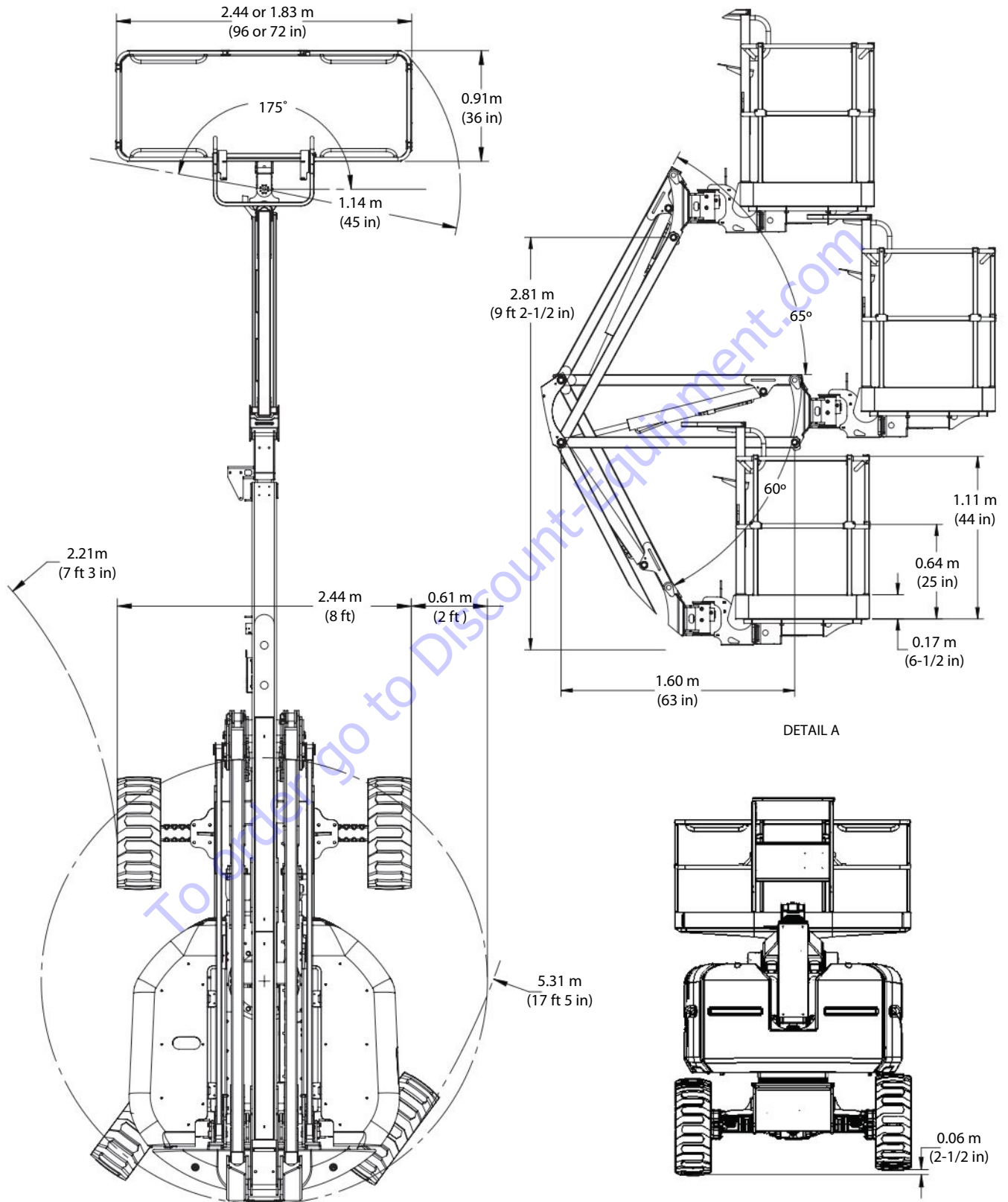
2.16 Reach Diagram



2.17 Dimension Diagrams



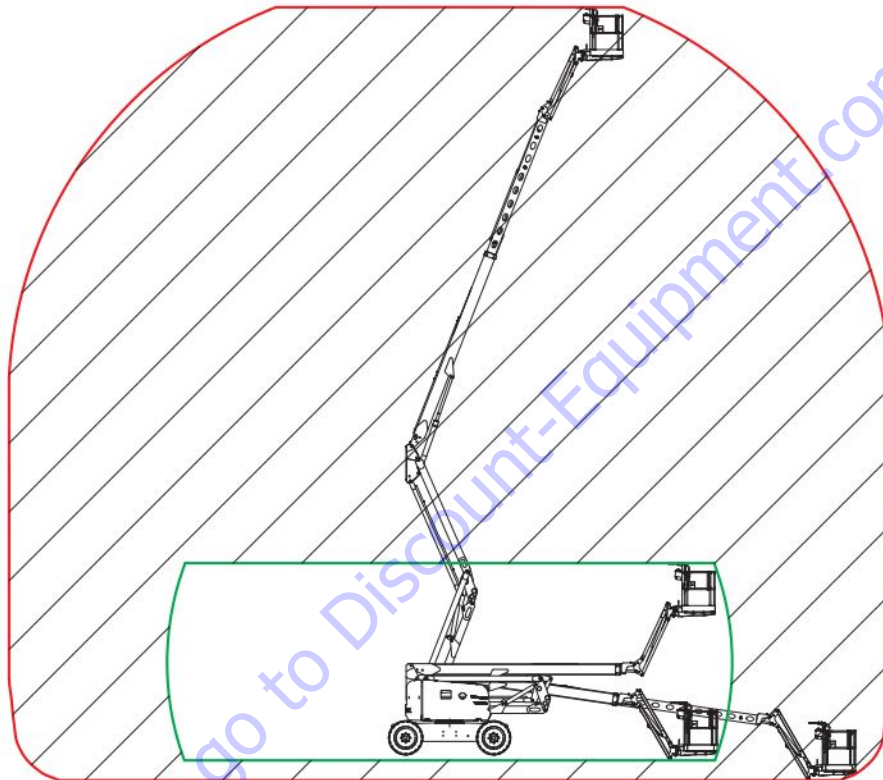
Dimensions - SJ60 AJ+ (continued)





2.18 Axle Oscillation Diagrams

WARNING

Do not raise the platform in work mode if it is not on a firm level surface.



-  Axle oscillation free (travel mode) - drive speed 7.3 km/h (4.5 mph) max.
-  Axle oscillation locked (work mode) - drive speed 0.8 km/h (0.5 mph) max.

Section 3 – System Component Identification and Schematics

To order go to Discount-Equipment.com

Table 3.1 Electrical Symbol Chart

















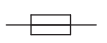



















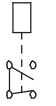
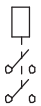
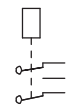
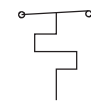
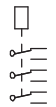




























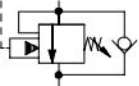





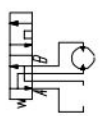









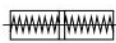
 CIRCUITS CROSSING NO CONNECTION	 HOURMETER	 KEY SWITCH	 LIMIT SWITCH N.O.
 CIRCUITS CONNECTED	 LIGHT	 FOOT SWITCH	 LIMIT SWITCH N.O. HELD CLOSED
 BATTERY	 HYDRAULIC VALVE COIL	 TOGGLE SWITCH	 LIMIT SWITCH N.C.
 GROUND	 PROPORTIONAL HYDRAULIC VALVE COIL	 PUSH BUTTON	 LIMIT SWITCH N.C. HELD OPEN
 FUSE	 ELECTRIC MOTOR	 ROTARY SWITCH	 SILICON CONTROLLED RECTIFIER
 CIRCUIT BREAKER	 HORN	 LIMIT SWITCH	 PROXIMITY SWITCH
 VOLT METER	 EMERGENCY STOP BUTTON	 CAM OPERATED LIMIT SWITCH	 PNP TRANSISTOR
 CAPACITOR	 RESISTOR	 TILT SWITCH	 NPN TRANSISTOR
 POTENTIOMETER	 LEVEL SENSOR	 SINGLE POLE SINGLE THROW RELAY	 PRESSURE/ VACUUM SWITCH
 SINGLE POLE DOUBLE THROW RELAY	 DOUBLE POLE SINGLE THROW RELAY	 DOUBLE POLE DOUBLE THROW RELAY	 TEMPERATURE SWITCH
 TRIPLE POLE DOUBLE THROW RELAY	 DIODE	 RHEOSTAT	

Table 3.2 Hydraulic Symbol Chart

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

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

3.4 Hydraulic Parts List

Index No.	Skyjack Part No.	Description
2H-13A	159838	VALVE, Flow Control (Main boom lowering)
2H-21A	159821	VALVE, Control (Enable)
2H-21B	194492	VALVE, Control (Load Circuit Select)
2H-42	231438	VALVE, Control (Platform Flow Enable)
2H-85	146078	VALVE, Control (3.5kW Generator)
2H-85	168058	VALVE, Control (12kW Generator)
3H-26	159827	VALVE, Control (Brake release)
3H-45	159827	VALVE, Control (2 Speed motor)
3H-65	159827	VALVE, Control (Axle lockout)
3H-165	159827	VALVE, Control (Differential lockout)
4H-15	N/A	VALVE, Control (Drive pump displacement control - reverse)
4H-16	N/A	VALVE, Control (Drive pump displacement control - forward)
5H-13	159820	VALVE, Control (Main boom lower)
5H-14	159820	VALVE, Control (Main boom raise)
5H-23A	159819	VALVE, Control (Steering right)
5H-24A	159819	VALVE, Control (Steering left)
5H-30	159820	VALVE, Control (Riser boom lower)
5H-31	159820	VALVE, Control (Riser boom raise)
5H-32	159819	VALVE, Control (Boom rotation left)
5H-33	159819	VALVE, Control (Boom rotation right)
5H-38	159822	VALVE, Control (Fly boom retract)
5H-39	159822	VALVE, Control (Fly boom extend)
5H-40	159819	VALVE, Control (Platform level lower)
5H-41	159819	VALVE, Control (Platform level raise)
C1	166091	CYLINDER (Jib boom)
C2	154207	CYLINDER (Fly boom)
C3	153530	CYLINDER (Main boom)
C4	153533	CYLINDER (Platform leveling - master)
C5	153535	CYLINDER (Platform leveling - slave)
C6	153534	CYLINDER (Riser boom)
C7	153534	CYLINDER (Riser boom)
C8	N/A	CYLINDER (Front axle steering)
C9	212871	CYLINDER (Axle lockout)
C10	212871	CYLINDER (Axle lockout)
C11	N/A	CYLINDER (Brake release)
C12	N/A	CYLINDER (Brake release)
C13	N/A	CYLINDER (Differential lock)
CB1	149488	VALVE, Counterbalance (Jib cylinder)
CB2	149488	VALVE, Counterbalance (Jib cylinder)
CB3	141499	VALVE, Counterbalance (Swing drive)
CB4	141499	VALVE, Counterbalance (Swing drive)
CB5	149488	VALVE, Counterbalance (Riser cylinder)
CB6	149488	VALVE, Counterbalance (Riser cylinder)
CB7	141453	VALVE, Counterbalance (Fly boom)
CB8	141453	VALVE, Counterbalance (Fly boom)

3.4 Hydraulic Parts List

Index No.	Skyjack Part No.	Description
CB9	159841	VALVE, Counterbalance (Main boom)
CB10	710088	VALVE, Counterbalance (Platform levelling cylinder - slave)
CB11	710088	VALVE, Counterbalance (Platform levelling cylinder - slave)
CB12	141399	VALVE, Counterbalance (Platform rotary actuator)
CB13	141399	VALVE, Counterbalance (Platform rotary actuator)
CB14	212872	VALVE, Counterbalance (Axle lockout cylinder)
CB15	212872	VALVE, Counterbalance (Axle lockout cylinder)
CV1	159813	VALVE, Check (Main inlet)
CV2	159814	VALVE, Check (Steer load sense)
CV3	159814	VALVE, Check (Swing drive load sense)
CV4	159814	VALVE, Check (Platform levelling override drain)
CV5	159814	VALVE, Check (Main boom load sense)
CV6	159814	VALVE, Check (Fly boom load sense)
CV7	159814	VALVE, Check (Platform levelling override load sense)
CV8	159814	VALVE, Check (Jib boom load sense)
CV9	159814	VALVE, Check (Riser boom load sense)
CV10	159815	VALVE, Check (Jib boom/platform rotate drain)
CV11	159813	VALVE, Check (Throttle bypass)
CV12	N/A	VALVE, Check (EPU outlet)
CV13	159842	VALVE, Check (Counterbalance bypass)
CV14	159814	VALVE, Check (Generator LS)
CV15	168059	VALVE, Check (Generator)
DPOCV1	159817	VALVE, Dual pilot operated check (Steering)
DPOCV2	159817	VALVE, Dual pilot operated check (Platform levelling)
DSV1	159816	VALVE, Differential sensing (Swing drive)
DSV2	159816	VALVE, Differential sensing (Riser boom)
DSV3	159816	VALVE, Differential sensing (Main boom)
DSV4	159816	VALVE, Differential sensing (Fly boom)
EPU	167433	POWER UNIT, Emergency
F1	139148	FILTER, High pressure (10 micron abs, 87 psi bp)
F2	153929	FILTER, Return (10 micron abs, 25 psi bp)
FC1	159838	VALVE, Flow control (Main boom lowering)
G1	703725	GAUGE, Pressure (800 psi)
GCV1	138405	VALVE, Control (Generator)
GCV2	168401	VALVE, Control (Generator)
M1	154138	MOTOR, Drive (Dual displacement)
M2	145981	MOTOR, Turret rotation
M3	N/A	MOTOR, 3.5kW Hydraulic Generator
M4	N/A	MOTOR, 12kW Hydraulic Generator
M5	N/A	MOTOR, 12kW Hydraulic Generator
MB1	218406	MANIFOLD, Main control
MB2	153804	MANIFOLD, Brake control
MB3	149380	MANIFOLD, Rotary
MB4	153814	MANIFOLD, High pressure shuttle
MB5	231501	MANIFOLD, Jib cylinder
MP	159831	HAND PUMP, Brake

3.4 Hydraulic Parts List

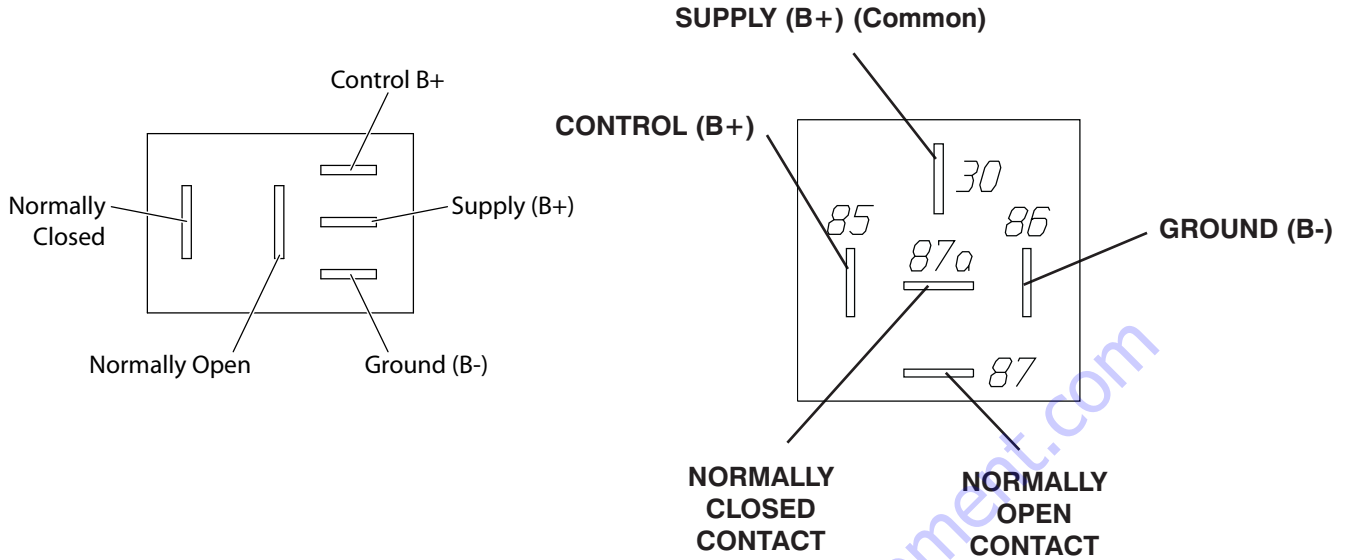
Index No.	Skyjack Part No.	Description
OC1	139092	OIL COOLER, Hydraulic
OR1	N/A	ORIFICE, Motor swash plate (0.015")
OR2	159825	ORIFICE, Differential sensing (0.030")
OR3	159824	ORIFICE, Platform override speed (0.040")
OR4	159823	ORIFICE, Jib boom speed (0.078")
OR5	N/A	ORIFICE, Platform rotate speed (0.038")
OR6	144474	ORIFICE, Generator load sense (0.028")
OR7	146077	ORIFICE, Generator flow control
OR8	194493	VALVE, Needle
OR9	171450	VALVE, Flow regulator (FR)
P1	154119	PUMP, Drive
P1A	N/A	PUMP, Charge
P2	154120	PUMP, System
PR1	159829	VALVE, Pressure reducing (500 psi)
QD1	122420	QUICK DISCONNECT
RA1	218126	ROTARY ACTUATOR, Platform
RA2	138280	ROTARY ACTUATOR, Turret rotation
RV1	159808	VALVE, Relief (System)
RV2	236112	VALVE, Relief (Swing drive)
RV3	159809	VALVE, Relief (Levelling)
RV4	236110	VALVE, Relief (Riser boom)
RV5	159811	VALVE, Relief (Main boom)
RV6	236110	VALVE, Relief (Fly boom)
RV7	159828	VALVE, Relief (Brake pressure)
RV8	N/A	VALVE, Relief (Forward drive pressure)
RV9	N/A	VALVE, Relief (Reverse drive pressure)
RV10	N/A	VALVE, Relief (Charge pressure)
RV11	170925	VALVE, Relief (EPU)
SV1	159812	VALVE, Shuttle (Platform relief)
SV2	159812	VALVE, Shuttle (Brake release override reset)
SV3	159833	VALVE, Shuttle (Brake pressure)
SV4	146014	VALVE, Shuttle (Swing drive)
SV5	N/A	VALVE, Shuttle (Motor flush)
SV6	138394	VALVE, Shuttle (Generator load sense)
SV7	138394	VALVE, Shuttle
V1	141436	VALVE, Brake release override
V2	N/A	VALVE, Pressure compensator
V3	N/A	VALVE, Load sense compensator
V4	N/A	VALVE, Towing bypass
V5	N/A	VALVE, Minimum displacement select
V6	N/A	VALVE, Hot oil exchange
V7	159805	VALVE, Enable
V8	159807	VALVE, Steering
V9	159807	VALVE, Boom rotation
V10	159806	VALVE, Riser elevation
V11	159806	VALVE, Main boom elevation

3.4 Hydraulic Parts List

Index No.	Skyjack Part No.	Description
V12	159804	VALVE, Fly boom
V13	159803	VALVE, Platform level override

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3.5 Electrical Component Parts List



Index No.	Skyjack Part No.	Description
01ACR	931298	RELAY, Micro 12 V DC, 30 amp (Base control console) (ANSI)
01ACR	127131	RELAY, 12 Volt 40 Amp (Base control console - E-pump) (CE & AS)
04ACR	931298	RELAY, Micro 12 V DC, 30 amp (Base control console)
07CR	127131	RELAY, 12 Volt 40 Amp (Base control console - E-pump/Enable)
08CR	127131	RELAY, 12 Volt 40 Amp (Platform control console - Footswitch/Starter interlock)
09CR	127131	RELAY, 12 Volt 40 Amp (Engine power on)
20CR	127131	RELAY, 12 Volt 40 Amp (Platform control console)
21CR	127131	RELAY, 12 Volt 40 Amp (Base control console - Dump valve)
27CR	127131	RELAY, 12 Volt 40 Amp (Platform control console - Tilt alarm)
36CR	127131	RELAY, 12 Volt 40 Amp (Platform control constole)
36CR1	127131	RELAY, 12 Volt 40 Amp (Base control constole)
37CR	127131	RELAY, 12 Volt 40 Amp (Base control constole)
45CR1	127131	RELAY, 12 Volt 40 Amp (Base control console - 2-SPD motor)
45CR2	127131	RELAY, 12 Volt 40 Amp (Base control console - 2-SPD motor controller)
49CR	127131	RELAY, 12 Volt 40 Amp (Base control console - Horn)
57ACR	127131	RELAY, 12 Volt 40 Amp (Base control console - Engine Start)
57BCR	127131	RELAY, 12 Volt 40 Amp (Base control console - Engine Start)
57DCR	931298	RELAY, Micro 12 V DC, 30 amp (Base control console)
59CR	127131	RELAY, 12 Volt 40 Amp (Base control console - Overload sensor)
60CR	127131	RELAY, 12 Volt 40 Amp (Base control console - System power)
78CR	127131	RELAY, 12 Volt 40 Amp (Base control console - High idle)
79CR	127131	RELAY, 12 Volt 40 Amp (Base control console - Low idle)
82CR	127131	RELAY, 12 Volt 40 Amp (Platform control console - Load sensing alarm)
86CR	127131	RELAY, 12 Volt 40 Amp (Optional oil cooler)
165CR	127131	RELAY, 12 Volt 40 Amp (Platform control console - Differential lock)
403ACR	931298	RELAY, Micro 12 V DC, 30 amp (Base control console - Positive air shut-off option)
2H-21A	159821	COIL, 12 Volt (Dump valve)
2H-34A	154679	COIL, 12 Volt (Jib enble valve)

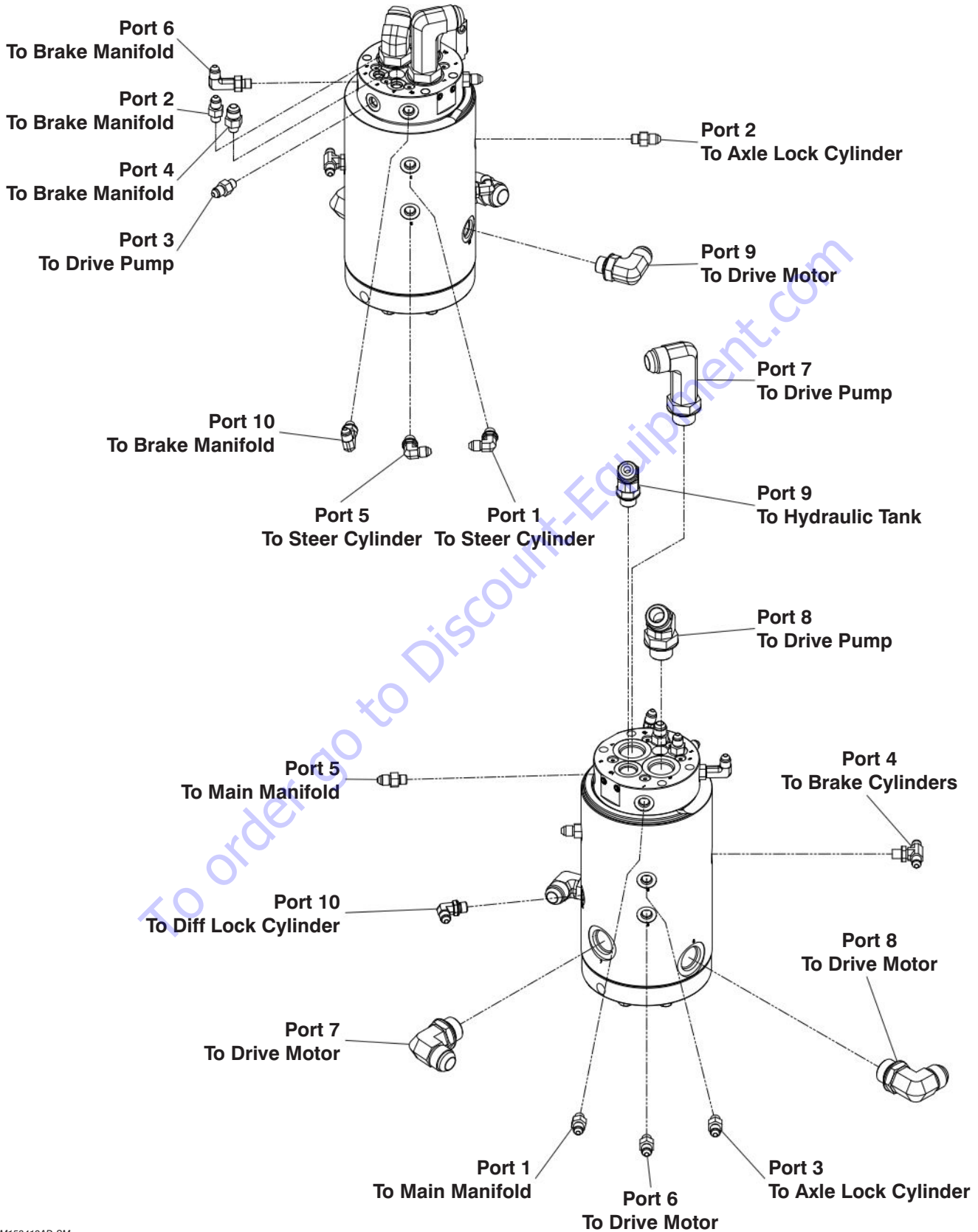
3.5 Electrical Parts List

Index No.	Skyjack Part No.	Description
3H-26	159827	COIL, 12 Volt (Brake valve)
3H-45	159827	COIL, 12 Volt (Motor 2-speed valve)
3H-65	159827	COIL, 12 Volt (Axle lock valve)
3H-165	159827	COIL, 12 Volt (Differential lock valve)
5H-13	159820	COIL, 12 Volt (Boom down valve)
5H-14	159820	COIL, 12 Volt (Boom up valve)
5H-23A	154680	COIL, 12 Volt (Right steer valve)
5H-24A	154680	COIL, 12 Volt (Left steer valve)
5H-30	159820	COIL, 12 Volt (Riser down valve)
5H-31	159820	COIL, 12 Volt (Riser up valve)
5H-32	159819	COIL, 12 Volt (Left turret rotate valve)
5H-33	159819	COIL, 12 Volt (Right turret rotate valve)
5H-34	159819	COIL, 12 Volt (Jib up/Platform left valve)
5H-35	159819	COIL, 12 Volt (Jib down/Platform right valve)
5H-38	159822	COIL, 12 Volt (Boom retract valve)
5H-39	159822	COIL, 12 Volt (Boom extend valve)
5H-40	159819	COIL, 12 Volt (Platform level down valve)
5H-41	159819	COIL, 12 Volt (Platform level up valve)
A1	138224	JOYSTICK (Fly boom/Turret)
A2	138225	JOYSTICK (Drive/Steer)
A3	148707	JOYSTICK (Riser boom)
AT1	149426	ANGLE TRANSDUCER
B1	144676	BATTERY (12V, 950 CCA)
BP1	103057	BEEPER, 4-28 VDC Slow pulsing (Platform control console)
BP2	103056	BEEPER, 7.5-16 VDC (Base control console)
BP3	144387	ALARM, Overload
CAP1	103319	CAPACITOR (50V 1000 uF)
CAP2	103319	CAPACITOR (50V 1000 uF)
CAP3	164511	CAPACITOR (25V 10 000 uF)
CB1	117325	CIRCUIT BREAKER (15 Amp)
CB2	117325	CIRCUIT BREAKER (15 Amp)
CB3	117325	CIRCUIT BREAKER (15 Amp)
CB4	117326	CIRCUIT BREAKER (20 Amp)
CB6	141630	CIRCUIT BREAKER (15 Amp)
CI	152323	INDICATOR, Charge
DXX	102921	DIODE
FU1	138848	FUSE, 50 Amp
FS1	138230	SWITCH, Low fuel
H1	146652	HORN, 12 Volt
LS1	119348	LIMIT SWITCH, Direction sensing
LS2	153856	LIMIT SWITCH, Riser boom down
LS3	153855	LIMIT SWITCH, Main boom down
LS4	153854	LIMIT SWITCH, Fly boom retracted
M1	153800	PUMP, Emergency
PL1	148973	LIGHT, Pilot (Engine fault)
PL2	148972	LIGHT, Pilot (Glow plug)

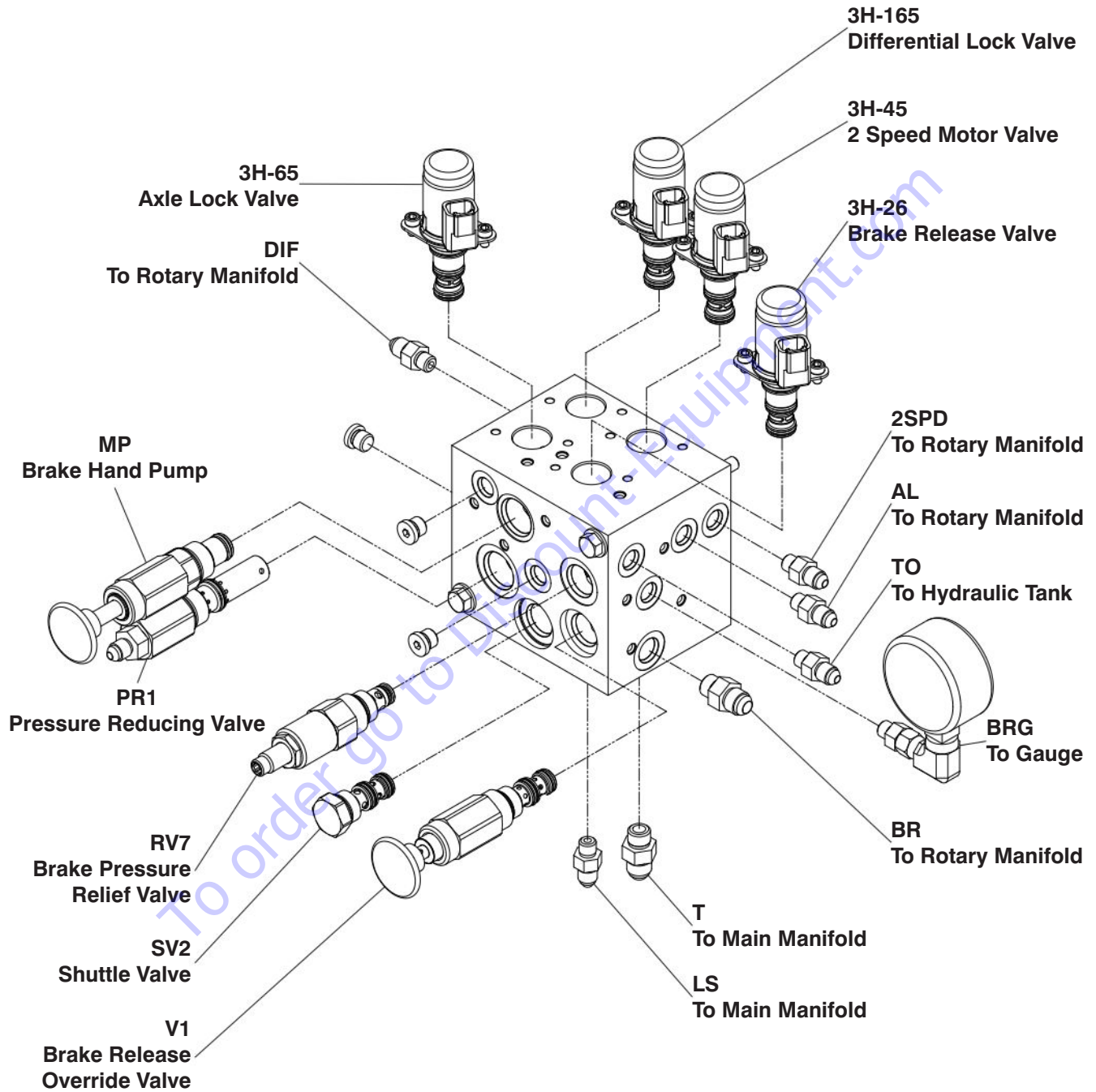
3.5 Electrical Parts List

Index No.	Skyjack Part No.	Description
PL3	147229	LED BLOCK, Red (12 volts) (Base control console)
PL4	147229	LED BLOCK, Red (12 volts) (Platform control console)
PL5	138229	MODULE, Upper indicating
PL6	148971	LIGHT, Pilot (Platform control console)
R1	139088	RESISTOR, 6 ohm 25 W
R2	151643	RESISTOR, 250 ohm 1 W
R3	144492	RESISTOR, 680 ohm 1 W (Deutz D2011 & GM engines)
	163021	RESISTOR, 120 ohm 1/2 W (Deutz TD2.9L engine)
R4	143952	RESISTOR, 51 ohm 2 W (Deutz D2011 engine)
	164855	RESISTOR, 1.0k ohm 1/2 W (Deutz TD2.9L engine)
R5	164856	RESISTOR, 3.3k ohm 1/2 W
R6	164857	RESISTOR, 3.9k ohm 1/2 W
R7	144492	RESISTOR, 680 ohm 1 W
S1	119725	SWITCH, Main power disconnect
S2	138277	KEYSWITCH, Base/Off/Platform (Base control) (ANSI/CSA, AS Deutz D2011)
	164949	KEYSWITCH, Base/Off/Platform (Base control) (ANSI/CSA Deutz TD2.9L)
	144366	KEYSWITCH, Base/Off/Platform (Base control) (CE)
S3	147053	N.C. CONTACT, Emergency stop (Base control console)
S4	147053	N.C. CONTACT, Emergency stop (Platform control console)
S5	138278	SWITCH, Ignition/emergency pump toggle (Base control console)
S6	138278	SWITCH, Ignition/emergency toggle (Platform control console)
S8	102853	SWITCH, Diagnose toggle (Base control console) (Deutz engine)
S9	124446	SWITCH, Ignition (Platform control console)
S10	115574	SWITCH, Throttle toggle (Platform control console)
S11	138721	ASSEMBLY, Footswitch
S12	138278	SWITCH, Boom up/down toggle (Base control console)
S13	102853	SWITCH, Turret rotate toggle (Base control console)
S14	102853	SWITCH, Telescope in/out toggle (Base control console)
S15	102853	SWITCH, Platform leveling toggle (Base control console)
S16	138278	SWITCH, Platform rotate toggle (Base control console)
S17	102853	SWITCH, Jib up/down toggle (Base control console)
S18	138278	SWITCH, Telescope in/out toggle (Platform control console)
S19	138278	SWITCH, Platform leveling toggle (Platform control console)
S20	138278	SWITCH, Platform rotate toggle (Platform control console)
S21	138278	SWITCH, Jib up/down toggle (Platform control console)
S23	147054	N.O. CONTACT, Horn (Platform control console)
S25	138278	SWITCH, Riser boom up/down toggle (Base control console)
S26	115574	SWITCH, Fuel select (Platform control console) (GM engine)
S28	148998	SWITCH, Differential (Platform control console)
S48	115747	SWITCH, Drive torque toggle (Platform control console)
SMB1-105	218381	MODULE, Master
SMB1-106	218382	MODULE, Slavew
X22	138576	PORT, Diagnose (Deutz engine)
X23	138575	CONNECTOR, Engine (Deutz engine)

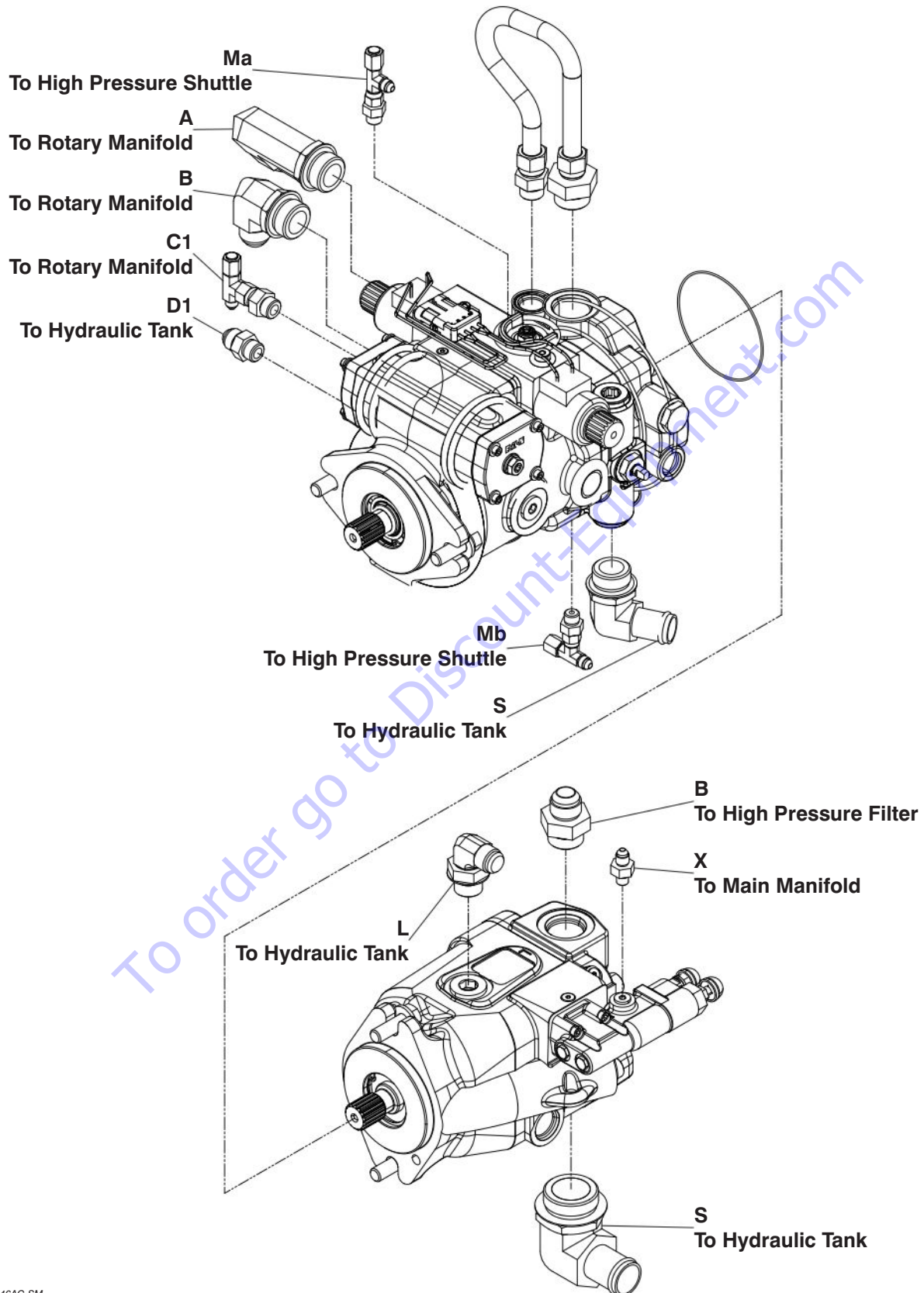
3.6 Rotary Manifold Port Identification



3.7 Brake Manifold Port Identification



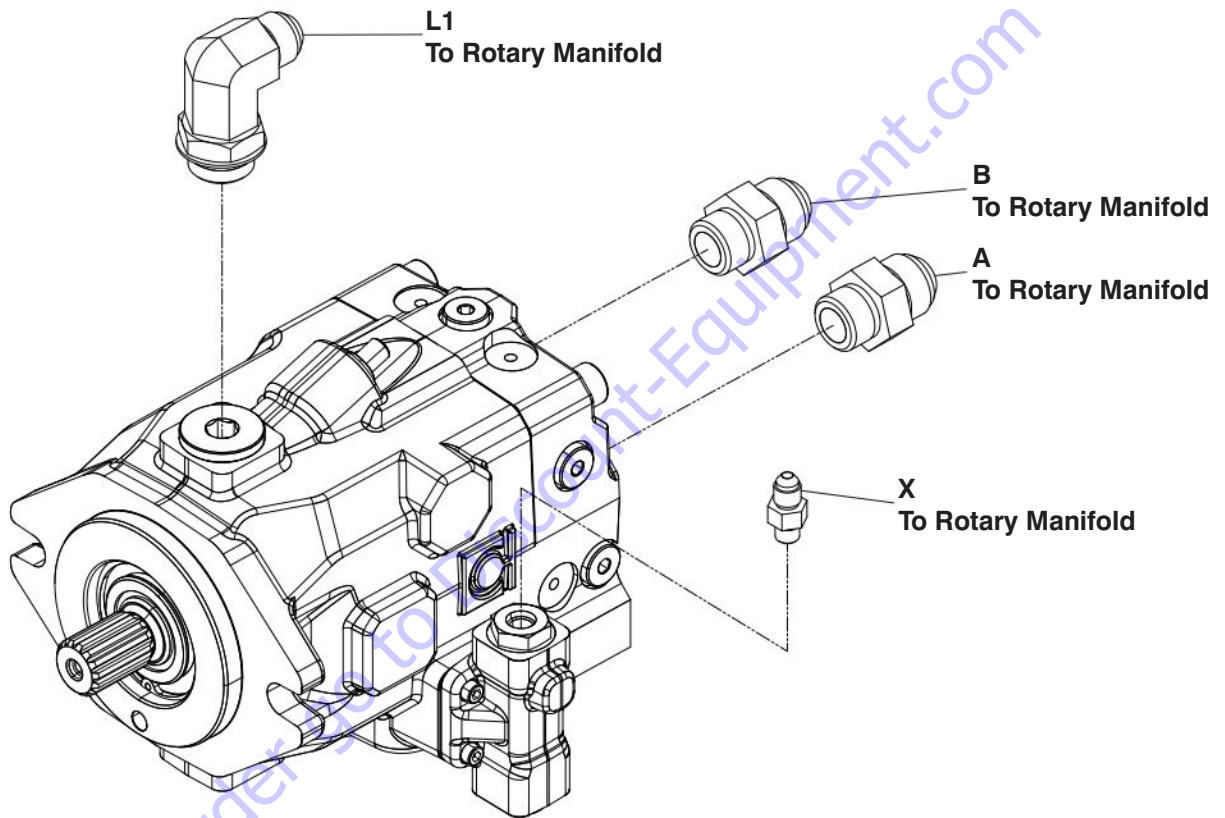
3.8 Drive and System Pump and Port Identifications



