

MODELS | SJ 40T SJ 45T



Service Manual

Telescopic Boom Series

Part No. 143844AE September 2010

SKYJACK[™]

USE THE SERIAL NUMBER OF YOUR MACHINE TO DETERMINE THE CORRECT MANUAL TO USE			
Manual Part #		143844AD	143872AB
Release Date		June 2008	September 2010
MODELS	SJ 40T	98000521 & Below	98000522 & Above
	SJ 45T	Use	Not Used

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SERVICE AND MAINTENANCE

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The Safety Alert Symbol identifies important safety messages on aerial platforms, 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.



This Safety Alert Symbol means attention!

Become alert! Your safety is involved.



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 aerial platform.

Section 1 SCHEDULED MAINTENANCE

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

Aerial Platform Definition

A mobile device that has an adjustable position platform supported from ground level by a structure.

Purpose of Equipment

The SKYJACK Telescopic Boom Series (Models SJ 40T, 45T, 61T & 66T) aerial platform is designed to transport and raise personnel, tools and materials to overhead work areas

Use of Equipment

The aerial platform is a highly maneuverable, mobile work station. Lifting and driving must be on a flat, level, compacted surface. It can be driven over uneven terrain only when the platform is fully lowered.

Manuals

Operating

The operating manual is considered a fundamental part of the aerial platform. 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 aerial platform 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.

Operator

The operator must read and completely understand both this operating manual and the safety panel label located on the platform and all other warnings in this manual and on the aerial platform. Compare the labels on the aerial platform with the labels found within this manual. If any labels are damaged or missing, replace them immediately.

Service Policy and Warranty

SKYJACK warrants each new SJT series work platform to be free of defective parts and workmanship for the first 24 months. Any defective part will be replaced or repaired by your local SKYJACK dealer at no charge for parts or labor. Contact SKYJACK Service Department for warranty statement extensions or exclusions.

Optional Accessories

The SKYJACK aerial platform is designed to accept a variety of optional accessories. These are listed under "Standard and Optional Features" in [Table 2.1](#) of the operating manual. Operating instructions for these options (if equipped) are located in [Section 2](#) of the operating manual.

For non-standard components or systems, contact the SKYJACK Service Department at

North America & Asia:

☎ : 800 275-9522

📠 : 630 262-0006

Europe:

☎ : 44-1691-676-235

📠 : 44-1691-676-239

Include the model and serial number for each applicable aerial platform.

Scope of this Manual

- a. **This manual applies** to the ANSI/SIA, CSA, AS and CE versions of the Telescopic Boom aerial platform models listed on [Table 2.1](#) of the operating manual.
- **Equipment identified** with "ANSI" meets the ANSI/SIA A92.5-2006 standard.
 - **Equipment identified** with "CSA" meets the CSA B354.4-02 standard.
 - **Equipment identified** with "AS" meets the AS 1418.10-2004 standard.
 - **Equipment identified** with "CE" meets the requirements of the Machinery Directive 98/37/EC and the EMC Directive 2004/108/EC.
- b. **CSA (Canada), AS (Australia) and CE (Europe)**
Operators are required to conform to national, territorial/provincial and local health and safety regulations applicable to the operation of this aerial platform.
- c. **ANSI/SIA (United States)**
Operators are required by the current ANSI/SIA A92.5 standards to read and understand their responsibilities in the manual of responsibilities before they use or operate this aerial platform.

**WARNING**

Failure to comply with your required responsibilities in the use and operation of the aerial platform could result in death or serious injury!

Operator Safety Reminders

A study conducted by St. Paul Travelers showed that most accidents are caused by the failure of the operator to follow simple and fundamental safety rules and precautions.

You, as a careful operator, are the best insurance against an accident. Therefore, proper usage of this aerial platform is mandatory. The following pages of this manual should be read and understood completely before operating the aerial platform.

Common sense dictates the use of protective clothing when working on or near machinery. Use appropriate safety devices to protect your eyes, ears, hands, feet and body.

Any modifications from the original design are strictly forbidden without written permission from SKYJACK.

Electrocution Hazard

This aerial platform is not electrically insulated. Maintain a Minimum Safe Approach Distance (MSAD) from energized power lines and parts as listed below. The operator must allow for the platform to sway, rock or sag. This aerial platform does not provide protection from contact with or proximity to an electrically charged conductor.

Per ANSI A92.5-2006 8.10(7)

"The operator shall perform only the work for which he or she is qualified, in compliance with all applicable safety related work practices intended to prevent electric shock covered by the Code of Federal Regulations (CFR) 1910.333. The operator's level of competence shall be established only by persons qualified to do so. Operators shall maintain the appropriate minimum approach distance (MAD) from energized power lines and parts covered by CFR 1910.333 (c)."

Unqualified persons must maintain a minimum approach distance of 10 feet from any energized power line up to 50 kV. Energized power lines over 50 kV require a greater minimum approach distance to be maintained. Refer to CFR 1910.333.


As per CSA B354.4-02

"The operator shall maintain the minimum safe approach distance (MSAD) from energized conductors at all times in accordance with the authority having jurisdiction."

Refer to CFR 1910.333 or the authority having jurisdiction.

**DO NOT USE AERIAL PLATFORM AS A GROUND FOR WELDING.
DO NOT OPERATE AERIAL PLATFORM DURING LIGHTNING OR STORMS.**



<div>DANGER Avoid Power Lines</div>		
Minimum Safe Approach Distance		
ANSI/SIA A92.6-2006 and CSA B354.2-01 Requirements		CE Guidance Note “Avoidance of danger from overhead lines”
Voltage Range (Phase to Phase)	Minimum Safe Approach Distance (Feet)	Adhere strictly to the governmental rulings and regulations applicable in your country.
0 to 300V	Avoid Contact	
Over 300V to 50KV	10	
Over 50KV to 200KV	15	
Over 200KV to 350KV	20	
Over 350KV to 500KV	25	
Over 500KV to 750KV	35	
Over 750KV to 1000KV	45	
FAILURE TO AVOID THIS HAZARD WILL RESULT IN DEATH OR SERIOUS INJURY!		

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Safety Precautions

Know and understand the safety precautions before going on to next section.

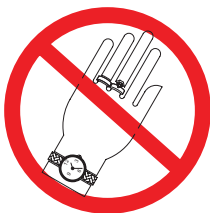


WARNING

Failure to heed the following safety precautions could result in tip over, falling, crushing, or other hazards leading to death or serious injury.

- **KNOW** all national, state or territorial/provincial and local rules which apply to your aerial platform and jobsite.
- **TURN** main power disconnect switch off when leaving the aerial platform unattended. Remove the key to prevent unauthorized use of the aerial platform.
- **WEAR** all the protective clothing and personal safety devices issued to you or called for by job conditions.

- **DO NOT** wear loose clothing, dangling neckties, scarves, rings, wristwatches or other jewelry while operating this aerial platform.



- **AVOID** entanglement with ropes, cords or hoses.



- **AVOID** falling. Stay within the boundaries of the guardrails.



- **DO NOT** raise the platform in windy or gusty conditions. Do not increase the lateral surface area of the platform. Increasing the area exposed to the wind will decrease aerial platform stability.



- **DO NOT** operate aerial platform during lightning or storms.



- **DO NOT** drive elevated near depressions or holes of any type, loading docks, debris, drop-offs and surfaces that may affect the stability of the aerial platform.



- **DO NOT** drive or elevate the aerial platform if it is not on a firm level surface.

- **Elevated driving** must only be done on a firm level surface.

- **If operation in areas with holes or drop-offs is absolutely necessary**, elevated driving shall not be allowed. Position the aerial platform horizontally only with the platform fully lowered. After ensuring that all 4 wheels or outriggers (if equipped) have contact with level firm surface, the aerial platform can be elevated. After elevation, the drive function must not be activated.



- **AVOID** soft, uneven surfaces.