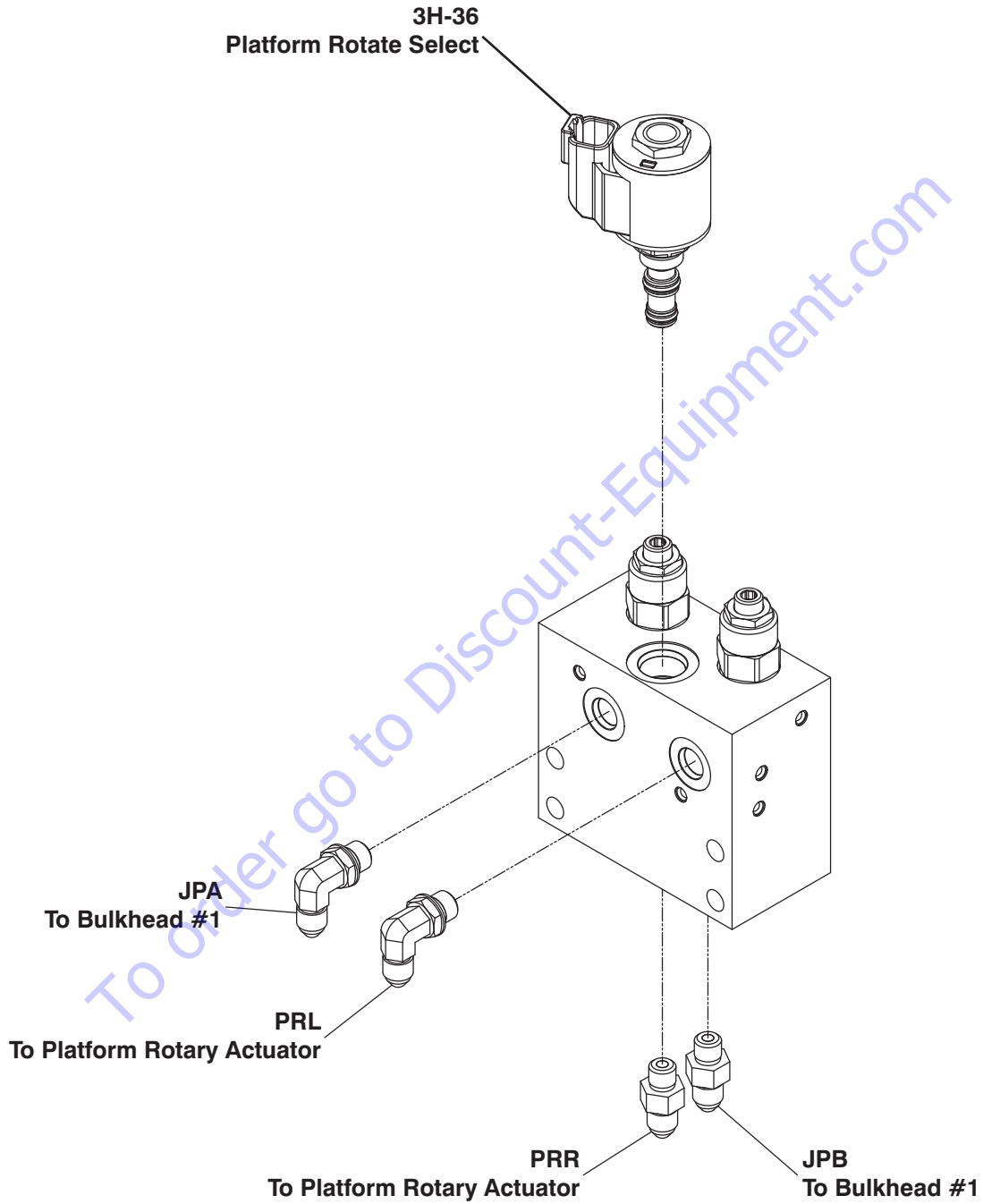
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238275AAA

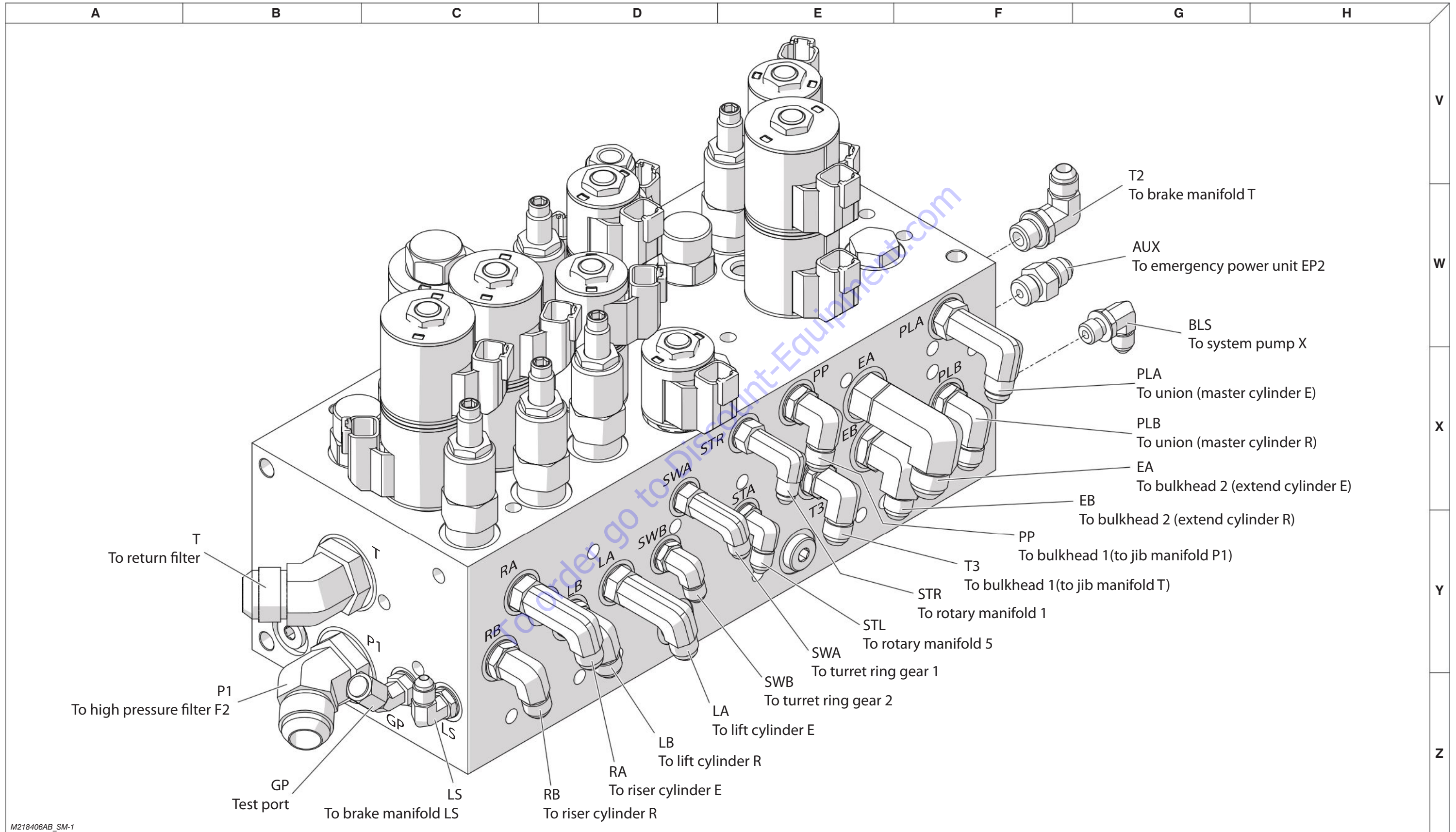
3.9 Drive Motor and Port Identifications



3.10 Jib Valve and Port Identifications

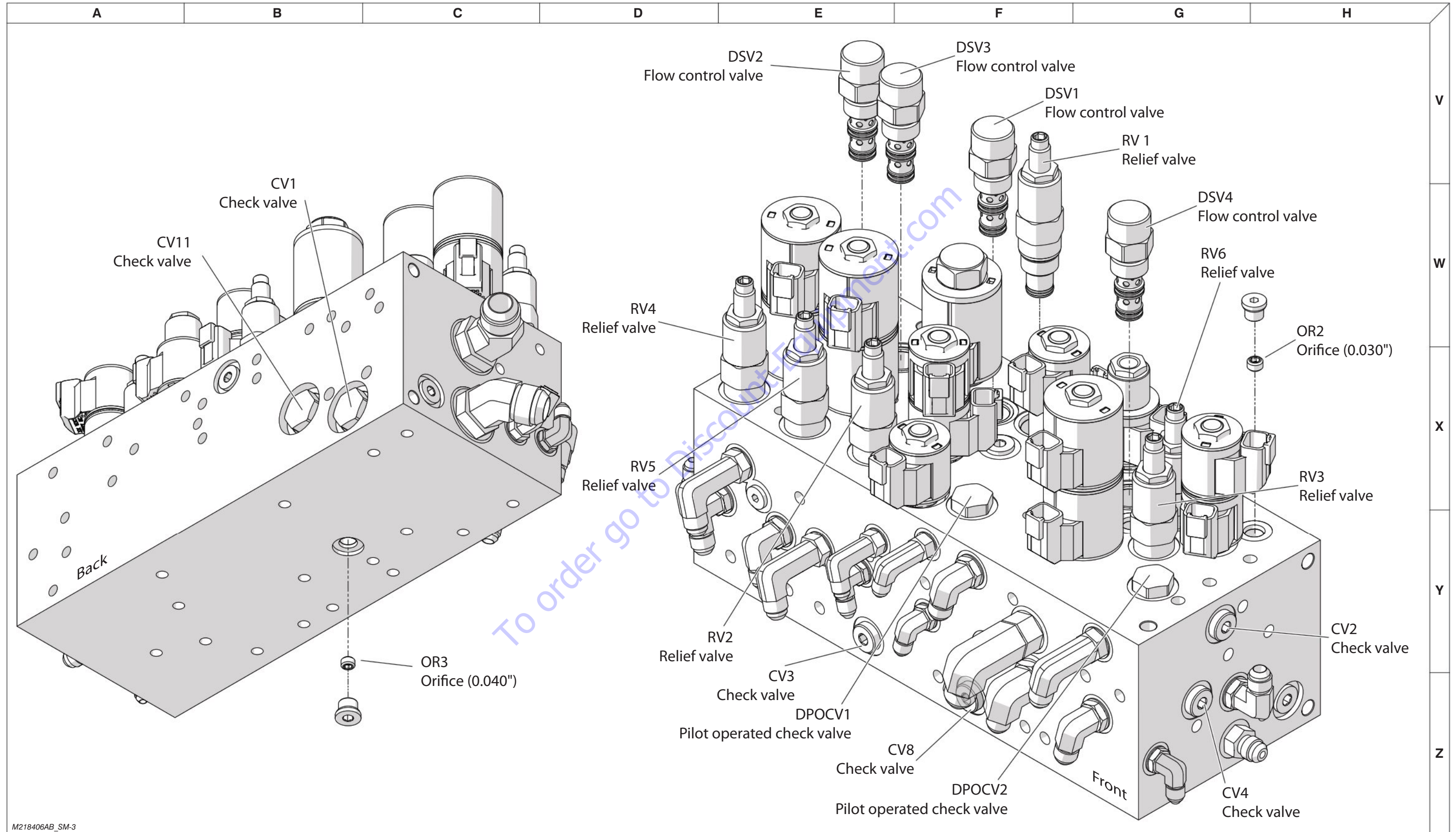


3.11 Main Manifold Port Identification - ANSI/CSA



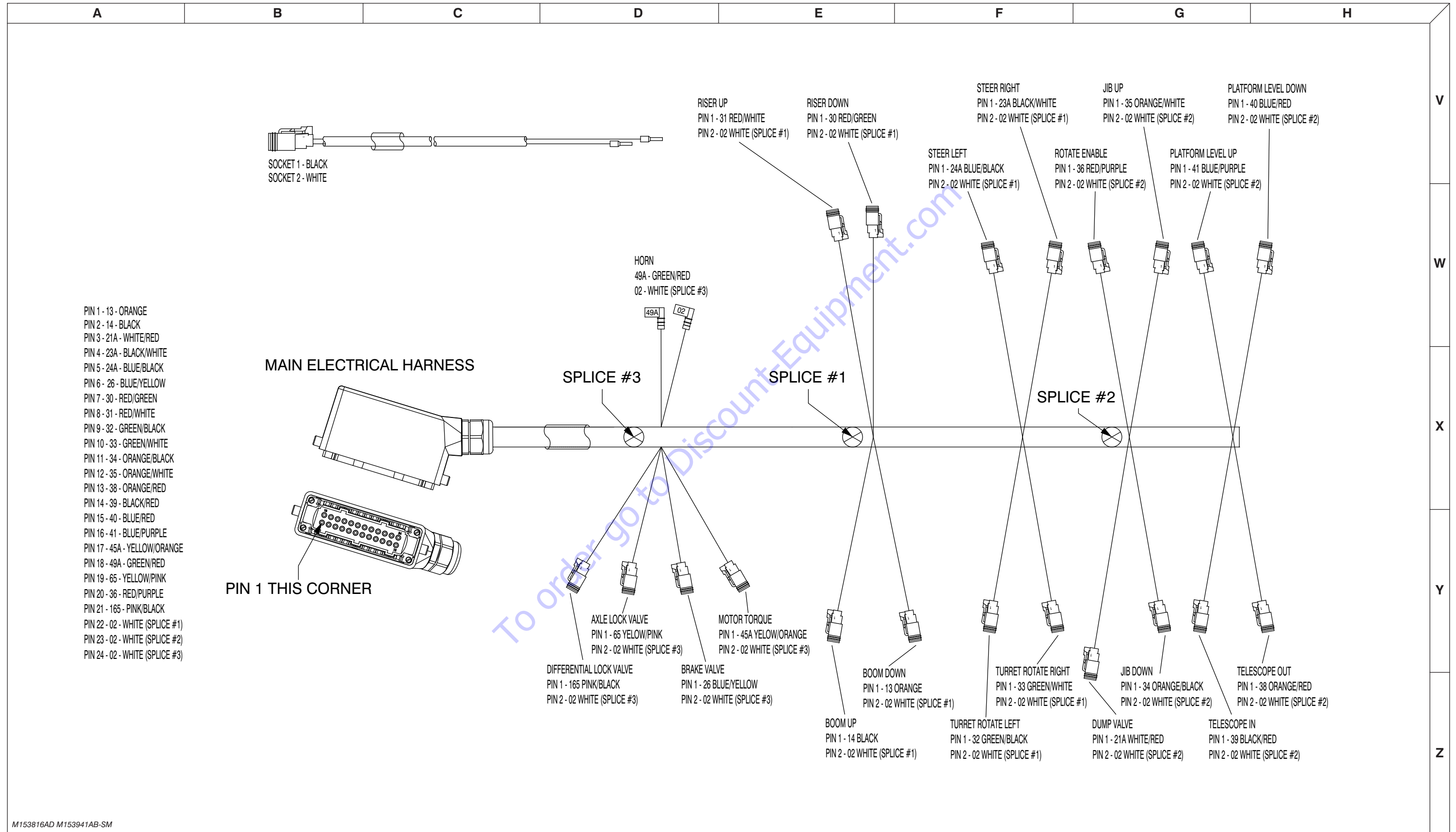
M218406AB_SM-1

3.13 Main Manifold Hydraulic Component Identification - ANSI/CSA



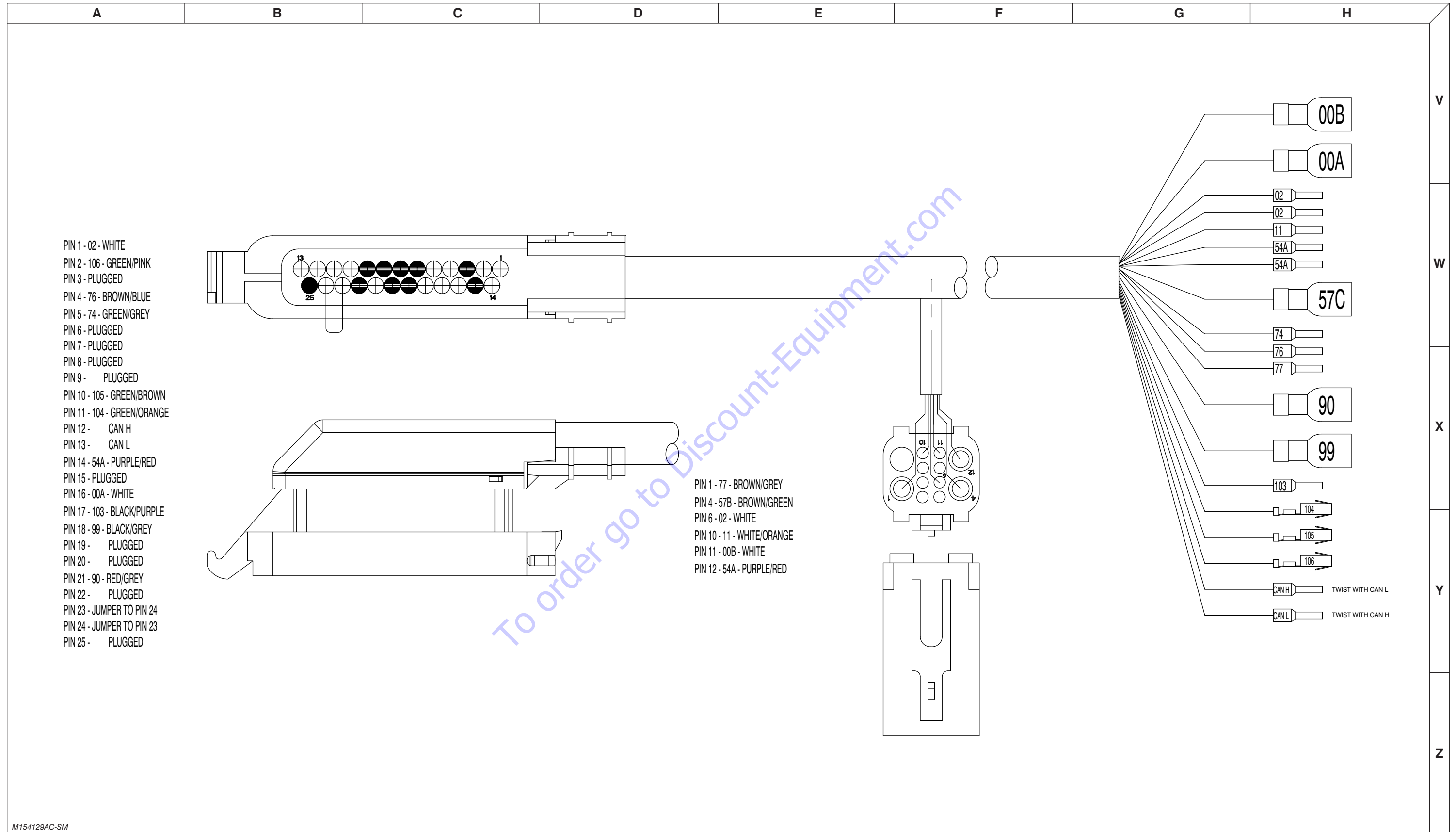
M218406AB_SM-3

3.14 Main Electrical Harness and Fuel Level Switch Harness



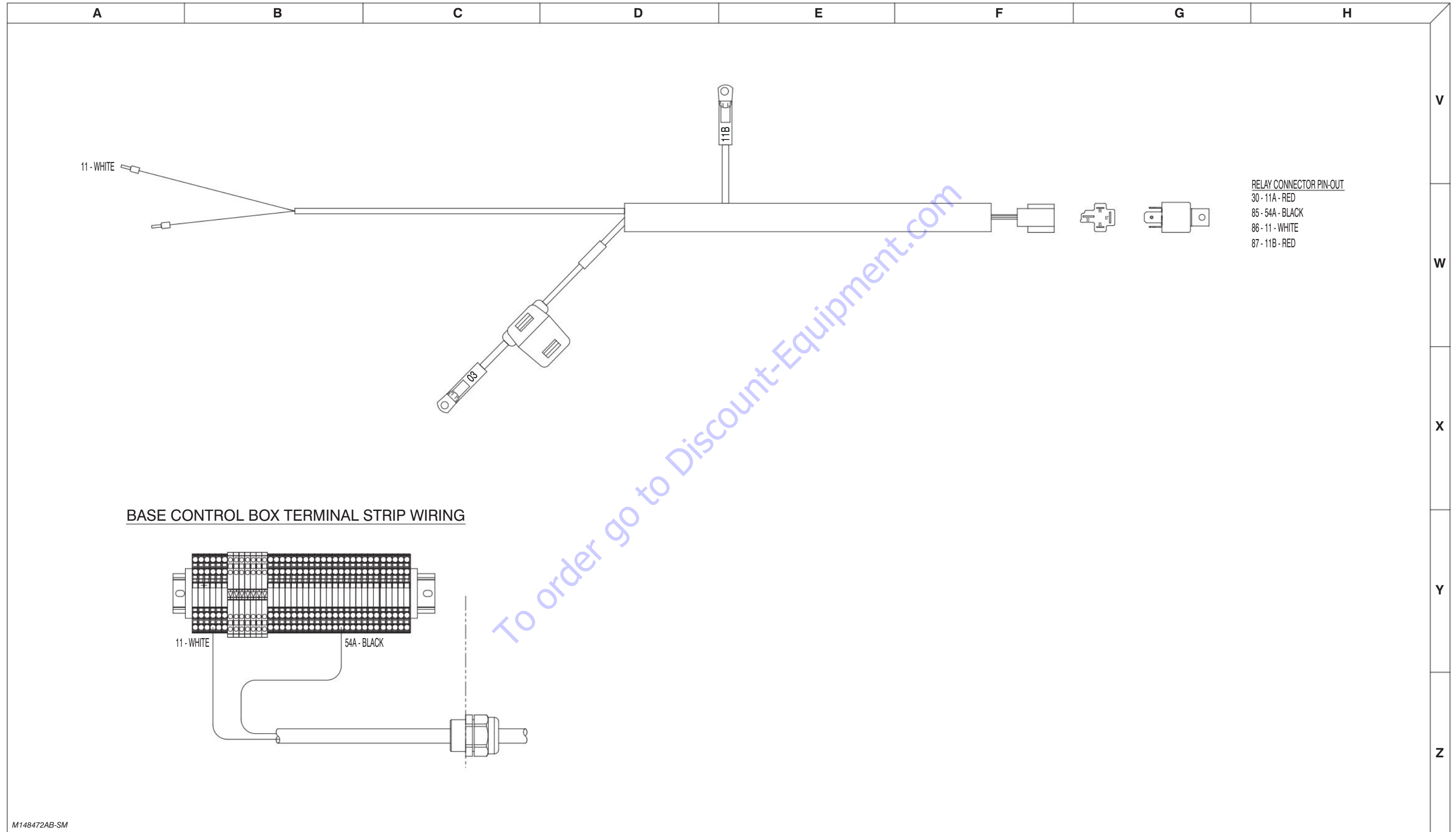
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3.15 Engine Harness - Kubota D1305



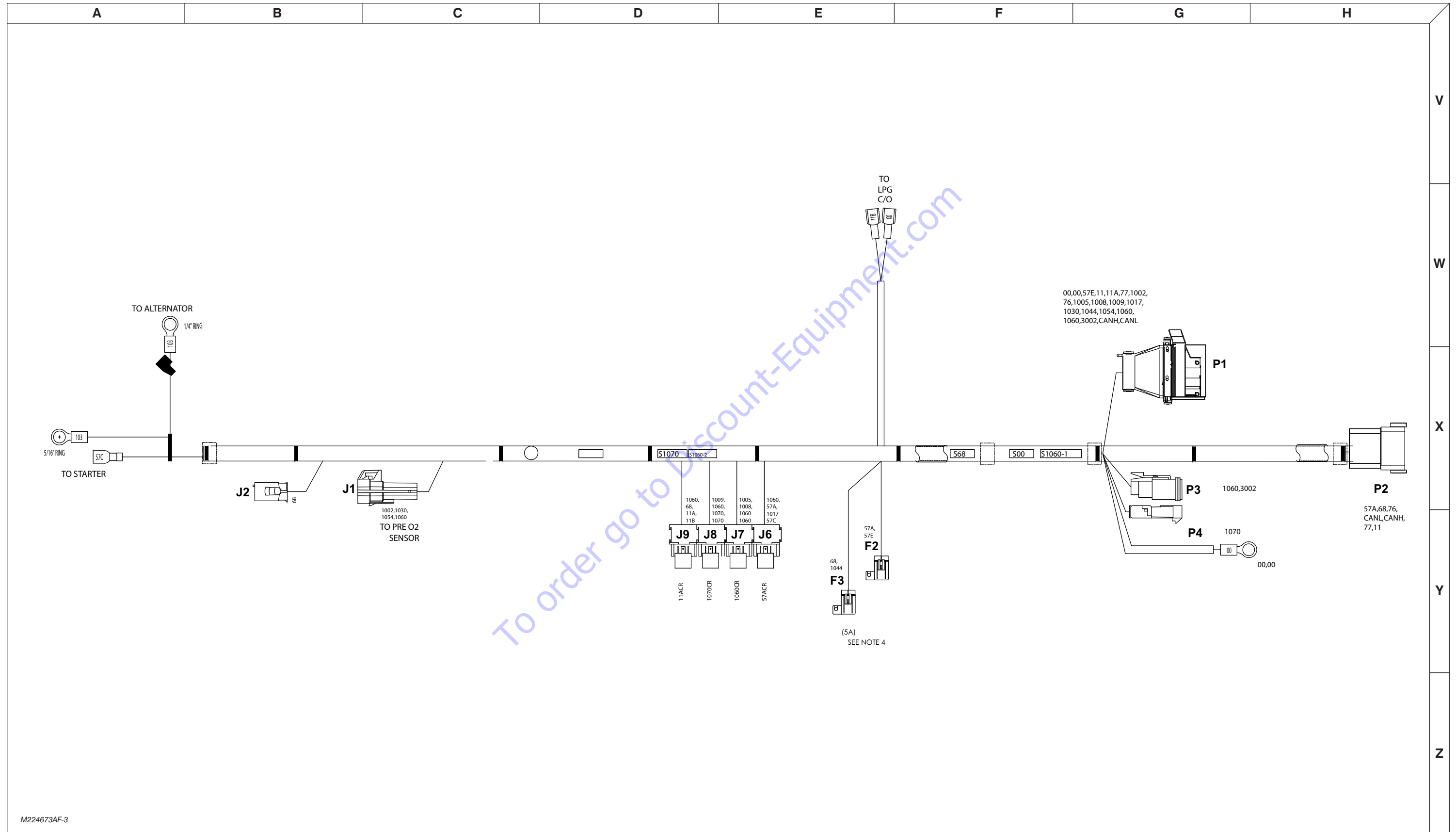
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3.16 Engine Harness Wiring Diagram - Kubota D1305



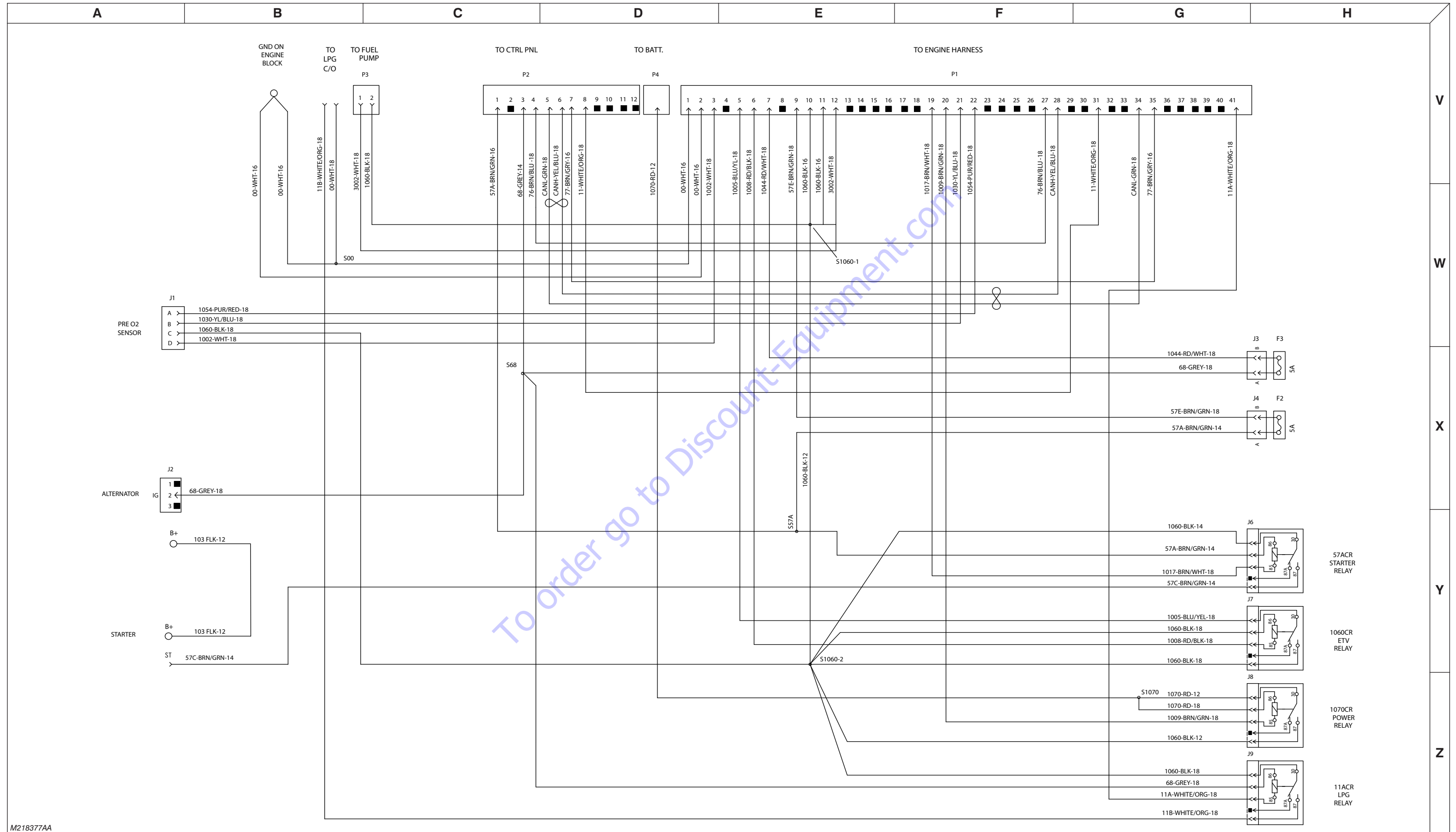
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3.17 Engine Harness - Kubota WG972



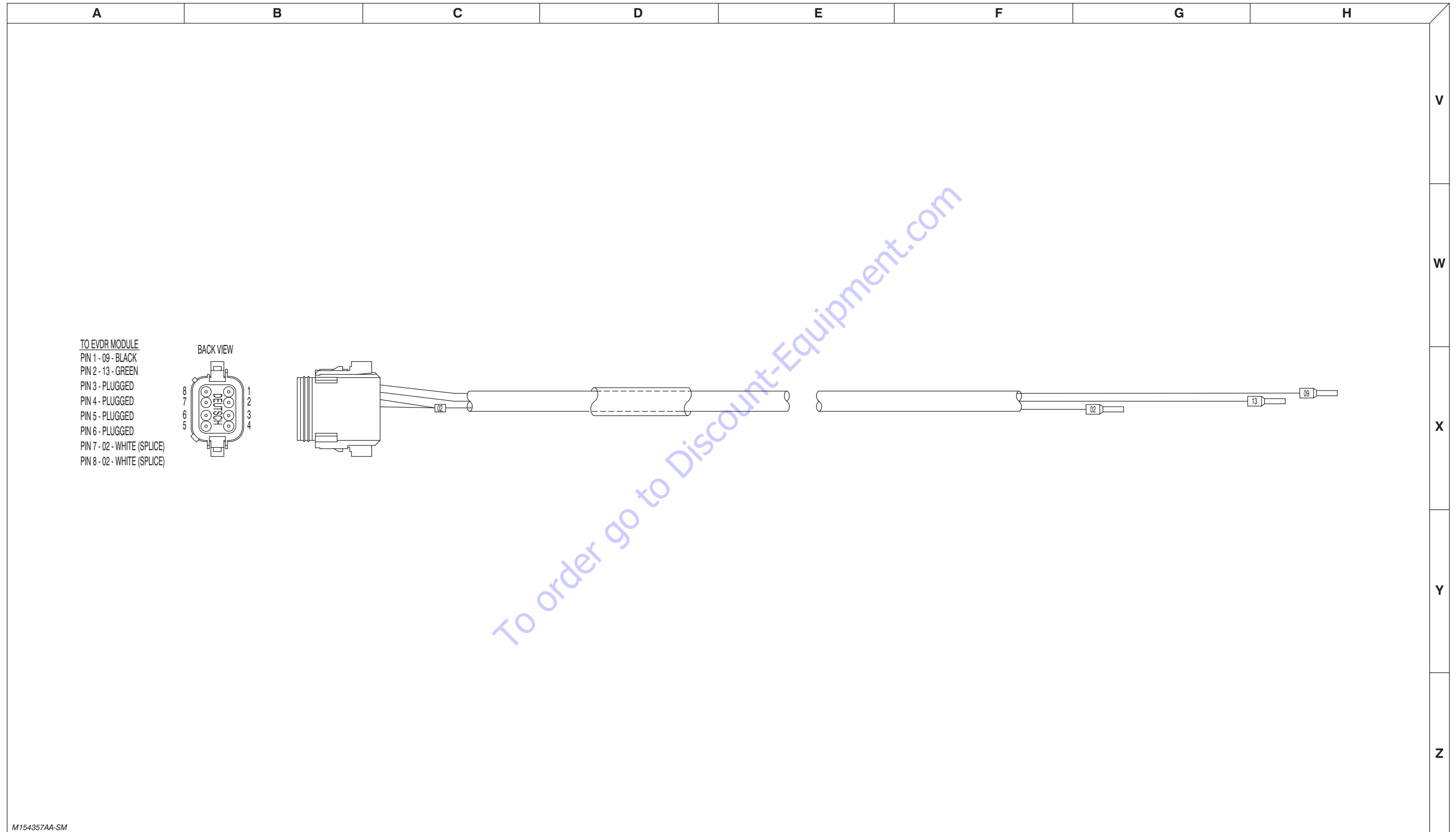
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3.18 Engine Harness Wiring Diagram - Kubota WG972



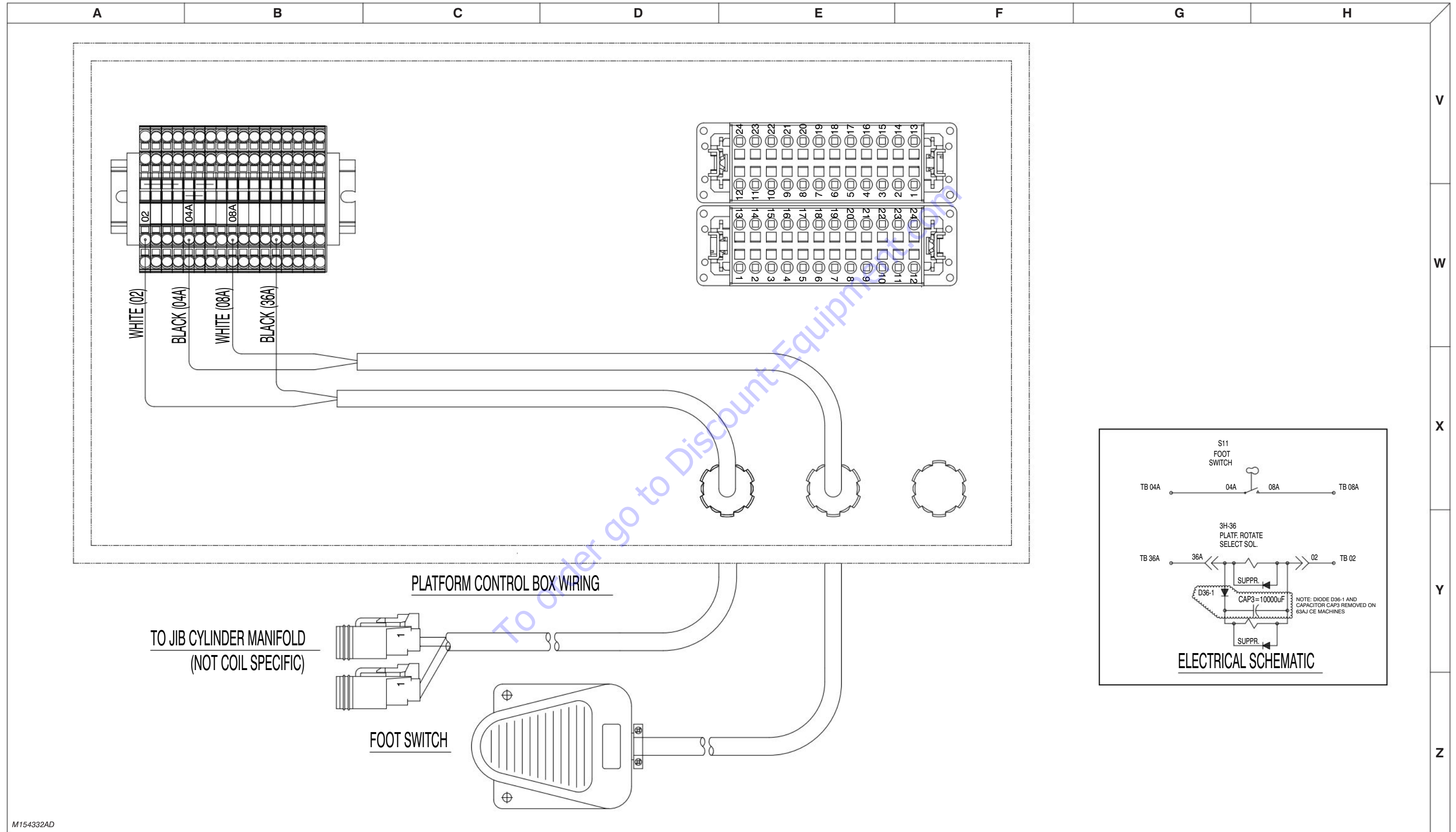
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3.19 Lowering Throttle Valve Harness



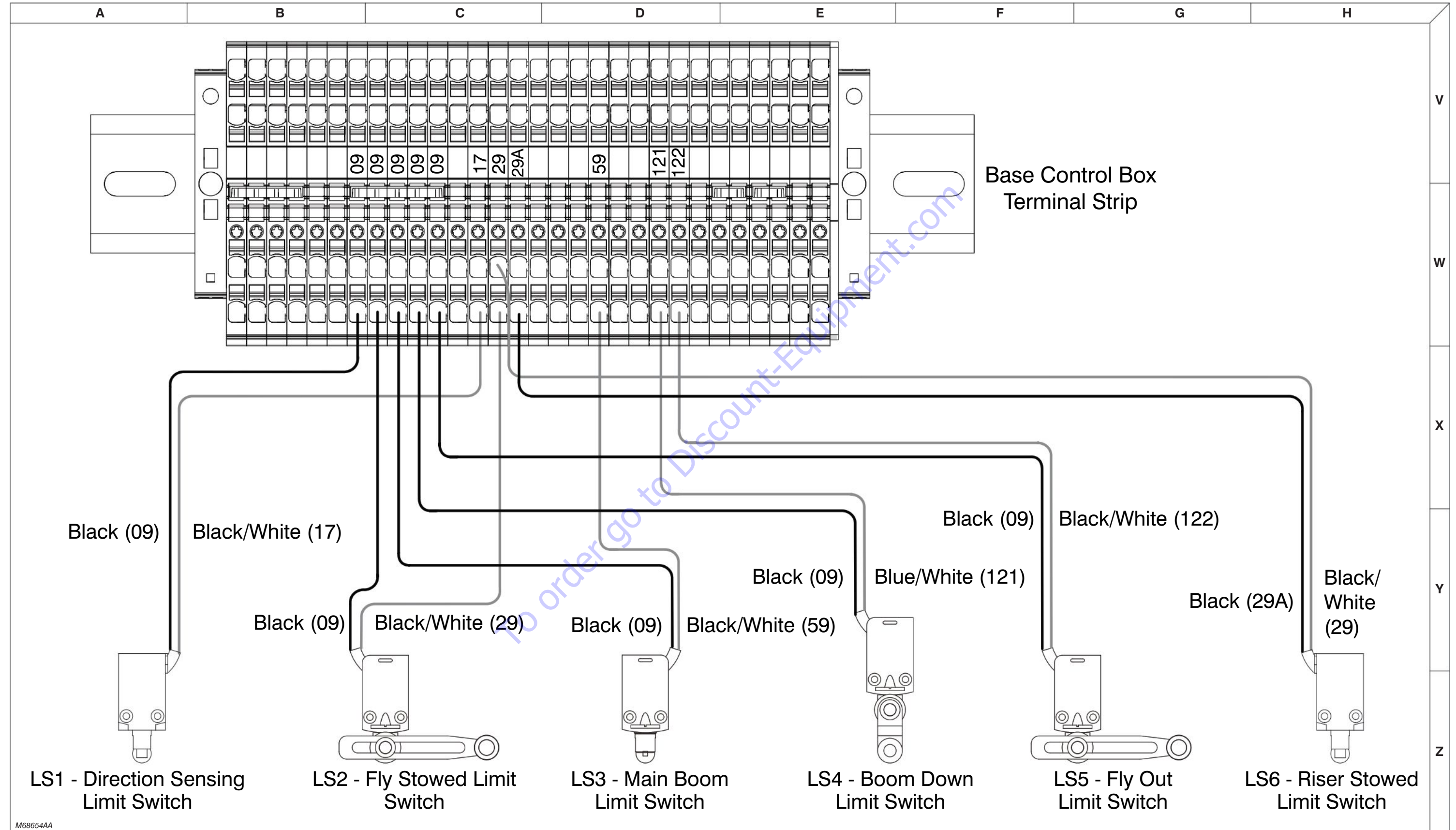
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3.20 Platform Harnesses



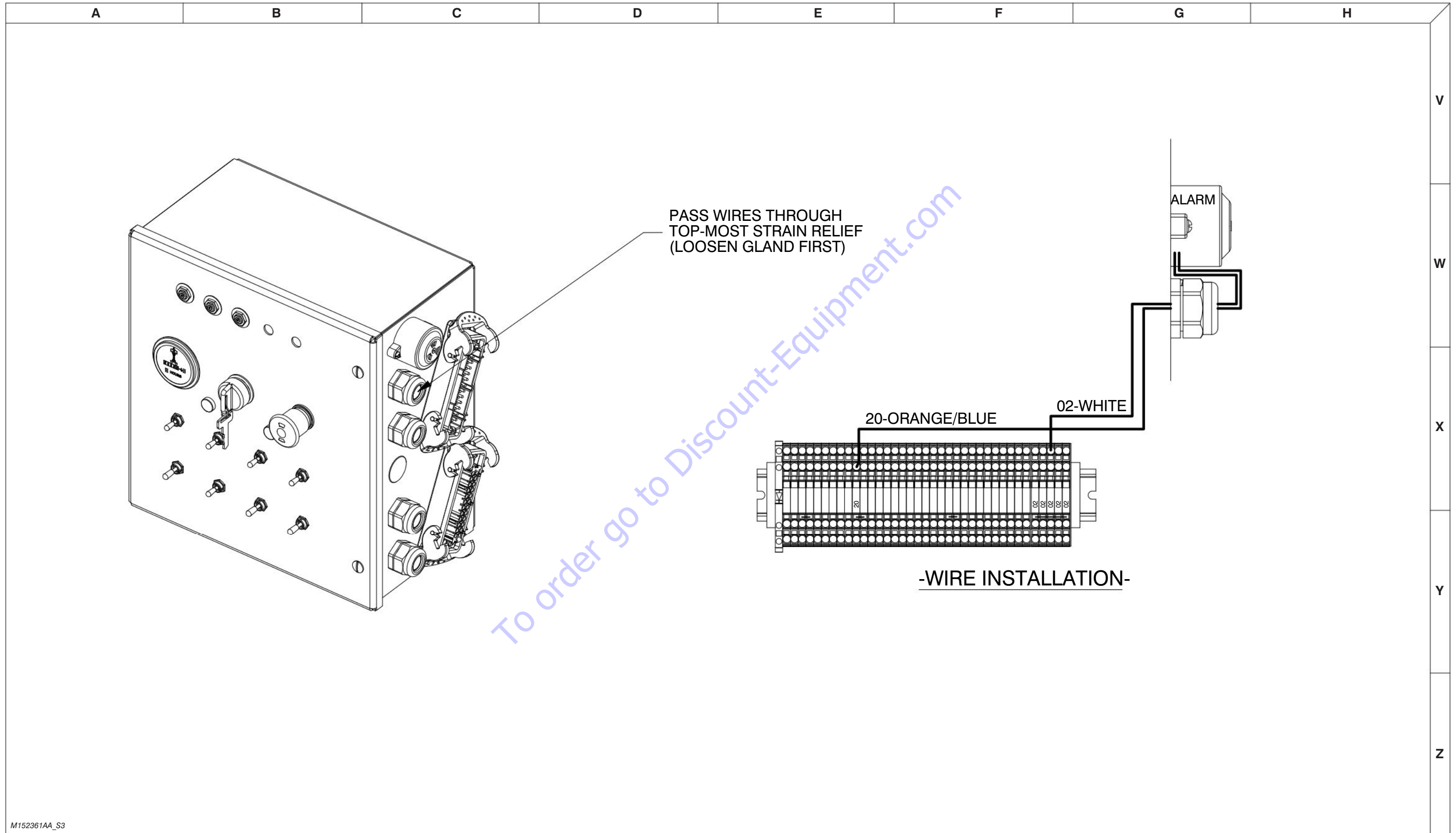
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3.21 Limit Switch Connections



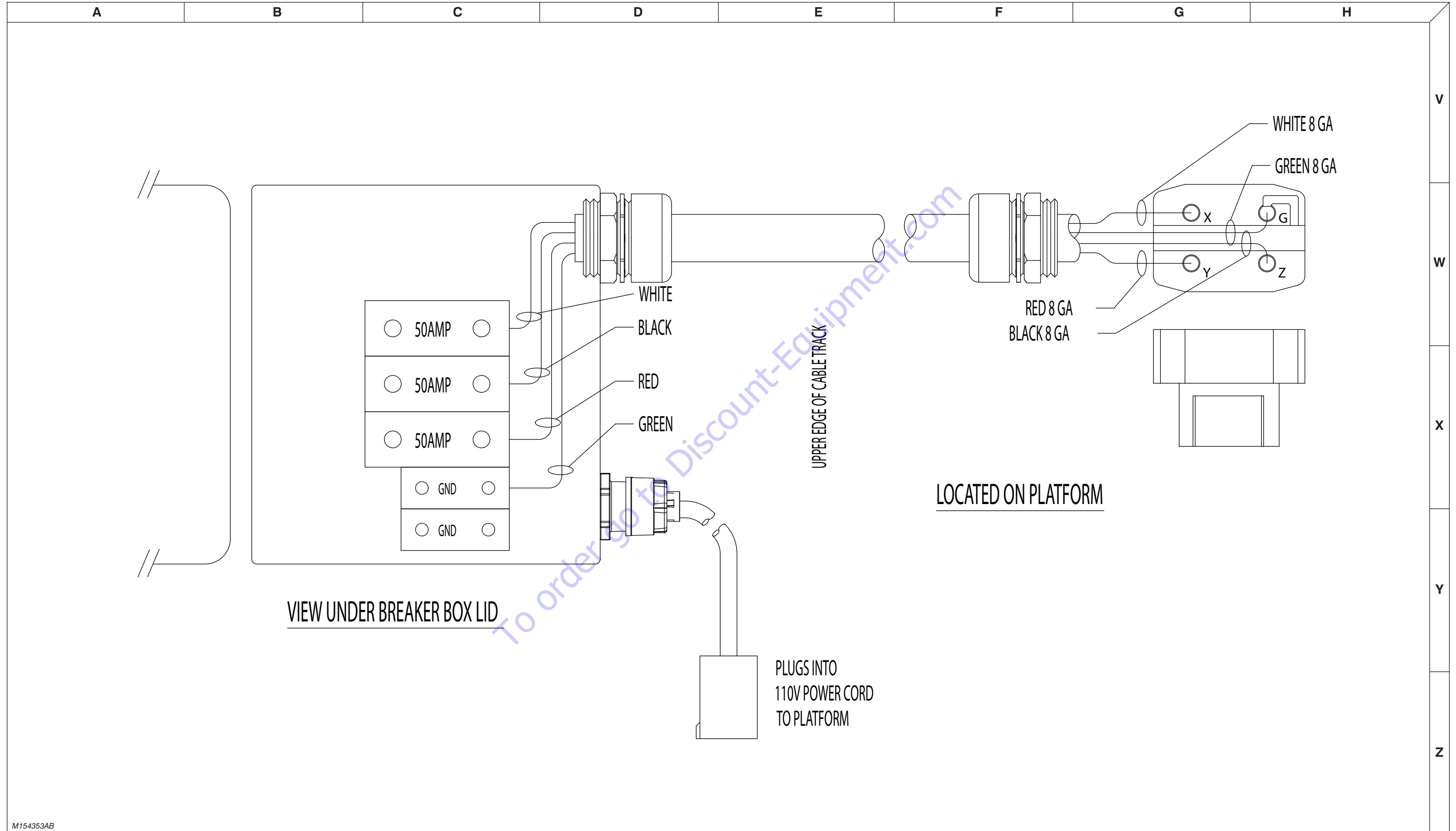
M68654AA

3.22 All Motion Alarm Connections - CE & AS



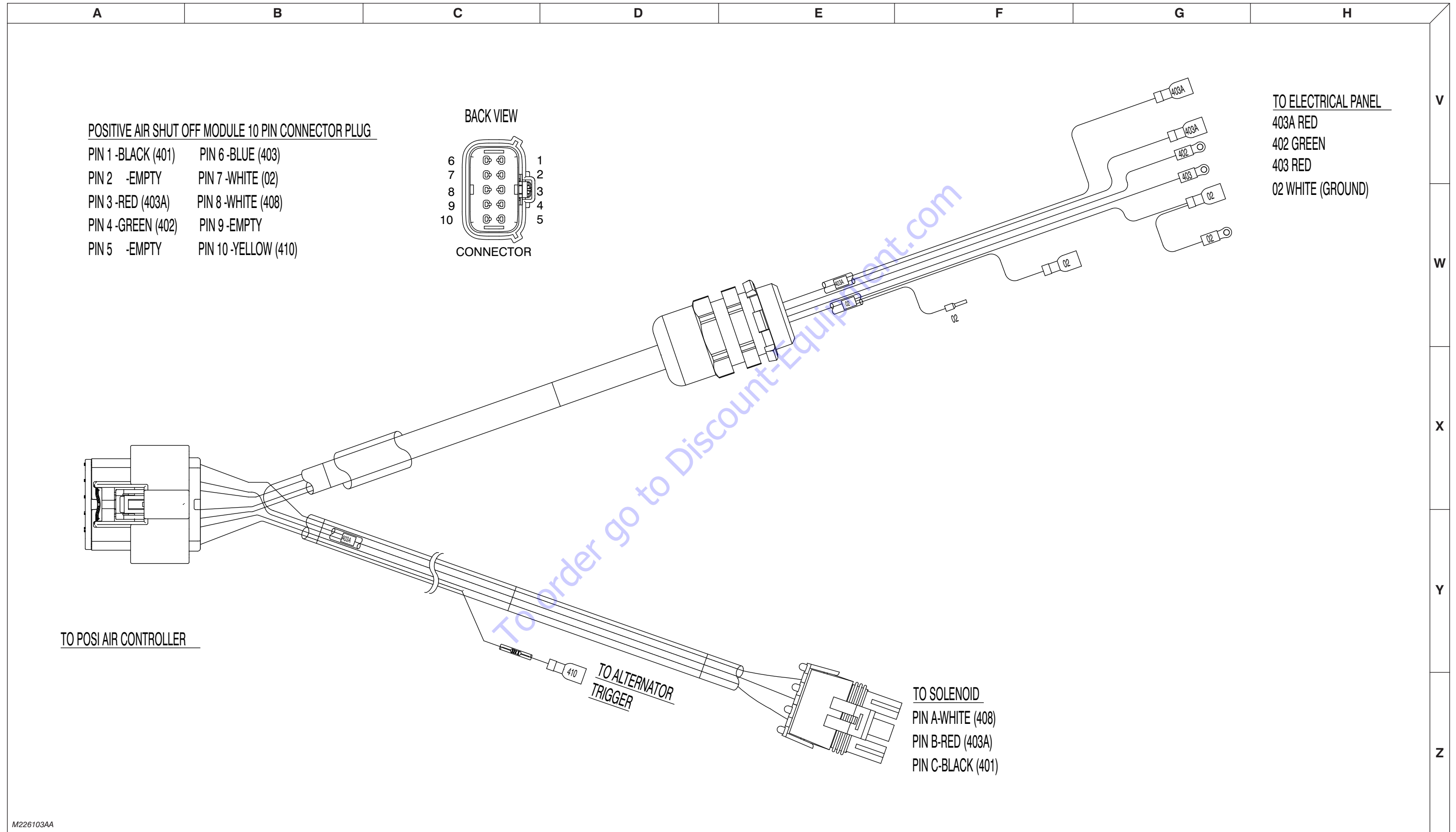
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3.23 Welder Wiring - ANSI/CSA



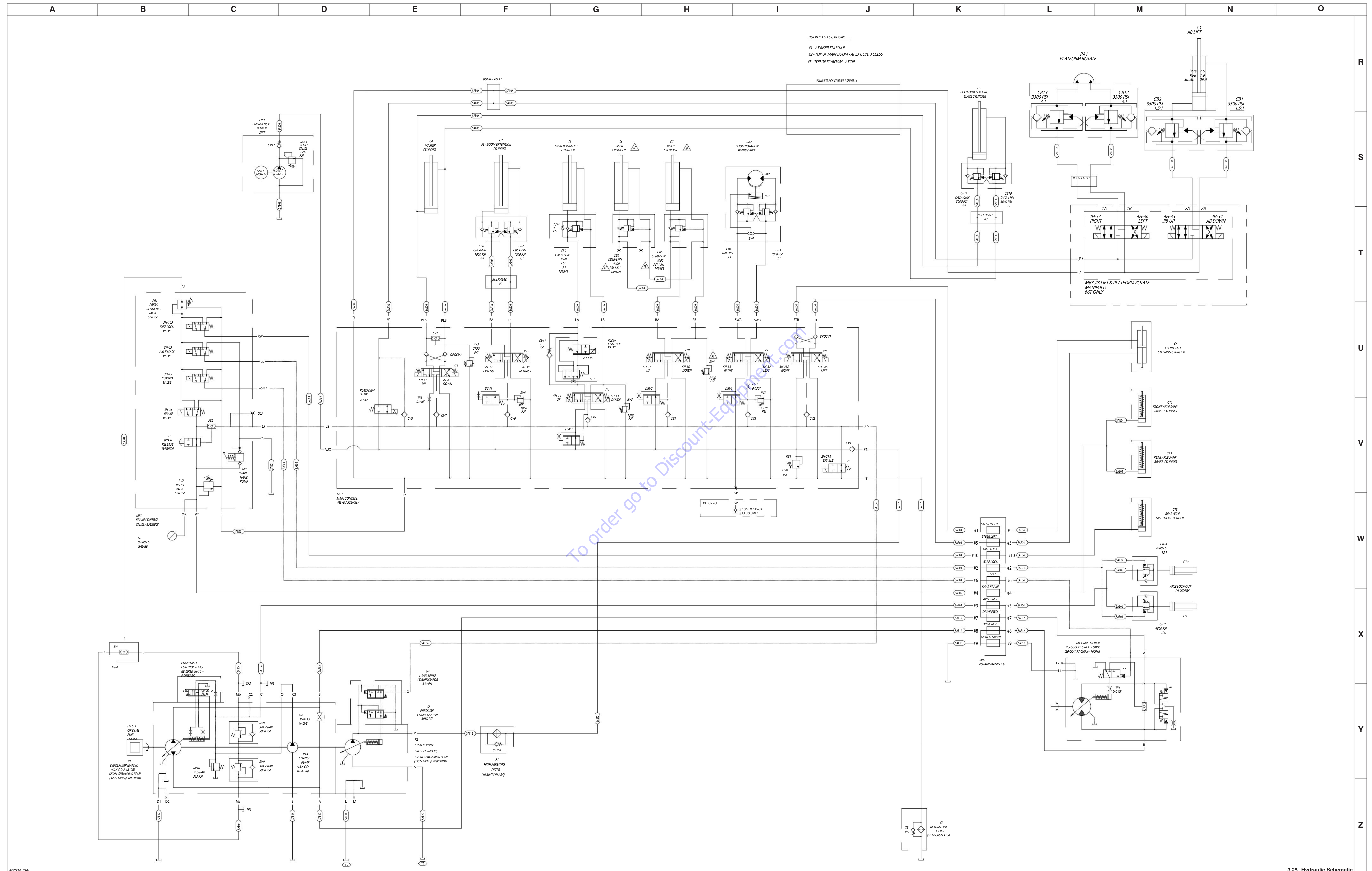
M154353AB

3.24 Positive Air Shutoff Harness



M226103AA

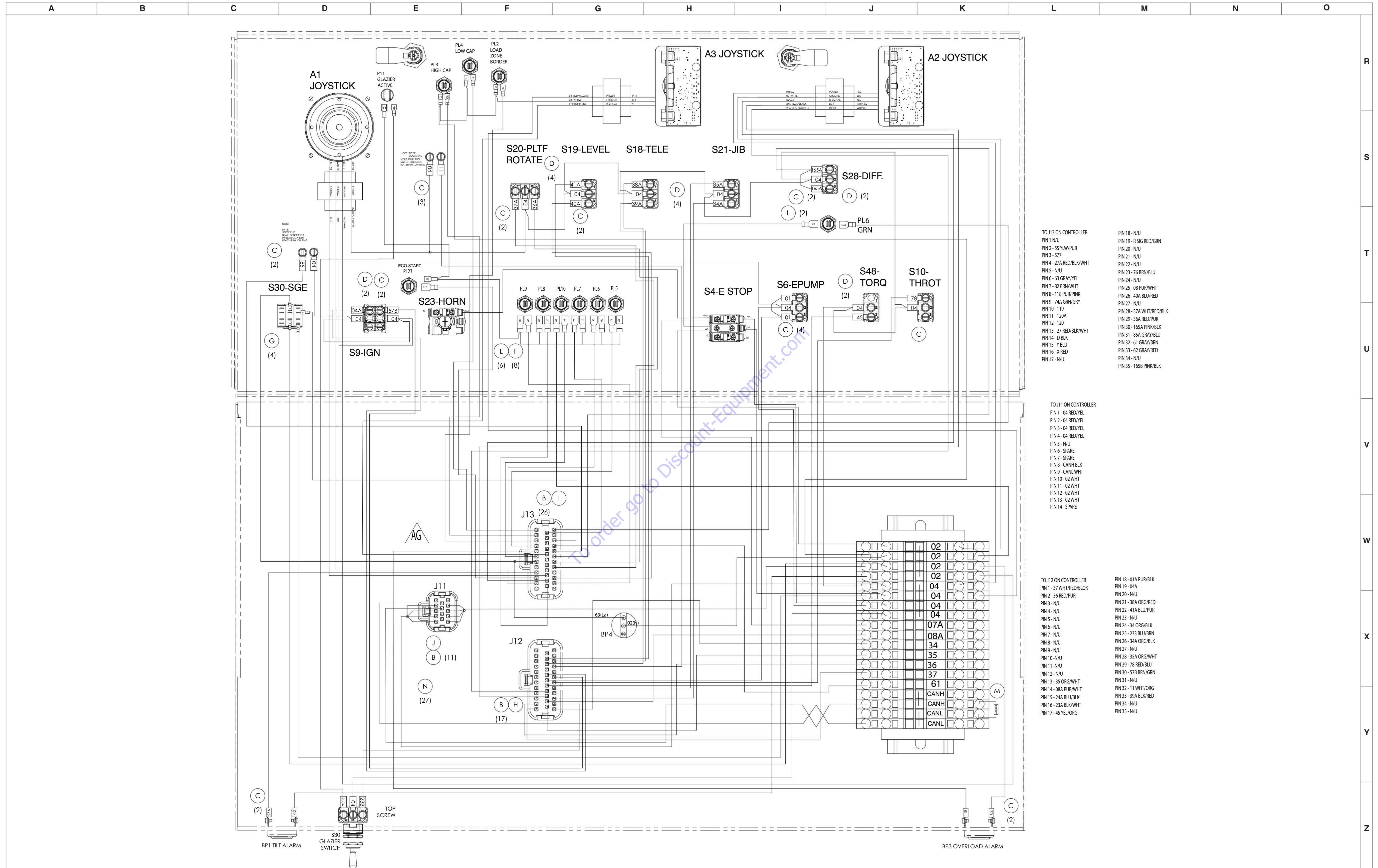
3.25 Hydraulic Schematic



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3.25 Hydraulic Schematic

3.26 Platform Control Box Wiring



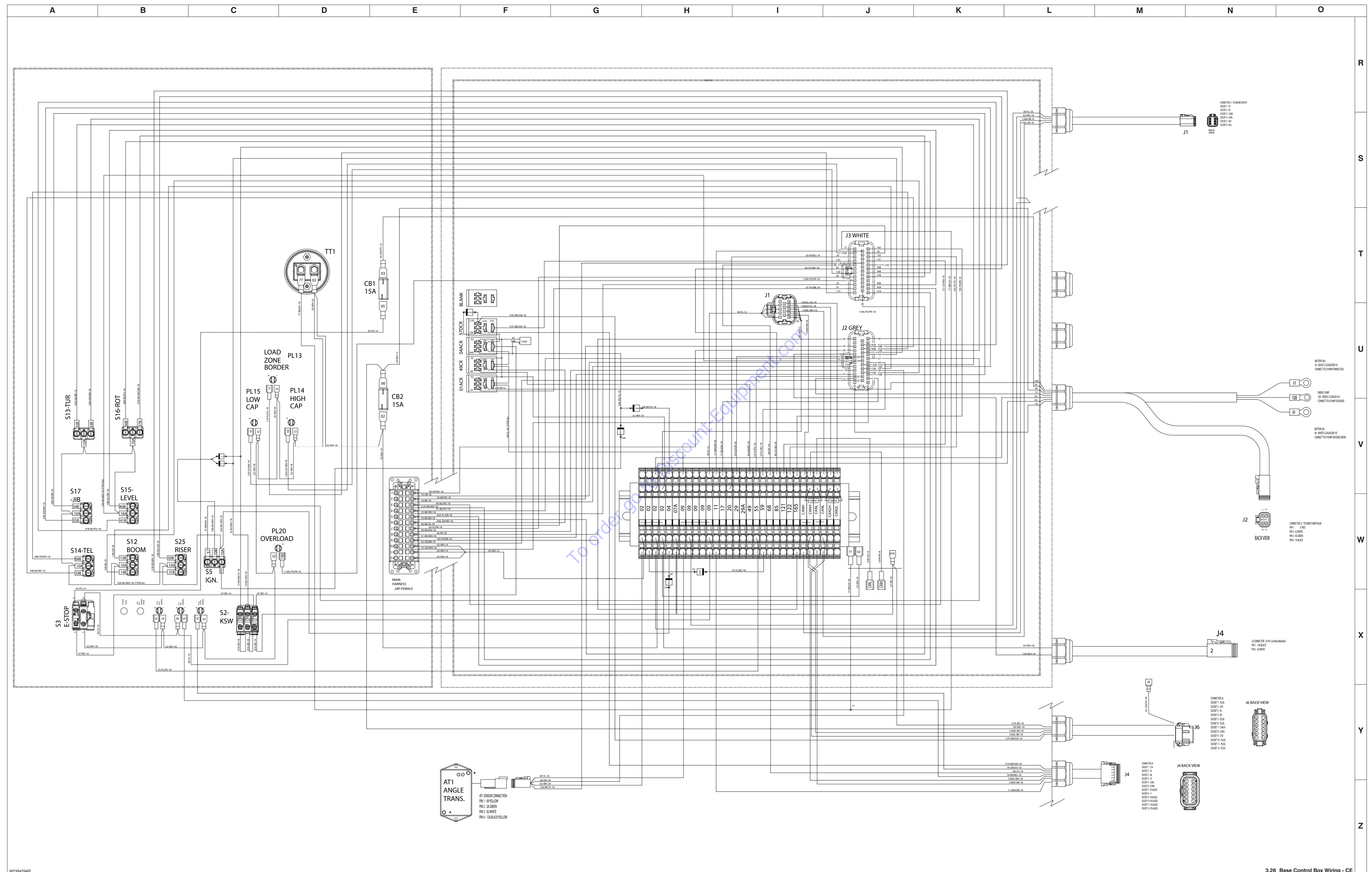
- TO J13 ON CONTROLLER
- PIN 1 - N/U
 - PIN 2 - 55 YLW/PUR
 - PIN 3 - 577
 - PIN 4 - 27A RED/BLK/WHT
 - PIN 5 - N/U
 - PIN 6 - 63 GRAY/YEL
 - PIN 7 - 82 BRN/WHT
 - PIN 8 - 118 PUR/PNK
 - PIN 9 - 74A GRN/GRY
 - PIN 10 - 119
 - PIN 11 - 120A
 - PIN 12 - 120
 - PIN 13 - 27 RED/BLK/WHT
 - PIN 14 - D BLK
 - PIN 15 - Y BLU
 - PIN 16 - X RED
 - PIN 17 - N/U
 - PIN 18 - N/U
 - PIN 19 - R SIG RED/GRN
 - PIN 20 - N/U
 - PIN 21 - N/U
 - PIN 22 - N/U
 - PIN 23 - 76 BRN/BLU
 - PIN 24 - N/U
 - PIN 25 - 08 PUR/WHT
 - PIN 26 - 40A BLU/RED
 - PIN 27 - N/U
 - PIN 28 - 37A WHT/RED/BLK
 - PIN 29 - 36A RED/PUR
 - PIN 30 - 165A PINK/BLK
 - PIN 31 - 85A GRAY/BLU
 - PIN 32 - 61 GRAY/BRN
 - PIN 33 - 62 GRAY/RED
 - PIN 34 - N/U
 - PIN 35 - 165B PINK/BLK

- TO J11 ON CONTROLLER
- PIN 1 - 04 RED/YEL
 - PIN 2 - 04 RED/YEL
 - PIN 3 - 04 RED/YEL
 - PIN 4 - 04 RED/YEL
 - PIN 5 - N/U
 - PIN 6 - SPARE
 - PIN 7 - SPARE
 - PIN 8 - CANH BLK
 - PIN 9 - CANL WHT
 - PIN 10 - 02 WHT
 - PIN 11 - 02 WHT
 - PIN 12 - 02 WHT
 - PIN 13 - 02 WHT
 - PIN 14 - SPARE

- TO J12 ON CONTROLLER
- PIN 1 - 37 WHT/RED/BLK
 - PIN 2 - 36 RED/PUR
 - PIN 3 - N/U
 - PIN 4 - N/U
 - PIN 5 - N/U
 - PIN 6 - N/U
 - PIN 7 - N/U
 - PIN 8 - N/U
 - PIN 9 - N/U
 - PIN 10 - N/U
 - PIN 11 - N/U
 - PIN 12 - N/U
 - PIN 13 - 35 ORG/WHT
 - PIN 14 - 08A PUR/WHT
 - PIN 15 - 24A BLU/BLK
 - PIN 16 - 23A BLK/WHT
 - PIN 17 - 45 YEL/ORG
 - PIN 18 - 01A PUR/BLK
 - PIN 19 - 04A
 - PIN 20 - N/U
 - PIN 21 - 38A ORG/RED
 - PIN 22 - 41A BLU/PUR
 - PIN 23 - N/U
 - PIN 24 - 34 ORG/BLK
 - PIN 25 - 233 BLU/BRN
 - PIN 26 - 34A ORG/BLK
 - PIN 27 - N/U
 - PIN 28 - 35A ORG/WHT
 - PIN 29 - 78 RED/BLU
 - PIN 30 - 57B BRN/GRN
 - PIN 31 - N/U
 - PIN 32 - 11 WHT/ORG
 - PIN 33 - 39A BLK/RED
 - PIN 34 - N/U
 - PIN 35 - N/U

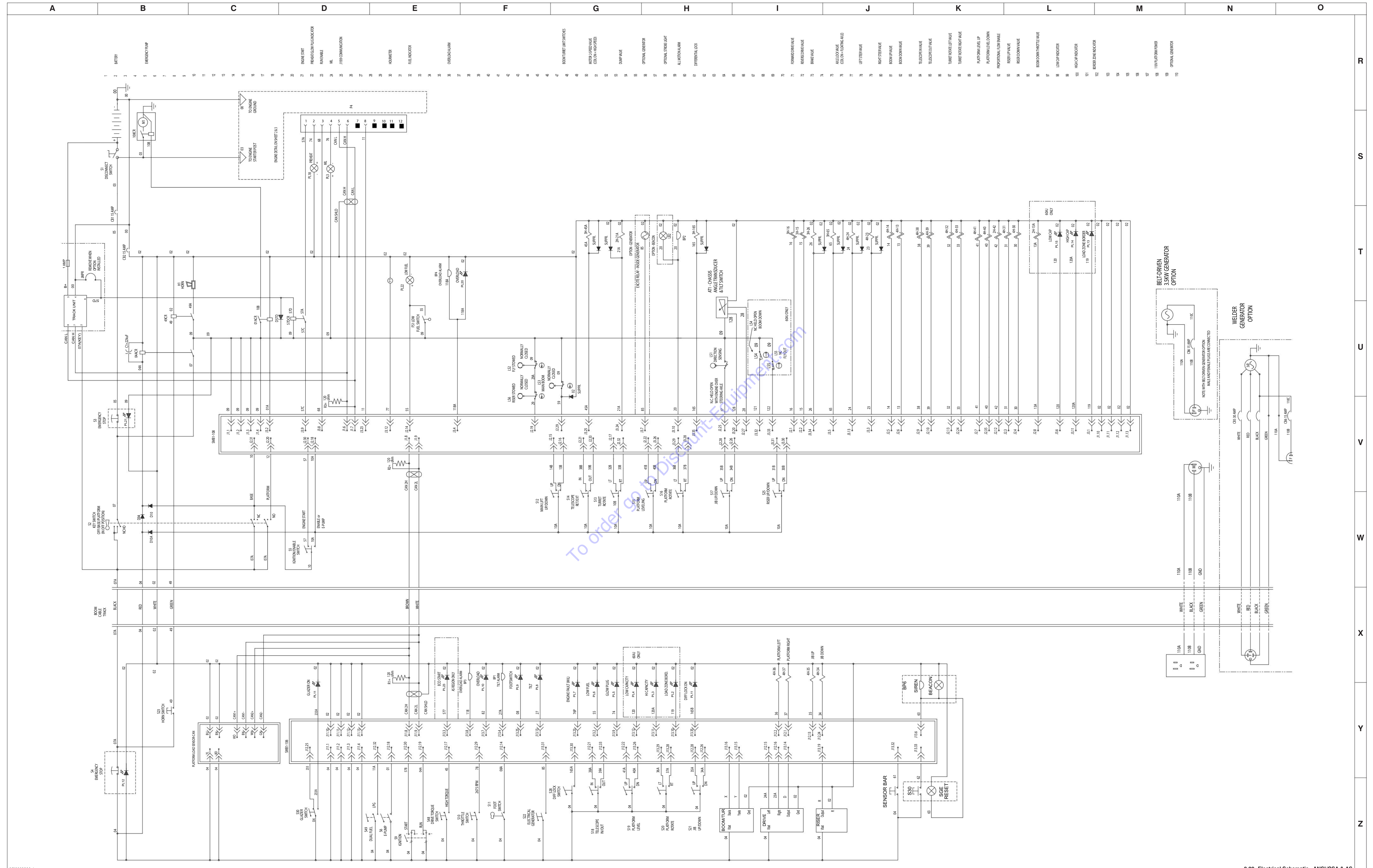
M218074AG

3.28 Base Control Box Wiring - CE

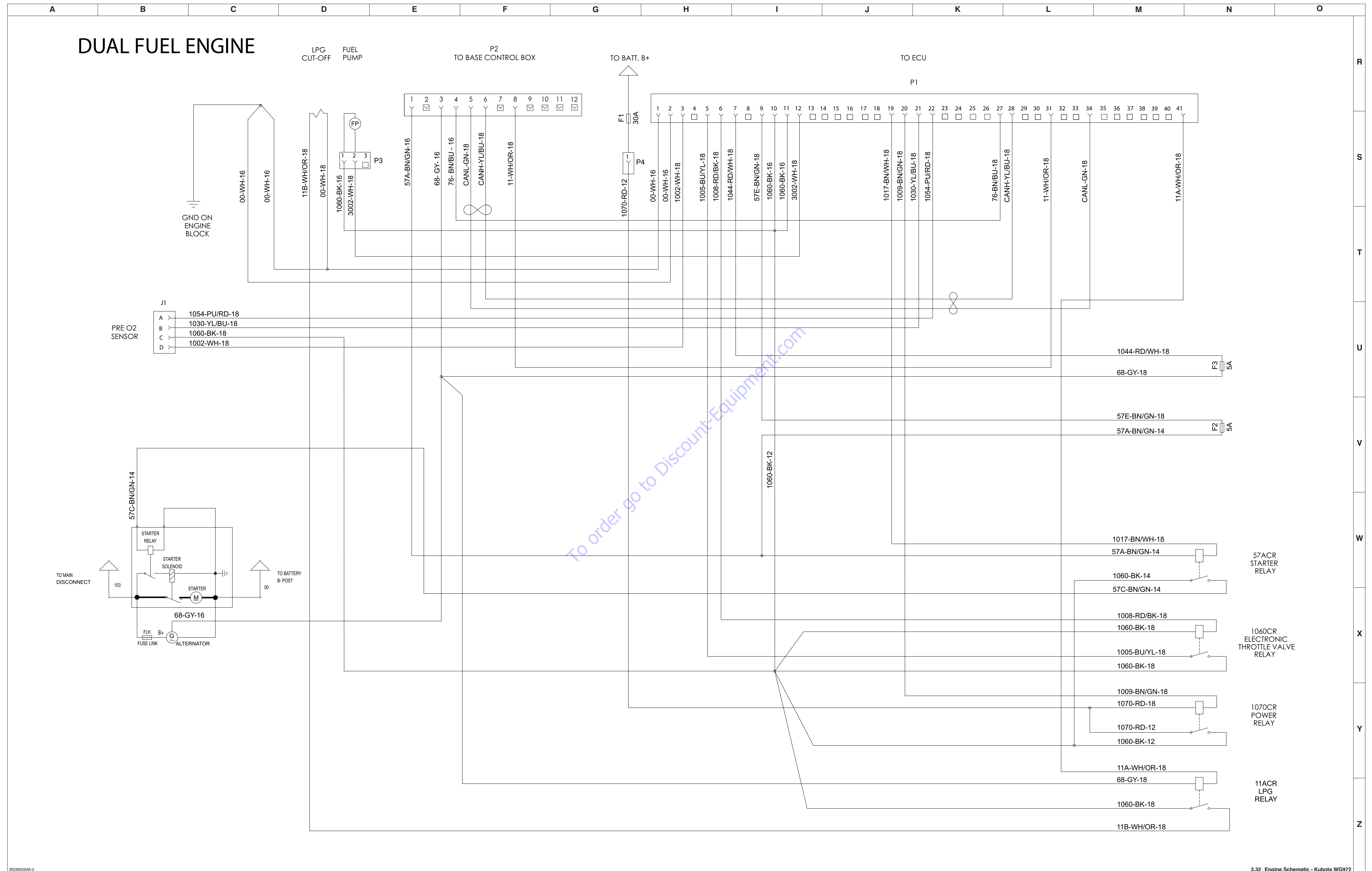


M238429AB

3.29 Electrical Schematic - ANSI/CSA & AS



M2380354A-1 3.29 Electrical Schematic - ANSI/CSA & AS



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 in the left-hand column, preceded by a number, represents the “probable cause.” The information in the right-hand column, in bold text, represents the “remedy” to the “probable cause” directly beside it. See the example below for clarification.

1. Probable cause

Remedy

4.2 Electrical System

4.2-1 All Controls are Inoperative from the Base or Platform Console



NOTE

Functions may be disabled by the dual load zone system or the overload system. Please first make sure the boom is at or below level and fully retracted, the platform is level and free of added weight, and there are no faults in the dual load or overload systems.

1. Battery cables loose/disconnected	Tighten or connect battery cables
2. Battery Discharged or Defective	Charge battery or replace if defective
3. Loose or broken B+ cable from batteries to battery disconnect switch S1	Check continuity. Replace if defective.
4. Open or defective battery disconnect switch S1	Close switch. Replace if defective
5. Loose or broken wire #03 from battery disconnect switch S1 to circuit breaker CB1	Check continuity. Replace if defective
6. Circuit breaker CB1 tripped or defective.	Reset breaker, check for defective wiring. Replace if defective.
7. Loose or broken wire #05 from circuit breaker CB1 to base emergency stop switch S3.	Check continuity. Replace if defective.
8. Open or defective base emergency stop switch S3.	Close switch. Replace if defective.
9. Loose or broken wire #07 from base emergency stop switch S3 to base key switch S2.	Check continuity. Replace if defective.
10. Loose or broken #07A wires between base key switch S2 terminals	Check continuity. Replace if defective.
11. Open or defective key select switch S2	Close switch. Replace if defective
12. Loose or broken wire #04A from base terminal block to relay 04ACR.	Check continuity. Replace if defective.
13. Loose or broken wire #07 from base emergency stop switch S3 to relay 04ACR.	Check continuity. Replace if defective.
14. Loose or broken wire #02 from relay 04ACR to base terminal block.	Check continuity. Replace if defective.
15. Defective relay 04ACR.	Check relay. Replace if defective.
16. Loose or broken wire #09 from relay 04ACR to base terminal block.	Check continuity. Replace if defective.

17. Loose or broken wire #09 from base terminal block to base control module connector J1 pins 1, 2, 3, and/or 4.	Check continuity. Replace if defective.
18. Loose or broken wire #02 from base control module connector J1 pins 10, 11, 12, and/or 13 to base terminal block.	Check continuity. Replace if defective.
19. Loose or broken wire #02 from base terminal block to circuit breaker CB2.	Check continuity. Replace if defective.
20. Circuit breaker CB2 tripped or defective.	Reset breaker, check for defective wiring. Replace if defective.
21. Loose or broken wire #00 from circuit breaker CB2 to battery negative.	Check continuity. Replace if defective.
22. Loose or broken wire #07A from base key switch S2 to base terminal block.	Check continuity. Replace if defective.
23. Loose or broken wire #07A from base terminal block to platform terminal block.	Check continuity. Replace if defective.
24. Loose or broken wire #07A from platform terminal block to platform emergency stop switch S4.	Check continuity. Replace if defective.
25. Open or defective platform emergency stop switch S4.	Close switch. Replace if defective.
26. Loose or broken wire #04 from platform emergency stop switch S4 to platform terminal block.	Check continuity. Replace if defective.
27. Loose or broken wire #04 from platform terminal block platform control module connector J11 pins 1, 2, 3, and/or 4.	Check continuity. Replace if defective.
28. Loose or broken CAN H wire from platform control module connector J11 pin 8 to platform terminal block	Check continuity. Replace if defective.
29. Loose or broken CAN H wire from platform terminal block to base terminal block.	Check continuity. Replace if defective.
30. Loose or broken CAN H wire from base terminal block to base control module connector J1 pin 8.	Check continuity. Replace if defective.
31. Loose or broken CAN L wire from platform control module connector J11 pin 9 to platform terminal block	Check continuity. Replace if defective.
32. Loose or broken CAN L wire from platform terminal block to base terminal block.	Check continuity. Replace if defective.
33. Loose or broken CAN L wire from base terminal block to base control module connector J1 pin 9.	Check continuity. Replace if defective.

34. Loose, broken, or defective 120 ohm CAN termination resistor(s) between CAN H and CAN L terminals in platform and/or base terminal block(s).	Check that resistance between CAN H and CAN L is approximately 60 ohms (2 x 120 ohm in parallel). Check connections. Repair connections or replace if defective.
35. Loose or broken wire #02 from platform control module connector J11 pins 10, 11, 12, and/or 13 to platform terminal block.	Check continuity. Replace if defective.
36. Loose or broken wire #02 from platform terminal block to base terminal block.	Check continuity. Replace if defective.
37. Defective base (master) control module SMB1-105	Replace if Defective
38. Defective platform (slave) control module SMB1-106	Replace if Defective

4.2-2 All Controls are Inoperative from the Base Console

1. loose or defective wire #10 from keyswitch S2 to ignition/enable switch S5	Check continuity. Replace if defective
2. Defective ignition/enable switch S5	Check continuity through switch when activated. Replace if defective
3. Loose or broken wire #10A from ignition/enable switch S5 to base control module connector J2 pin 18.	Check continuity. Replace if defective
4. Loose or broken wire #10A from ignition/enable switch S5 to base boom control toggle switches.	Check continuity. Replace if defective

4.2-3 The Engine will not Crank from the Base or Platform

1. Loose or broken wire #57C from base control module connector J3 pin 9 to 57DCR relay pin 30.	Check continuity. Replace if defective
2. Loose or broken wire #09 from base terminal block to 57DCR relay pin 85	Check continuity. Replace if defective
3. Loose or broken wire #57D from 57DCR relay pin 86 to telematics connector J6 pin 9	Check continuity. Replace if defective
4. Loose or broken jumper wire from J6 pin 9 to J6 pin 4, or if equipped with telematics then either start interlock is engaged or telematics are inoperative	Check continuity of jumper. Check telematics if equipped. Repair or replace as required.
5. Loose or broken wire #00 from J6 pin 4 to ground.	Check continuity. Replace if defective
6. Loose or broken wire #57A from relay 57DCR pin 87 to connector J4 pin 8.	Check continuity. Replace if defective

- | | |
|---|--|
| 7. Defective relay 57DCR. | Check relay. Replace if defective. |
| 8. Loose or broken 57A wire from connector P4 pin 8 to start input on ECU or 57ACR relay if equipped. | Check schematic applicable to the engine equipped on the machine to determine ECU pin # or relay if equipped. |

**NOTE**

For other engine-related problems, consult the engine manufacturer's manual.

4.2-4 The Engine will not Crank from the Base

- | | |
|---|--|
| 1. Loose or broken wire #10 from base keyswitch S2 to base start switch S5 | Check continuity. Replace if defective |
| 2. Loose or broken wire #57 from base start switch S5 to base control module connector J2 pin 30. | Check continuity. Replace if defective |
| 3. Defective start/enable switch S5 | Check continuity through switch. Replace if defective |

4.2-5 The Engine will not Crank from the Platform

**NOTE**

The engine will not crank from the platform with the footswitch pressed.