- **DO NOT** ascend or descend a grade steeper than 45% (2WD & 4WD). Boom elevated driving must only be done on firm level surfaces.



Safety Precautions (Continued)

Know and understand the safety precautions before going on to next section.

- **DO NOT** operate an aerial platform that has ladders, scaffolding or other devices mounted on it to increase its size or work height.



- **ENSURE** that there are no personnel or obstructions in the path of travel, including blind spots.



- **DO NOT** exert side forces on aerial platform while elevated.



- **DO NOT** lower the platform unless the area below is clear of personnel and obstructions.



- **DO NOT** use the aerial platform as a crane. It is prohibited.



- **DO NOT** use boom to push, pull other objects or to lift the chassis.



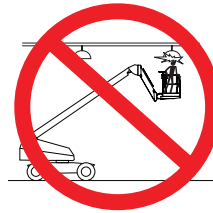
- **DO NOT** sit, stand or climb on the guardrails. It is prohibited.



- **DO NOT** raise the aerial platform while it is on a truck, forklift or other device or vehicle.



- **BE AWARE** of overhead obstructions or other possible hazards around the aerial platform when driving or lifting.



- **STUNT** driving and horseplay are prohibited.

- **BE AWARE** of crushing hazards. Keep all body parts inside platform guardrail.



- **ENSURE ALL** tires are in good condition and lug nuts are properly tightened.

- **DO NOT** alter or disable limit switches or other safety devices.

- **DO NOT** use the aerial platform without guardrails, locking pins and the entry gate in place.

- **BE AWARE** of blind spots when operating the aerial platform.



- **DO NOT** exceed the rated capacity of the aerial platform. Do make sure the load is evenly distributed on the platform.

Safety Precautions (Continued)

Know and understand the safety precautions before going on to next section.

- **DO NOT** attempt to free a snagged platform with lower controls until personnel are removed from the platform.
- **DO NOT** position the aerial platform against another object to steady the platform.
- **DO NOT** place materials on the guardrails or materials that exceed the confines of the guardrails unless approved by Skyjack.

Fall Protection

All occupants of this aerial platform must wear personal fall protection equipment.

As per the ANSI A92.5-2006 standard, "Principal fall protection is provided by the guardrail system. The user shall direct and monitor the operator to ensure that all components of the guardrail system are in place. The user shall direct and monitor the occupants of the work platform to ensure that they wear a personal fall arrest system to protect against the potential effects of ejection or a fall restraint system to prevent a free fall."

Fall restraint and fall arrest systems are defined within the ANSI A92.5 Manual of Responsibilities shipped with this aerial platform.

Skyjack recommends the use of a fall restraint system to keep an occupant within the confines of the platform, and thus not expose the occupant to any fall hazard requiring a fall arrest.

CSA B354.4-02 requires the use of a fall arrest system, therefore Canadian users must use personal fall arrest protection as opposed to fall restraint.

All personal fall protection equipment must comply with applicable governmental regulations and must be inspected and used in accordance with the manufacturer's recommendations.

All personal fall protection equipment must be attached only to approved anchorage points within the platform of the aerial platform.



WARNING

Entering and exiting the aerial platform should only be done using the three points of contact.

- Use only equipped access openings.
- Enter and exit only when the aerial platform is in the fully retracted position.
- Do use three points of contact to enter and exit the platform. Enter and exit the platform from the ground only. Face the aerial platform when entering or exiting the platform.
- Three points of contact means that two hands and one foot or one hand and two feet are in contact with the aerial platform or the ground at all times during entering and exiting.



WARNING

An operator should not use any aerial platform that:

- does not appear to be working properly.
- has been damaged or appears to have worn or missing parts.
- has alterations or modifications not approved by the manufacturer.
- has safety devices which have been altered or disabled.
- has been tagged or blocked out for non-use or repair.

Failure to avoid these hazards could result in death or serious injury.

Jobsite Inspection

- Do not use in hazardous locations.
- Perform a thorough jobsite inspection prior to operating the aerial platform, to identify potential hazards in your work area.
- Be aware of moving equipment in the area. Take appropriate actions to avoid collision.

Maintenance and Inspection Schedule

The actual operating environment of the work platform governs the use of the maintenance schedule. The inspection points covered in [Table 1.2](#). Maintenance and Inspection Checklist, indicates the areas of the aerial platform to be maintained or inspected and at what intervals the maintenance and inspections are to be performed.

Owner's Annual Inspection Record

It is the responsibility of the owner to arrange quarterly and annual inspections of the aerial platform. [Table 1.1](#). Owner's Annual Inspection Record is to be used for recording the date of the inspection, owner's name, and the person responsible for the inspection of the work platform.

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 aerial platform 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 aerial platform.

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.

Maintenance and Service Safety Tips

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

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

Anyone operating or servicing this aerial platform 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.

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, turn Battery Disconnect Switch to "○" off position.

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

Hydraulic System & Component Maintenance and Repair

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

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 made 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.

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. What are they? 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.

About this Section

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.

Service Bulletins

Before performing any scheduled maintenance inspection procedure, refer to service bulletins found in our web site: www.skyjackinc.com for updates related to service and maintenance of this aerial platform.

Maintenance and Inspection

Death or injury can result if the aerial platform 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 aerial platform.



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 aerial platform in the following configuration:
 - Aerial platform parked on a flat and level surface
 - Disconnect the battery by turning the main power disconnect switch to “○” off position.
- Repair any damaged or malfunction components before operating aerial platform.
- Keep records on all inspections.

Maintenance Instructions

This manual consists of four schedules to be done for maintaining on an aerial platform. Inspection schedule frequency is shown below:

Inspection Schedule

Daily	A
Frequently	A + B
Annually	A + B + C
Bi-annually	A + B + C + D

- 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 5](#) to perform these inspections.
- If any inspection receives a fail, tag and remove the aerial platform from service.
- If any aerial platform component(s) has been repaired, an inspection must be performed again before removing the tag. Place a check in the repair column.

Legend

P = Pass
F = Fail
R = Repaired

Table 1.1 Owner’s Annual Inspection Record

Model Number: _____ Serial Number: _____									
Recording Date									
Recording Year #	1	2	3	4	5	6	7	8	9
Owner’s Name									
Inspected By									

60564AA

As described earlier in this section, this decal is located on the control compartment cowling. It must be completed after an annual inspection has been completed. Do not use the aerial platform if an inspection has not been recorded in the last 13 months.



Table 1.2 MAINTENANCE AND INSPECTION CHECKLIST

Serial Number: _____

Model: _____

Hourmeter Reading: _____

Date: _____

Time: _____

Name (Printed): _____

Signature: _____

Each item shall be inspected using the the appropriate section of the Skyjack service manual.

As each item is inspected, write the appropriate grade in the box.