- | | |
|---|--|
| 1. Loose or broken wire #04 from platform terminal block to start switch S9. | Check continuity. Replace if defective |
| 2. Loose or broken wire #57B from start switch S9 to platform control module connector J12 pin 30 | Check continuity. Replace if defective |
| 3. Defective start switch S9 | Check continuity through switch. Replace if defective |

4.2-6 The Boom Controls are Inoperative (Drive Operates)

- | | |
|--|---|
| 1. Loose or broken wire #21A from base control module connector J3 pin 24 to main harness 24 pin connector pin 3 | Check continuity. Replace if defective |
| 2. Loose or broken wire #21A from main harness plug pin #3 to dump valve 2H-21A | Check continuity. Replace if defective |
| 3. Loose or broken wire #02 from dump valve 2H-21A to main harness plug | Check continuity. Replace if defective |
| 4. Defective dump valve coil 2H-21A | Check continuity and resistance through coil. Replace if defective |

4.2-7 No Boom Up from the Base or Platform Controls

1. Loose or broken wire #14 from base control module connector J2 pin 5 base terminal block to turret harness plug pin #2	Check continuity. Replace if defective
2. Loose or broken wire #14 from turret harness plug pin #2 to boom up valve 4H-14	Check continuity. Replace if defective
3. Loose or broken wire #02 from turret harness plug to boom up valve 4H-14	Check continuity. Replace if defective
4. Defective boom up coil 4H-14	Check continuity and resistance through coil. Replace if defective

4.2-8 No Boom Up from the Base Console

1. Loose or broken wire #10A from IGN switch S5 to boom switch S12	Check continuity. Replace if defective
2. Defective boom switch S12	Check continuity through switch while activating boom up function between wires #10A and #14B. Replace switch if no continuity
3. Loose or broken wire #14B from boom switch S12 to base control module connector J2 pin 15	Check continuity. Replace if defective

4.2-9 No Boom Up from the Platform Console

1. Loose or broken wire #04 from platform terminal block to joystick controller A1	Check continuity. Replace if defective
2. Loose or broken wire #02 from platform terminal block to joystick controller A1	Check continuity. Replace if defective
3. No output on y-axis of joystick controller A1	Refer to joystick test procedure in section 5
4. Loose or broken wire "Y" from joystick controller to J13 pin #16 of platform control module	Check continuity. Replace if defective

4.2-10 No Boom Down from the Base or Platform Consoles

1. Loose or broken wire #13 from base control module connector J2 pin 6 base terminal block to turret harness plug pin #1	Check continuity. Replace if defective
2. Loose or broken wire #13 from turret harness plug pin #1 to boom down valve 4H-13	Check continuity. Replace if defective
3. Loose or broken wire #02 from turret harness plug to boom down valve 4H-13	Check continuity. Replace if defective
4. Defective boom down coil 4H-13	Check continuity and resistance through coil. Replace if defective

4.2-11 No Boom Down from the Base Console

- | | |
|--|--|
| 1. Loose or broken wire #10A from IGN switch S5 to boom switch S12 | Check continuity. Replace if defective |
| 2. Defective boom switch S12 | Check continuity through switch while activating boom down function between wires #10A and #13B. Replace switch if no continuity |
| 3. Loose or broken wire #13B from boom switch S12 to base control module connector J2 pin 16 | Check continuity. Replace if defective |

4.2-12 No Boom Down from the Platform Console

- | | |
|--|---|
| 1. Loose or broken wire #04 from platform terminal block to joystick controller A1 | Check continuity. Replace if defective |
| 2. Loose or broken wire #02 from platform terminal block to joystick controller A1 | Check continuity. Replace if defective |
| 3. No output on y-axis of joystick controller A1 | Refer to joystick test procedure in section 5 |
| 4. Loose or broken wire “Y” from joystick controller to J13 pin #15 of platform control module | Check continuity. Replace if defective |

4.2-13 No Turret Rotate Right from the Base or Platform Consoles

- | | |
|---|--|
| 1. Loose or broken wire #33 from base control module connector J2 pin 24 base terminal block to turret harness plug pin #10 | Check continuity. Replace if defective |
| 2. Loose or broken wire #33 from turret harness plug pin #10 to boom up valve 4H-33 | Check continuity. Replace if defective |
| 3. Loose or broken wire #02 from turret harness plug to boom up valve 4H-33 | Check continuity. Replace if defective |
| 4. Defective boom up coil 4H-33 | Check continuity and resistance through coil. Replace if defective |

4.2-14 No Turret Rotate Right from the Base Console

- | | |
|--|--|
| 1. Loose or broken wire #10A from IGN switch S5 to turret rotate switch S13 | Check continuity. Replace if defective |
| 2. Defective turret rotate switch S13 | Check continuity through switch while activating turret rotate right function between wires #10A and #33B. Replace switch if no continuity |
| 3. Loose or broken wire #33B from boom switch S12 to base control module connector J2 pin 32 | Check continuity. Replace if defective |

4.2-15 No Turret Rotate Right from the Platform Console

- | | |
|--|---|
| 1. Loose or broken wire #04 from platform terminal block to joystick controller A1 | Check continuity. Replace if defective |
| 2. Loose or broken wire #02 from platform terminal block to joystick controller A1 | Check continuity. Replace if defective |
| 3. No output on X-axis of joystick controller A1 | Refer to joystick test procedure in section 5 |
| 4. Loose or broken wire “x” from joystick controller to J13 pin #16 of platform control module | Check continuity. Replace if defective |

4.2-16 No Turret Rotate Left from the Base or Platform Consoles

- | | |
|--|--|
| 1. Loose or broken wire #32 from base control module connector J2 pin 13 to turret harness plug pin #9 | Check continuity. Replace if defective |
| 2. Loose or broken wire #32 from turret harness plug pin #9 to turret rotate left valve 4H-32 | Check continuity. Replace if defective |
| 3. Loose or broken wire #02 from turret harness plug to turret rotate left valve 4H-32 | Check continuity. Replace if defective |
| 4. Defective turret rotate left coil 4H-32 | Check continuity and resistance through coil. Replace if defective |

4.2-17 No Turret Rotate Left from the Base Console

- | | |
|---|---|
| 1. Loose or broken wire #10A from IGN switch S5 to turret rotate switch S13 | Check continuity. Replace if defective |
| 2. Defective turret rotate switch S13 | Check continuity through switch while activating down function between wires #10A and #32B. Replace switch if no continuity |
| 3. Loose or broken wire #32B from turret rotate switch S13 to base control module connector J2 pin 17 | Check continuity. Replace if defective |

4.2-18 No Turret Rotate Left from the Platform Console

- | | |
|--|---|
| 1. Loose or broken wire #04 from platform terminal block to joystick controller A1 | Check continuity. Replace if defective |
| 2. Loose or broken wire #02 from platform terminal block to joystick controller A1 | Check continuity. Replace if defective |
| 3. No output on y-axis of joystick controller A1 | Refer to joystick test procedure in section 5 |
| 4. Loose or broken wire “Y” from joystick controller to J13 pin #16 of platform control module | Check continuity. Replace if defective |

4.2-19 No Riser Up from the Base or Platform Consoles

1. Loose or broken wire #31 from base control module connector J2 pin 3 to turret harness plug pin #8	Check continuity. Replace if defective
2. Loose or broken wire #31 from turret harness plug pin #8 to riser up valve 4H-31	Check continuity. Replace if defective
3. Loose or broken wire #02 from turret harness plug to riser up valve 4H-31	Check continuity. Replace if defective
4. Defective rise up coil 4H-31	Check continuity and resistance through coil. Replace if defective

4.2-20 No Riser Up from the Base Console

1. Loose or broken wire #10A from IGN switch S5 to boom switch S25	Check continuity. Replace if defective
2. Defective riser switch S25	Check continuity through switch while activating riser up function between wires #10A and #31B. Replace switch if no continuity
3. Loose or broken wire #31B from riser switch S25 to base control module connector J3 pin 31	Check continuity. Replace if defective

4.2-21 No Riser Up from the Platform Console

1. Loose or broken wire #04 from platform terminal block to joystick controller A3	Check continuity. Replace if defective
2. Loose or broken wire #02 from platform terminal block to joystick controller A3	Check continuity. Replace if defective
3. No output on "R" of joystick controller A3	Refer to joystick test procedure in section 5
4. Loose or broken wire "R" from joystick controller to J13 pin #19 of platform control module	Check continuity. Replace if defective

4.2-22 No Riser Down from the Base or Platform Consoles

1. Loose or broken wire #30 from base control module connector J2 pin 4 to turret harness plug pin #7	Check continuity. Replace if defective
2. Loose or broken wire #30 from turret harness plug pin #7 to riser down valve 4H-30	Check continuity. Replace if defective
3. Loose or broken wire #02 from turret harness plug to riser down valve 4H-30	Check continuity. Replace if defective
4. Defective rise down coil 4H-30	Check continuity and resistance through coil. Replace if defective

4.2-23 No Riser Down from the Base Console

- | | |
|---|--|
| 1. Loose or broken wire #10A from IGN switch S5 to boom switch S25 | Check continuity. Replace if defective |
| 2. Defective riser switch S25 | Check continuity through switch while activating riser down function between wires #10A and #30B. Replace switch if no continuity |
| 3. Loose or broken wire #30B from riser switch S25 to base control module connector J3 pin 30 | Check continuity. Replace if defective |

4.2-24 No Riser Down from the Platform Console

- | | |
|--|--|
| 1. Loose or broken wire #04 from platform terminal block to joystick controller A3 | Check continuity. Replace if defective |
| 2. Loose or broken wire #02 from platform terminal block to joystick controller A3 | Check continuity. Replace if defective |
| 3. No output on "R" of joystick controller A3 | Refer to joystick test procedure in section 5 |
| 4. Loose or broken wire "R" from joystick controller to J13 pin #19 of platform control module | Check continuity. Replace if defective |

4.2-25 No Telescope Out from the Base or Platform Consoles

- | | |
|---|---|
| 1. Loose or broken wire #39 from base control module connector J2 pin 10 to turret harness plug pin #14 | Check continuity. Replace if defective |
| 2. Loose or broken wire #39 from turret harness plug pin #14 to telescope out valve 4H-39 | Check continuity. Replace if defective |
| 3. Loose or broken wire #02 from turret harness plug to boom up valve 4H-39 | Check continuity. Replace if defective |
| 4. Defective telescope out coil 4H-39 | Check continuity and resistance through coil. Replace if defective |

4.2-26 No Telescope Out from the Base Console

- | | |
|---|---|
| 1. Loose or broken wire #10A from IGN switch S5 to telescope switch S13 | Check continuity. Replace if defective |
| 2. Defective boom switch S13 | Check continuity through switch while activating telescope out function between wires #10A and #39B. Replace switch if no continuity |
| 3. Loose or broken wire #39B from telescope switch S13 to base control module connector J2 pin 33 | Check continuity. Replace if defective |

4.2-27 No Telescope Out from the Platform Console

- | | |
|--|---|
| 1. Loose or broken wire #04 from platform terminal block to telescope switch S18 | Check continuity. Replace if defective |
| 2. Defective boom switch S18 | Check continuity through switch while activating telescope out function between wires #04 and #39A. Replace switch if no continuity |
| 3. Loose or broken wire #39A from telescope switch S18 to platform control module connector J12 pin 33 | Check continuity. Replace if defective |

4.2-28 No Telescope In from the Base or Platform Consoles

- | | |
|--|--|
| 1. Loose or broken wire #38 from base control module connector J2 pin 9 to turret harness plug pin #13 | Check continuity. Replace if defective |
| 2. Loose or broken wire #38 from turret harness plug pin #13 to telescope in valve 4H-38 | Check continuity. Replace if defective |
| 3. Loose or broken wire #02 from turret harness plug to telescope in valve 4H-38 | Check continuity. Replace if defective |
| 4. Defective telescope in coil 4H-38 | Check continuity and resistance through coil. Replace if defective |

4.2-29 No Telescope In from the Base Console

- | | |
|--|---|
| 1. Loose or broken wire #10A from IGN switch S5 to telescope switch S14 | Check continuity. Replace if defective |
| 2. Defective telescope switch S14 | Check continuity through switch while activating telescope in function between wires #10A and #38B. Replace switch if no continuity |
| 3. Loose or broken wire #38B from boom switch S14 to base control module connector J2 pin 21 | Check continuity. Replace if defective |

4.2-30 No Telescope In from the Platform Console

- | | |
|---|--|
| 1. Loose or broken wire #04 from platform terminal block to telescope switch S18 | Check continuity. Replace if defective |
| 2. Defective telescope switch S18 | Check continuity through switch while activating down function between wires #04 and #38A. Replace switch if no continuity |
| 3. Loose or broken wire #38A from boom switch S18 to platform control module connector J12 pin 21 | Check continuity. Replace if defective |

4.2-31 No Platform Level Up from the Base or Platform Consoles

1. Loose or broken wire #41 from base control module connector J2 pin #7 to turret harness plug pin #16	Check continuity. Replace if defective
2. Loose or broken wire #41 from turret harness plug pin #16 to platform level up valve 4H-41	Check continuity. Replace if defective
3. Loose or broken wire #02 from turret harness plug to platform level up valve 4H-41	Check continuity. Replace if defective
4. Defective platform level up coil 4H-41	Check continuity and resistance through coil. Replace if defective

4.2-32 No Platform Level Up from the Base Console

1. Loose or broken wire #10A from IGN switch S5 to platform level switch S15	Check continuity. Replace if defective
2. Defective platform level switch S15	Check continuity through switch while activating up function between wires #10A and #41B. Replace switch if no continuity
3. Loose or broken wire #41B from platform level switch S15 to base control module connector J2 pin 22	Check continuity. Replace if defective

4.2-33 No Platform Level Up from the Platform Console

1. Loose or broken wire #04 from platform terminal block to platform level switch S19	Check continuity. Replace if defective
2. Defective platform level switch S19	Check continuity through switch while activating platform level up function between wires #04 and #41A. Replace switch if no continuity
3. Loose or broken wire #41A from platform level switch S19 to platform control module connector J12 pin 22	Check continuity. Replace if defective

4.2-34 No Platform Level Down from the Base or Platform Consoles

1. Loose or broken wire #40 from base control module connector J2 pin 35 to turret harness plug pin #15	Check continuity. Replace if defective
2. Loose or broken wire #40 from turret harness plug pin #15 to platform level down valve 4H-40	Check continuity. Replace if defective
3. Loose or broken wire #02 from turret harness plug to platform level down valve 4H-40	Check continuity. Replace if defective
4. Defective platform level down coil 4H-40	Check continuity and resistance through coil. Replace if defective

4.2-35 No Platform Level Down from the Base Console

- | | |
|--|---|
| 1. Loose or broken wire #10A from IGN switch S5 to platform level switch S16 | Check continuity. Replace if defective |
| 2. Defective platform level switch S16 | Check continuity through switch while activating platform level down function between wires #10A and #40B. Replace switch if no continuity |
| 3. Loose or broken wire #40B from platform level switch S16 to base control module connector J3 pin 26 | Check continuity. Replace if defective |

4.2-36 No Platform Level Down from the Platform Console

- | | |
|---|--|
| 1. Loose or broken wire #04 from platform terminal block to platform level switch S19 | Check continuity. Replace if defective |
| 2. Defective platform level switch S19 | Check continuity through switch while activating platform level down function between wires #04 and #40A. Replace switch if no continuity |
| 3. Loose or broken wire #40A from platform level switch S19 to platform control module connector J13 pin 26 | Check continuity. Replace if defective |

4.2-37 No Platform Rotate or Jib Functions from the Base or Platform Consoles

- | | |
|---|---|
| 1. Loose or broken wire #42 from base control module connector J2 pin 12 to turret harness plug pin #20 | Check continuity. Replace if defective |
| 2. Loose or broken wire #42 from turret harness plug pin #20 to platform flow enable valve 2H-42 | Check continuity. Replace if defective |
| 3. Loose or broken wire #02 from turret harness plug to platform flow enable valve 2H-42 | Check continuity. Replace if defective |
| 4. Defective platform flow enable coil 2H-42 | Check continuity and resistance through coil. Replace if defective |

4.2-38 No Platform Rotate Right from the Base or Platform Consoles

- | | |
|--|---|
| 1. Loose or broken wire #37 from platform control module connector J12 pin #1 to platform terminal strip | Check continuity. Replace if defective |
| 2. Loose or broken wire #37 from platform terminal strip to platform rotate right valve 4H-37 | Check continuity. Replace if defective |
| 3. Loose or broken wire #02 from platform terminal strip to platform rotate right valve 4H-37 | Check continuity. Replace if defective |
| 4. Defective platform rotate right coil 4H-37 | Check continuity and resistance through coil. Replace if defective |

4.2-39 No Platform Rotate Right from the Base Console

- | | |
|---|---|
| 1. Loose or broken wire #10A from IGN switch S5 to platform rotate switch S16 | Check continuity. Replace if defective |
| 2. Defective platform rotate switch S16 | Check continuity through switch while activating platform rotate right function between wires #10A and #37B. Replace switch if no continuity |
| 3. Loose or broken wire #37B from platform rotate switch S16 to base control module connector J2 pin 28 | Check continuity. Replace if defective |

4.2-40 No Platform Rotate Right from the Platform Console

- | | |
|--|--|
| 1. Loose or broken wire #04 from platform terminal block to platform rotate switch S20 | Check continuity. Replace if defective |
| 2. Defective platform level switch S20 | Check continuity through switch while activating platform rotate right function between wires #04 and #37A. Replace switch if no continuity |
| 3. Loose or broken wire #37A from platform rotate switch S20 to platform control module connector J13 pin 28 | Check continuity. Replace if defective |

4.2-41 No Platform Rotate Left from the Base or Platform Consoles

1. Loose or broken wire #36 from platform control module connector J12 pin #2 to platform terminal strip	Check continuity. Replace if defective
2. Loose or broken wire #36 from platform terminal strip to platform rotate left valve 4H-36	Check continuity. Replace if defective
3. Loose or broken wire #02 from platform terminal strip to platform rotate left valve 4H-36	Check continuity. Replace if defective
4. Defective platform rotate left coil 4H-36	Check continuity and resistance through coil. Replace if defective

4.2-42 No Platform Rotate Left from the Base Console

1. Loose or broken wire #10A from IGN switch S5 to platform level switch S16	Check continuity. Replace if defective
2. Defective platform level switch S16	Check continuity through switch while activating platform level down function between wires #10A and #36B. Replace switch if no continuity
3. Loose or broken wire #36B from platform level switch S16 to base control module connector J3 pin 29	Check continuity. Replace if defective

4.2-43 No Platform Rotate Left from the Platform Console

1. Loose or broken wire #04 from platform terminal block to platform rotate switch S20	Check continuity. Replace if defective
2. Defective platform level switch S20	Check continuity through switch while activating platform rotate left function between wires #04 and #36A. Replace switch if no continuity
3. Loose or broken wire #37A from platform rotate switch S20 to platform control module connector J13 pin 28	Check continuity. Replace if defective

4.2-44 No Jib Up from the Base or Platform Consoles

1. Loose or broken wire #35 from platform control module connector J12 pin #13 to platform terminal strip	Check continuity. Replace if defective
2. Loose or broken wire #35 from platform terminal strip to jib up valve 4H-35	Check continuity. Replace if defective
3. Loose or broken wire #02 from platform terminal strip to jib up valve 4H-35	Check continuity. Replace if defective
4. Defective jib up coil 4H-35	Check continuity and resistance through coil. Replace if defective

4.2-45 No Jib Up from the Base Console

- | | |
|---|---|
| 1. Loose or broken wire #10A from IGN switch S5 to jib switch S17 | Check continuity. Replace if defective |
| 2. Defective jib switch S17 | Check continuity through switch while activating jib up function between wires #10A and #35B. Replace switch if no continuity |
| 3. Loose or broken wire #35B from jib switch S17 to base control module connector J2 pin 28 | Check continuity. Replace if defective |

4.2-46 No Jib Up from the Platform Console

- | | |
|--|--|
| 1. Loose or broken wire #04 from platform terminal block to jib switch S21 | Check continuity. Replace if defective |
| 2. Defective jib switch S21 | Check continuity through switch while activating jib up function between wires #04 and #35A. Replace switch if no continuity |
| 3. Loose or broken wire #35A from jib switch S21 to platform control module connector J12 pin 28 | Check continuity. Replace if defective |

4.2-47 No Jib Down from the Base or Platform Consoles

- | | |
|---|--|
| 1. Loose or broken wire #34 from platform control module connector J12 pin #24 to platform terminal strip | Check continuity. Replace if defective |
| 2. Loose or broken wire #34 from platform terminal strip to jib down valve 4H-34 | Check continuity. Replace if defective |
| 3. Loose or broken wire #02 from platform terminal strip to jib down valve 4H-34 | Check continuity. Replace if defective |
| 4. Defective jib down coil 4H-34 | Check continuity and resistance through coil. Replace if defective |

4.2-48 No Jib Down from the Base Console

- | | |
|---|---|
| 1. Loose or broken wire #10A from IGN switch S5 to jib switch S17 | Check continuity. Replace if defective |
| 2. Defective jib switch S17 | Check continuity through switch while activating jib down function between wires #10A and #34B. Replace switch if no continuity |
| 3. Loose or broken wire #34B from jib switch S17 to base control module connector J2 pin 26 | Check continuity. Replace if defective |

4.2-49 No Jib Down from the Platform Console

- | | |
|--|---|
| 1. Loose or broken wire #04 from platform terminal block to jib switch S21 | Check continuity. Replace if defective |
| 2. Defective jib switch S21 | Check continuity through switch while activating jib down function between wires #04 and #34A. Replace switch if no continuity |
| 3. Loose or broken wire #34A from jib switch S21 to platform control module connector J12 pin 26 | Check continuity. Replace if defective |

4.2-50 No Drive or Steer Functions

- | | |
|---|---|
| 1. Loose or broken wire #04 from platform terminal block to drive joystick A2 | Check continuity. Replace if defective |
| 2. Loose or broken wire #02 from platform terminal block to drive joystick A2 | Check continuity. Replace if defective |
| 3. Defective drive joystick A2 | See drive joystick test procedure in section 5 |

4.2-51 No Forward or Reverse Drive

- | | |
|--|---|
| 1. No output on "D" when forward is selected on drive joystick A2 | See drive joystick test procedure in section 5 |
| 2. Loose or broken wire "D-signal" from drive joystick A2 to platform control module connector J13 pin #14 | Check continuity. Replace if defective |

4.2-52 No Forward Drive

- | | |
|--|---|
| 1. No output from base control module at connector J2 pin #1 to wire #16 | Check for correct output voltage. |
| 2. Loose or broken wire 16 from base control module connector J2 pin #1 to turret connector pin 21 | Check continuity. Replace if defective |
| 3. Loose or broken wire #16 from turret plug pin 21 to drive pump valve connector pin #4 | Check continuity. Replace if defective |
| 4. Loose or broken wire #16 from drive pump valve connector pin #4 to 3H-16 Forward coil | Check continuity. Replace if defective |
| 5. Loose or broken wire #02 wire from 3H-16 Forward coil to ground | Check continuity. Replace if defective |
| 6. Defective forward coil 3H-16 | Check continuity and resistance through coil. Replace if defective |

4.2-53 No Reverse Drive

1. No output from base control module at connector J2 pin #2 to wire #15	Check for correct output voltage.
2. Loose or broken wire 15 from base control module connector J2 pin #2 to turret connector pin 20	Check continuity. Replace if defective
3. Loose or broken wire #15 from turret plug pin 20 to drive pump valve connector pin #1	Check continuity. Replace if defective
4. Loose or broken wire #15 from drive pump valve connector pin #1 to 3H-15 Forward coil	Check continuity. Replace if defective
5. Loose or broken wire #02 wire from 3H-15 Reverse coil to ground	Check continuity. Replace if defective
6. Defective reverse coil 3H-15	Check continuity and resistance through coil. Replace if defective

4.2-54 The Brake will not Release

1. No output from base control module connector J3 pin #24 to wire #26	Check for correct output voltage
2. Loose or broken wire 26 from base control module connector J3 pin #24 to turret harness connector pin #8	Check continuity. Replace if defective
3. Loose or broken wire #26 from turret harness connector pin #8 to 3H-26 Brake coil	Check continuity. Replace if defective
4. Loose or broken wire #02 wire from 3H-26 Brake coil to ground	Check continuity. Replace if defective
5. Defective brake coil 3H-26	Check continuity and resistance through coil. Replace if defective

4.2-55 No Left Steer

1. Loose or broken wire #24P from drive joystick A2 to platform control module connector J12 pin #15	Check continuity. Replace if defective
2. No output from base control module on connector J3 pin #13	Check pin #13 for 12 volts. If no voltage present with foot on footswitch and activating steer function check section 5 for OCM pin voltage reference
3. Loose or broken wire #24 from base control module connector J3 pin #13 to turret harness connector pin #7	Check continuity. Replace if defective
4. Loose or broken wire #24 from turret harness plug pin #7 to left steer valve 4H-24	Check continuity. Replace if defective

- | | |
|--|---|
| 5. Loose or broken wire #02 from turret harness plug to left steer valve 4H-24 | Check continuity. Replace if defective |
| 6. Defective left steer valve coil 4H-24 | Check continuity and resistance through coil. Replace if defective |

4.2-56 No Right Steer

- | | |
|---|--|
| 1. Loose or broken wire #23P from drive joystick A2 to platform control module connector J12 pin #16 | Check continuity. Replace if defective |
| 2. No output from base control module on connector J3 pin #3 | Check pin #13 for 12 volts. If no voltage present with foot on footswitch and activating steer function check section 5 for OCM pin voltage reference |
| 3. Loose or broken wire #23 from base control module connector J3 pin 13 to turret harness connector pin #6 | Check continuity. Replace if defective |
| 4. Loose or broken wire #23 from turret harness plug pin #6 to right steer valve 4H-23 | Check continuity. Replace if defective |
| 5. Loose or broken wire #02 from turret harness plug to right steer valve 4H-23 | Check continuity. Replace if defective |
| 6. Defective right steer valve coil 4H-23 | Check continuity and resistance through coil. Replace if defective |

4.2-57 The Directon Sensing is 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 base control module connector J2 pin #25 | Check continuity. Replace if defective |
| 5. Defective base control module channel input for direction sense enable | Replace if Defective |

4.3 Hydraulic System

4.3-1 All Controls are 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. |

4.3-2 All Boom Functions are Inoperative

- | | |
|--|--|
| 1. Open or defective dump valve 2H-21A. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 2. Stuck or defective relief valve RV1. | Set valve to specifications. Check o-rings and clean valve. Repair or replace valve as required. |
| 3. System pump P2 defective. | Test pump with flow meter. Replace if defective. |
| 4. Plugged or defective high pressure filter F1. | Check filter. Replace if plugged or defective. |

4.3-3 No Main Boom Up

- | | |
|--|--|
| 1. Stuck or defective lift up valve 5H-14. | Clean valve. Check operation of valve. Repair or replace valve as required. |
| 2. Stuck or defective differential sensing valve DSV3. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 3. Stuck or defective check valve CV5. | Clean valve. Check operation of valve. Repair or replace valve as required. |
| 4. Stuck or defective counterbalance valve CB9. | Clean valve. Check O-rings on valve. Repair or replace valve as required. |
| 5. Defective lift cylinder C3. | Check seals on cylinder. Replace as necessary. Replace cylinder if defective. |

4.3-4 No Main Boom Down

- | | |
|---|--|
| 1. Stuck or defective lift down valve 5H-13. | Clean valve. Check operation of valve. Repair or replace valve as required. |
| 2. Stuck in closed position or defective flow control valve 2H-13A. | Clean valve. Check operation of valve. Repair or replace valve as required. |
| 3. Stuck or defective differential sensing valve DSV3. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |

4. Stuck or defective check valve CV5.	Clean valve. Check operation of valve. Repair or replace valve as required.
5. Stuck or defective relief valve RV5.	Set valve to specifications. Check o-rings and clean valve. Repair or replace valve as required.
6. Stuck or defective counterbalance valve CB9.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
7. Defective lift cylinder C3.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-5 No Riser Boom Up

1. Stuck or defective riser up valve 5H-31.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV9.	Clean valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective differential pressure sensing valve DSV2.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB5 or CB6.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective riser cylinder C6 or C7.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-6 No Riser Boom Down

1. Stuck or defective riser down valve 5H-30.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective relief valve RV4.	Set valve to specifications. Check o-rings and clean valve. Repair or replace valve as required.
3. Stuck or defective check valve CV9.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective differential pressure sensing valve DSV2.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
5. Stuck or defective counterbalance valve CB5 or CB6.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
6. Defective riser cylinder C6 or C7.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-7 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. Plugged or defective orifice OR2.	Check orifice. Replace if plugged or defective.
3. Stuck or defective check valve CV3.	Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective relief valve RV2.	Set valve to specifications. Check o-rings and clean valve. Repair or replace valve as required.
5. Stuck or defective differential pressure sensing valve DSV1.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
6. Stuck or defective shuttle valve SV4.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
7. Stuck or defective counterbalance valve CB4.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
8. Turret rotate brake BR2 not releasing.	Inspect brake for worn seals or broken components. Repair and replace as necessary.
9. Worn or defective swing drive motor M2.	Check motor. Repair or replace if defective.

4.3-8 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. Plugged or defective orifice OR2.	Check orifice. Replace if plugged or defective.
3. Stuck or defective check valve CV3.	Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective relief valve RV2.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
5. Stuck or defective differential pressure sensing valve DSV1.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
6. Stuck or defective shuttle valve SV4.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
7. Stuck or defective counterbalance valve CB3.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
8. Turret rotate brake BR2 not releasing.	Inspect brake for worn seals or broken components. Repair and replace as necessary.
9. Worn or defective swing drive motor M2.	Check motor. Repair or replace if defective.

4.3-9 No Boom Extend

1. Stuck or defective extend valve 5H-39.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV6.	Clean valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective differential pressure sensing valve DSV4.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective relief valve RV6.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
5. Stuck or defective counterbalance valve CB7.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
6. Defective extension cylinder C2.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-10 No Boom Retract

1. Stuck or defective retract valve 5H-38.	Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV6.	Clean valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective differential pressure sensing valve DSV4.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective relief valve RV6.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
5. Stuck or defective counterbalance valve CB8.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
6. Defective extension cylinder C2.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-11 No Jib Up

1. Stuck or defective flow enable valve 2H-42.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV8.	Clean valve. Check operation of valve. Repair or replace valve as required.
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 CB1.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective jib cylinder C1.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-12 No Jib Down

1. Stuck or defective flow enable valve 2H-42.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV8.	Clean valve. Check operation of valve. Repair or replace valve as required.
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 CB2.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective jib cylinder C1.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-13 No Platform Rotation Right

1. Stuck or defective flow enable valve 2H-42.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV8.	Clean valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective platform rotate right valve 4H-37.	Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB12.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective rotary actuator RA1.	Check actuator. Repair or replace as necessary.

4.3-14 No Platform Rotation Left

1. Stuck or defective flow enable valve 2H-42.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV8.	Clean valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective platform rotate right valve 4H-36.	Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB13.	Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective rotary actuator RA1.	Check actuator. Repair or replace as necessary.

4.3-15 The Platform will not Level Down Manually

1. Plugged or defective orifice OR3.	Check orifice. Replace if plugged or defective.
2. Stuck or defective platform level down valve 5H-40.	Clean valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective check valve CV7.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. <i>Stuck or defective dual pilot check valve DPOCV2.</i>	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
5. <i>Stuck or defective shuttle valve SV1.</i>	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
6. <i>Stuck or defective relief valve RV3.</i>	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
7. <i>Stuck or defective counterbalance valve CB11.</i>	Clean valve. Check O-rings on valve. Repair or replace valve as required.
8. Stuck or defective check valve CV4.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
9. Defective leveling cylinder C4 or slave cylinder C5.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.3-16 The Platform will not Level Up Manually

1. Plugged or defective orifice OR3.	Check orifice. Replace if plugged or defective.
2. Stuck or defective platform level up valve 5H-41.	Clean valve. Check operation of valve. Repair or replace valve as required.
3. <i>Stuck or defective check valve CV7.</i>	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. <i>Stuck or defective dual pilot check valve DPOCV2.</i>	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
5. <i>Stuck or defective shuttle valve SV1.</i>	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
6. <i>Stuck or defective relief valve RV3.</i>	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
7. Stuck or defective counterbalance valve CB10.	Clean valve. Check O-rings on valve. Repair or replace valve as required.

- | | |
|---|--|
| 8. Stuck or defective check valve CV4. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 9. Defective leveling cylinder C4 or slave cylinder C5. | Check seals on cylinder. Replace as necessary. Replace cylinder if defective. |

4.3-17 The Brake will not Release

- | | |
|---|--|
| 1. Stuck or defective shuttle valve SV3. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 2. Defective or misadjusted pressure reducing valve PR1. | Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required. |
| 3. Stuck or defective brake valve 3H-26. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 4. Stuck or defective shuttle valve SV2. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 5. Defective or misadjusted relief valve RV7. | Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required. |
| 6. Stuck or defective brake release override valve V1. | Clean valve. Check O-rings on valve. Repair or replace valve as required. |
| 7. Bypassing or defective brake hand pump MP. | Clean valve. Check O-rings on valve. Repair or replace valve as required. |
| 8. Bypassing or defective brake cylinder C11 or C12. | Check seals on cylinder. Replace as necessary. Replace cylinder if defective |

4.3-18 The Brake will not Engage

- | | |
|---|---|
| 1. Brake cylinder defective. | Check cylinders. Repair or replace as necessary. |
| 2. Brake valve 3H-26 stuck in shifted position. | Check valve. Replace if defective. |
| 3. Brake inside axle out of adjustment. | See section 5 for brake adjustment procedure. |

4.3-19 The Differential Lock will not Engage

1. Stuck or defective shuttle valve SV3.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
2. Defective or misadjusted pressure reducing valve PR1.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
3. Stuck or defective differential lock valve 3H-165.	Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. Bypassing or defective differential lock cylinder C13.	Check seals on cylinder. Replace as necessary. Replace cylinder if defective

4.3-20 No Drive Forward or Reverse

1. Brake not releasing.	See “brake will not release” in this section.
2. Defective or misadjusted charge pump relief valve RV10.	Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
3. Worn charge pump P1A.	Check pump. Replace if defective.
4. Defective pump displacement control 4H-15 and 4H-16.	Check control. Replace if defective.
5. Open bypass valve V4.	Close bypass valve.
6. Drive servo stuck in neutral position.	Check valve. Replace if defective.
7. Worn drive pump P1.	Check pump. Replace if defective.
8. Worn or defective drive motor M1.	Check motor. Replace if defective.

4.3-21 No Forward Drive

1. Defective pump displacement control 4H-16.	Check control. Replace if defective.
2. Defective or misadjusted drive relief valve RV9.	See section 5 for drive pump set up procedures.
3. Drive servo stuck in neutral position.	Check valve. Replace if defective.

4.3-22 No Reverse Drive

1. Defective pump displacement control 4H-15.	Check control. Replace if defective.
2. Defective or misadjusted drive relief valve RV8.	See section 5 for drive pump set up procedures.
3. Drive servo stuck in neutral position.	Check valve. Replace if defective.

4.3-23 No High Speed Drive

- | | |
|--|---|
| 1. Stuck or defective 2 speed valve 3H-45. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 2. Defective shift valve V5 in drive motor M1. | Check motor. Repair or replace if necessary. |

4.3-24 No Right Steer

- | | |
|--|---|
| 1. Stuck or defective right steer valve 5H-23A. | Clean valve. Check operation of valve. Repair or replace valve as required. |
| 2. Stuck or defective check valve CV2. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 3. Stuck or defective dual pilot check valve DPOCV1. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 4. Defective steer cylinder C8. | Check seals on cylinder. Replace as necessary. Replace cylinder if defective. |

4.3-25 No Left Steer

- | | |
|--|---|
| 1. Stuck or defective left steer valve 5H-24A. | Clean valve. Check operation of valve. Repair or replace valve as required. |
| 2. Stuck or defective check valve CV2. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 3. Stuck or defective dual pilot check valve DPOCV1. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 4. Defective steer cylinder C8. | Check seals on cylinder. Replace as necessary. Replace cylinder if defective. |

4.3-26 The Axle will not Oscillate



NOTE

The axle will only oscillate when the boom is fully retracted and is horizontal or below.

- | | |
|--|---|
| 1. Stuck or defective axle lockout valve 3H-65. | Clean valve. Replace if defective. |
| 2. One or more counterbalance valves (CB14 or CB15) failed to shift or is defective. | Clean valve. Check O-rings on valve. Repair or replace valve as required. |

4.3-27 Axle Will Not Lock



NOTE

The axle is in constant float if the boom is fully retracted and is horizontal or below.

- | | |
|---|--|
| 1. Axle lockout valve 3H-65 is stuck in shifted position or is defective. | Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required. |
| 2. Bypassing or defective axle lock cylinders C9 and C10. | Check seals on cylinder. Replace as necessary. Replace cylinder if defective. |
| 3. Counterbalance valves (CB14 or CB15) out of adjustment or are defective. | Clean valve. Check O-rings on valve. Repair or replace valve as required. |

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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 shown 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 cylinder chocks on both riser cylinders. Contact Skyjack Parts to order chocks.

WARNING

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

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. Turn the engine off.
4. Pull out the emergency stop buttons  on the base controls and on the platform controls.
5. Turn the battery disconnect switch to the off position .

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 and 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.

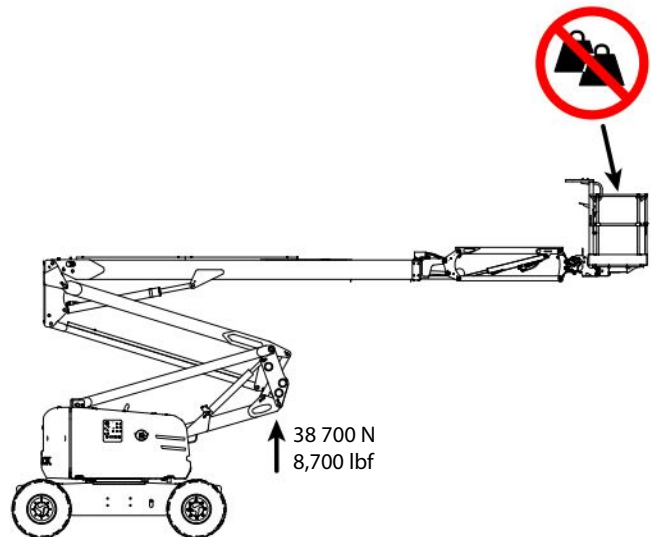


Figure 01 Support location

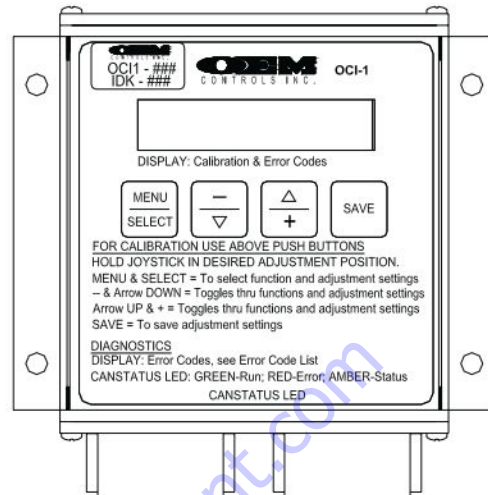
5.2 Platform

5.2-1 Human Machine Interface (HMI)

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

To access the OC1-1 console, open the platform control cover.

The OCI-1 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

5.2-2 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.

5.2-3 OCM Character Functions Charts

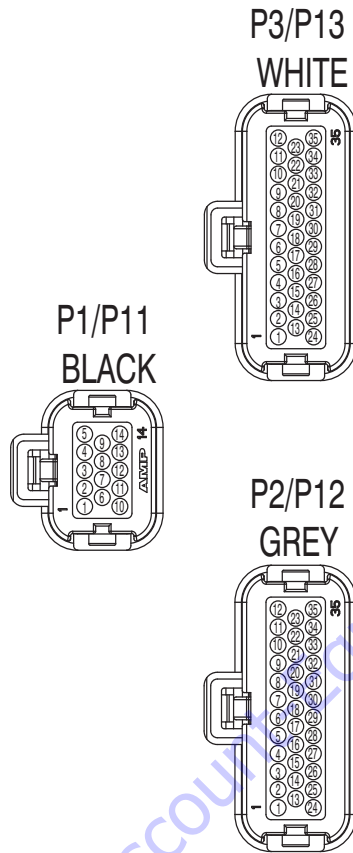
SCM Keypad	
Keys	Short Form
Menu/Select	(M/S)
▼/-	(-)
▲/+	(+)
Save/Exit	(S/E)

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

1345AA

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5.2-4 OCM Pin Reference



P1 (Black) Master Controller: SMB1-105					
Pin	Wire	Function	Input/Output Type	I/O Name	Label
1	09		Power		VS1
2	09		Power		VS2
3	09		Power		VS3
4	09		Power		VS4
5		Not used			Vreg 5v
6	CAN H	CANH to Engine ECU & Telematics	J1939 CAN		
7	CAN L	CANL to Engine ECU & Telematics	J1939 CAN		
8	CAN 2H	CANH to PLTF SMB1-106	CANopen		
9	CAN 2L	CANL to PLTF SMB1-106	CANopen		
10	02		Ground		GND1
11	02		Ground		GND2
12	02		Ground		GND3
13	02		Ground		GND4
14		Not used			--

2056AA

P2 (Grey) Master Controller: SMB1-105					
Pin	Wire	Function	Input/Output Type	I/O Name	Label
1	16	Drive Forward	Analog Output	PWM01	PWM02
2	15	Drive Reverse	Analog Output	PWM00	PWM01
3	31	Riser Up	Analog Output	PWM07	PWM08
4	30	Riser Down	Analog Output	PWM06	PWM07
5	14	Boom Up	Analog Output	PWM05	PWM06
6	13	Boom Down	Analog Output	PWM04	PWM05
7	41	Platform Level Up	Analog Output	PWM11	PWM12
8		63AJ Boom Down Throttle	Analog Output	PWM10	PWM11
9	38	Fly Boom In	Analog Output	PWM09	PWM10
10	39	Fly Boom Out	Analog Output	PWM08	PWM09
11		Not Used		--	--
12	42	Proportional Flow	Analog Output	PWM14	PWM15
13	32	Turret Rotate Left	Analog Output	PWM02	PWM03
14	55	Fuel level float sw	Digital Input	P4B	DIN02
15	14B	Main Boom Up	Digital Input	P72	DIN04
16	13B	Main Boom Dn	Digital Input	P77	DIN06
17	32B	Turret Rotate L	Digital Input	P7C	DIN08
18	10A	Emergency Pump / Enable	Digital Input	PF0	DIN10
19	29	Fly Boom In LS (Hi Speed Drive)	Digital Input	P25	DIN12
20	12	Platform key position	Digital Input	P82	DIN14
21	38B	Telescope Retract	Digital Input	P92	DIN16
22	41B	Platform Level Up	Digital Input	PC0	DIN18
23		Not Used		PWM13	PWM14
24	33	Turret Rotate Right	Analog Output	PWM03	PWM04
25	17	Direction Sensing	Digital Input	P49	DIN01
26	34B	Jib Down	Digital Input	P4D	DIN03
27	28	Tilt Switch Active	Digital Input	P74	DIN05
28	35B	Jib Up	Digital Input	P7A	DIN07
29	59	Main Boom Cradled LS (Hi Speed Drive)	Digital Input	P7E	DIN09
30	57	Engine Start Request	Digital Input	PF2	DIN11
31	10	Base key position	Digital Input	P20	DIN13
32	33B	Turret Rotate R	Digital Input	P90	DIN15
33	39B	Telescope Extend	Digital Input	P94	DIN17
34		Not Used		--	--
35	40	Platform Level Down	Analog Output	PWM12	PWM13

2057AA

P3 (White) Master Controller: SMB1-105					
Pin	Wire	Function	Input/Output Type	I/O Name	Label
1	119	Load Zone Border Lamp	Digital Output	P30	DOUT1
2	01A	Emergency Pump Relay	Digital Output	P37	DOUT8
3	23	Steer Right	Digital Output	P36	DOUT7
4	118A	Overload Alarm/lamp	Digital Output	P35	DOUT6
5	65	Axle Lock	Digital Output	P34	DOUT5
6	120	Low capacity zone lamp	Digital Output	P3B	DOUT12
7	85	Generator Solenoid	Digital Output	P3A	DOUT11
8	68	Engine Run Enable	Digital Output	P39	DOUT10
9	57A	Engine Start	Digital Output	P38	DOUT9
10	20	All-Motion Alarm	Digital Output	P3F	DOUT16
11	120A	High capacity zone lamp	Digital Output	P3E	DOUT15
12		Not Used	Digital Output	P5C	DOUT14
13	24	Steer Left	Digital Output	P31	DOUT2
14		Not Used	Analog Input	AN16	AIN01
15		Not Used	Analog Input	AN17	AIN02
16		Not Used	Analog Input	AN18	AIN03
17		Not Used	Analog Input	AN19	AIN04
18		Not Used	Analog Input	AN20	AIN05
19		Not Used	Analog Input	AN21	AIN06
20	128	Angle Sensor - Chassis	Analog Input	AN22	AIN07
21		Not Used	Analog Input	AN23	AIN08
22		Not Used	Analog Input	AN25	AIN09
23	11	Propane Run	Digital Output	P3C	DOUT13
24	21A	Dump Valve	Digital Output	P32	DOUT3
25	45A	Motor 2 Speed	Digital Output	P33	DOUT4
26	40B	Platform Level Down	Digital Input	PC2	DIN19
27		Main Boom Creep (used on 86)	Digital Input	PC5	DIN20
28	37B	Platform Rotate Right	Digital Input	PC8	DIN21
29	36B	Platform Rotate Left	Digital Input	PCA	DIN22
30		Riser Down	Digital Input	PCC	DIN23
31		Riser Up	Digital Input	PCE	DIN24
32	121	load zone safety limit (Main)	Digital Input	PD0	DIN25
33	122	load zone safety limit (Fly)	Digital Output	PF4	DIN26
34	26	Holding Brake Off	Digital Output	P06	DOUT17
35	165	Diff Lock	Digital Output	P07	DOUT18

2058AA

P11 (Black) Slave Controller: SMB1-106					
Pin	Wire	Function	Input/Output Type	I/O Name	Label
1	04		Power		VS1
2	04		Power		VS2
3	04		Power		VS3
4	04		Power		VS4
5	L	Speed control supply (T Booms)			Vreg 5v
6		Not Used	J1939 CAN		
7		Not Used	J1939 CAN		
8	CAN 2H	CANH To PLTF SMB1-106	CANopen		
9	CAN 2L	CANL To PLTF SMB1-106	CANopen		
10	02		Ground		GND1
11	02		Ground		GND2
12	02		Ground		GND3
13	02		Ground		GND4
14		Not used			--

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P12 (Grey) Slave Controller: SMB1-106					
Pin	Wire	Function	Input/Output Type	I/O Name	Label
1	37	Platform Rotation Right		PWM01	PWM17
2	36	Platform Rotation Left		PWM00	PWM16
3		Not Used		PWM07	PWM23
4		Not Used		PWM06	PWM22
5		Not Used		PWM05	PWM21
6		Not Used		PWM04	PWM20
7		Not Used		PWM11	DEPOP
8		Not Used		PWM10	DEPOP
9		Not Used		PWM09	DEPOP
10		Not Used		PWM08	DEPOP
11		Not Used		--	--
12		Not Used		PWM14	DEPOP
13	35	Jib Up		PWM02	PWM18
14	08A	Footswitch Actuated	Y	P4B	DIN28
15	24P	Steer Left	Y	P72	DIN30
16	23P	Steer Right	Y	P77	DIN32
17	45	High Torque Drive Mode Selected	Y	P7C	DIN34
18	01	Emergency Pump Request	Y	PF0	DIN36
19	04A	Engine Run/Enable		P25	DIN38
20		MPS2 = KC O/H (Korea)	Y	P82	DIN40
21	38A	Fly Boom In	Y	P92	DIN42
22	41A	Platform Level Up	Y	PC0	DIN44
23		Not Used		PWM13	DEPOP
24	34	Jib Down		PWM03	PWM19
25	233	Glazier Load Restrict		P49	DIN27
26	34A	Jib Down	Y	P4D	DIN29
27		Not Used	Y	P74	DIN31
28	35A	Jib Up	Y	P7A	DIN33
29	78	High Throttle Selected	Y	P7E	DIN35
30	57B	Engine Start Request	Y	PF2	DIN37
31		MPS1 = KC O/H (Korea)	Y	P20	DIN39
32	11A	Propane Fuel Select		P90	DIN41
33	39A	Fly Boom Out	Y	P94	DIN43
34		Not Used		--	--
35		Not Used		PWM12	DEPOP

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P13 (White) Slave Controller: SMB1-106					
Pin	Wire	Function	Input/Output Type	I/O Name	Label
1		Not Used	Y	P30	DOUT19
2	55	Low Fuel Indicator Lamp	Y	P37	DOUT26
3	577	EcoStart Indicator Light		P36	DOUT25
4	27A	Tilt Audible Indicator	Y	P35	DOUT24
5	231	Regen Lamp (EU Stage 5 engine)		P34	DOUT23
6	63	SGE Alarm		P3B	DOUT30
7	82	O/L Lamp		P3A	DOUT29
8	118	O/L Alarm		P39	DOUT28
9	74	Glow Plug Indicator Lamp	Y	P38	DOUT27
10	119	Load Zone Border Lamp		P3F	DOUT34
11	120A	High capacity zone lamp		P3E	DOUT33
12	120	Low capacity zone lamp		P5C	DOUT32
13	27	5 Degree Tilt LED Indicator		P31	DOUT20
14	D	Drive Controller	Y	AN16	AIN10
15	Y	Main Boom Elevation Controller	Y	AN17	AIN11
16	X	Turret controller	Y	AN18	AIN12
17		Not Used	Y	AN19	AIN13
18		Not Used	Y	AN20	AIN14
19	R	Riser Controller (AJ Booms)		AN21	AIN15
20		Not Used	Y	AN22	AIN16
21		Not Used	Y	AN23	AIN17
22	C	Speed control knob (T booms)	Y	AN25	AIN18
23	76P	MIL		P3C	DOUT31
24		Not Used		P32	DOUT21
25	08	Footswitch Indicator	Y	P33	DOUT22
26	40A	Platform Level Down	Y	PC2	DIN45
27	232	Regen Temp. Override (EU Stage 5 engine)		PC5	DIN46
28	35A	Platform Rotate Right	Y	PC8	DIN47
29	36A	Platform Rotate Left	Y	PCA	DIN48
30	165A	Diff Lock	Y	PCC	DIN49
31	85	Generator On/Off	Y	PCE	DIN50
32	61	SGE - Bar In	Y	PD0	DIN51
33	62	Reset SGE	Y	PF4	DIN52
34		Not Used		P06	DOUT35
35	165B	Diff Lock Indicator		P07	DOUT36

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5.2-5 SCM Calibration

Tare weight calibration sets the unladen weight of the platform. It is the weight of an empty platform that the SCM subtracts from the gross weight reading of the load cell, giving a new zero (net) weight to start from when measuring the contents of the platform.

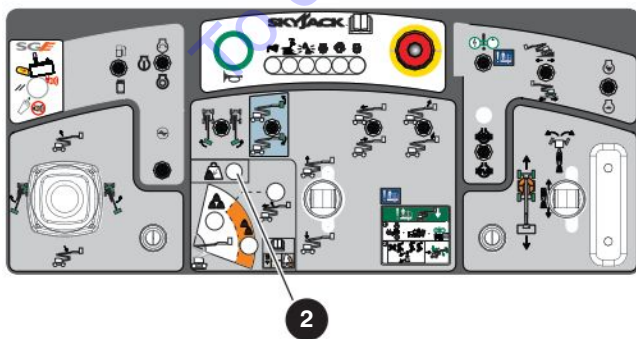
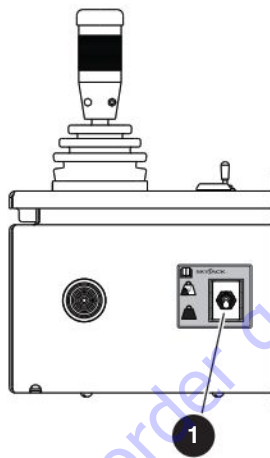
Net weight = Gross weight - Tare weight

Net weight: the weight of the platform.

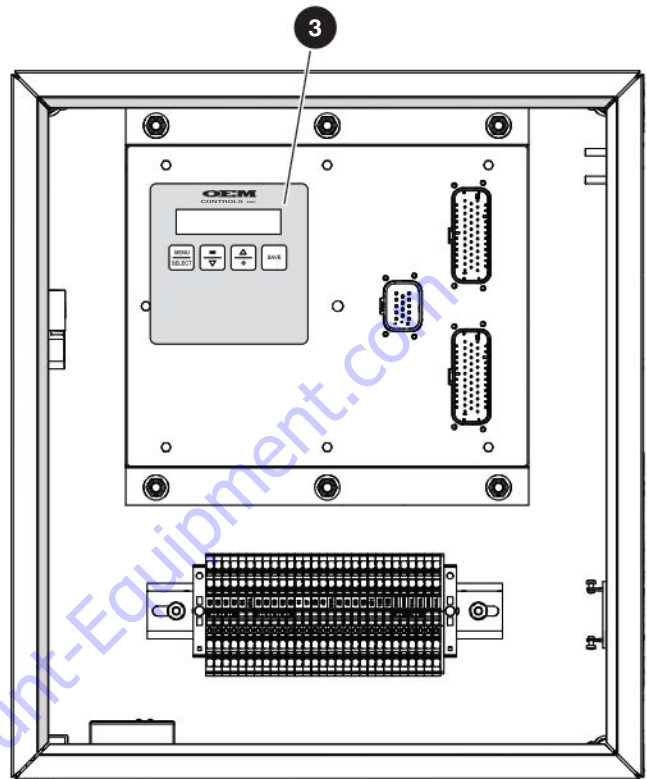
Gross weight: the total weight as measured by the load cell.

Tare weight: the weight of the empty platform as set by the tare weight calibration.

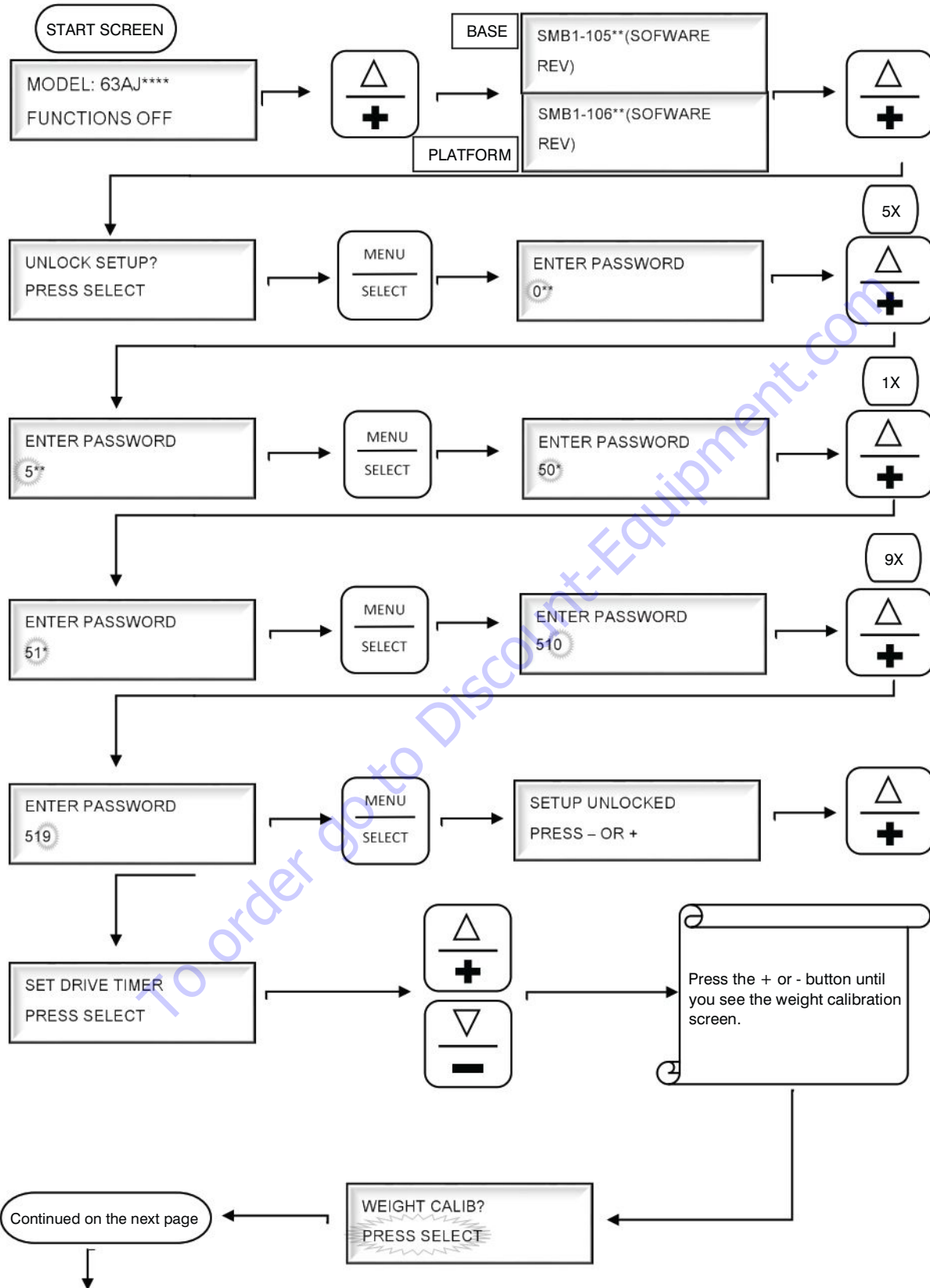
1. Make sure the platform is level.
2. Remove all items from the platform, including optional attachments.
3. Make sure the **capacity derate switch 1** is in the full capacity position, and the **capacity derate light 2** is not on.



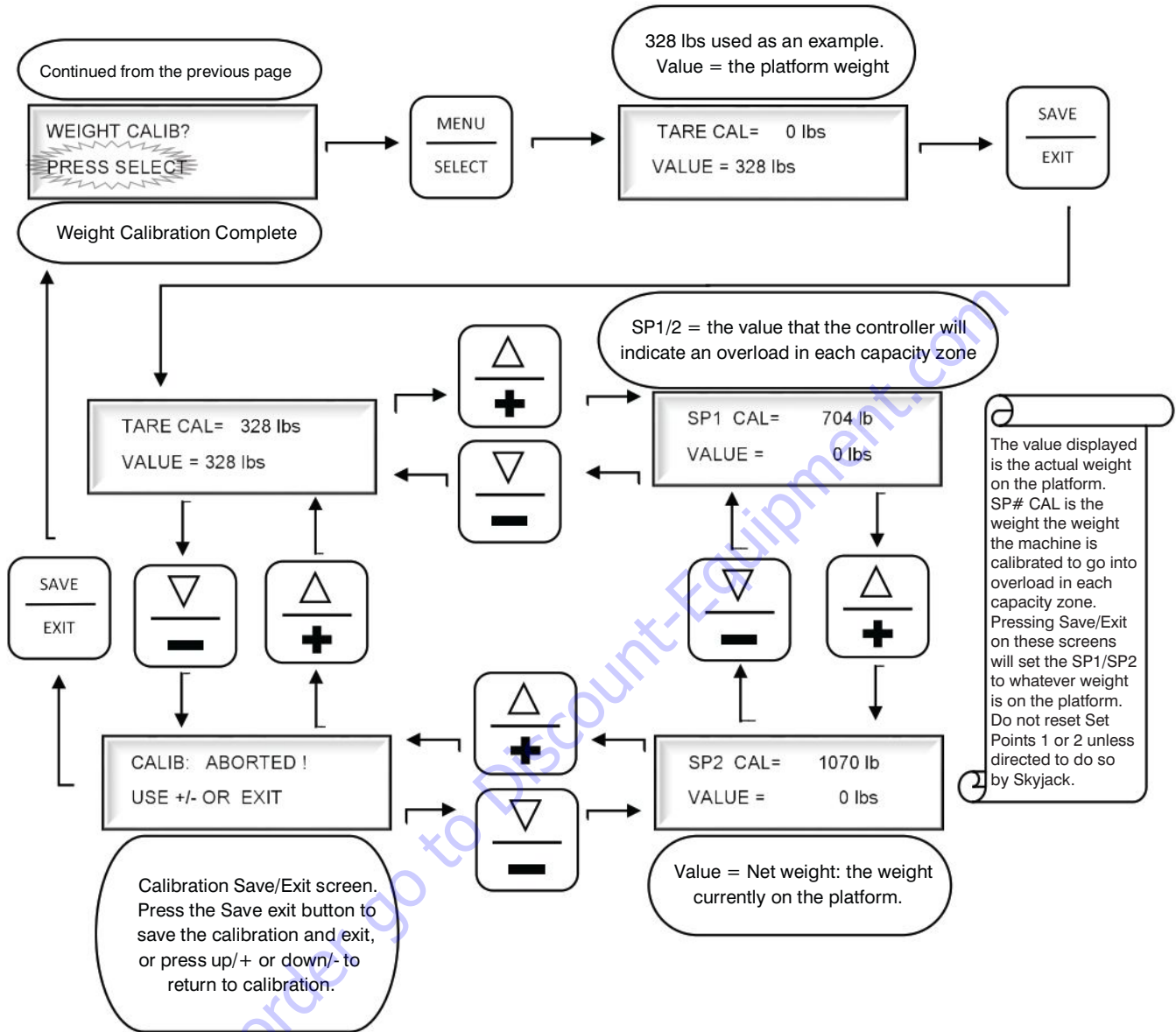
4. Do the calibration procedure from the **SCM 3** in the base control box. Follow the flowchart on the next two pages.



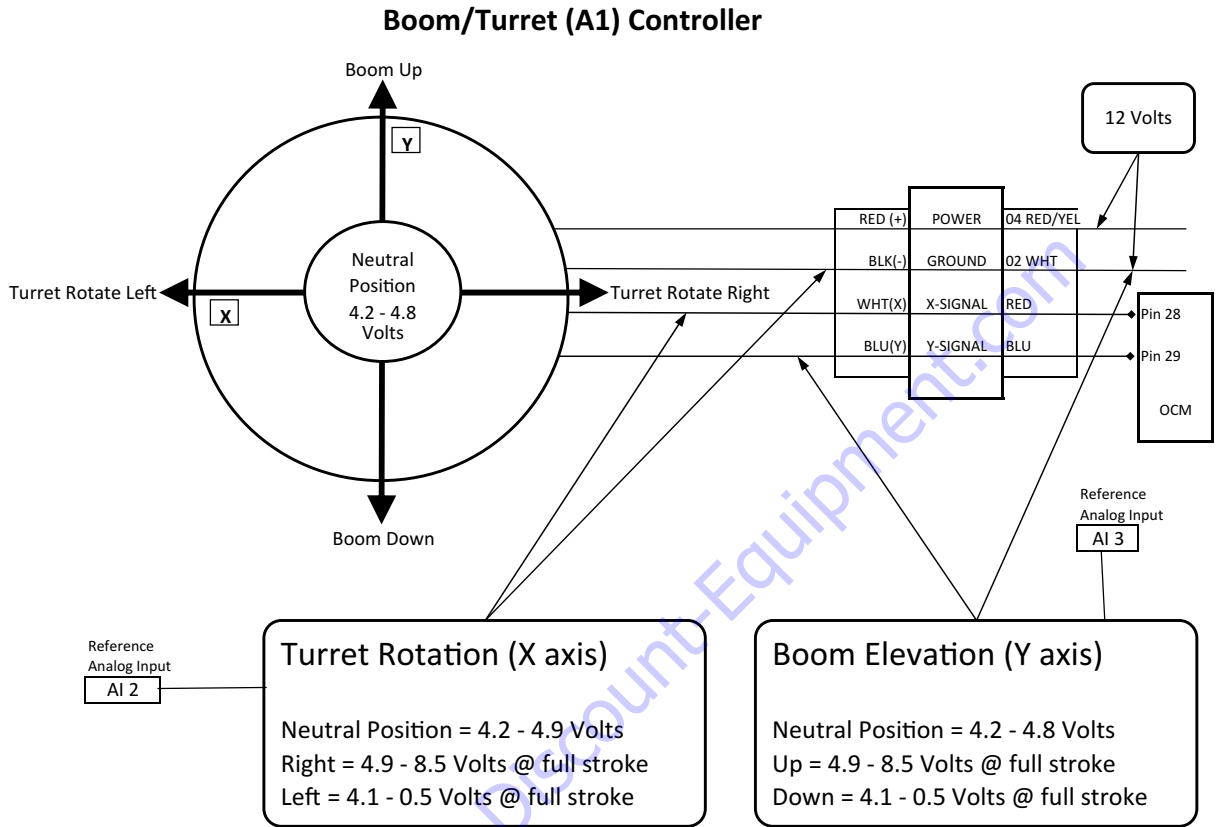
5.2-6 SCM Calibration Flowchart



SCM Calibration Flowchart (continued)

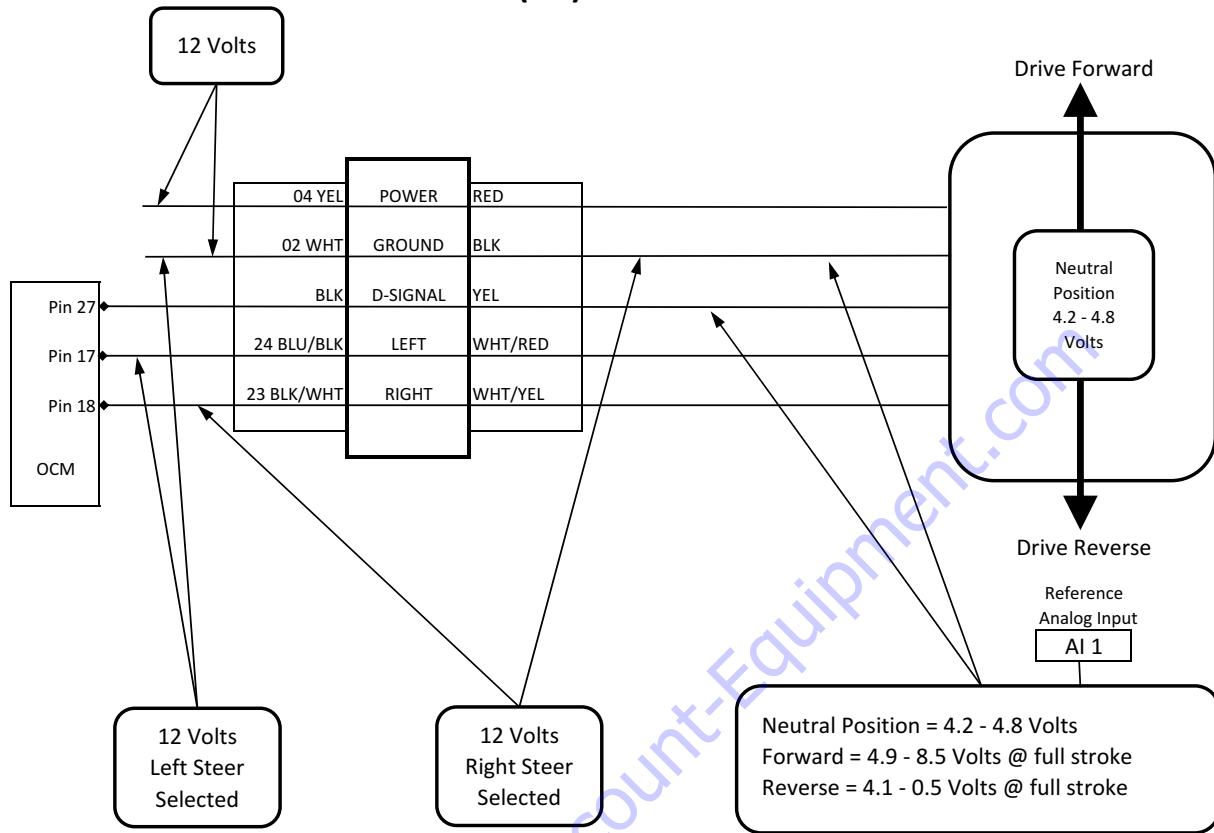


5.2-7 Platform Controller Voltage References

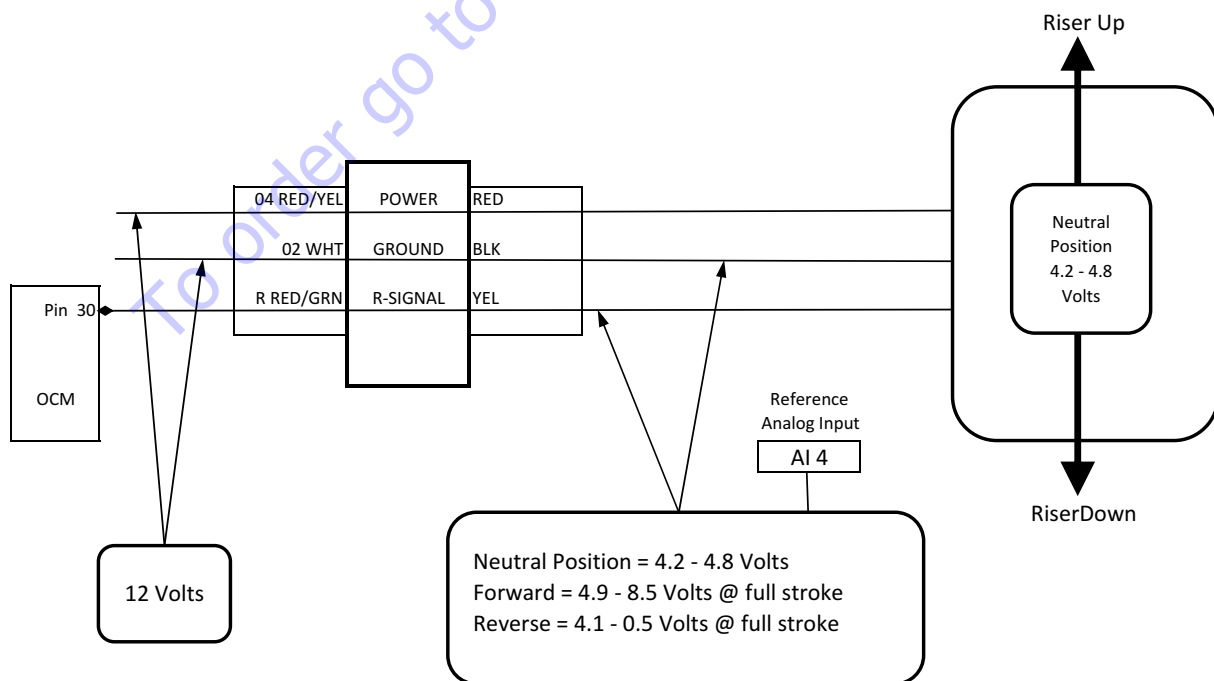


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Drive (A2) Controller



Riser (A3) Controller



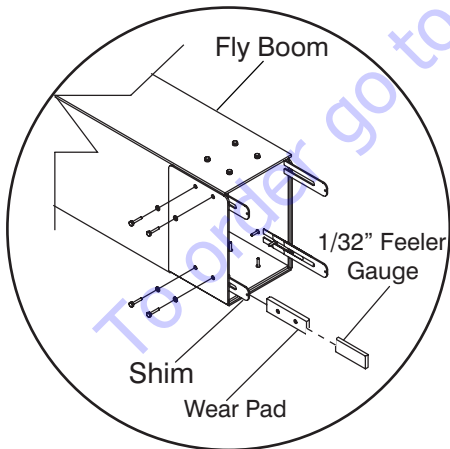
5.3 Boom

5.3-1 Check Wear Pads

1. Ensure the MEWP is on a firm level surface and is in the stowed position.
2. Start the engine 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 the wear pad if it is less than 11 mm (7/16 inches)
5. If the wear pad is within the specified thickness, shim it as necessary.

5.3-2 Shim 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 extend the 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.

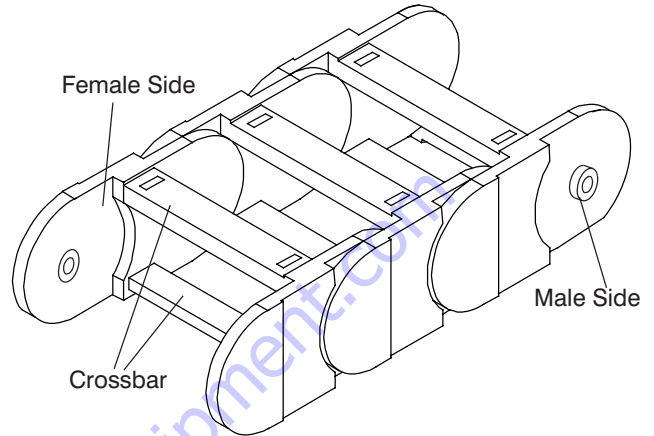


NOTE

Always maintain squareness between the boom's outer and inner tubes.

5.3-3 Cable Carrier Repair

To repair the cable carrier, simply use a screwdriver. Snap each crossbar off from either side of the chain, either by hand or by using the screwdriver as a lever. Install new crossbars by snapping the links together.

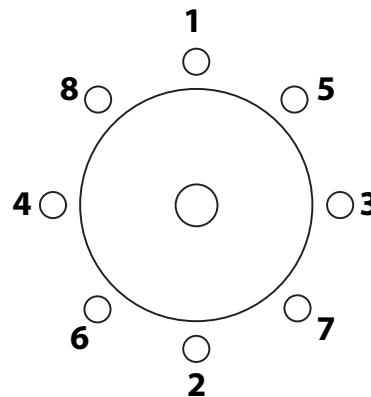


5.3-4 Rotary Actuator Bolt Torque Procedure

WARNING

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

1. Set the torque wrench to 23 Nm (17 ft-lb) and tighten the mounting bolts in a criss-cross pattern sequence.



2. Set the torque wrench to 47 Nm (35 ft-lb) and tighten mounting bolts with the same sequence.
3. Torque the center bolt to 651 Nm (480 ft-lb).

5.3-5 Boom Section Wear Pad Replacement

If wear pads inside the boom sections are worn and cannot be shimmed to meet the specification, they must be replaced. Wear pads that are worn past the specification can impair machine operation. For wear pad limit specification, refer [5.3-1 Check Wear Pads](#).

WARNING

Use original or manufacturer-approved parts and components for the MEWP.

The boom sections must be disassembled to replace the wear pads. Typically the bottom platform-end and the top counterweight-end pads on each boom section wear out first. Check which ones need to be replaced before disassembly.



NOTE

To disassemble the boom sections, the extension cylinder inside the boom must be removed first. See [5.3-13 Extension Cylinder Removal](#).

To disassemble the boom sections, the fly boom and mid boom must be slid fully out of the main boom. Provide enough space at the platform end of the machine at least the length of boom assembly.

Preparation:

- Remove the jib boom and the platform before disassembly. Removing these components limits twisting when lifting, and provides better control when sliding the boom sections out. See [5.3-6 Platform and Jib Boom Removal](#).
- Before beginning, place the machine in the proper shut down position, parked on level ground.
- Make sure the e-stops are pushed in and the key is off.
- Turn the main power disconnect switch off. Lock out the switch.

CAUTION

There is a risk of personal injury or equipment damage if repositioning the boom during this procedure. Use the base controls with auxiliary power (engine off) to reposition safely.

IMPORTANT

If boom repositioning is necessary during this procedure, select the emergency power position from the start/function enable/emergency power switch, then activate the desired boom function.

To avoid overloading the 12-volt auxiliary pump motor when operating on auxiliary power, do not operate more than one function at a time.

CAUTION

There is a risk of personal injury or equipment damage. Always use suitable lifting equipment and safe rigging practices when performing the following procedures.

NOTE

If boom repositioning is required with the platform removed and control cables disconnected, reconnect the two main (24 pin) control cables and the jib and platform rotate harness (as equipped) to the platform control box. See [5.3-12 Platform Control Console Connection](#).

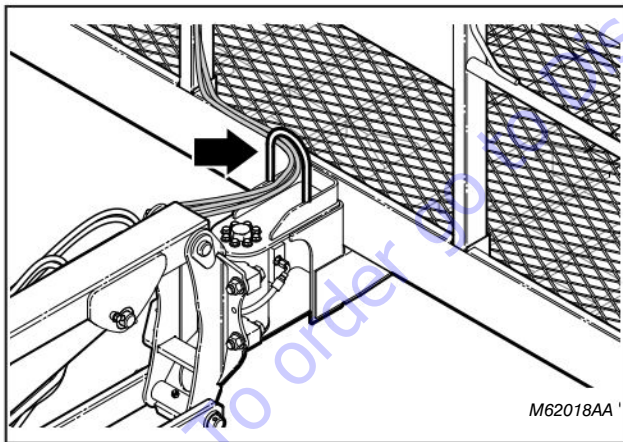
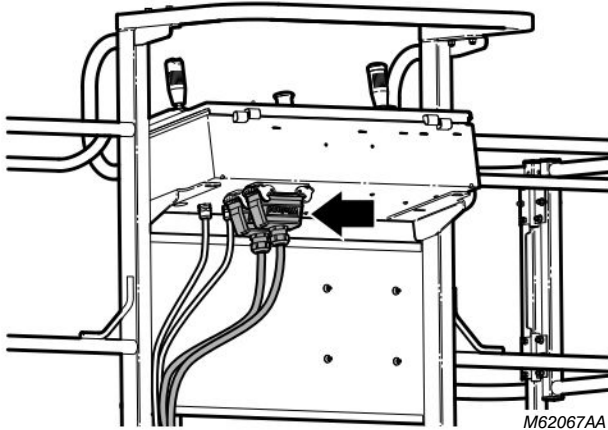
The machine cannot operate with the two platform control harnesses disconnected.

5.3-6 Platform and Jib Boom Removal

NOTE

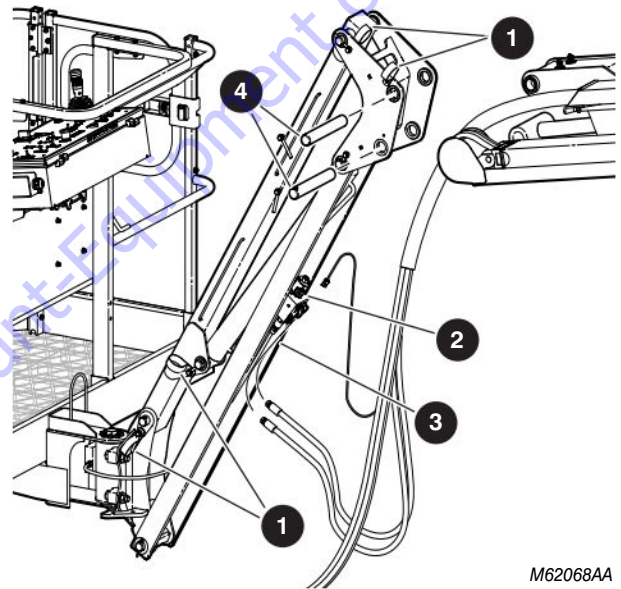
Remove the platform and jib boom together as an assembly.

1. Disconnect the two 24-pin cable connectors from the control box. Pull the harnesses through the cable guard on the platform swivel joint.



2. Remove the auxiliary AC receptacle box (if equipped) if its harness is bundled with the other harnesses and routed across the swivel joint. Remove any harness clamps so it can be pulled back through the cable guard.
3. Remove all clamps and tie-wraps that hold the harness / hose bundle to the side and top of the jib boom ①.
4. Disconnect the wire harness on the jib/platform rotate manifold ②.

5. Mark and disconnect the jib cylinder hoses from the jib/platform rotate manifold. Cap hoses and fittings to prevent contamination ③.
6. Connect lifting slings to the jib boom and platform. Tension the slings enough to lightly take the weight off the mounting bracket pins.
7. Remove the pins mounting the jib boom to the fly boom and the slave cylinder ④.
8. Carefully move the jib/platform assembly away from the end of the machine. Set it down on suitable blocking nearby. Place it close enough to the end of the main boom so the control cables can be reconnected in the event boom repositioning is required.

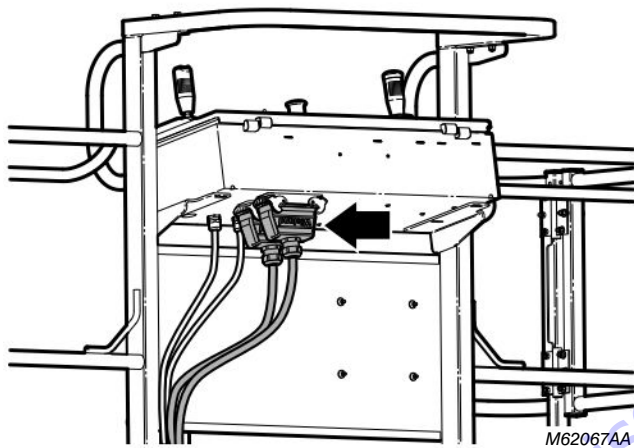


5.3-7 Operating Machine Functions from the Base Controls

⚠ CAUTION

There is a risk of personal injury or equipment damage if repositioning boom with platform removed. Use base controls with auxiliary power (engine off) to reposition safely.

If boom repositioning is necessary with the platform removed, reconnect the two cable harness connectors to the platform control box.



⚠ IMPORTANT

If boom repositioning is necessary during this procedure, select emergency power position from start-function enable-emergency power switch, then activate desired boom function.

When operating on auxiliary power, do not operate more than one function at a time to avoid overloading the 12-volt auxiliary pump motor.

⚠ IMPORTANT

Be aware that the short length of control cables connected to the platform control box limits boom movement.

5.3-8 Fly Boom Removal

⚠ CAUTION

There is a risk of personal injury or equipment damage if repositioning boom with the platform removed. Use the base controls.

📌 NOTE

In this procedure, the extension cylinder is removed with the fly boom. If removing the extension cylinder only, refer to [5.3-13 Extension Cylinder Removal](#).

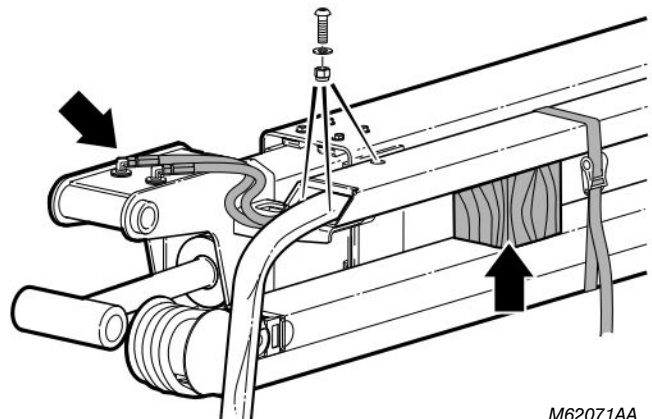
Use the base controls to operate the boom functions. If repositioning is required, reconnect the two 24-pin harnesses to the platform control box. Pull the e-stop button out.