P - PASS
F - FAIL
R - REPAIRED

INSPECTION FREQUENCY

- ☐ DAILY
☐ FREQUENTLY
☐ ANNUALLY
☐ BI-ANNUALLY
☐ Other

Inspection Schedule

Daily	A
Frequently*	A + B
Annually*	A + B + C
Bi-annually*	A + B + C + D
Other*	A + B + C + D + E

Schedule		P	F	R
Schedule Maintenance Inspections				
Labels	A			
Limit Switches	A, B			
Engine Compartment				
Main Power Disconnect Switch	A, B			
Battery	A, B			
Swing Drive Motor	A, B, C			
Turret Rotation Gear	A, B, C			
Rotary Manifold	A, B			
High Pressure Filter	A, B, C			
Hydraulic Pumps	A, B			
Muffler and Exhaust	A, B			
Engine Pivot Tray	A, B			
Engine Oil Level	A, B			
Engine Air Filter	A, B, C			
Engine Fuel Leaks	A, B, C			
Control Compartment				
Base Control Console	A, B			
Hydraulic Tank	A, B			
Hydraulic Oil	A, B, D			
Hydraulic Return Filter	A, B, C			
Brake and Main Manifolds	A, B, C			
Emergency Power Unit	A, B			
Fuel Tank	A, B, C			
Fuel Tank Leaks	A, B			
Base				
Turret Transportation Lock	A, B			
Drive Axle	A, B, C			
Oscillating Axle Assembly	A, B, C			
Steer Cylinder Assembly	A, B			
Tie Rod	A, B			
Wheel/Tire Assembly	A, B, C			
Manuals	A, B			
Platform Assembly	A, B			
Platform Control Console	A, B			
Rotary Actuator	A, B, C			
Jib (If Equipped)	A, B			

Schedule		P	F	R
Boom	A, B, C			
Cylinder	A, B, C			
Wear Pads	A, B, C			
Power Track	A, B, C			
Cables (61T/66T)	A, B, C, E			
Special Options (If Equipped)				
Hydraulic Generator	A			
Battery Warmer/Hydraulic Oil Heater	A			
Welder	A			
Work Light	A			
Flashing Amber Light	A			
Glazier Tray	A			
Arctic Weather Package	A			
Function Tests				
Test Main Power Disconnect Switch	A, B			
Base Control Console				
Test Emergency Stop	A, B			
Test Function Enable Switch & All Boom Functions	A, B			
Test Platform Self-leveling	A, B			
Test Tilt Sensor	A, B			
Test Emergency Power	A, B			
Test Base/Off/Platform Switch	A, B			
Platform Control Console				
Test Load Sensing System - CE	A, B			
Test Footswitch	A, B			
Test Engine Enable Switch - CE	A, B			
Test Emergency Stop	A, B			
Test Steering	A, B			
Test Driving Function	A, B			
Test Driving Speed	A, B			
Test Emergency Power	A, B			
Test Horn	A, B			
Test Brakes	A, B			
Test Oscillating Axles	A, B			
Test Cables (61T/66T)	A, B			

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A - Perform Visual and Daily Maintenance Inspections & Functions Test. Refer to Section 2.7 of the Operating Manual.

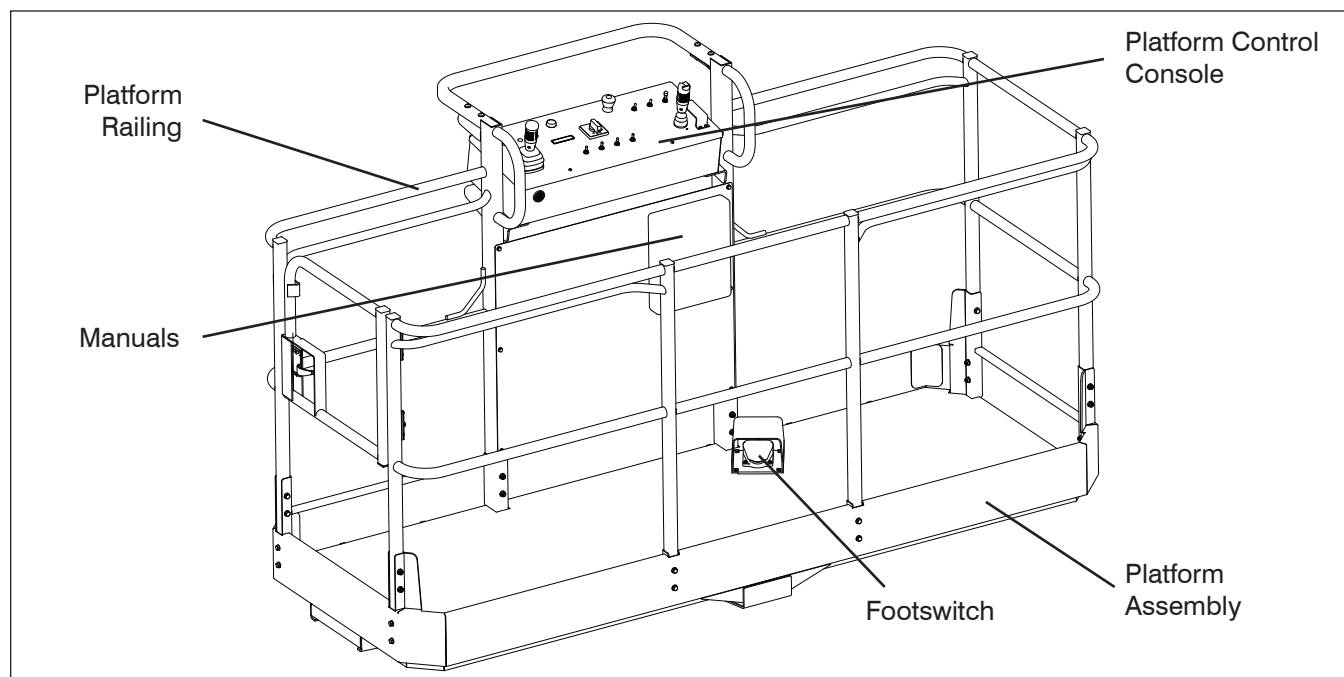
B - Perform Scheduled Maintenance Inspection every three months or 150 hrs. Refer to Section 1.0 of this manual.

C - Perform Scheduled Maintenance Inspection every year. Refer to Section 1.0 of this manual.

D - Perform Scheduled Maintenance Inspection every 2 years. Refer to Section 1.0 of this manual.

E - For other Perform Scheduled Maintenance Inspection intervals, Refer to Section 5.0 of this manual.

* - Refer to Skyjack's website @ www.skyjack.com for latest service bulletins prior to performing quarterly or yearly inspection.**Note:** Make a copy of this page or visit the Skyjack web site: www.skyjack.com for a printable copy.



1.1 Scheduled Maintenance Inspections

Begin the scheduled maintenance inspections by checking each item in sequence for the conditions listed in this section.



WARNING

To avoid injury, do not operate an aerial platform until all malfunctions have been corrected.



WARNING

To avoid possible injury, ensure aerial platform power is off during visual and daily maintenance inspections.

Electrical

Maintaining electrical components is essential to good performance and service life of aerial platform.

Perform a visual inspection around the following areas:

- boom to platform cable harness
- engine compartment electrical panel
- engine wiring harness
- rotary manifold wiring

Hydraulic

Maintaining hydraulic components is essential to good performance and service life of the aerial platform.

Perform a visual inspection around the following areas:

- hydraulic tank filter, fittings, hoses, emergency power unit and turret/base surface
- engine compartment fittings, hoses, main pump, filter and turret/base surface
- all hydraulic cylinders
- all hydraulic manifolds
- the underside of the turret
- the underside of the base
- ground area under the aerial platform

1.1-1 Labels

Refer to the labels section in the operating manual and ensure that all labels are in place and are legible.