Preparation:

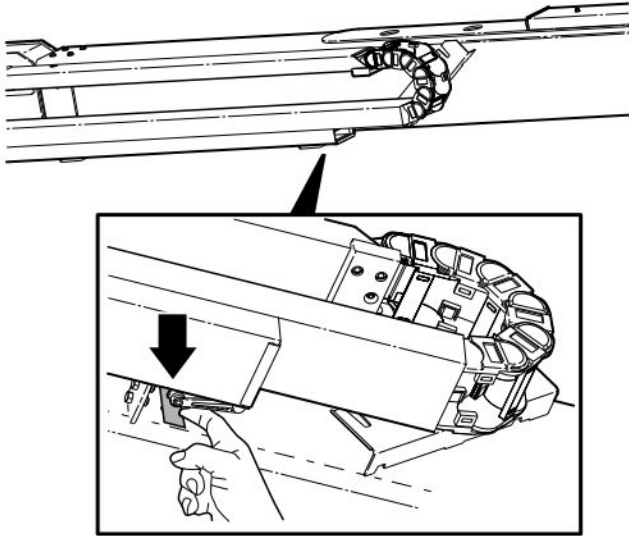
- Extend the fly boom slightly to provide better access to the wear pads. Make sure the main boom is in a horizontal position in order to slide the fly boom out.
- Return the main power disconnect switch to the off position and lock it out after repositioning the boom.

Procedure:

1. Place wood blocking between the cable/hose tube and the e-chain track to support it when the fly boom is removed. Use a strap to secure it in place.
2. Mark and disconnect the slave cylinder hoses on the top of the fly boom tip. Provide a suitable container or rags to catch any oil spillage. Cap hoses and ports to prevent contamination.
3. Remove the fasteners securing the cable/hose tube to the fly boom.

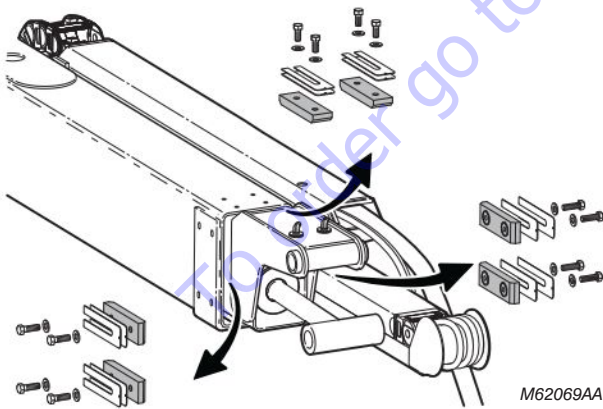


4. Locate the limit switch on the side of the main boom at the platform end of the lower e-chain tube. Pull in the limit switch arm and place a piece of tape over the switch hole. The tape prevents it from being damaged as the fly boom is removed.



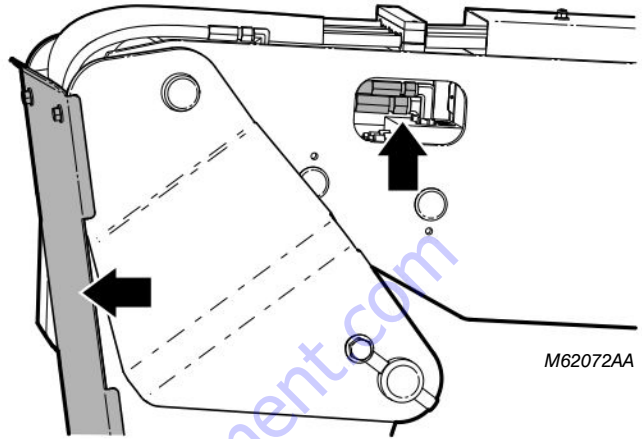
M62070AA

5. Remove the top and side wear pads and shims for the fly boom inside the platform end of the main boom. Store shims with the appropriate parts for reassembly.



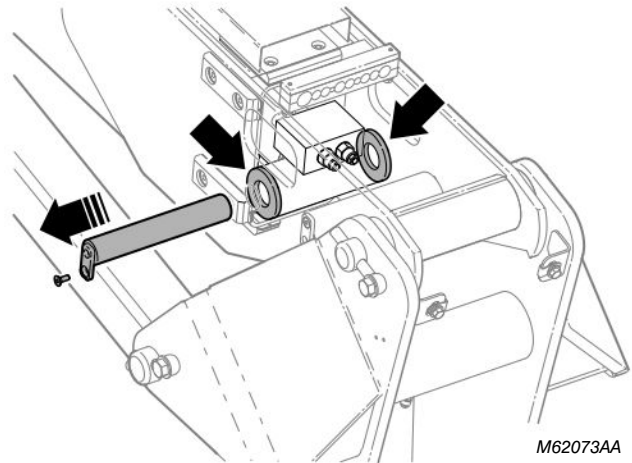
M62069AA

6. Remove the cover plate on the counterweight end of the upper pivot.
7. Disconnect and cap the extension cylinder hoses.



M62072AA

8. Remove the extension cylinder base-end pin. When driving the pin out, be aware there are spacers on each side of the extension cylinder boss.



M62073AA



NOTE

All wear pads inside the platform end of the main boom must be removed so the fly boom section can be pulled all the way out. Wear pads on the counterweight end of the fly boom section would otherwise prevent removal.

9. Place a 5 cm (2 in) wooden block under the base end of the cylinder to support it.
10. Place a suitable stand ahead of the machine that can bear the weight of the fly boom.
11. Lift/slide the fly boom out 2/3 of the way. Pull it out straight to avoid binding (it can be somewhat difficult to slide due to the weight of the cylinder inside of the boom section).
12. Attach a lifting sling to the tip of the fly boom. Lift it up slightly, then remove the bottom wear pad inside the main boom.
13. Set it down on the stand to re-sling as required. Balance the load as it is being removed.
14. Slide the fly boom all the way out of the main boom. Set it down on suitable blocking or stands.
15. Replace the wear pads on the counterweight end of the fly boom. Apply Loctite® 242 or 243 (removable) to the wear pad fasteners on assembly.

**NOTE**

If it is necessary to replace the wear pads on the extension cylinder support inside the fly boom, remove the cylinder.

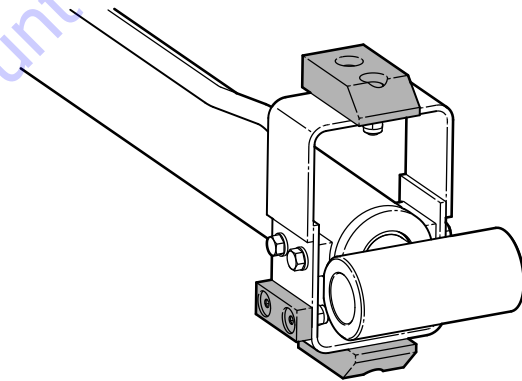
5.3-9 Change Wear Pads on Extension Cylinder Support

1. Remove the extension cylinder rod end pin.
2. Attach lifting slings to the extension cylinder. Using suitable lifting equipment, slide it out of the fly boom from the counterweight end. Have an assistant guide the cylinder support past the fly boom wear pads, if they are installed.
3. Set it aside on suitable stands to replace the wear pads on the cylinder support. Apply Loctite 242 or 243 to the wear pad fasteners on assembly.

! IMPORTANT

Install new wear pads in the correct orientation. Top and bottom wear pads have a chamfer that faces the platform end of the machine. The side wear pads are mounted on the lower part of the support.

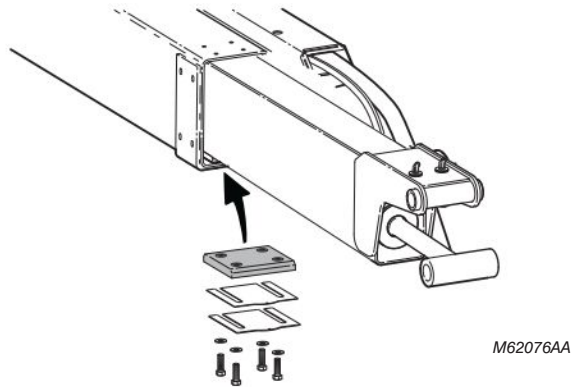
4. Reinstall the extension cylinder.



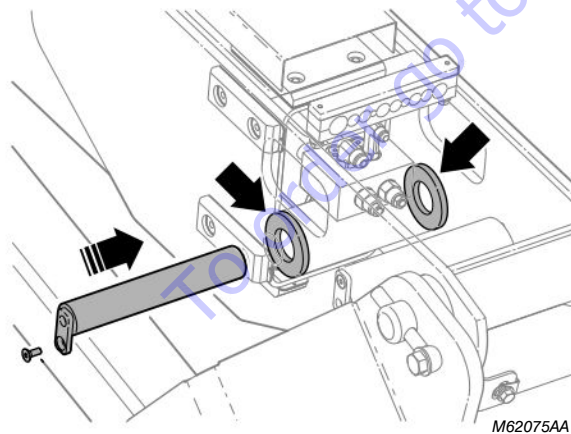
M62074AA

5.3-10 Fly Boom Installation

1. Put the end of the fly boom / extension cylinder assembly into the platform end of the main boom. Have an assistant guide it as it is inserted. Once the end of the fly boom is safely inside the main boom, re-sling it as required.
2. Install the bottom wear pad in the platform end of the main boom to help the fly boom slide in.

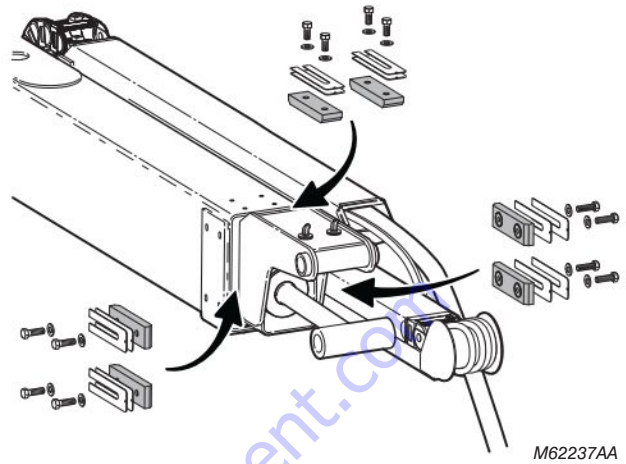


3. Install the base-end pin when the hole aligns with the holes in the main boom. Install the pin with a spacer on each side. Install the bolt to secure the pin.

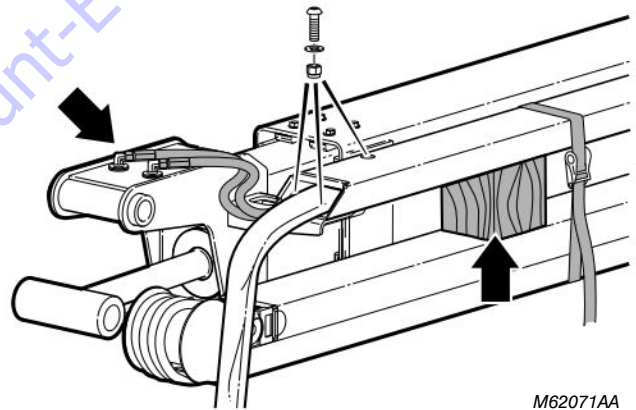


4. Connect the hydraulic hoses at the base of the cylinder.

5. Install top and side wear pads in the main boom. Apply Loctite 242 or 243 to the wear pad fasteners on assembly.



6. Remove the wooden block and strap. Install the cable/hose tube onto the fly boom.

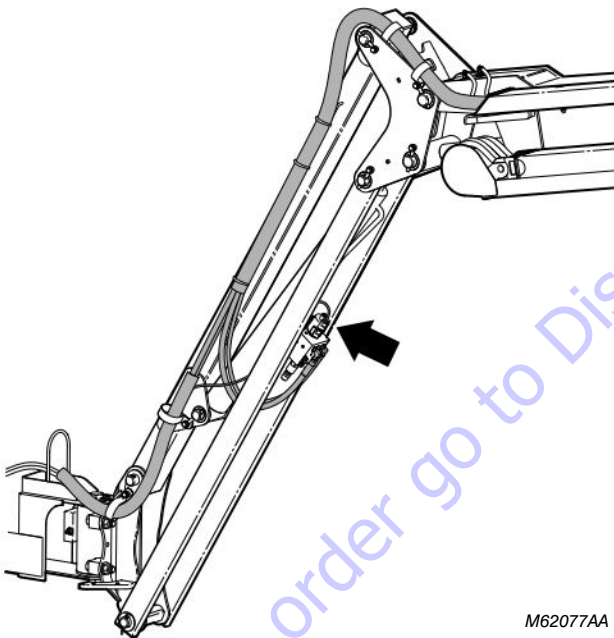


7. Connect the slave cylinder hoses to the bulkhead fittings on the top of the fly boom tip.
8. Remove the tape from the limit switch hole on the side of the main boom.

5.3-11 Platform/Jib Installation

Procedure:

1. Lift the platform/jib assembly and slide it into place so the fly boom nose and slave cylinder holes line up.
2. Install the fly boom pin and pin keeper. Install the slave cylinder pin and pin keeper.
3. Fasten the hose / cable bundle onto the jib boom with the clamps. Secure it with tie-wraps where required.
4. Connect the two hydraulic hoses to the jib/platform rotate manifold on the jib boom cylinder. Make sure the hoses are secured and routed to avoid chafing or pinching.
5. Connect the electrical harness to the jib/platform rotate manifold on the jib boom cylinder.



IMPORTANT

Make sure all wiring cables and hoses are routed and secured to avoid pinching or chafing as the machine moves.

5.3-12 Platform Control Console Connection

CAUTION

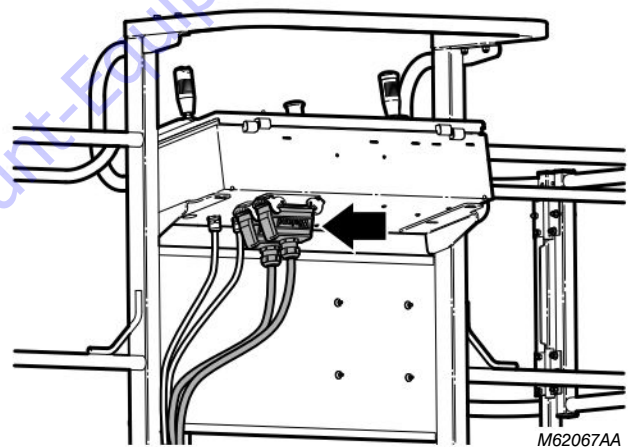
There is a risk of personal injury or equipment damage. Perform a function and range-of-controls check before putting the machine into service. See the Function Tests in the Operating Manual.

Preparation:

- Once the platform is installed, make sure all harnesses to be connected to the platform control box are routed through the guard hoop on the platform base.

Procedure:

1. Connect the two 24-pin cable harnesses to the platform control box.



2. Install the auxiliary AC receptacle box to the side of the platform control box (if it was removed as part of the cable bundle). Install the harness clamps.
3. Secure the cable bundle to the platform with tie-wraps as required.

IMPORTANT

Make sure all wiring cables are routed and secured to avoid pinching or chafing as the platform moves.

5.3-13 Extension Cylinder Removal

NOTE

If removing the cylinder to service it or change the wear pads, follow this procedure rather than removing the fly boom section.

Preparation:

- Make sure the machine is parked on level ground before beginning.
- Provide enough space at the counterweight end of the machine for cylinder removal at least the length of the main boom section.
- Place a support or stand of suitable capacity half a boom length behind the machine. Use it to set the end of the cylinder on if re-slinging is required as it is being removed.

CAUTION

There is a risk of personal injury or equipment damage if repositioning the boom during this procedure. Use the base controls with auxiliary power (engine off) to reposition it safely.

CAUTION

There is a risk of personal injury or equipment damage. Always use suitable lifting equipment and safe rigging practices when performing the following procedures.

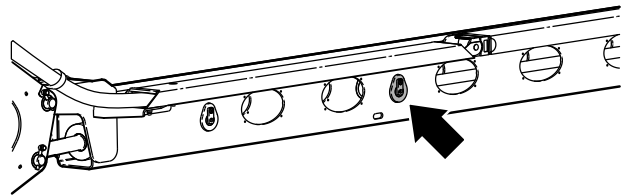
IMPORTANT

If boom repositioning is necessary during this procedure, select emergency power position from start–function enable–emergency power switch, then activate desired boom function.

To avoid overloading the 12-volt auxiliary pump motor when operating on auxiliary power, do not operate more than one function at a time.

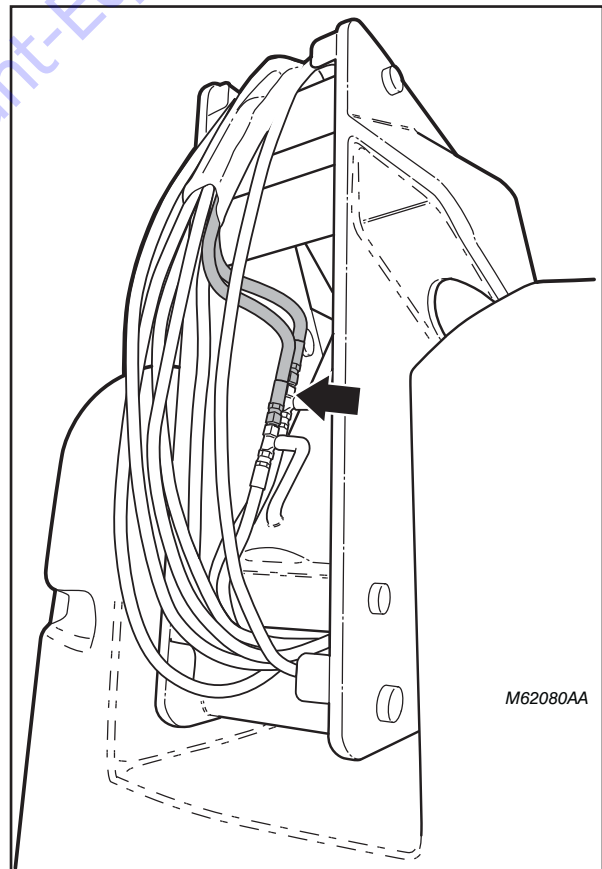
Procedure:

1. Extend the fly boom outward to access the rod end pin on the extension cylinder.



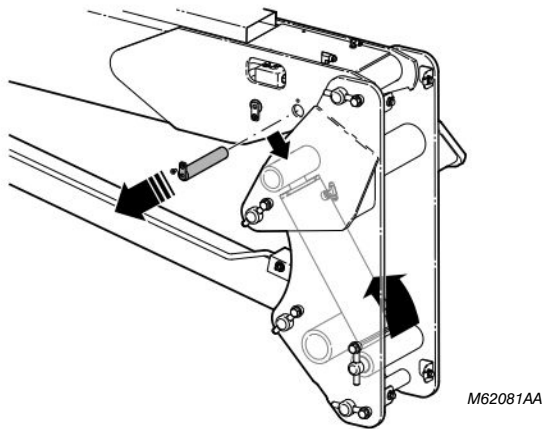
M62078AA

2. Remove the securing screw and drive the pin out.
3. Fully retract the extension cylinder.
4. Place the main boom in a horizontal position.
5. Remove the center cover plate on the turret.
6. Mark and disconnect the upper hoses at the 'T' connections on the master cylinder. Plug the hoses and cap the fittings to prevent contamination.

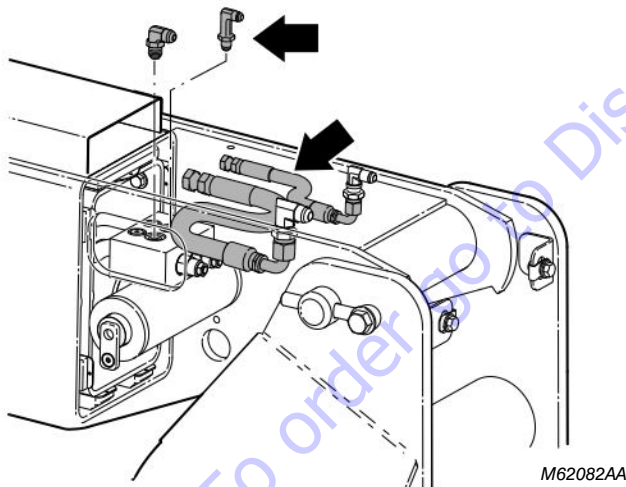


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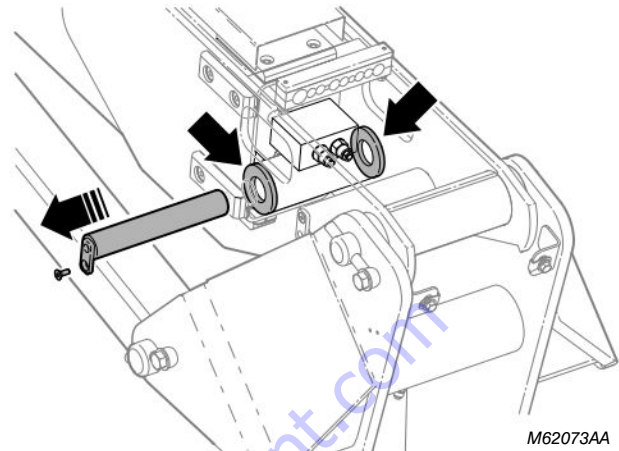
- Remove the master cylinder rod end pin. Lay the end of the cylinder down to rest on the cross tube. Retract the cylinder rod so it is out of the way.



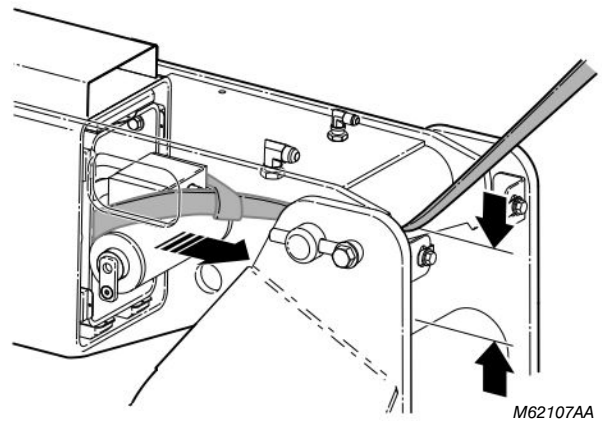
- Remove the hoses going to the manifold block on the base end of the extension cylinder. Cap the hose ends.
- Remove the 90° port fittings on the manifold block. Install port plugs to prevent contamination.



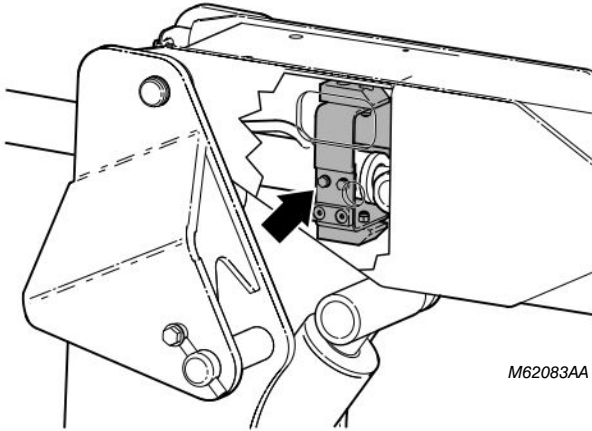
- Remove the extension cylinder base-end pin and spacers.



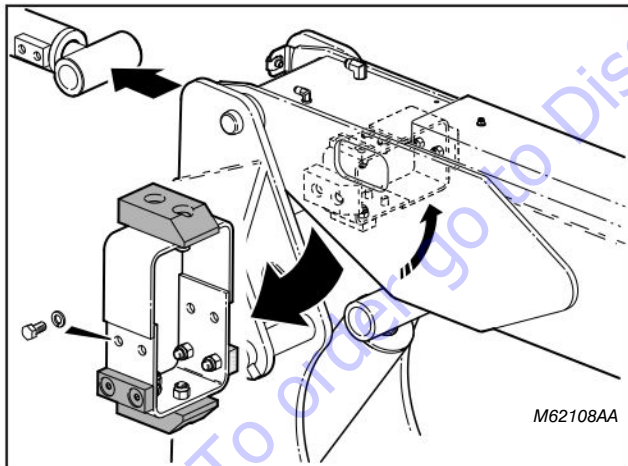
- Place a lifting strap through the cross tubes of the upper pivot onto the base end of the cylinder.
- Using suitable lifting equipment, begin pulling the cylinder out of the boom section. Guide it so it can pass through the cross tubes and past the hose bundle on the upper pivot.



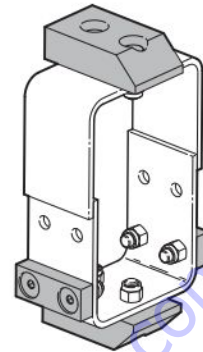
13. Pull the cylinder out until the mounting bolts for the cylinder support on the rod end are accessible inside the main boom support structure. The support has to be removed to allow the rod end to pass between the cross tubes.



14. Remove the 4 bolts securing the support to the cylinder. Turn the support 90° to remove it from the end of the cylinder.



15. Once the cylinder support is removed, the wear pads can be replaced. Apply Loctite 242 or 243 to the wear pad fasteners on assembly.



▲ IMPORTANT

Install new wear pads in the correct orientation. The top and bottom wear pads have a chamfer that faces the platform end of the machine. The side wear pads are mounted on the lower part of the support.

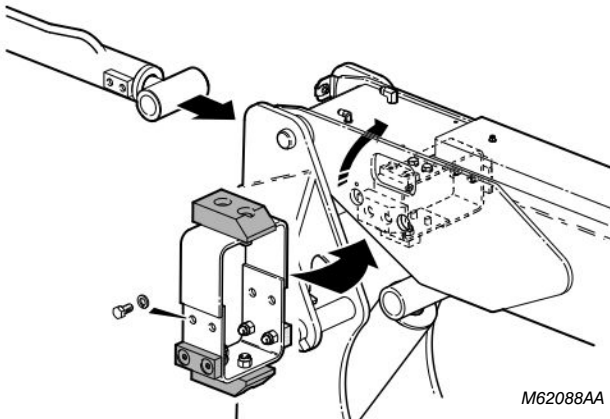
NOTE

If only replacing the extension cylinder wear pads, continue to [5.3-13 Extension Cylinder Removal](#).

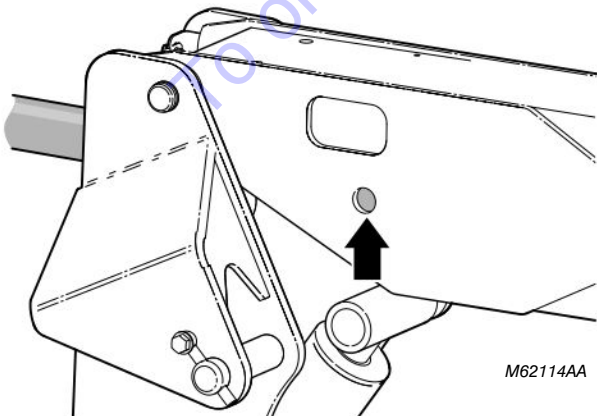
16. Continue pulling the cylinder all the way out. Guide it through the cross tubes and past the hose bundle.
17. Set it down on suitable supports or blocking to perform cylinder service as required.

5.3-14 Extension Cylinder Installation

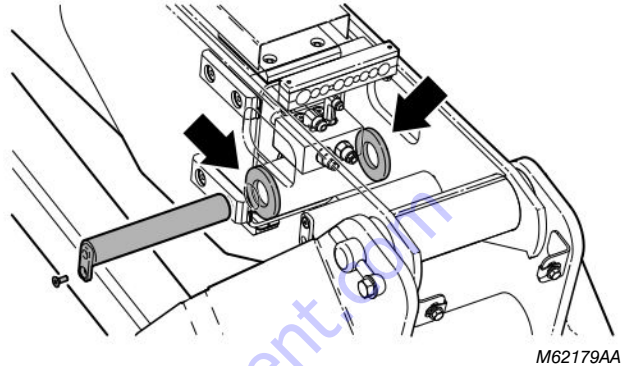
1. Begin sliding the extension cylinder into the main boom section. Make sure the port side of the base end is facing upward. Slide the rod end past the hose bundle and just through the cross tubes in the upper pivot.
2. Install the cylinder support. Make sure it is facing the right direction. The top and bottom wear pads have a chamfer that faces the platform end of the machine. Apply Loctite 242 or 243 to the fasteners on assembly.



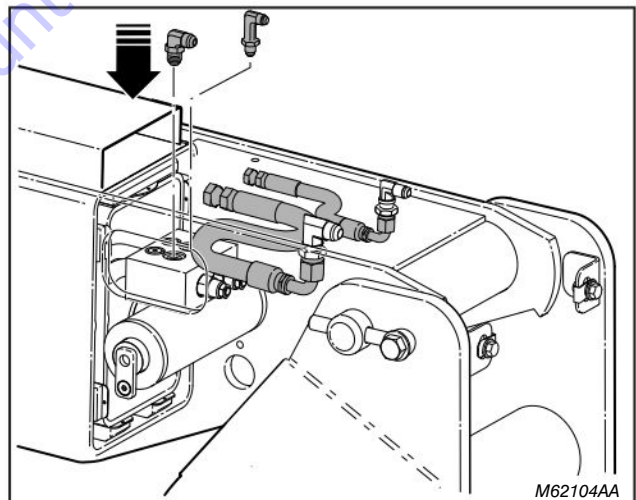
3. Lift/slide the cylinder inward while guiding the support.
4. Continue sliding the cylinder inward until the support on the rod end reaches the inside end of the fly boom.
5. Use a pry bar to lift the end of the cylinder and help guide the support into the fly boom while pushing the cylinder in. Insert the pry bar through the hole in the main boom for the cylinder base-end pin.



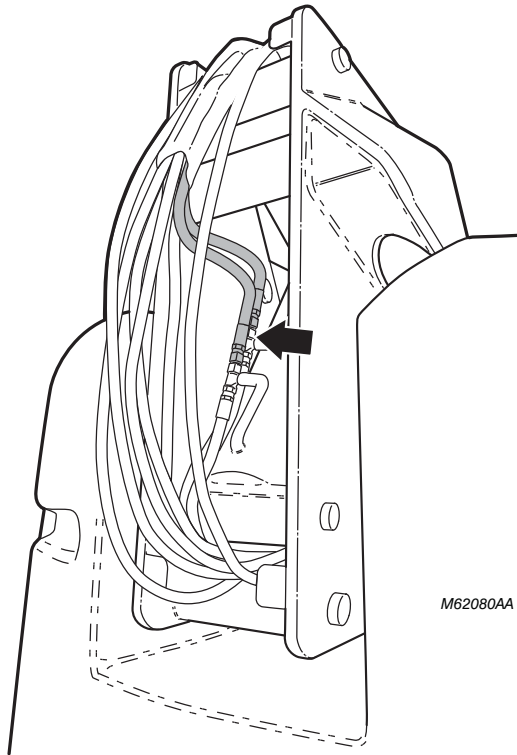
6. Continue sliding the cylinder inward until the pin for the base end can be installed.
7. Use a pry bar to lift the end of the cylinder up to align the hole. Install the pin and one spacer per side. Install the pin securing screw.



8. Remove the plugs and install the 90° port fittings into the manifold block on the base end of the cylinder. Connect the hydraulic hoses to the port fittings.



9. Reconnect the master cylinder hydraulic hoses.



10. Extend the master cylinder to install the rod end pin. Install the pin securing screw.
11. Extend the extension cylinder outward to install the rod end pin through the fly boom. Install the pin securing screw.

⚠ CAUTION

There is a risk of personal injury or equipment damage. Test the equipment operation before putting the machine into service. See the Function Tests in the Operating Manual.

5.3-15 Main Boom Lift Cylinder Removal

⚠ CAUTION

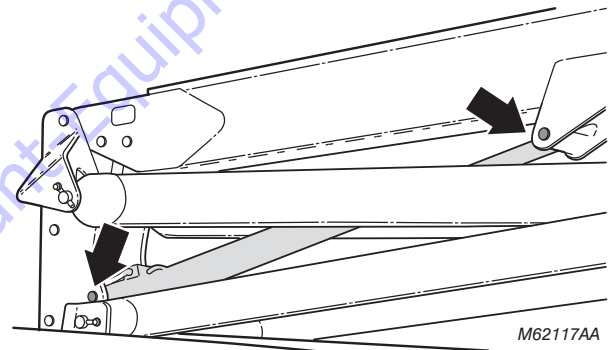
There is a risk of personal injury or equipment damage. Always use suitable lifting equipment and safe rigging practices when performing the following procedure.

Preparation:

- Make sure the machine is parked on level ground before beginning.

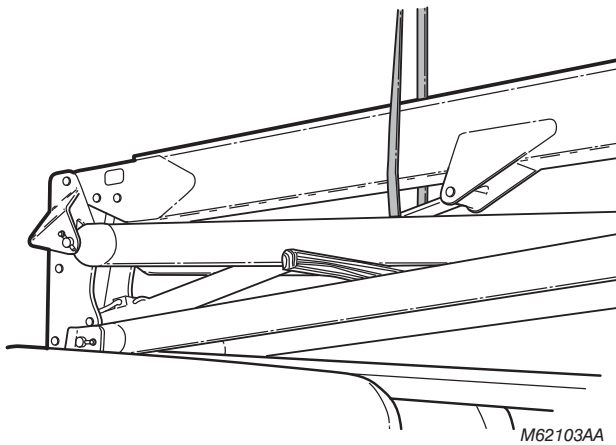
Procedure:

1. Raise the riser up so the lift cylinder pins are accessible. The base-end pin must be above the counterweight and the rod end pin must be above the riser tube.



2. Place a suitable stand or support under the main boom assembly that can support its weight, towards the platform end.
3. Lower the main boom so it is resting lightly on the stand and weight is taken off of the cylinder pins.
4. Shut the machine down. Make sure the e-stops are pushed in and the key is off.
5. Turn the main power disconnect switch off. Lock out the switch.
6. Mark and disconnect the lift cylinder hoses from the base end. Cap hoses and ports to prevent contamination.
7. Place wood blocking through the riser arms so the rod end of the cylinder can rest on it once the pin is removed.

8. Place a lifting strap that straddles the boom under the rod end of the cylinder. Lift it lightly to tighten the strap.



9. Remove the pin keeper and drive out the rod end pin.
10. Lower the cylinder onto the wood blocking, then reposition the sling to the base end. Lift it lightly to tighten the strap.
11. Remove the pin keeper and drive out the base-end pin.
12. Lower the cylinder so that it is resting on the riser. Reposition the sling to the outside of the boom.
13. Lift and guide the cylinder out through the platform end of the riser assembly. Main Boom

5.3-16 Lift Cylinder Installation

1. Attach the lifting sling to the cylinder. Lift and guide it into the riser assembly from the platform end of the machine.
2. Lower the cylinder so the base end rests on the riser and the rod end rests on the wood blocking.
3. Change the position of the lifting sling so it can lift the cylinder while straddling the main boom.
4. Install the base-end pin first. Install the pin and pin keeper.
5. Lower the cylinder down on the wood blocking to reposition the lifting sling.
6. Lift the cylinder rod end up to install the pin. Install the rod end pin and pin keeper.
7. Reconnect the hydraulic hoses.

CAUTION

There is a risk of personal injury or equipment damage. Test the equipment operation before putting the machine into service. See the Function Tests in the Operating Manual.

5.3-17 Riser Cylinder Removal


⚠ CAUTION

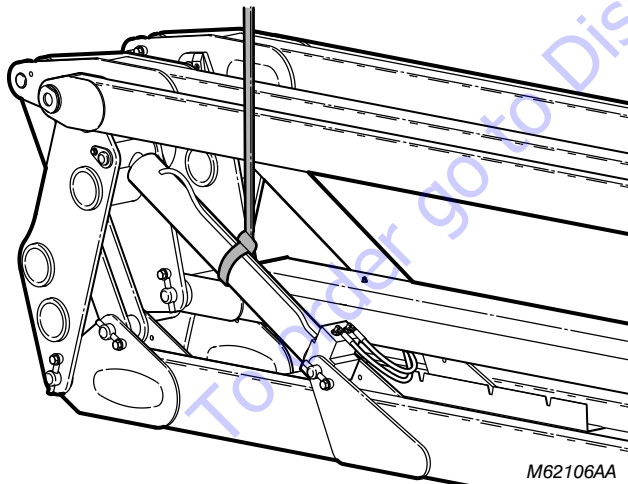
There is a risk of personal injury or equipment damage. Always use suitable lifting equipment and safe rigging practices when performing the following procedure.

Preparation:

- Make sure the machine is parked on level ground before beginning.

Procedure:

1. Raise the main boom slightly to allow more clearance inside the riser assembly to work.
2. Shut the machine down. Make sure the e-stops are pushed in and the key is off. Turn the main power disconnect switch to the off position . Lock out the switch.
3. Mark and disconnect the hoses for the riser cylinder being removed. Cap the hoses and ports to prevent contamination.
4. Attach a lifting sling to the cylinder. Using suitable lifting equipment, tighten the strap slightly to support it.



5. Remove the retainer bolt and rod end pin. Remove the keeper pin and base-end pin.
6. Lift the cylinder out of the riser boom assembly.

5.3-18 Riser Cylinder Installation




1. Lift the cylinder into the riser assembly. Line up and insert the base-end pin. Install the pin keeper.
2. Insert the rod end pin and retainer bolt.
3. Connect the hydraulic hoses. Make sure they are connected correctly.

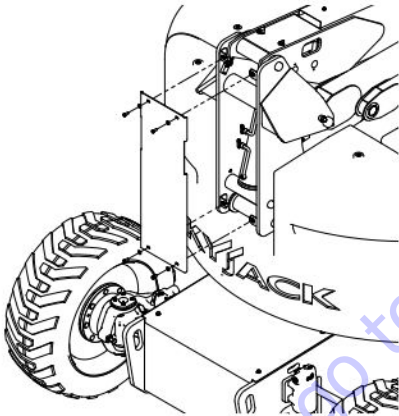
⚠ CAUTION

There is a risk of personal injury or equipment damage. Test the equipment operation before putting the machine into service. See the Function Tests in the Operating Manual.

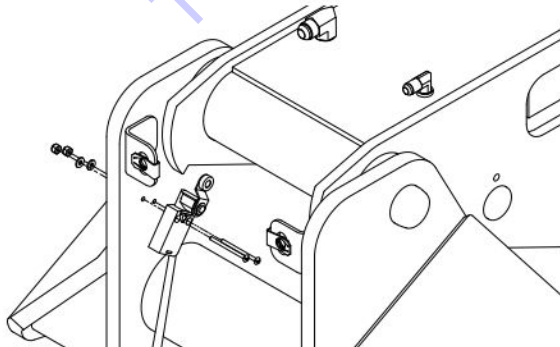
5.3-19 Replace Limit Switch - Main Boom

The main boom limit switch is located at the base of the main boom where the main boom connects to the upper pivot assembly. This limit switch consists of a normally closed contact and controls the MEWP elevated drive speed.

1. Ensure the MEWP is on a firm level surface.
2. Ensure the boom is completely retracted and the platform fully lowered.
3. Push in the emergency stop buttons on the platform control console and base control console .
4. Turn the base/off/platform key switch to the off position . Remove the key.
5. Turn the main power disconnect switch to the off position .
6. Access the main boom limit switch by removing the upper pivot cover plate.



7. Disconnect the main boom limit switch harness connector from the bundled harness.
8. Remove the main boom limit switch retaining hardware and discard the limit switch.



9. Install the new main boom limit switch and retaining hardware.









NOTE

Ensure proper contact is made between the steel roller lever and the cam surface of the main boom.




10. Securely connect the main boom limit switch harness connector to the bundled harness.
11. Reinstall the upper pivot cover plate and retaining hardware.
12. Ensure secure limit switch connections of the bundled harness at the base control console. Refer to [3.21 Limit Switch Connections](#) for connection locations.

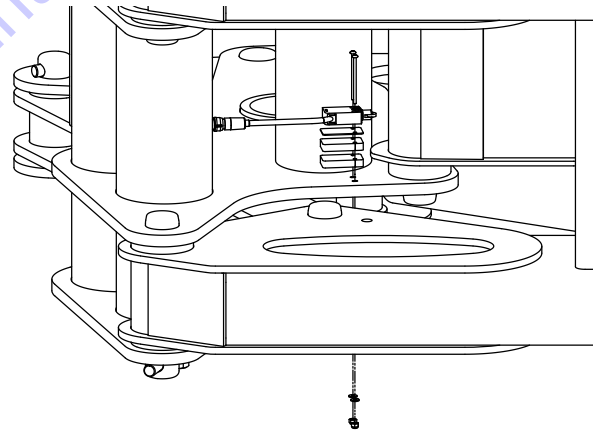
5.3-20 Test Main Boom Limit Switch

1. In the engine compartment, turn the main power disconnect switch to the on position .
2. On the base control console, turn the base/off/platform key switch to the platform position .
3. Ensure both emergency stop buttons are pulled out .
4. On the platform control console, select the on position from engine enable switch .
5. Select the start position from the engine start/on/off switch to start the engine .
6. Depress and hold the footswitch.
7. Raise the main boom 1.2 m (4 ft.) above the ground and then slowly move the drive/steer controller to the full drive position .
 - Result: The maximum achievable drive speed should be significantly less than stowed drive speed.
8. Shut down the machine and return it to a fully stowed position.

5.3-21 Replace Limit Switch - Riser Boom

The riser boom limit switch is located on the inside face of the lower pivot weldment where the third riser connects to the lower pivot assembly. This limit switch consists of a normally closed contact and controls the MEWP elevated drive speed.

1. Ensure the MEWP is on a firm level surface.
2. Ensure the boom is completely retracted and the platform is fully lowered.
3. Push in the emergency stop button on the platform control console and the base control console .
4. Turn the base/off/platform key switch to the off position . Remove the key.
5. Turn the main power disconnect switch to the off position .
6. Disconnect the riser boom limit switch harness connector from the bundled harness.
7. Remove the riser boom limit switch retaining hardware, remove the spacer plates and shims, and discard the limit switch.



8. Install a new riser boom limit switch, spacer plates, shims, and retaining hardware.









NOTE

Ensure proper contact is made between the steel roller plunger and the cam surface of the third riser boom section.




9. Securely connect the riser boom limit switch harness connector to the bundled harness.
10. Ensure secure limit switch connections of the bundled harness at base control console. Refer to [3.21 Limit Switch Connections](#) for connection locations.

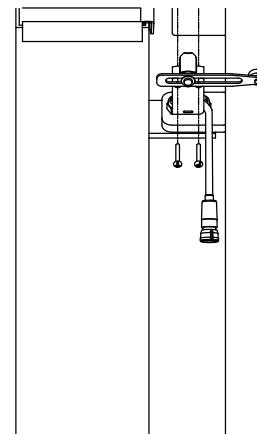
5.3-22 Test Riser Boom Limit Switch

1. Turn the main power disconnect switch to the on position .
2. On the base control console, turn the base/off/platform key switch to the platform position .
3. Ensure both emergency stop buttons are pulled out .
4. On the platform control console, select the on position from the engine enable switch .
5. Select the start position from the engine start/on/off switch to start the engine .
6. Depress and hold the footswitch.
7. Raise the riser boom 1.2 m (4 ft.) above ground and then slowly move drive/steer controller to the full drive position .
 - Result: The maximum achievable drive speed should be significantly less than stowed drive speed.
8. Shut down the machine and return it to a fully stowed position.

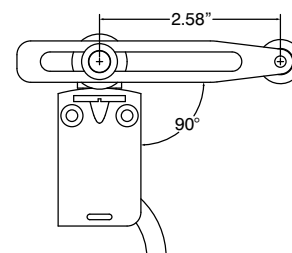
5.3-23 Replace Limit Switch - Fly Boom

The fly boom limit switch is located on the outside face of the main boom weldment and is mounted in between the cable track assembly and the main boom assembly. This limit switch consists of a normally closed contact and controls the MEWP elevated drive speed.

1. Ensure the MEWP is on a firm level surface.
2. Ensure the boom is completely retracted and the platform fully lowered.
3. Push in the emergency stop button on the platform control console and the base control console .
4. Turn the base/off/platform key switch to the off position. Remove the key .
5. Turn the main power disconnect switch to the off position .
6. Free the fly boom limit switch harness by cutting the tie wrap from the limit switch mounting bracket.
7. Remove the fly boom limit switch retaining hardware and discard the limit switch.



8. Adjust the fly boom limit switch steel roller lever to the following specifications.



9. Install the new fly boom limit switch and retaining hardware.









NOTE

Ensure proper contact is made between the steel roller lever and the cam surface of the fly boom.

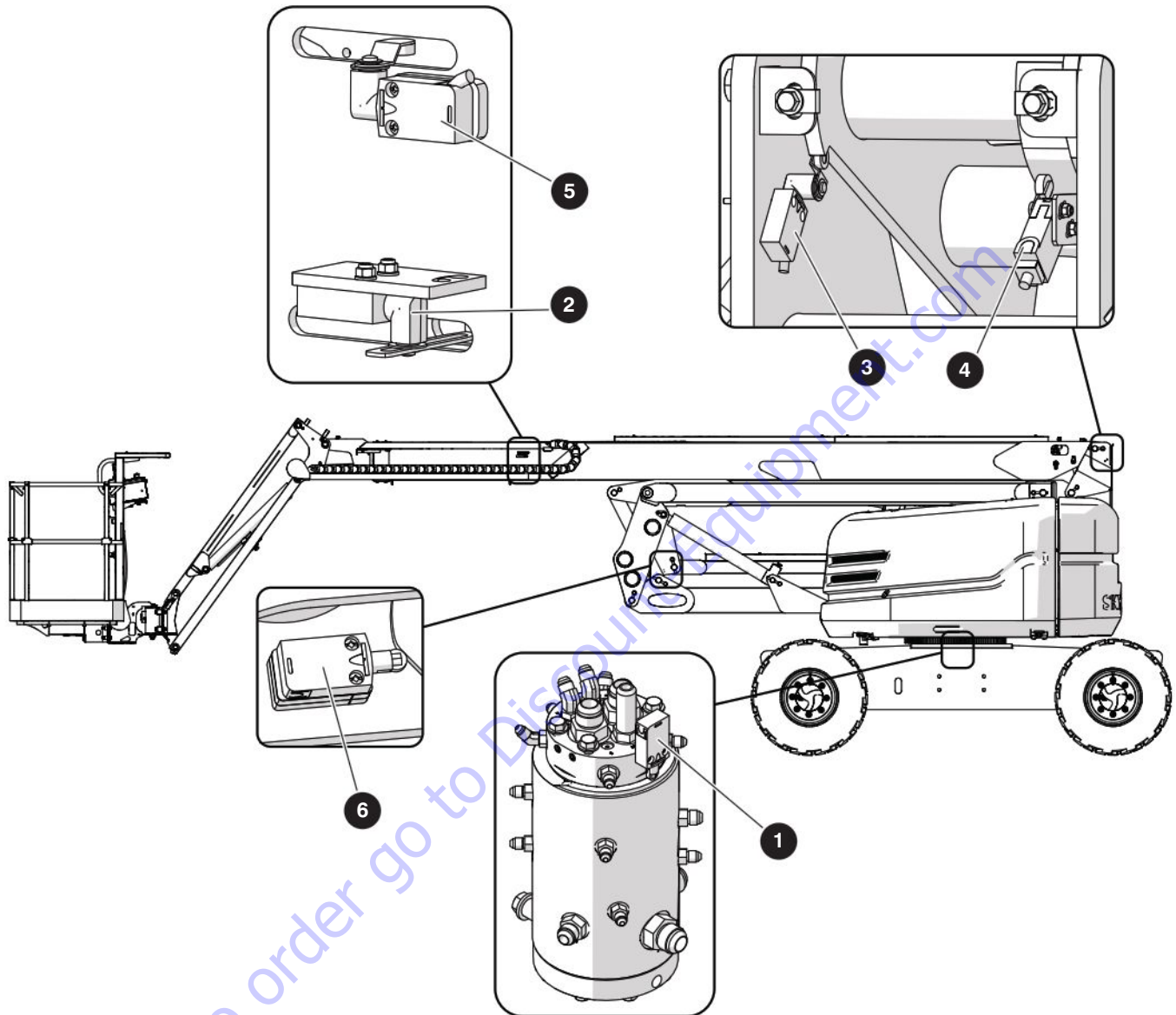
10. Securely connect the fly boom limit switch harness connector to the bundled harness.
11. Secure the fly boom limit switch harness by installing a tie wrap to the limit switch mounting bracket.
12. Ensure secure limit switch connections of the bundled harness at base control console. Refer to [3.21 Limit Switch Connections](#) for connection locations.

5.3-24 Test Fly Boom Limit Switch

1. In the engine compartment, turn the main power disconnect switch to the on position .
2. On the base control console, turn the base/off/platform key switch to the platform position .
3. Ensure both emergency stop buttons are pulled out .
4. On the platform control console, select the on position from the engine enable switch .
5. Select the start position from the engine start/on/off switch to start the engine .
6. Depress and hold the footswitch.
7. Extend the fly boom approximately 30 cm (12") and then slowly move the drive/steer controller to the full drive position .
 - Result: The maximum achievable drive speed should be significantly less than the stowed drive speed.
8. Shut down the machine and return it to a fully stowed position. Limit Switch Locations

To order go to Discount-Equipment.com

5.3-25 Limit Switch Locations

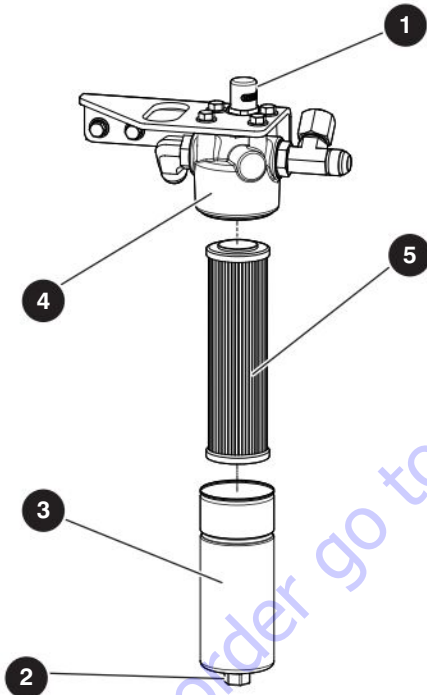


- ❶ Limit Switch LS1 - Direction Sensing
- ❷ Limit Switch LS2 - Fly Stowed (high speed cut-out)
- ❸ Limit Switch LS3 - Main Boom (high speed cut-out)
- ❹ Limit Switch LS4 - Boom Down (dual load zone)
- ❺ Limit Switch LS5 - Fly Out (dual load zone)
- ❻ Limit Switch LS6 - Riser Stowed (high speed cut-out)

5.4 Turret

5.4-1 Check and Replace the High Pressure Filter

1. Start the engine from the base control console.
2. Inspect the filter restriction indicator gauge **1**. The filter should operate with the gauge pointing to the green area. If it is in the red area, the filter needs to be replaced.
3. To replace the filter, turn the engine off.
4. Place a suitable container under the filter.



5. Using a 30 mm box wrench on the filter housing nut **2**, loosen filter housing **3** and remove it from the filter head **4**.
6. Remove the filter element **5** from the filter head and install a new high pressure filter element.
7. Apply hydraulic oil to the o-ring on the high pressure filter housing.
8. Reinstall the housing, screwing it in fully, then backing it off by one quarter turn.

5.4-2 Adjust the Turret Rotation Gear Backlash

Adjusting the backlash clearance will allow proper mating between the turret rotation gear and the swing drive motor gear.

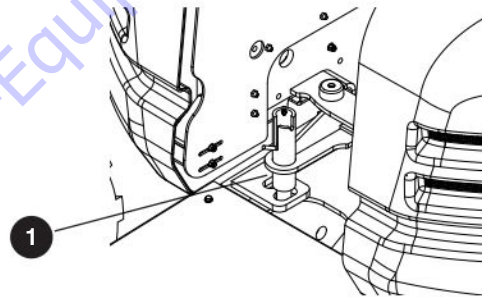
WARNING

Ensure there are no personnel or obstructions in the test area and there is sufficient room for the boom to swing and elevate.

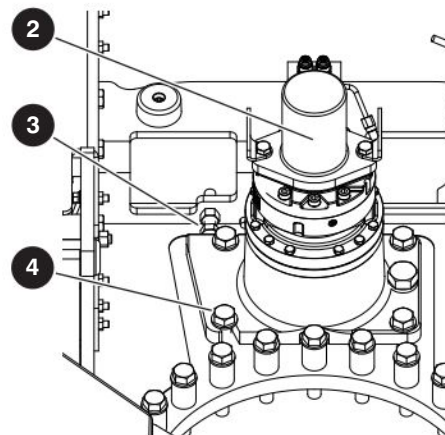
NOTE

The adjustment of the backlash must be performed on a flat level surface.

1. Ensure the MEWP is on a firm level surface.
2. Lock the turret to the base with the turret lock pin **1**.



3. Raise the riser boom to access the swing drive motor **2**.



4. Support the boom with an overhead crane or other suitably rated supporting device. Do not lift the boom.
5. Turn the main power disconnect switch to the off position ○ .
6. Loosen the mounting fastener ③ on the swing drive motor.
7. Push the swing drive motor towards the center of the turret as close as possible (this will push the rotation gear into the rotation bearing).
8. Loosen the lock nut on the adjustment bolt ④ .
9. Tighten the adjustment bolt clockwise until it contacts the plate of the gearbox.
10. Turn the adjustment bolt 1/2 turn counterclockwise, then tighten the lock nut on adjustment bolt.
11. Pull the swing drive motor away from turret until it contacts the adjustment bolt.
12. Tighten mounting fasteners on swing drive motor.
13. Unlock the turret lock pin.
14. Turn main power disconnect switch to the ON position | .
15. Rotate the turret through an entire rotation and check for a smooth rotation of the turret.
16. Adjust the adjustment bolt until smooth rotation of the turret is achieved.
17. Unsecure the riser boom and lower the boom.

5.4-3 Swing Drive Motor Removal

The swing drive motor is located near the center of the turret, underneath the riser/main boom.

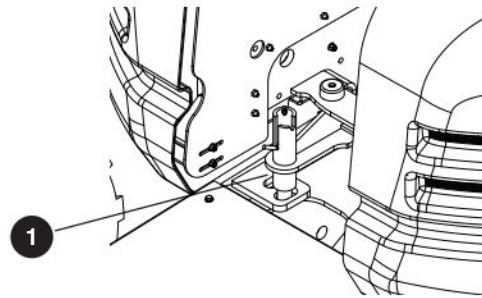
⚠ WARNING

Ensure that there are no personnel or obstructions in the test area and there is sufficient room for the boom to swing and elevate.

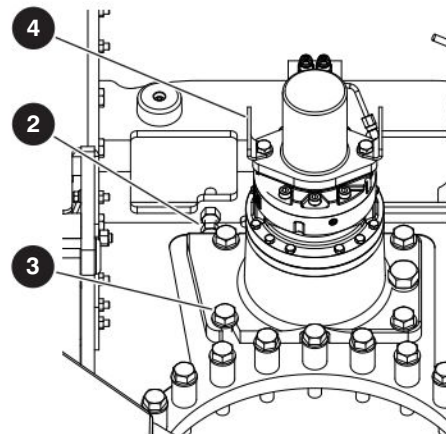
1. Ensure the MEWP is on a firm level surface.

⚠ WARNING

The operator must lock the turret to the base to prevent the turret from turning spontaneously.

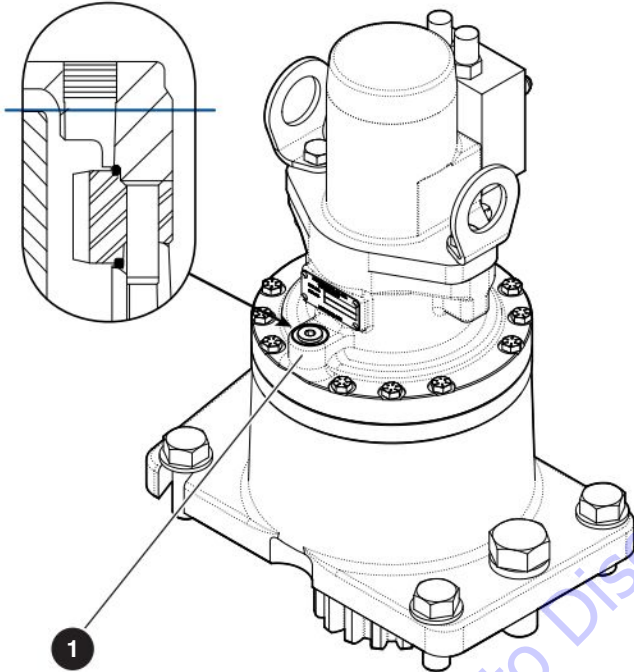


2. Lock the turret to base with the turret locking pin ① .
3. Raise the riser boom to access the swing drive motor.
4. Support the boom with an overhead crane or other suitable rated supporting device. Do not lift the boom.
5. Turn the main power disconnect switch to the off position ○ .
6. Label the hydraulic hoses connected to the swing drive and then disconnect the hoses from the motor. Plug or cap the hoses and fittings to prevent hydraulic contamination.
7. Loosen the adjustment bolt ② and remove the mounting fasteners ③ from the swing drive motor.
8. Use a lifting device attached to the swing drive lifting lugs ④ to lift the swing drive out. Set the swing drive aside.



5.4-4 Check the Swing Drive Oil

1. Remove the plug from the fill port **1** on the back of the swing drive.
2. Check the oil level. The oil level should be slightly below the port threads.
3. Add oil if needed. Refer to [2.12 Fluids](#) for recommended oil types.



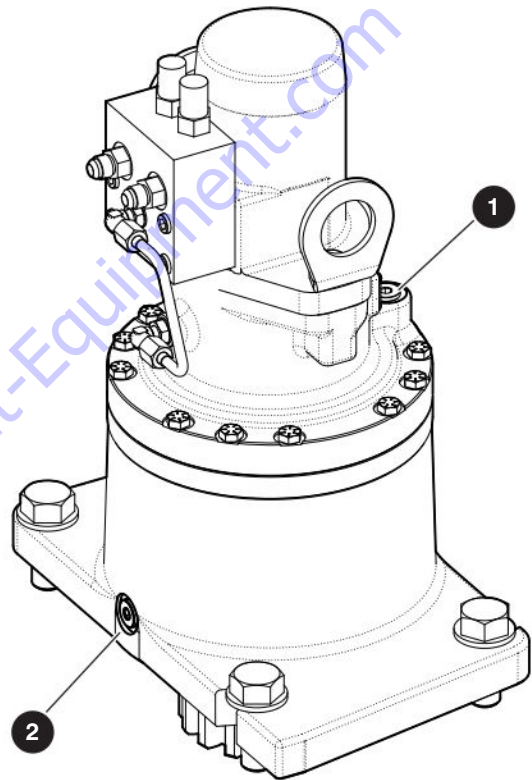
5.4-5 Change the Swing Drive Oil



NOTE

The oil change must be performed on a flat, level surface.

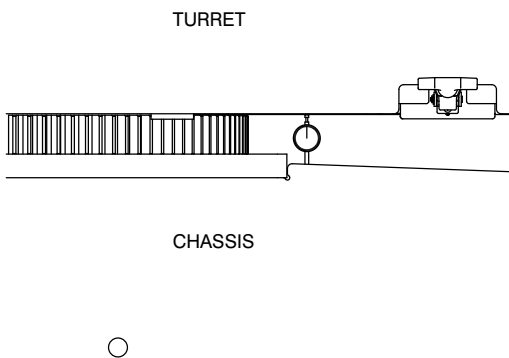
1. Remove the plug at the fill port **1**.
2. Place a suitable container under the drain port **2**.



3. Remove the plug at the drain port.
4. Allow the oil to drain.
5. Reinstall the drain plug.
6. Refill the swing drive with approximately 1 L (32 oz) of oil. Refer to [2.12 Fluids](#) for recommended oil types.
7. Reinstall the plug at the fill port.

5.4-6 Check Rotation Bearing for Axial Wear

1. Position the boom so that it is centered over the front drive and steer axle and is horizontal to the ground.
2. Extend the boom to its full extension length.
3. Mount a dial indicator on the chassis. Place the dial indicator set directly under the boom, close to the bearing teeth. Make sure to allow clearance as the turret assembly rotates.
4. Position the indicator arm or shaft so the pointer touches the bottom surface of the turret weldment.



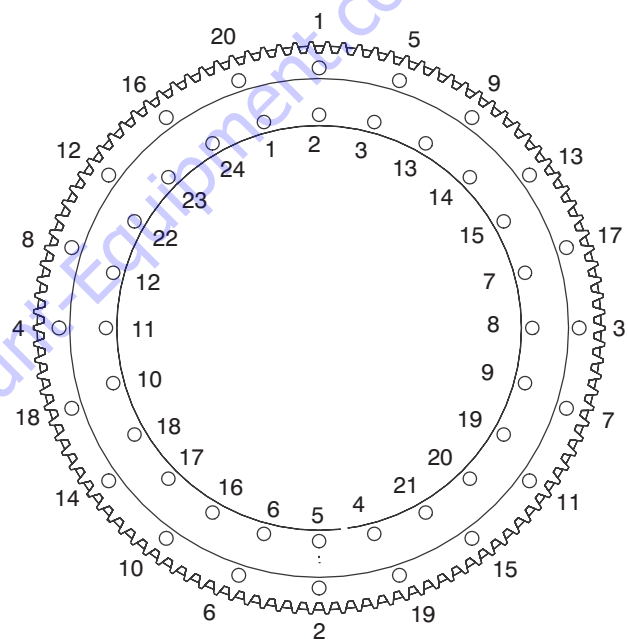
5. Zero the dial indicator.
6. Rotate the turret 180° in the clockwise direction until the boom is centered over the rear axle (rotating the turret in the counterclockwise direction will cause the rotation gearbox pinion to impact the dial indicator).
7. If, when you are rotating the turret, the boom needs to be retracted or raised to avoid obstacles, be sure to again fully extend and level the boom when it is positioned over the rear axle. Do not be concerned with any dial indicator readings as the turret assembly rotates.

5.4-7 Turret Rotation 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.

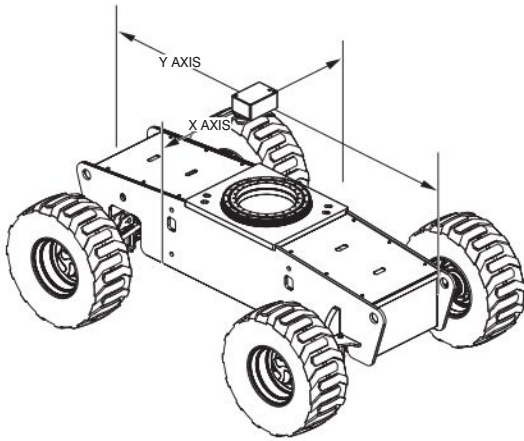
1. Set the torque wrench to 190 Nm (140 ft-lb) and tighten the mounting bolts in a criss-cross pattern sequence.



2. Set the torque wrench to 380 Nm (280 ft-lb) and tighten the mounting bolts with the same sequence.

5.4-8 Electronic Tilt Switch Setup Procedure

Tilt Switch Replacement



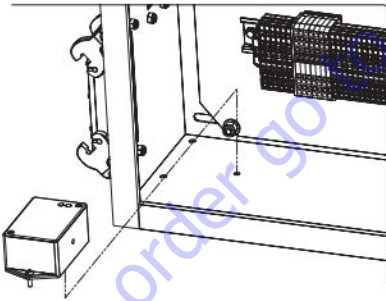
1. Park the MEWP on a firm level surface.
2. Disconnect the tilt switch from the 4 pin connector.



NOTE

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

3. Remove the old tilt switch from the mount.






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

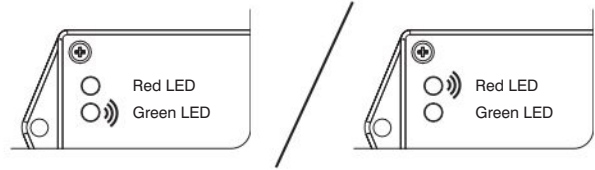


NOTE

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

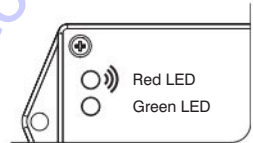
5. Turn the main disconnect switch to the ON position .
6. Turn the base/off/platform key switch to the base position .
7. Pull out both emergency stop buttons .

8. Verify the switch is powered (the red or green LED will be continually blinking).

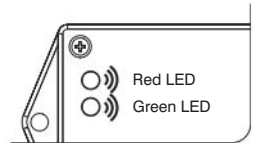


9. Program the tilt switch:
 - a. Press and release the set to zero button 3 times. Observe the LED flash codes as shown below.

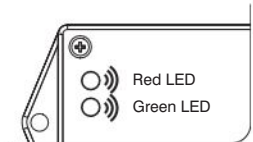
- b. Only the red LED blinks for 4 seconds.



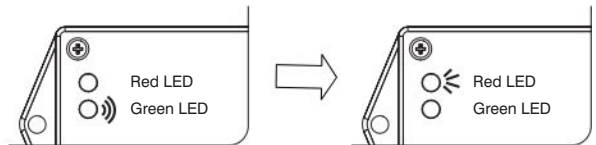
- c. Both LEDs flash for 1 second. Results: The switch is learning the new zero position.



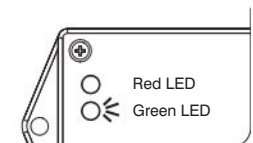
- d. Both LEDs turn on solid for 1 second. Results: The new zero position has been learned.





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



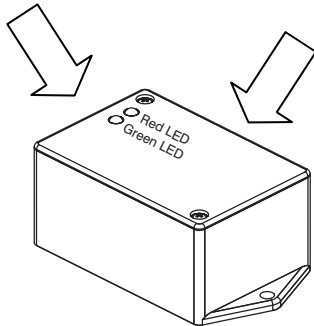
- f. Only the red LED will blink for 4 seconds.



10. Turn the main power disconnect switch to the off position .
11. Push in the emergency stop buttons .




Reprogramming the Existing Tilt Switch

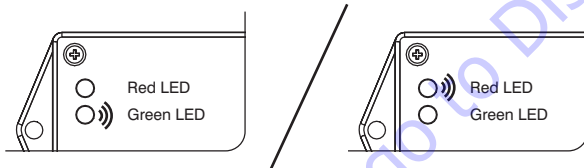
Indicators Lights The set to zero button is located on this face next to the harness



NOTE

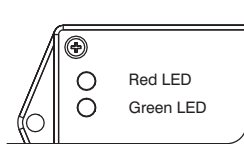
The tilt circuit is only powered when the controls are powered up.

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

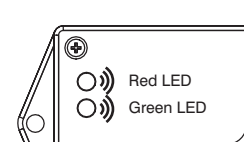


5. Reprogram the Tilt Switch

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



- b. Both LEDs flash.

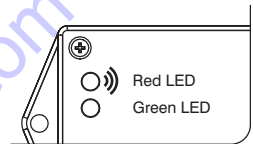


IMPORTANT

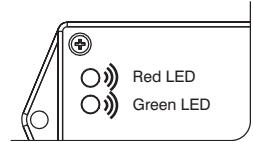
Step “c” must be completed within a 5 second period, or the switch will automatically exit program mode and return to normal operation using the previously stored data.

- 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”.

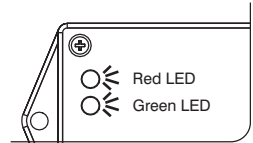
- e. Observe the program delay / stabilization time (only the red LED blinks for 4 seconds).



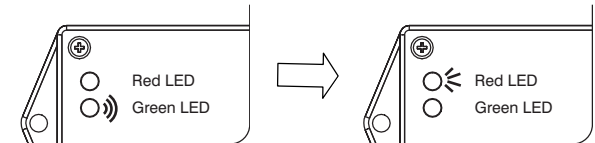
- f. Both LEDs flash for 1 second.
Results: The switch is learning the new zero position.



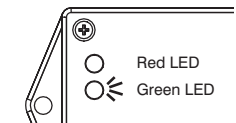
- g. Both LEDs turn on solid for 1 second.
Results: The new zero position has been learned.





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



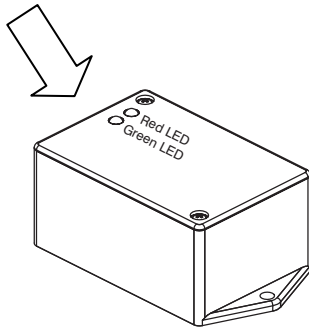
- i. The green LED turns on solid.
Results: The switch is ready for normal operation.



6. Turn the main power disconnect switch to the off position .
7. Push in the emergency stop buttons .
8. Proceed to verify the tilt circuit.

Verify Tilt Circuit

Indicator Lights



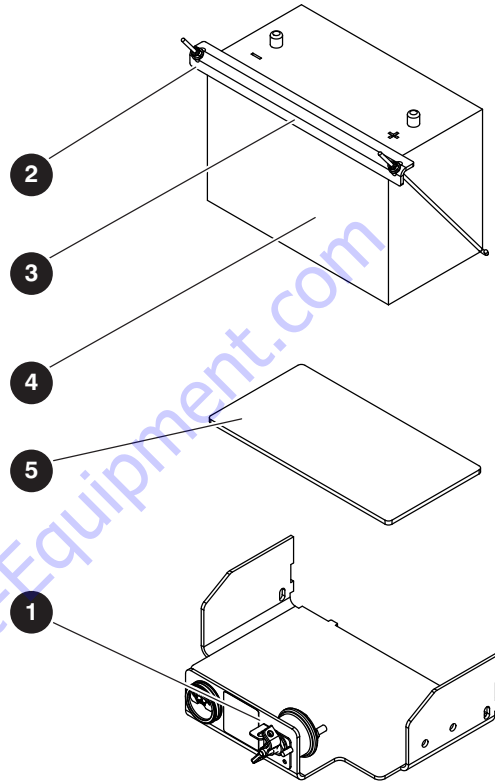
Operations of the Tilt Switch

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

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

5.4-9 Battery Replacement

1. Turn the main power disconnect switch ❶ to the off position ○.



2. Remove the positive and negative connectors from the batteries.
3. Remove the battery retainer bracket nuts, washers, and j-hooks ❷.
4. Remove the bracket ❸.
5. Remove the batteries ❹.
6. Replace the battery pad ❺ if needed.
7. Replace the batteries and secure them with the bracket, j-hooks, washers and nuts.
8. Clean the terminal posts and clamps of the batteries, and apply acid-free and acid-resistant grease.
9. Reconnect the batteries with the positive and negative connector cables (ensure the clamps make good contact).

5.5 Engine

Maintaining the engine components is essential to the good performance and service life of the MEWP.

5.5-1 Replace Engine Oil and Filter

Periodic replacement of the engine oil and filter is essential to good engine performance.



NOTE

Warm the engine to normal operating temperature before starting this procedure.

CAUTION

Beware of hot engine components and hot oil. Contact with hot components may cause severe burns.

1. Place a suitable container under the engine oil drain.
2. Remove the oil drain plug and allow all engine oil to drain into the container.

WARNING

Dispose of oil in accordance with local and federal regulations.

3. Install the oil drain plug with a new seal ring and tighten it firmly.
4. Remove the oil filter and catch any escaping oil.
5. Clean inside the filter head.
6. Add clean engine oil to the oil filter.
7. Apply a thin layer of engine oil to the new oil filter gasket.
8. Install the filter and tighten it by hand.
9. Clean up any oil that may have spilled during this procedure.
10. Refill the engine with new oil. Refer to [2.13 Engines](#).
11. Start the engine from the base control console and allow the engine to run for 30 seconds, then shut off the engine.
12. Check for oil leakage.
13. Check the engine oil level on the dipstick and add oil if needed.

5.5-2 Replace the Fuel Filter

1. Close the fuel shut-off valve.
2. Place a suitable container under the fuel filter.
3. Remove the fuel filter and catch any escaping fuel.

WARNING

Dispose of fuel in accordance with local and federal regulations.

4. Clean any dirt from the filter carrier sealing surface.
5. Apply a thin layer of oil or diesel fuel to the rubber gasket of the new fuel filter.
6. Install the fuel filter and tighten it by hand, then tighten the filter cartridge with a final half-turn.
7. Clean up any fuel that may have spilled during this procedure.
8. Open the fuel shut-off valve.
9. Check for fuel leakage.

5.5-3 Replace the Air Filter

Engine specifications require that this procedure be performed more often if dusty conditions exist. Refer to the engine manual.

CAUTION

Perform this procedure with the engine off.

1. Remove the mounting fasteners from the air filter canister, and remove the end cap.
2. Remove the filter from inside of the canister.
3. Clean the inside of the canister and gasket with a dry cloth.
4. Insert a new filter into the canister.
5. Reinstall the end cap.

5.5-4 Check the Engine Belt

The MEWP will not operate properly with a loose or defective belt. Continuous usage may cause component damage.

WARNING

Do not inspect the fan belt while the engine is running. Remove the key to prevent accidental operation.

1. Inspect the engine belt for:
 - cracking
 - glazing
 - separation
 - breaks
2. For correct tension of the engine belt, refer to the engine manual.

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5.6 Hydraulic Tank

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

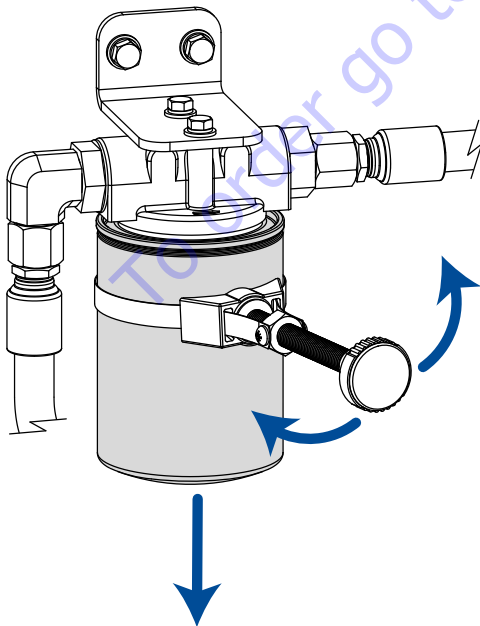
5.6-1 Change the Hydraulic Tank Filter

1. Place a suitable container under the hydraulic tank filter.
2. Remove the oil filter and catch any escaping oil.

WARNING

Dispose of hydraulic oil in accordance with local and federal regulations.

3. Clean inside the filter head.
4. Apply a thin layer of clean hydraulic oil to the new oil filter gasket.
5. Install the filter and tighten it firmly.
6. Clean up any oil that may have spilled during this procedure.
7. Start the engine from the base control console.
8. Check for leakage.



5.6-2 Change the Hydraulic Oil

1. Turn the engine on and allow the hydraulic oil to warm up.
2. Shut the engine off.
3. Place a suitable container under the hydraulic tank drain port.
4. Remove the oil drain plug and allow all of the hydraulic oil to drain into the container.

WARNING

Dispose of hydraulic oil in accordance with local and federal regulations.

5. Install the oil drain plug with a new seal ring and tighten it firmly.
6. Refill the hydraulic tank with new oil as per the specifications. Refer to [2.12 Fluids](#).
7. Check for leakage.
8. Clean up any oil that may have spilled during this procedure.
9. Check the hydraulic oil level on the sight gauge. The oil level should be at or slightly above the top mark on the sight gauge.

NOTE

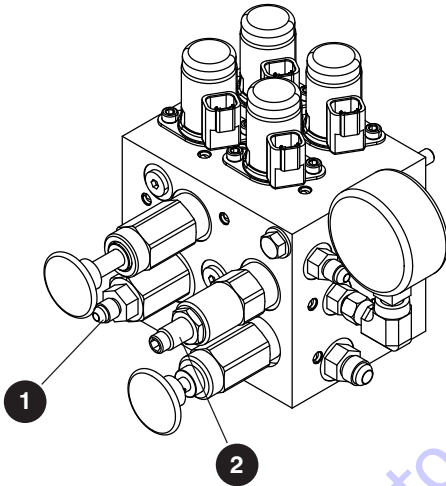
Samples of hydraulic oil should be drawn from the reservoir and tested annually. These samples should be taken when the oil is warmed through normal operation of the system. The sample should be analyzed by a qualified lubrication specialist to determine if it is suitable for continued use. Oil change 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.

5.7 Manifold and Hydraulic Pumps

5.7-1 Hydraulic Brake Pressure Adjustment

Maintaining accurate hydraulic brake pressure is important when it comes to safe MEWP operation.

1. Locate brake system pressure reducing valve PR1 ①. Loosen the lock nut and turn the adjustment stem gently clockwise until it bottoms out, while keeping track of the number of turns.



CAUTION

Valve damage will occur if it is tightened too much.

WARNING

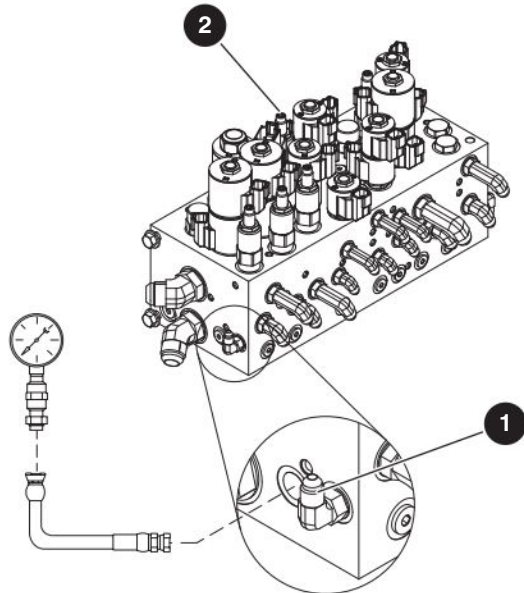
Ensure that there are no personnel or obstructions in the test area and there is sufficient room for forward or reverse travel.

2. Start the engine from the platform controls and extend the boom slightly to achieve low speed drive.

3. Drive the MEWP forward or reverse. The pressure gauge reading should be 38 bar (550 psi). Stop the MEWP. Follow the next steps for adjusting the relief valve pressure if needed. If no adjustment is required continue to step 8.
4. Locate the brake pressure relief valve RV7 ② and loosen the lock nut.
5. Turn the adjusting stem on pressure relief valve RV7 ② one quarter of a turn at a time clockwise to increase pressure, or counterclockwise to decrease pressure. Drive the MEWP forward or reverse, note the pressure, and stop the MEWP.
6. Repeat step 5 until the brake pressure is achieved (38 bar/550 psi) then tighten the lock nut on brake system pressure relief valve RV7 ②.
7. Locate the brake system pressure reducing valve PR1 ① and turn the valve gently counterclockwise back to the to initial position.
8. Drive the MEWP forward or reverse. The pressure gauge reading should be 34 bar (500 psi). Follow the next steps for adjusting the reducing valve pressure if needed.
9. Stop the MEWP and adjust the pressure reducing valve PR1 ① one quarter of a turn at a time by turning either clockwise to increase the pressure, or counterclockwise to decrease the pressure.
10. Repeat steps 8 and 9 until brake pressure is achieved (34 bar/500 psi), then tighten the lock nut on brake system pressure reducing valve PR1 ①.

5.7-2 Hydraulic System Relief Valve Adjustment (RV1)

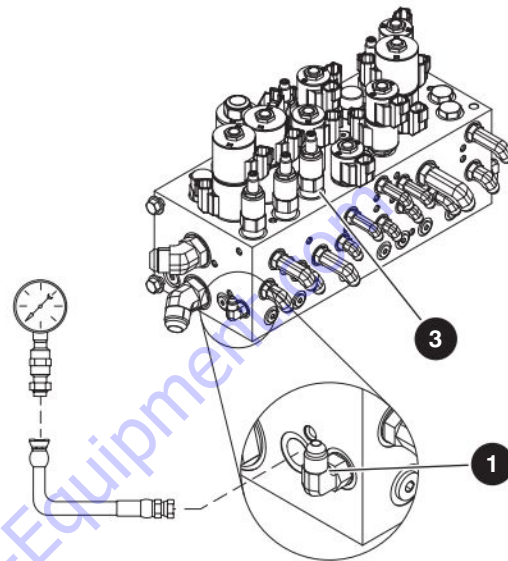
1. Adjust the pressure compensator valve on the System pump to 220 bar (3200 psi). Refer to procedure [5.7-12 Hydraulic High Pressure Adjustment](#).
2. Locate the GP Port ❶ on the main manifold and remove the cap.



3. Connect a pressure gauge (350 bar/5000 psi) to the GP port ❶.
4. Start the engine from the base controls and let it run for 2-5 minutes.
5. Steer fully to one direction and then check reading on gauge. The pressure should be 214 bar (3100 psi). Follow the next steps for adjusting the pressure, if needed.
6. Locate system relief valve RV1 ❷.
7. Loosen the lock nut on system relief valve RV1 ❷. Turn the adjusting stem clockwise to increase the pressure, or counterclockwise to decrease the pressure.
8. Tighten the lock nut on system relief valve RV1 ❷ once 214 bar (3100 psi) is observed on the gauge. Note: You must steer fully in one direction to activate the pressure reading on the gauge.
9. Reset the pressure compensator valve on the system pump to 200 bar (2900 psi). Refer to procedure [5.7-12 Hydraulic High Pressure Adjustment](#).

5.7-3 Turret Rotate Relief Valve Adjustment (RV2)

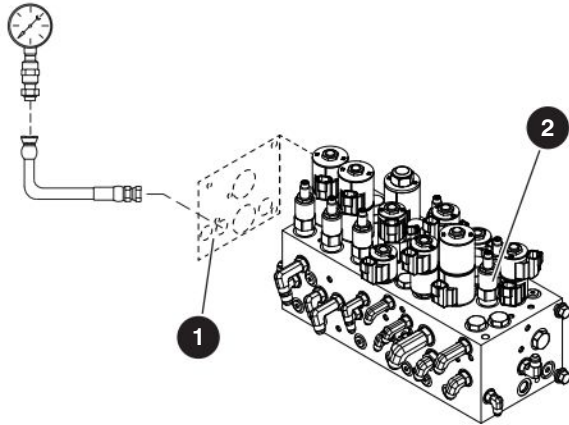
1. Locate the GP port on the main manifold and remove the cap ❶.



2. Connect a pressure gauge (350 bar/5000 psi) to the GP port ❶.
3. Start the engine from the base controls and let it run for 2-5 minutes.
4. Raise the main boom to ensure the platform will not contact the ground.
5. Engage the turret transport lock.
6. Attempt to rotate the turret. The pressure should be 97 bar (1400 psi). Follow the next steps for adjusting the pressure, if needed.
7. Locate turret rotate relief valve RV2 ❸.
8. Loosen the lock nut on the turret rotate relief valve RV2 ❸. Turn the adjusting stem clockwise to increase the pressure, and counterclockwise to decrease the pressure.
9. Tighten the lock nut on turret rotate relief valve RV2 once 97 bar (1400 psi) is observed on the gauge. Note: You must activate the turret rotate to obtain a pressure reading on the gauge.
10. Disengage the turret transportation lock.

5.7-4 Platform Level Relief Valve Adjustment (RV3)

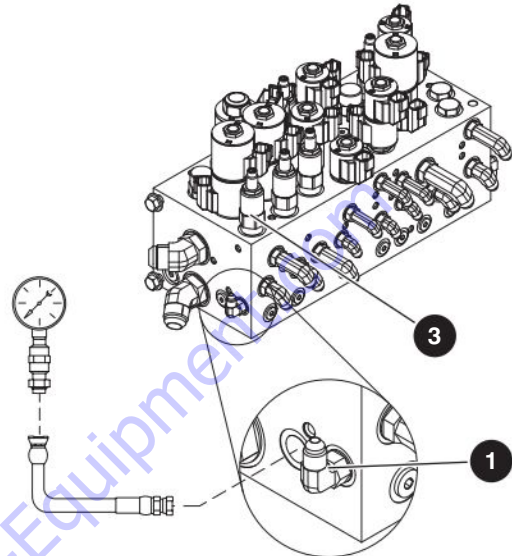
1. Locate the GP port ❶ on the main manifold, and remove the cap.