1.1-2 Limit Switches

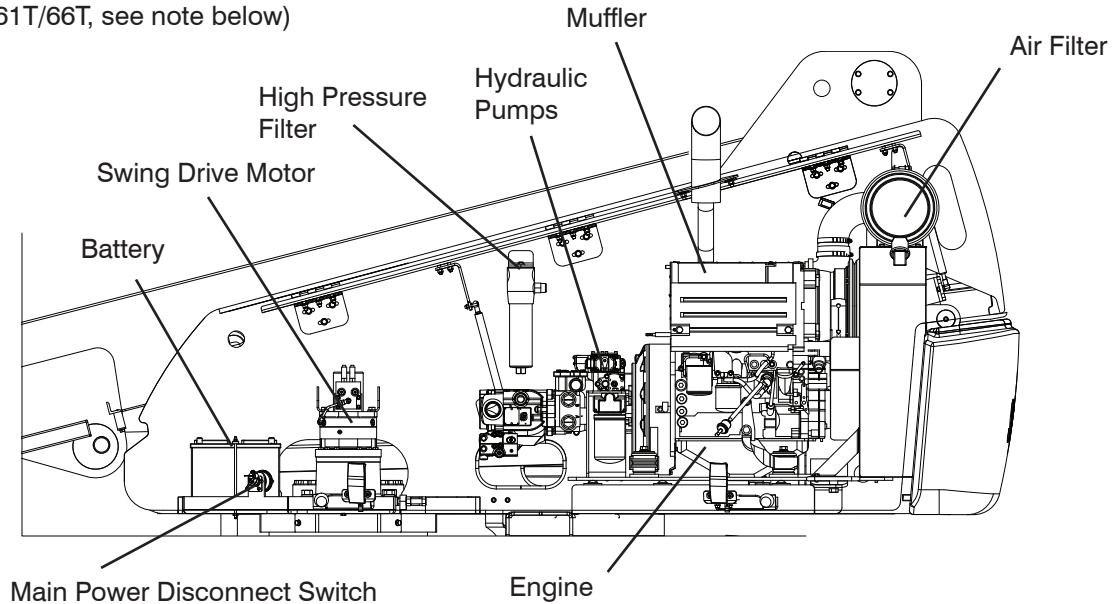
Ensure limit switches are properly secured and no signs of visible damage and movement is not obstructed. Detecting limit switch malfunction is essential to safe aerial platform operation.

Visually inspect all limit switch located inside the turret and under the power track. Inspect for the following:

- broken or missing actuator arm
- missing fasteners
- loose wiring

Typical SJ 40T/45T shown

(for model 61T/66T, see note below)

**1.1-3 Engine Compartment**

Ensure all compartment latches are secure and in proper working order.

- **Main Power Disconnect Switch**

(see right side for 61T/66T)

- Turn main power disconnect switch to "O" off position.
- Ensure there are no loose or missing parts and there is no visible damage.
- Ensure all cables are secure and switch is in proper working condition.

- **Battery**

Proper battery condition is essential to good engine performance and operational safety. Improper fluid levels or damaged cables and connections can result in engine component damage and hazardous conditions.

**WARNING**

Explosion hazard. Keep flames and sparks away. Do not smoke near batteries.

**WARNING**

Battery acid is extremely corrosive - Wear proper eye and facial protection as well as appropriate protective clothing. If contact occurs, immediately flush with cold water and seek medical attention.

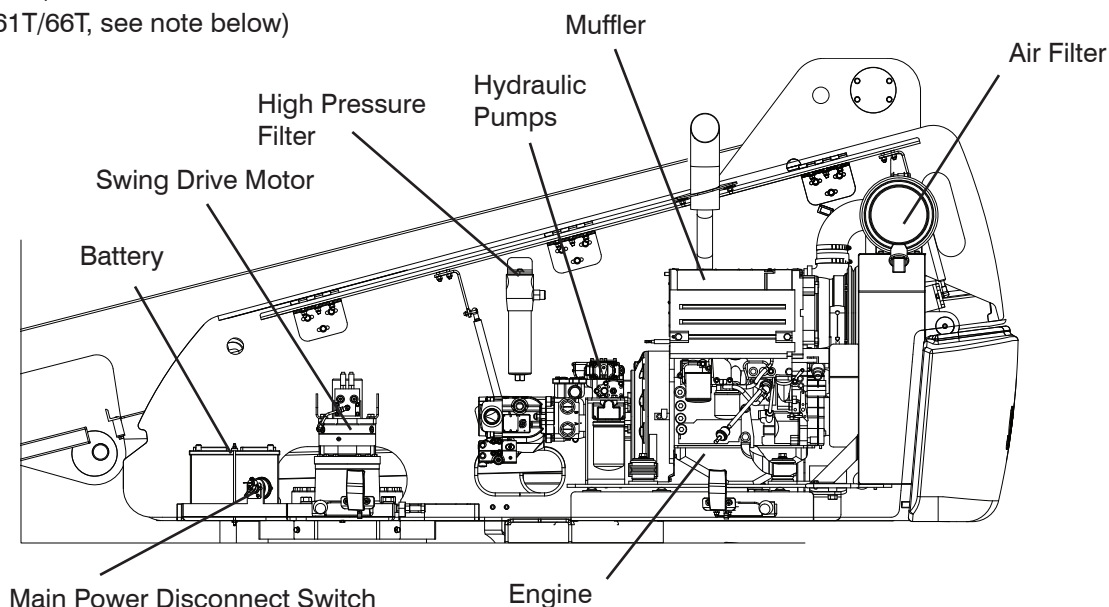
1. Check battery case for damage.
2. Clean battery terminals and cable ends thoroughly with a terminal cleaning tool or wire brush.
3. Ensure all battery connections are tight.
4. If applicable, check battery fluid level. If plates are not covered by at least 1/2" (13 mm) of solution, add distilled or demineralized water.
5. Replace battery if damaged or incapable of holding a lasting charge.

**WARNING**

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

Typical SJ 40T/45T shown

(for model 61T/66T, see note below)



- **Swing Drive Motor**

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

- **C - Annual Inspection**

- For motor oil replacement procedure, refer to [Section 5](#).

- **Turret Rotation Gear**

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

- **Rotary Manifold**

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

- **High Pressure Filter (40T/45T)**

(see Control Compartment for 61T/66T)

- Ensure housing is secure and shows no visible damage or leakage.

- **Hydraulic Pumps**

- Ensure there are no loose or missing parts and there is no visible damage.
- Ensure all bolts are properly tightened.

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

- **Muffler and Exhaust**

- Ensure muffler and exhaust system are properly secured, with no evidence of damage.

- **Engine Pivot Tray**

- Ensure there are no loose or missing parts and no visible damage to the engine pivot tray. Ensure that each tray-securing bolt is in place.

- **Engine Oil Level**

- Maintaining the engine components is essential to good performance and service life of the aerial platform.

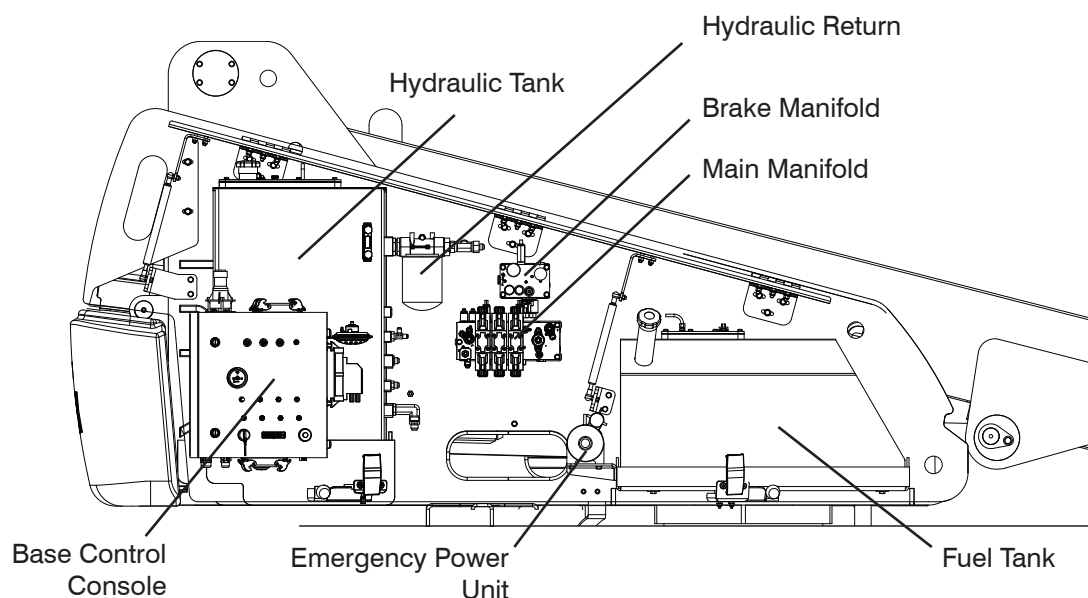
**WARNING****Beware of hot engine components.****Check oil level on dipstick**

- Oil level should be in the "safe" zone. Add oil as needed. Refer to [Table 2.8b](#) for recommended oil type.