2. Connect a pressure gauge (350 bar/5000 psi) to the GP port ❶.
3. Start the engine from the base controls and let it run for 2-5 minutes.
4. Raise the main boom to ensure the platform will not contact the ground.
5. Fully raise or lower the platform level and check the reading on the gauge. The pressure should be 190 bar (2750 psi). Follow the next steps for adjusting the pressure, if needed.
6. Locate platform leveling relief valve RV3 ❷.
7. Loosen the lock nut on platform level relief valve RV3 ❷. Turn the adjusting stem clockwise to increase the pressure, and counterclockwise to decrease the pressure.
8. Tighten the lock nut on platform level relief valve RV3 ❷ once 190 bar (2750 psi) is observed on the gauge. Note: You must fully raise or lower platform level to activate pressure reading on gauge.

5.7-5 Riser Boom Down Relief Valve Adjustment (RV4)

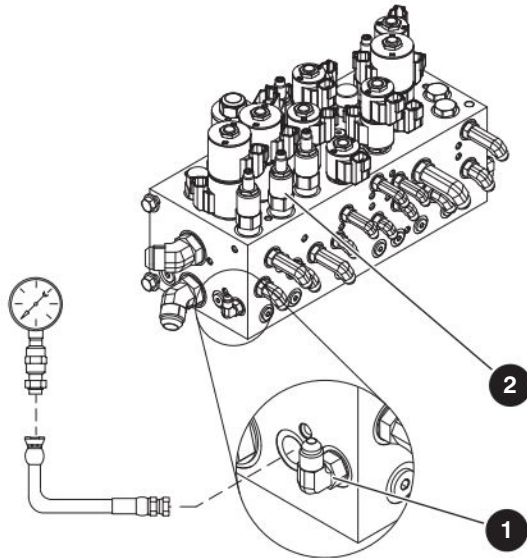
1. Locate the GP Port ❶ on the main manifold, and remove the cap.



2. Connect a pressure gauge (350 bar/5000 psi) to the GP port ❶.
3. Start the engine from the base controls and let it run for 2-5 minutes.
4. Raise the main boom to ensure the platform will not contact the ground.
5. Fully lower the riser and check the reading on the gauge. The pressure should be 97 bar (1400 psi). Follow the next steps for adjusting the pressure, if needed.
6. Locate the riser down relief valve RV4 ❸.
7. Loosen the lock nut on riser boom relief valve RV4 ❸. Turn the adjusting stem clockwise to increase the pressure, and counterclockwise to decrease the pressure.
8. Tighten the lock nut on the riser boom relief valve RV4 ❸ once 97 bar (1400 psi) is observed on the gauge. Note: You must fully lower riser to activate pressure reading on the gauge.

5.7-6 Main Boom Down Relief Valve Adjustment (RV5)

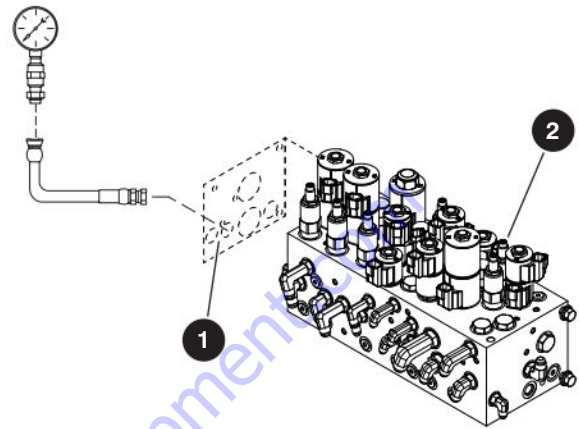
1. Locate the GP Port ① on the main manifold, and remove the cap.



2. Connect a pressure gauge (350 bar/5000 psi) to GP port ①.
3. Start the engine from the base controls and let it run for 2-5 minutes.
4. Raise the jib boom to ensure the platform will not contact the ground.
5. Fully lower the main boom and check the reading on the gauge. The pressure should be 107 bar/1550 psi. Follow the next steps for adjusting the pressure, if needed.
6. Locate the main boom down relief valve RV5 ②.
7. Loosen the lock nut on main boom relief valve RV5 ②. Turn the adjusting stem clockwise to increase the pressure, and counterclockwise to decrease the pressure.
8. Tighten the lock nut on the main boom relief valve RV5 ② once 107 bar/1550 psi is observed on the gauge. Note: You must fully lower riser to activate the pressure reading on the gauge.

5.7-7 Fly Boom Relief Valve Adjustment (RV6)

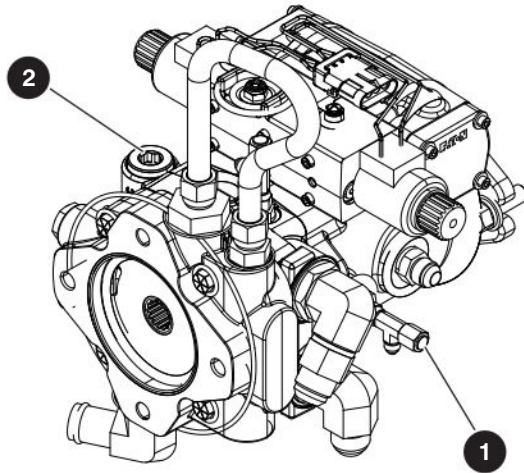
1. Locate the GP Port ① on the main manifold, and remove the cap.



2. Connect a pressure gauge (350 bar/5000 psi) to the GP port ②.
3. Start the engine from the base controls and let it run for 2-5 minutes.
4. Fully retract the fly boom and check the reading on the gauge. The pressure should be 103 bar/1500 psi. Follow the next steps for adjusting the pressure, if needed.
5. Locate the fly boom relief valve RV6 ②.
6. Loosen the lock nut on the fly boom relief valve RV6 ②. Turn the adjusting stem clockwise to increase the pressure, and counterclockwise to decrease the pressure.
7. Tighten the lock nut on fly boom relief valve RV6 ② once 103 bar/1500 psi is observed on the gauge. Note: You must fully lower the riser to activate the pressure reading on the gauge.

5.7-8 Test Charge Pump Pressure on Drive Pump (RV10)

1. Locate test port TP3 **1** on the drive pump.
2. Connect a pressure gauge (600 psi) to the test port.



3. Start the engine from the base controls.

WARNING

To protect the gauge, do not activate any controls during procedure.

4. Check the reading on the gauge. The standard pressure should be 22 bar \pm 10% bar (313 \pm 10% psi).
5. Replace the charge pump relief valve RV10 **2** if the pressure is not achieved.
6. Repeat steps 2, 3, and 4 after the charge pump relief valve is replaced.
7. If the pressure is still not in range, repair or replace the pump as necessary.

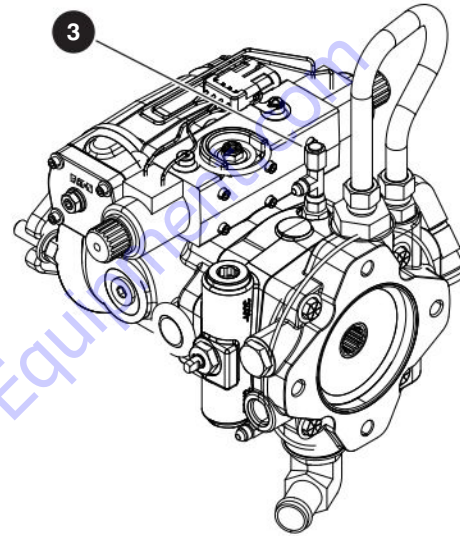
5.7-9 Test Forward Drive Pressure on Drive Pump



NOTE

Make sure charge pump pressure test is completed first.

1. Locate test port TP1 **3** on the drive pump.
2. Connect a pressure gauge (700 bar/10000 psi) to test port TP1 **3**.



3. Start the engine from the platform controls.
4. Unplug the brake solenoid power cable (26) on the brake valve.
5. Activate the drive function slowly forward with the engine at high speed. The wheels should not turn.



NOTE

Activating the drive function too fast will stall the engine.

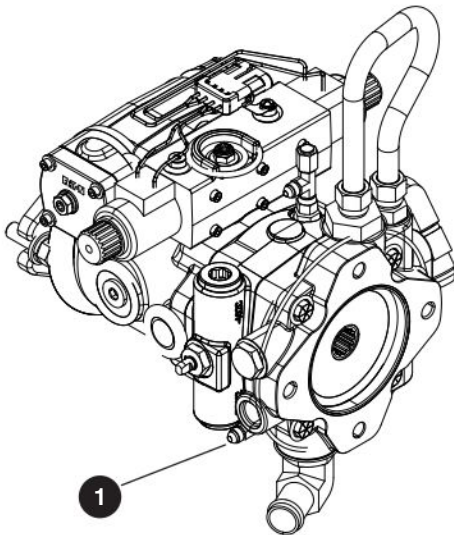
6. Check the reading on the gauge. The standard pressure should be 345 bar (5000 psi).
7. Replace the pump if pressure is not achieved.
8. Turn the engine off.
9. Remove the pressure gauge from the port, cap the port, and reconnect the brake solenoid power cable.

5.7-10 Test Reverse Drive Pressure on Drive Pump

NOTE

Make sure the charge pump pressure test is completed first.

1. Locate test port TP2 **1** on the drive pump.
2. Connect a pressure gauge (700 bar/10000 psi) to test port TP2 **1**.



3. Start the engine from the platform controls.
4. Unplug the brake solenoid power cable (26) on the brake valve.
5. Activate the drive function slowly in reverse with the engine at high speed. The wheels should not turn.

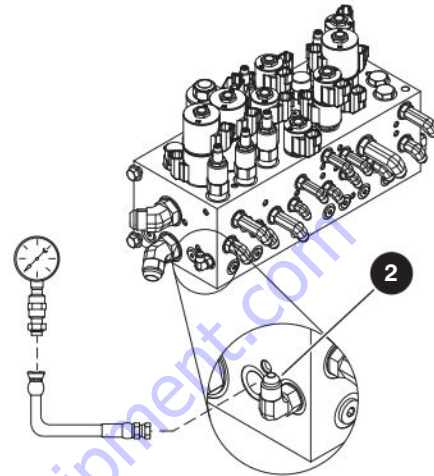
NOTE

Activating the drive function too fast will stall the engine.

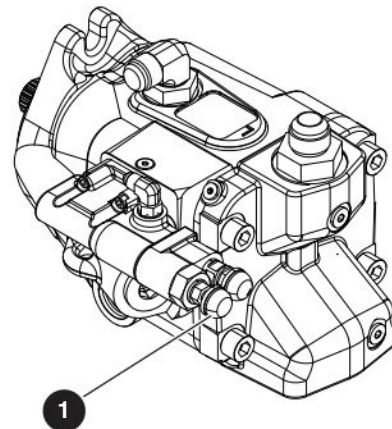
6. Check the reading on the gauge. The standard pressure should be 345 bar (5000 psi).
7. Replace the pump if pressure is not achieved.
8. Turn the engine off.
9. Remove the pressure gauge from the port, cap the port, and reconnect the brake solenoid power cable.

5.7-11 Hydraulic Standby Pressure Adjustment

1. Locate the GP port **2** on the main manifold.



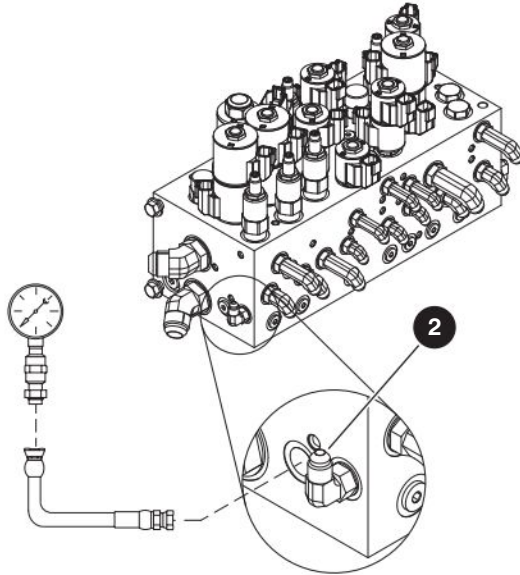
2. Connect a pressure gauge (41 bar/600 psi) to the GP port **2**.
3. Start the engine from the base controls and let it run for 2-5 minutes.
4. Check the reading on the gauge. The standard pressure should be 19 bar (270 psi). Follow the next steps for adjusting the pressure, if needed.



5. Adjust the system pump pressure by turning the adjusting stem either clockwise to increase the pressure, or counterclockwise to decrease the pressure. Note: You must steer fully in one direction to activate pressure reading on gauge.
6. Turn the engine off.
7. Remove the pressure gauge from the GP **2** port and plug the port.

5.7-12 Hydraulic High Pressure Adjustment

1. Locate the GP Port **2** on the main manifold.

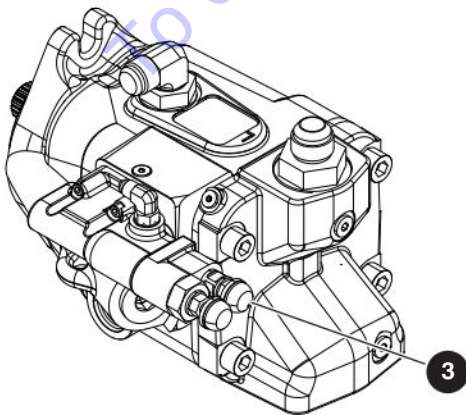


2. Connect a pressure gauge (350 bar/5000 psi) to the GP port **2**.

⚠ WARNING

To protect the gauge, do not activate any controls during the procedure.

3. Start the engine from the base controls and let it run for 2-5 minutes.
4. Steer fully to one direction and then check reading on gauge. The standard pressure should be 200 bar (2900 psi). Follow the next steps for adjusting the pressure, if needed.

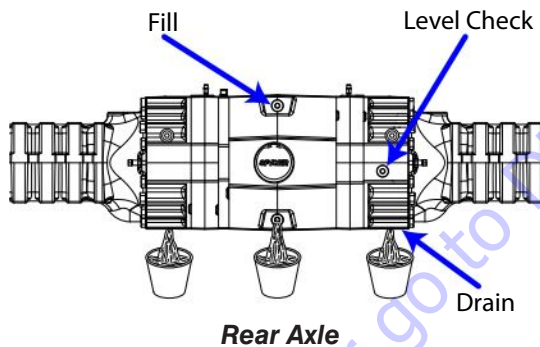
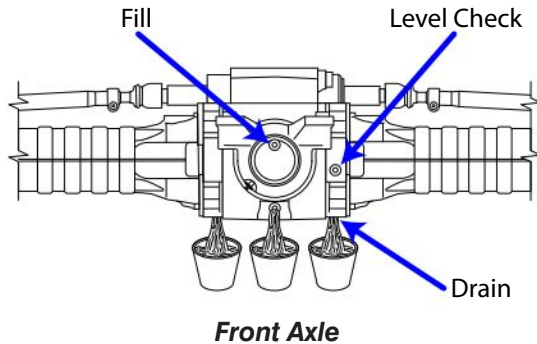


5. Adjust the system pump pressure by turning the adjusting stem **3** either clockwise to increase the pressure, or counterclockwise to decrease the pressure.
6. Turn the engine off.
7. Remove the pressure gauge from the GP port **2** and plug the port.

5.8 Axles

5.8-1 Change the Oil in the Axles

1. Place a suitable container under the axle.
2. Remove the fill plug.
3. Remove all three drain plugs to allow the oil to drain into the container.



4. Reinstall all of the drain plugs.
5. Remove the check plug.



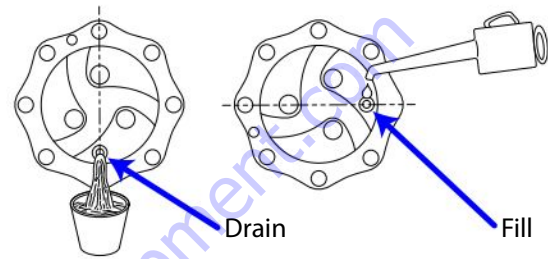
NOTE

The axle is full when oil is leaking from the check port.

6. Refill the axle with new oil as per the specifications. Refer to [2.12 Fluids](#).
7. Reinstall both of the fill and check plugs.

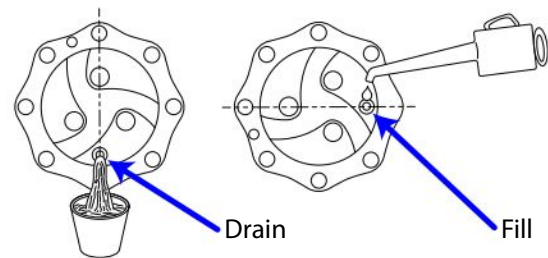
5.8-2 Check the Oil Level in the Torque Hubs

1. Drive the MEWP to rotate the hub until the plug is in the 3 or 9 o'clock position. Shut off the engine.
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. Refer to [2.12 Fluids](#) for oil specifications.



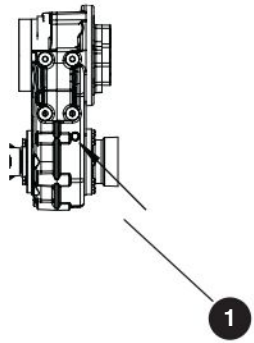
5.8-3 Change the Oil in the Torque Hubs

1. Start the engine and drive the boom until the fill/drain port of one of the hubs is in the 6 o'clock position. Shut off the engine. Place a container under the fill/drain port.
2. Remove the plug and allow all of the oil to drain, watching carefully to avoid spills.
3. Restart the engine and drive the boom until the drain plug is in the 3 or 9 o'clock position. Shut off the engine.
4. Refill the hub with new oil as per specifications. Refer to [2.12 Fluids](#).
5. Repeat the above steps with the other three wheel hubs.



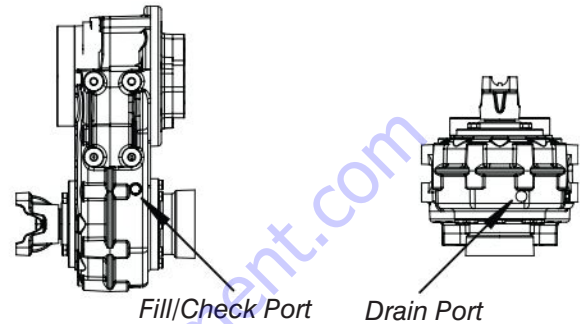
5.8-4 Check the Oil Level in the Axle Gearbox

1. Remove the fill plug ❶ from the gear box.
2. Check the oil level. It should be even with the bottom of the fill plug hole. Add oil if needed. Refer to [2.12 Fluids](#) for oil specifications.



5.8-5 Change the Oil in the Axle Gearbox

1. Place a suitable container under the gearbox.
2. Remove the fill plug.
3. Remove the drain plug to allow oil to drain into the container.



4. Reinstall the drain plug.



NOTE

The gearbox is full when oil is leaking from the check port.

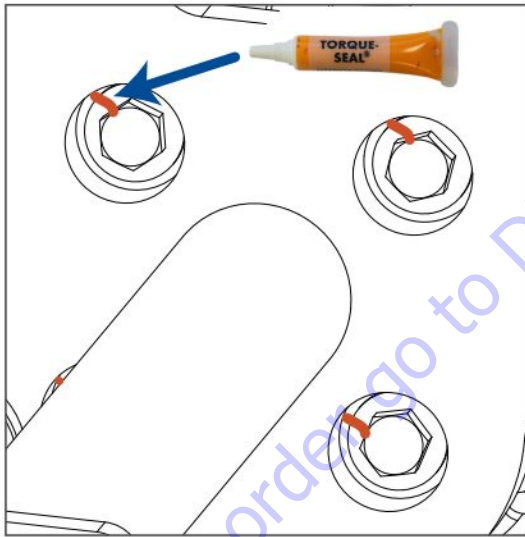
5. Refill the gearbox with new oil as per specifications. Refer to [2.12 Fluids](#).
6. Reinstall the fill plug.

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5.8-6 Oscillating Cylinder Bolt Replacement

If upon inspection it is determined that the oscillating cylinder bolts have missing or damaged torque seal, the affected bolts must be replaced. If replacing more than one bolt, do so one at a time to prevent the cylinder from shifting.

1. Remove the affected bolt.
2. Clean the cylinder's corresponding internal threaded hole thoroughly.
3. Replace the removed bolt with a new 1/2"-13 x 1-3/4" grade 8 bolt, applying liquid blue Loctite 242 or 243 to the bottom half of the bolts.
4. Hand tighten the bolt.
5. Torque the new bolt to 108 Nm (80 ft-lbs).
6. Apply a line of torque seal to each new bolt extending from the bolt head over the washer and to the chassis wall.

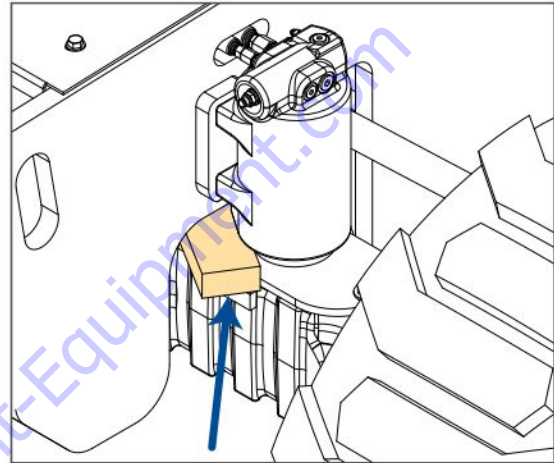


5.8-7 Oscillating Cylinder Replacement

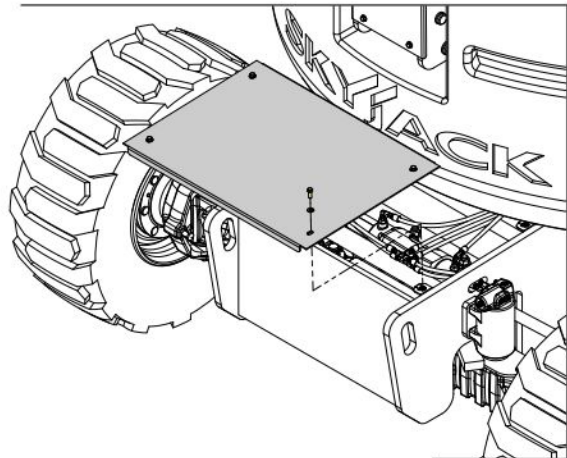
CAUTION

The oscillating axle cylinder weighs approximately 19.5 kg (43 lb), so a second person to assist with the removal and replacement would be helpful.

1. Wedge a block of wood between the front axle and the chassis, to prevent the axle from oscillating during the procedure.

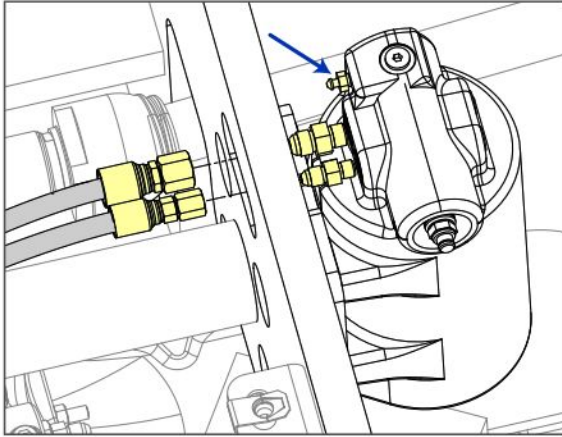


2. Remove and set aside the base cover from the oscillating axle end of the chassis.

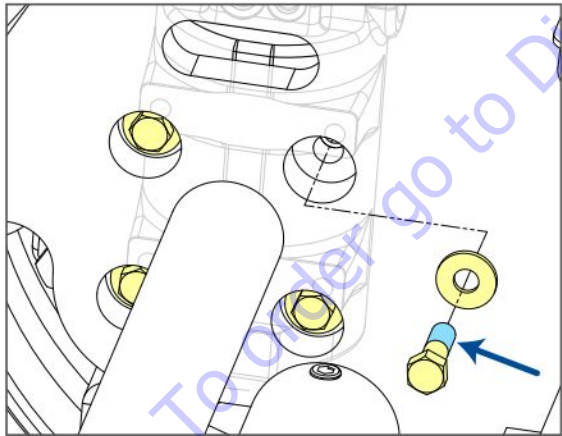


3. With a rag in hand to catch any leaking oil, slowly loosen the bleeder screw to release any trapped air within the cylinder, then tighten it again. Slowly loosen the oscillating axle cylinder hoses to release the pressure, then disconnect them fully, being sure to plug the hose ends.

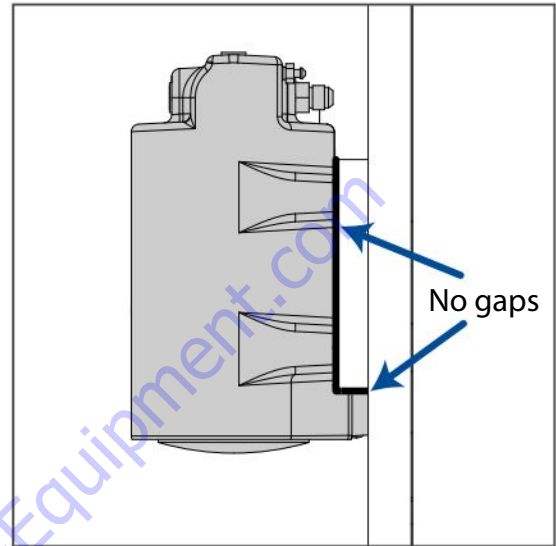
4. Remove and set aside the cylinder fittings, ensuring they stay clean.



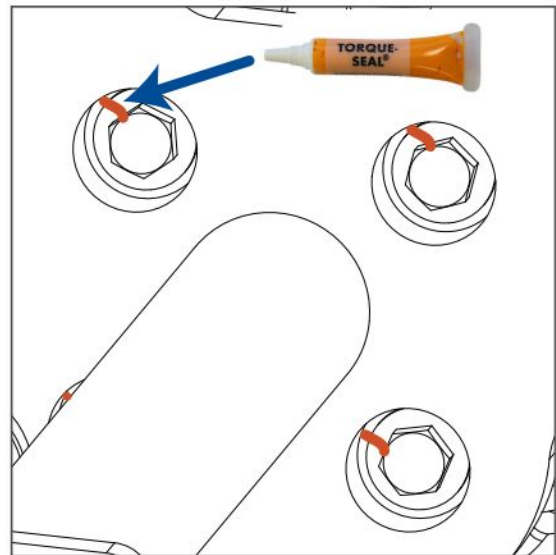
5. Remove and throw away the bolts and washers securing the cylinder to the chassis. Lift the cylinder away.
6. Lift a new cylinder into place and install new bolts (1/2"-13 x 1-3/4" grade 8) and 1/2" hardened washers, applying liquid blue Loctite 242 or 243 to the lower half of the bolts before installing them. Hand tighten the bolts.



7. Adjust the oscillating cylinder position until there is continuous contact between the cylinder mounting surface and the mounting plate, and between the mounting plate and the cylinder shoulder, with no gaps. Torque the bolts to 108 Nm (80 ft-lb).



8. Apply a line of torque seal to each bolt extending from the bolt head over the washer and to the chassis wall.



9. Reinstall the cylinder fittings, torquing the larger one to 33 Nm (24 ft-lb) and the smaller one to 20 Nm (15 ft-lb).

10. Remove the plugs and reconnect the hoses to the cylinder fittings, torquing the larger hose end to 28 Nm (21 ft-lb) and the smaller hose end to 16 Nm (12 ft-lb).
11. Reinstall the base cover and remove the block of wood.
12. Turn the engine on and let it run for a few minutes to pressurize the cylinder, then turn it off again.
13. Check the oil level using the hydraulic tank sight gauge. Add more hydraulic oil if needed.
14. Bleed the cylinder (refer to the next procedure).

5.8-8 Bleed the Oscillating Axle Cylinders

If the axle oscillation system is not operating properly, the stability of the MEWP is compromised and it may tip over.

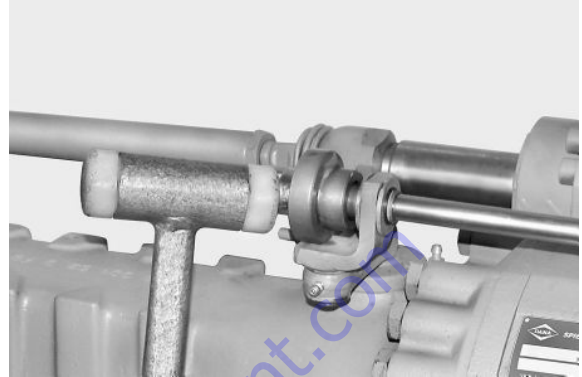
Items you will need before starting:

- oil container
- hose (to reach from bleeders to bucket)

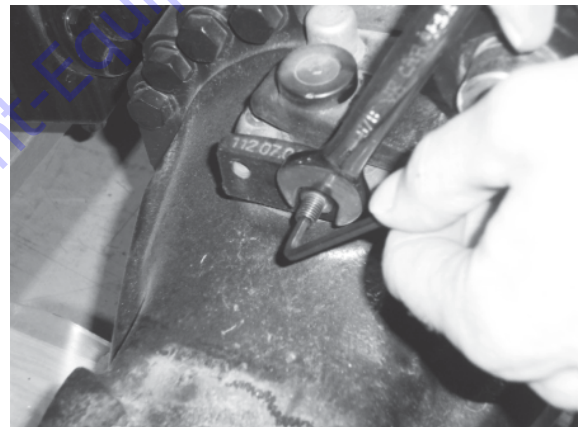
1. Locate a bleeder on either side of the oscillating axle cylinder.
2. Connect a hose to the bleeder nipple.
3. Start the engine and slowly open the bleeder to allow the oil to flow in a continuous stream.
4. Close the bleeder.
5. Repeat the procedure with the other oscillating axle cylinder.

5.8-9 Pin Brake Adjustments

1. To manually release the brake give a light blow to the external ring of the check unit.



2. To adjust the idle elimination, loosen the jam nut and back out the adjustment stem a few turns.



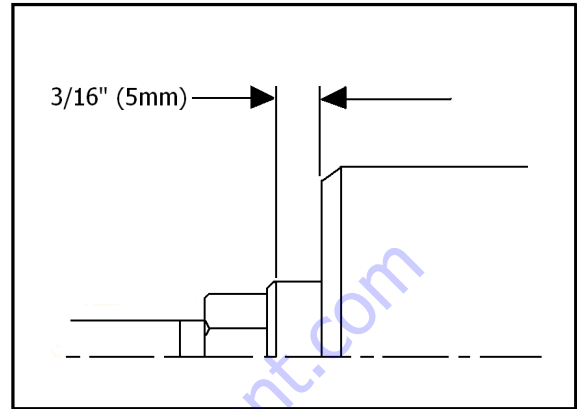
3. Apply a 1 kg (2 lb) force in the direction of the brake application, and turn the adjusting stem so it touches the stop.



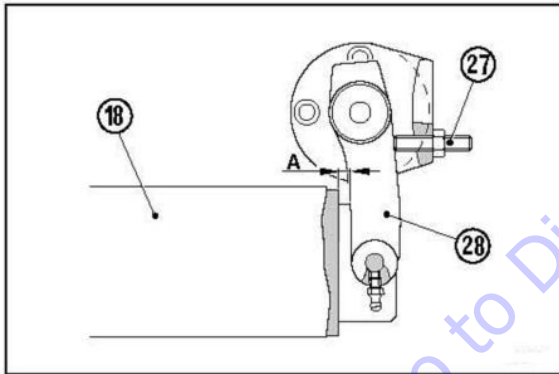
4. Tighten the jam nut. Repeat this procedure on the other side.



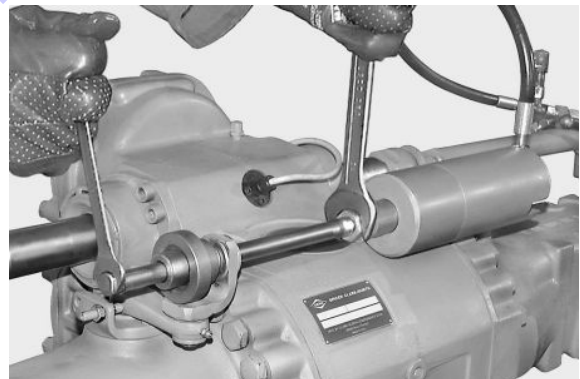
7. Release the pressure from the cylinder and check that the rod returns and stops in a position where it projects out from the cylinder head by 5 mm (3/16").



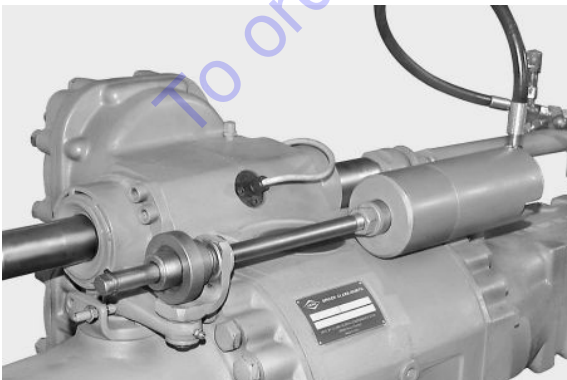
5. On the cylinder side, ensure there is some clearance between the cylinder and the lever "A", with the lever against the stop



8. If adjustment is needed loosen the jam nut, pressurize the cylinder, and turn the adjustment stem. Repeat step 7 and tighten the jam nut when the correct adjustment is obtained.



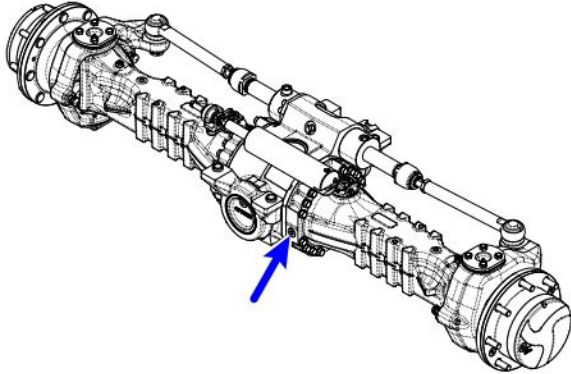
6. Introduce pressure into the cylinder and ensure the check unit engages.



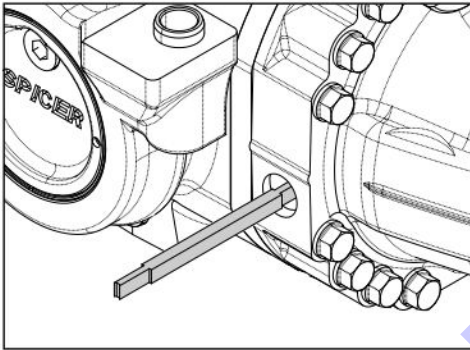
- 9.

5.8-10 Brake Inspection

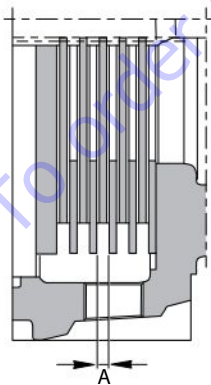
1. Remove the oil level plug from one of the braking axle arms, as shown below.



2. Insert a 4.5 mm feeler gauge into the drain port.



3. Use the gauge to check the gap between the disks (A). The minimum distance allowed is 4.5 mm. Reinstall the oil level plug.



4. Repeat the inspection on the other axle arm. If the gap is smaller than 4.5 mm between the disks of either arm (i.e. the gauge doesn't fit), the brake disks must be replaced on both arms.
5. Repeat the procedure on the opposite axle.

5.9 Grease Points

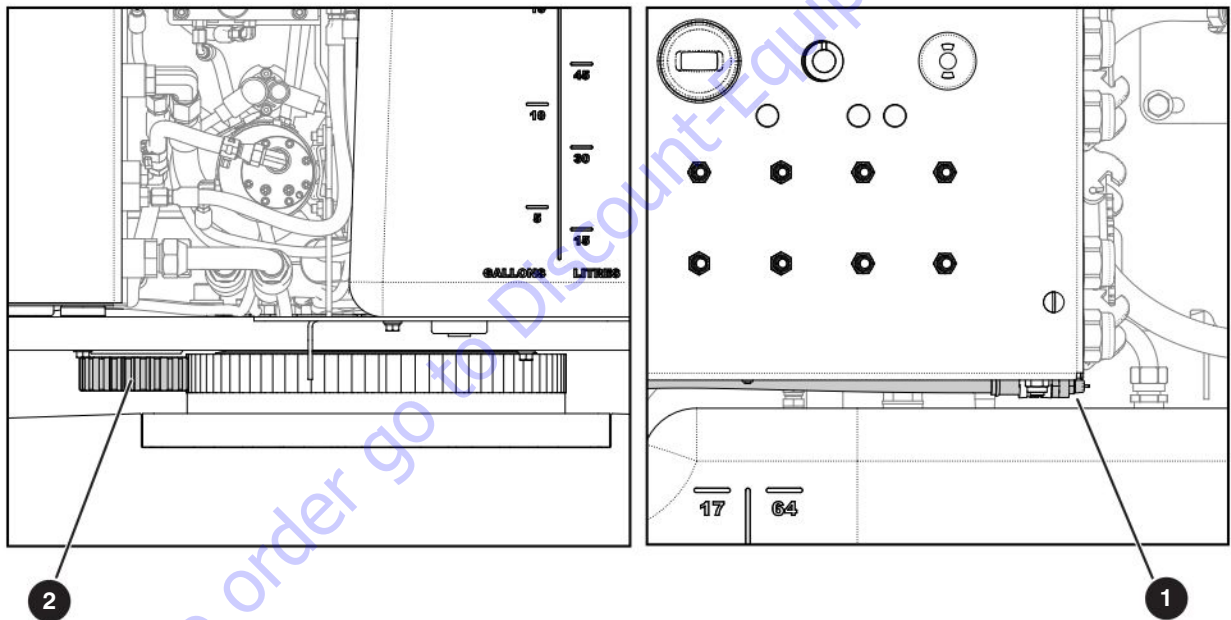
Maintaining proper lubrication is essential for the good performance and service life of the MEWP. If the bearing and gear of the MEWP are improperly greased, it could result in component damage.

5.9-1 Grease the Turret Ring Gear

1. Open the control side cowling, and locate the turret ring gear grease fitting beside the hydraulic tank **1**.
2. Pump grease into the fitting, and continue pumping until new lube appears continuously around the grease seal lip of the ring gear.
3. Rotate the turret in increments of 10 to 13 cm (4 to 5 inches) at a time, and repeat step 2 until the entire bearing has been greased.

5.9-2 Grease the Turret Swing Drive

1. Apply open gear lube to each tooth of the swing drive gear **2**, located under the turret.

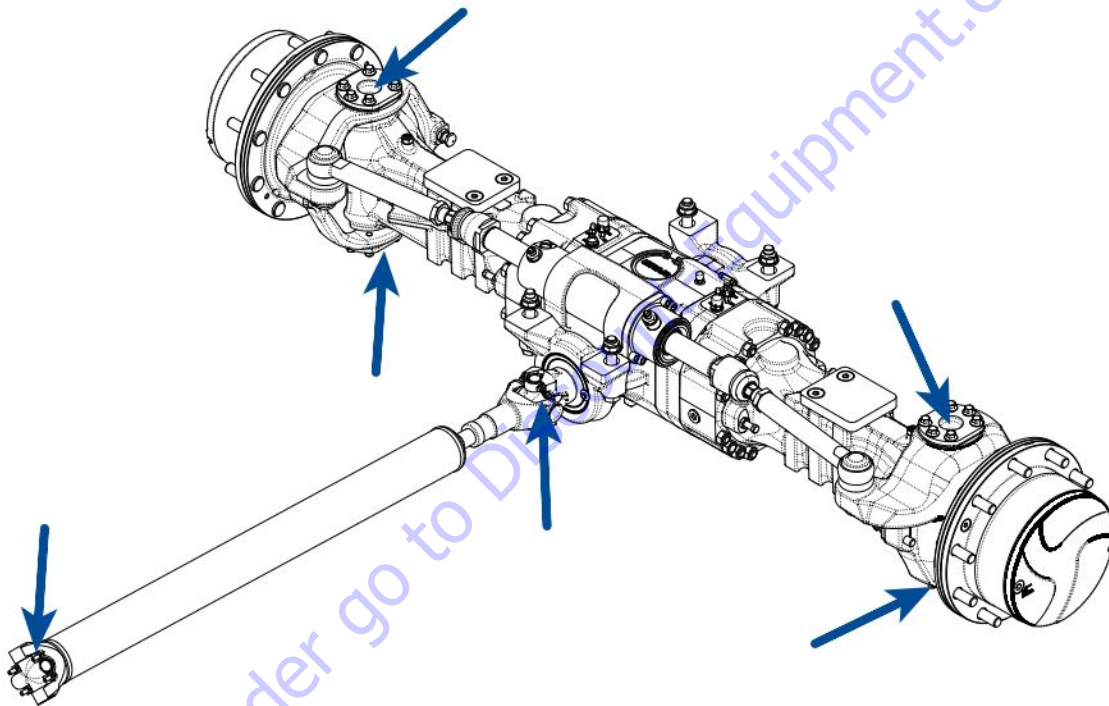


5.9-3 Grease the Axles

1. Open the axle cover plates and locate the grease fittings.
2. Pump grease into the grease fittings.

5.9-4 Grease the Drive Shaft

1. Locate the grease fittings on the drive shaft u-joints, and pump grease into the fittings.



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