B - Frequent Inspection

- For recommend oil change, refer to engine manual

Typical SJ 40T/45T shown



- **Engine Air Filter**

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

- **B - Frequent Inspection**

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

- **C - Annual Inspection**

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

- **Engine Fuel Leaks**

- Ensure that there no fuel leaks at engine.

**DANGER**

Engine fuels are combustible. Inspect the aerial platform in an open, well-ventilated area away from heaters, sparks and flames. Always have an approved fire extinguisher within easy reach.

- Ensure shutoff valve, hoses and fittings show no visible damage and no evidence of fuel leakage.

- **Engine Fuel Filter**

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

- **C - Annual Inspection**

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

1.1-4 Control Compartment

- Ensure all compartment latches are secure and in proper working order.

- **Base Control Console**

- Ensure all switches are returned to their neutral positions.
- Ensure there are no loose or missing parts and there is no visible damage.

- **Hydraulic Tank**

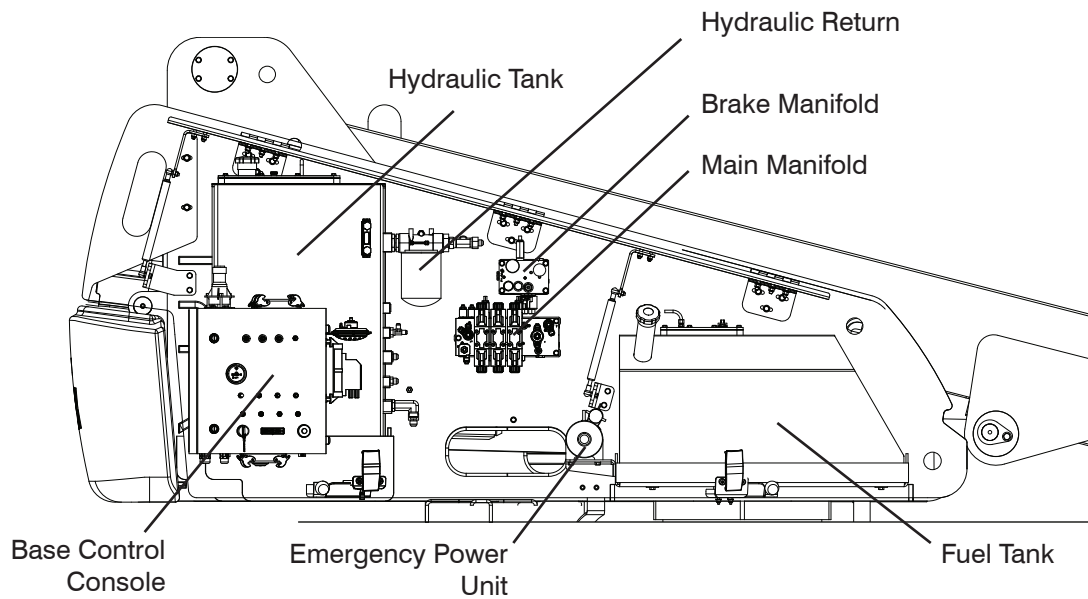
- Ensure hydraulic filler cap is secure.
- Ensure tank shows no visible damage and no evidence of hydraulic leakage.

- **Hydraulic Oil**

- Be sure that the boom is in the stowed position, and then visually inspect the sight gauge located on the side of the hydraulic oil tank.

-

Typical SJ 40T/45T shown



- The hydraulic oil level should be between the minimum and maximum marks on the sight glass. Add oil as needed. Refer to [Table 2.8b](#) for recommended oil type.

C - Annual Inspection

- For hydraulic oil replacement procedure, refer to [Section 5](#).
- **Hydraulic Return Filter**
 - Ensure filter element is secure.
 - Ensure there are no signs of leakage or visible damage.
- **Brake and Main Manifolds**
 - Ensure all fittings and hoses are properly tightened and there is no evidence of hydraulic leakage.
 - Ensure there are no loose wires or missing fasteners.
- **Emergency Power Unit**
 - Ensure there are no loose or missing parts and there is no visible damage.
 - Ensure there are no loose wires or missing fasteners.
 - Ensure all fittings and hoses are properly tightened and there is no evidence of hydraulic leakage.

• Fuel Tank

IMPORTANT

Before using your aerial platform ensure there is enough fuel for expected use.

- Ensure fuel filler cap is secure.
- Ensure tank shows no visible damage and no evidence of fuel leakage.

• Fuel Tank Leaks

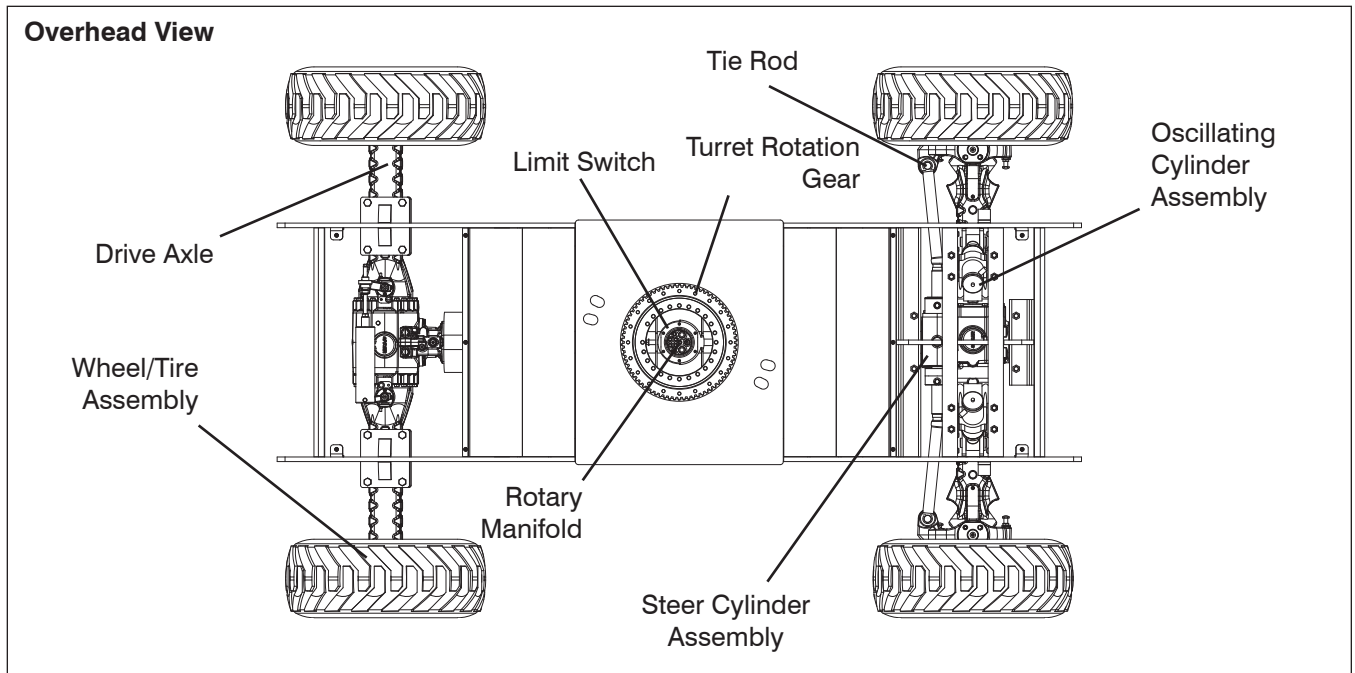
- Ensure that there no fuel leaks at tank.



DANGER

Engine fuels are combustible. Inspect the aerial platform in an open, well-ventilated area away from heaters, sparks and flames. Always have an approved fire extinguisher within easy reach.

- Ensure fuel tank, shutoff valve, hoses and fittings show no visible damage and no evidence of fuel leakage.



1.1-5 Base

- **Turret Transportation Lock**
 - Ensure turret transportation lock is unlocked, there are no loose or missing parts and there is no visible damage.
- **Drive Axle**
 - Ensure drive axle is properly secured, there are no loose or missing parts, all fittings and hoses are properly tightened and there is no evidence of hydraulic leakage.
- **Oscillating Cylinder Assembly**
 - Ensure oscillating cylinder assembly is properly secured, there are no loose or missing parts, all fittings and hoses are properly tightened and there is no evidence of hydraulic leakage.

NOTE

Oscillating axle is locked when aerial platform is in work mode. Refer to [Diagram 2.5](#) Axle Oscillation Diagrams.

- **Steer Cylinder Assembly**
 - Ensure steer cylinder assembly is properly secured, there are no loose or missing parts, all fittings and hoses are properly tightened and there is no evidence of hydraulic leakage.

- **Tie Rod**

- Ensure there are no loose or missing parts, tie rod end studs are locked and there is no visible damage.

- **Wheel/Tire Assembly**

- The aerial platform is either equipped with air tires or foam-filled tires. Tire and/or wheel failure could result in an aerial platform tip over. Component damage may also result if problems are not discovered and repaired in a timely fashion.



WARNING

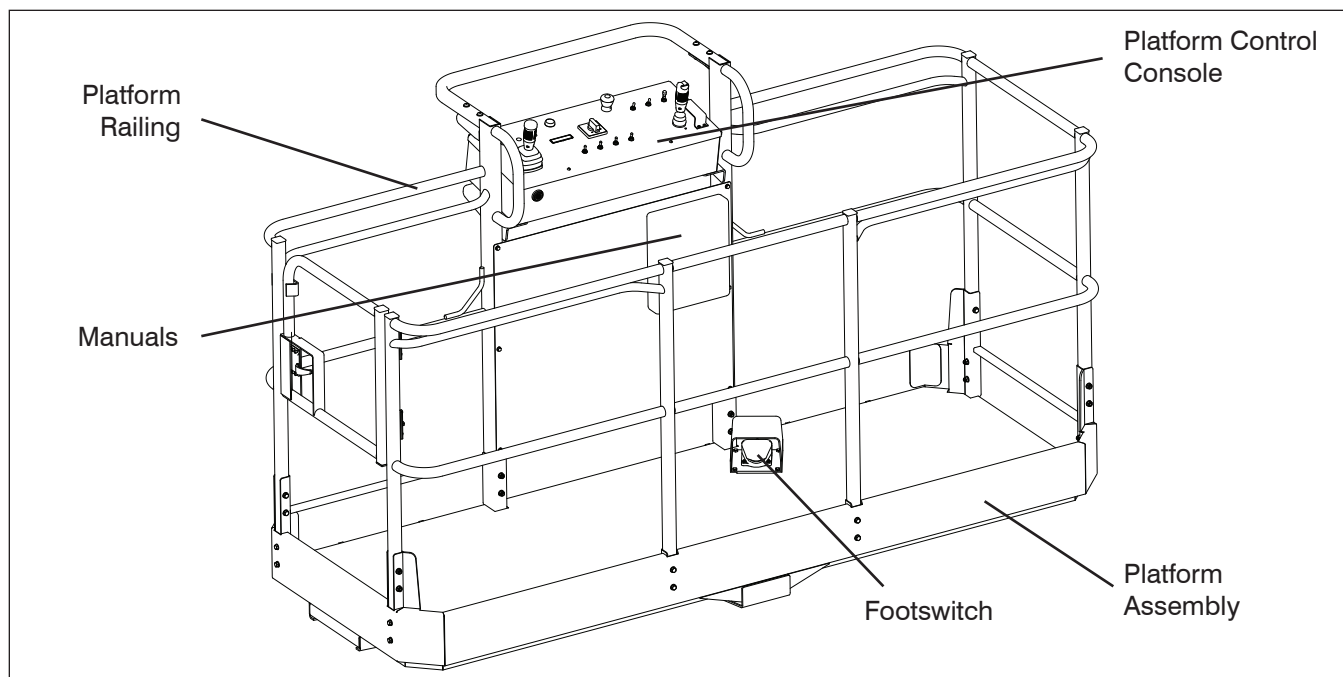
An over-inflated tire can explode and may cause death or serious injury.

- Check all tire treads and sidewalls for cuts, cracks, punctures and unusual wear.
- Check each wheel for damage and cracked welds.
- Check each lug nut for proper torque to ensure none are loose.

To maximize stability, it is essential to maintain proper pressure in all air-filled tires.

- Check each tire with an air pressure gauge and add air as needed.

Refer to [Table 2.5](#) for wheel/tire specifications.

**1.1-6 Manuals**

Ensure a copy of operating manual, and other important documents are enclosed in manual storage box.

- Check to be sure manual storage box is present and in good condition.
- Ensure manuals are legible and in good condition.
- Always return manuals to the manual storage box after use.

1.1-7 Platform Assembly

- Ensure there are no loose or missing parts and there is no visible damage.
- Ensure all fasteners are securely in place.
-
- Ensure all railings are properly positioned and secured.
- Ensure gate is in good working order.
- Ensure footswitch is in good working order and has not been modified, disabled or blocked.

1.1-8 Platform Control Console

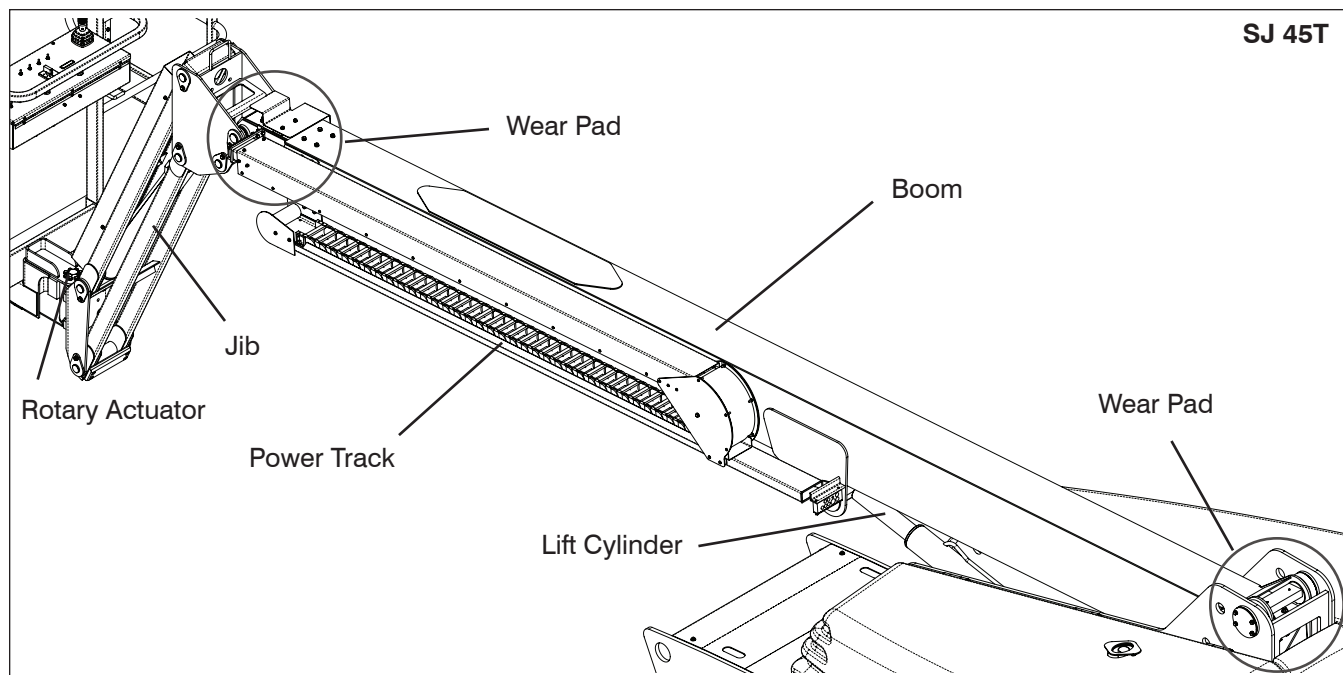
- Ensure all switches/controllers are returned to neutral and are properly secured.
- Ensure there are no loose or missing parts and there is no visible damage.

1.1-9 Rotatory Actuator

- Ensure there are no loose or missing parts and there is no visible damage.
- Ensure all bolts and pins are properly tightened.
- Ensure all hoses are properly tightened and there is no evidence of hydraulic leakage.

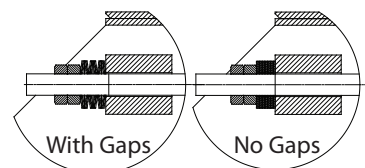
1.1-10 Jib (If Equipped)

- Ensure there are no loose or missing parts and there is no visible damage.
- Ensure all bolts and pins are properly tightened.
- Ensure all hoses are properly tightened and there is no evidence of hydraulic leakage.

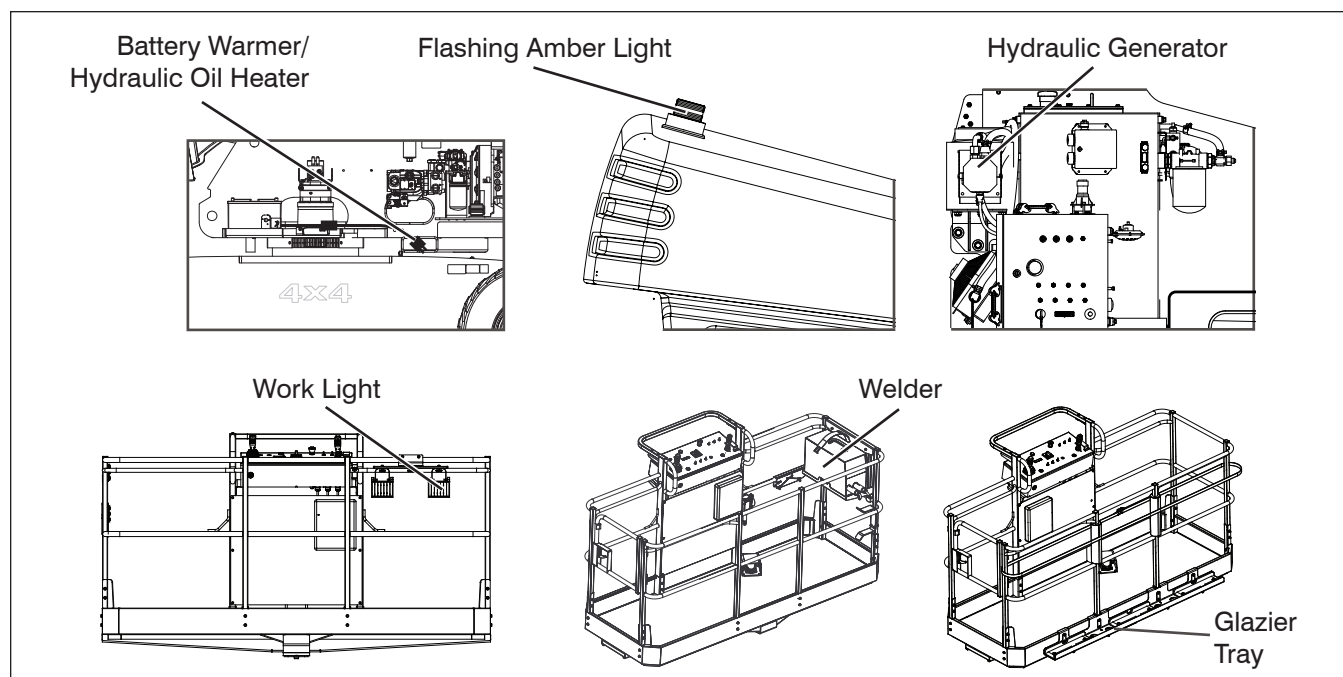


1.1-11 Boom

- Ensure there are no loose or missing parts and there is no visible damage.
- Ensure all bolts and pins are properly tightened.
- Ensure there are no visible cracks in welds or structure and there are no signs of deformation.
- Ensure all hoses are properly tightened and there is no evidence of hydraulic leakage.
- **Cylinders**
 - Ensure all cylinders are properly secured and there is no evidence of leakage.
- **Wear Pads**
 - Ensure all bolts are tight, there is no visible damage to the wear pads and that no parts are missing.
- **Hoses**
 - Ensure all hoses are properly tightened and there is no evidence of hydraulic leakage.
- **Power Track**
 - Ensure there are no loose or missing parts and there is no visible damage.
- **Cables (61T/66T)**
 - Ensure there are no loose or missing parts with no signs of visible damage.
 - Ensure that nuts are not loose and are locked together.
 - Ensure that there are no gaps between springs. For cable tension repair, refer to [Section 5](#).

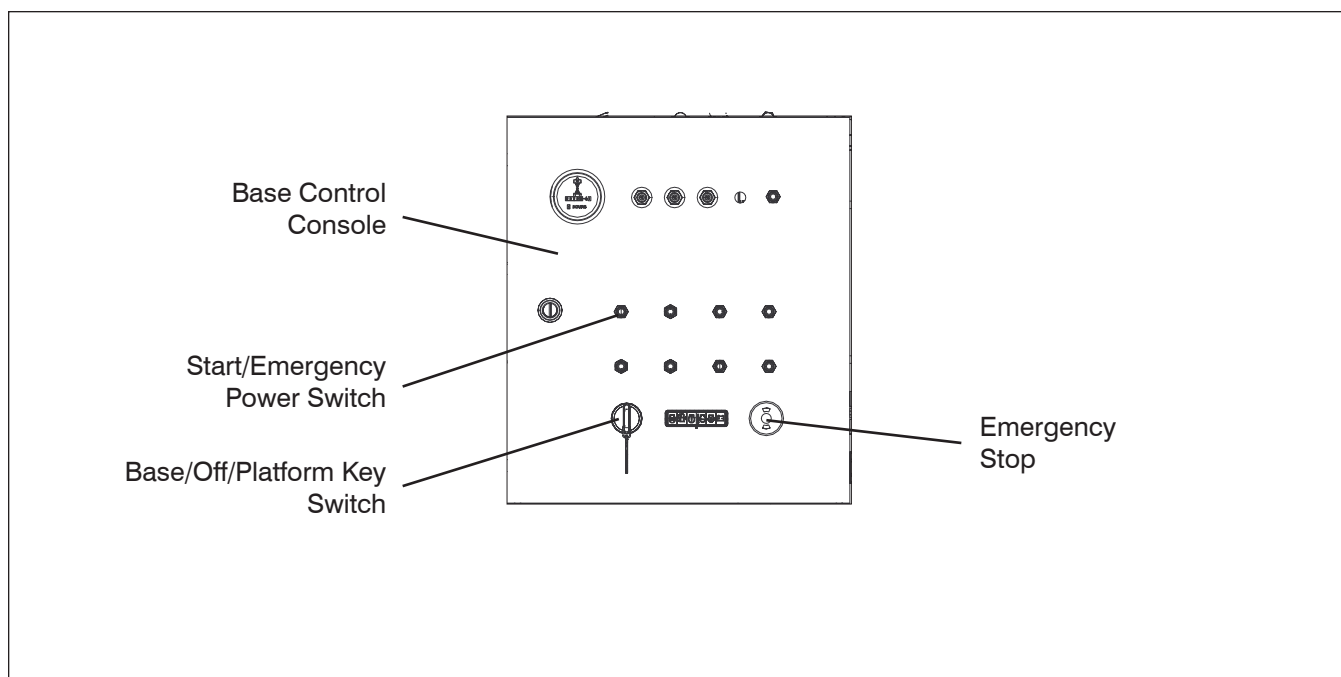


Cable Disc Springs



1.1-12 Special Options

- **Hydraulic Generator (If Equipped)**
 - Ensure there are no loose or missing parts with no signs of visible damage.
 - Ensure all hoses are properly tightened and there is no evidence of hydraulic leakage.
- **Battery Warmer/Hydraulic Oil Heater (If Equipped)**
 - Ensure battery warmer/hydraulic oil heater cord is properly secured with no signs of visible damage and hydraulic leakage.
- **Welder (If Equipped)**
 - Ensure welder and welder tray are properly secured.
 - Ensure there are no loose or missing parts and there is no visible damage.
 - Ensure there are no loose wires or missing fasteners.
- **Work Light (If Equipped)**
 - Ensure lamps are properly secured with no signs of visible damage.
 - Ensure mounting bracket is properly secured.
 - Ensure there are no loose wires or missing fasteners.
- **Flashing Amber Light (If Equipped)**
 - Ensure lamp is properly secured with no signs of visible damage.
- **Glazier Tray (If Equipped)**
 - Ensure tray, strap, foam supports and cover bumpers are properly secured with no signs of visible damage.
- **Arctic Weather Package (If Equipped)**
 - Ensure battery/hydraulic oil/engine oil heater plug is properly secured with no signs of visible damage and hydraulic leakage.



1.2 Function Tests

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

IMPORTANT

Never use a malfunctioning aerial platform. If malfunctions are discovered, aerial platform must be tagged and placed out of service. Repairs to aerial platform may only be made by a qualified service technician.

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

Prior to performing function tests, be sure to read and understand [Section 2.10](#) - Start Operation of the operating manual.

NOTE

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

1.2-1 Test Main Power Disconnect Switch

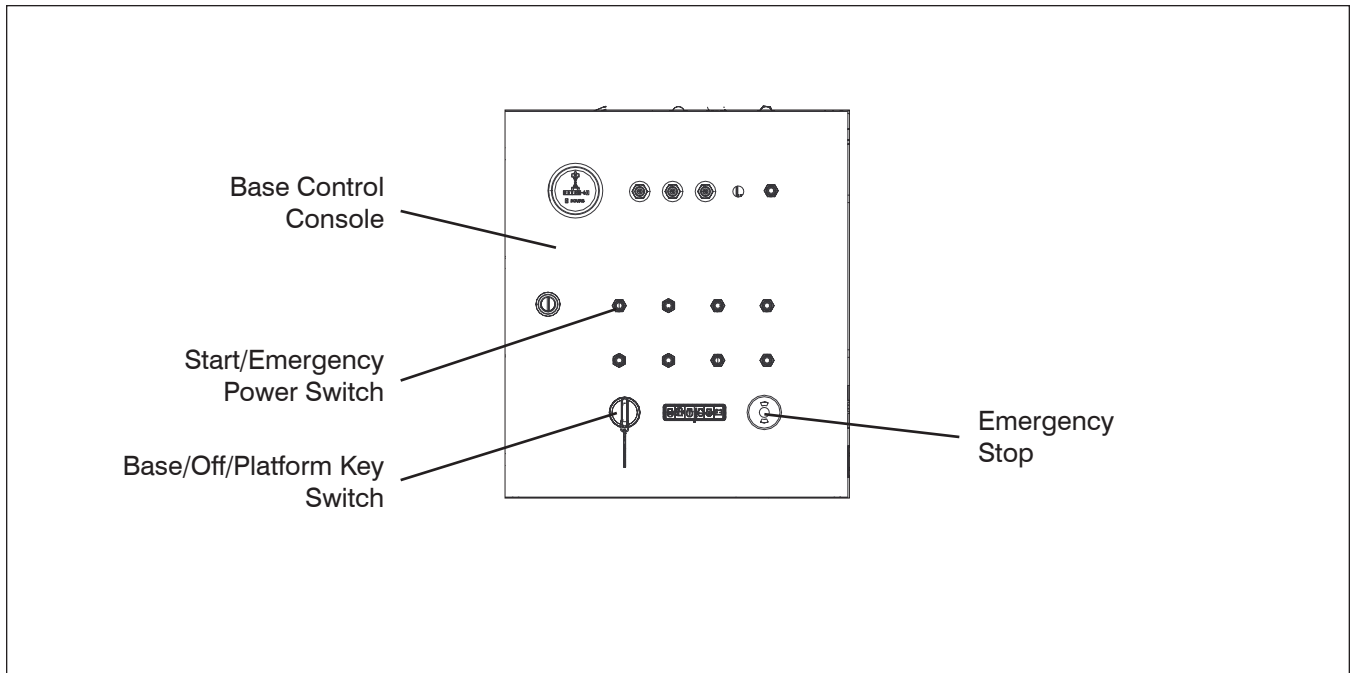
1. In engine compartment, turn main power disconnect switch to "○" off position.
Result: Aerial platform functions should not operate.
2. In engine compartment, turn main power disconnect switch to "I" on position.

NOTE



Close all cowlings before proceeding to next item.

1.2-2 Base Control Console

1. On platform control console, pull out "●" emergency stop button.
2. On base control console, pull out "●" emergency stop button.
3. Turn base/off/platform key switch to "🚧" base position.
4. Start engine by selecting "🔧" start position from start/emergency power switch.





- **Test Emergency Stop**

1. Push in “” emergency stop button.
Result: Engine should shut down and aerial platform functions should not operate.
2. Pull out “” emergency stop button and restart engine.



- **Test Function Enable Switch and All Boom Functions**



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


1. Do not hold “” function enable switch to either side. Attempt to activate each boom and platform switch.
Result: All boom and platform functions should not operate.
2. Hold “” function enable switch to either side and activate each boom and platform function.
Result: All boom and platform functions should operate as selected.

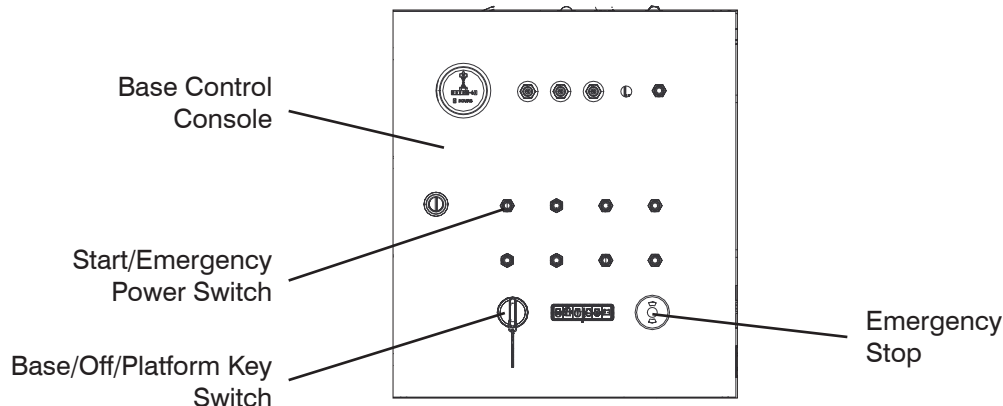
- **Test Platform Self-leveling**

1. Lower boom to stowed position.
2. Adjust platform to a level position using platform leveling switch.
3. Raise “” and lower “” main boom through a full cycle.
Result: Platform should remain level at all time.

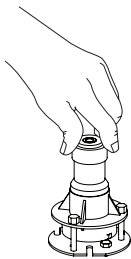
- **Test Tilt Sensor**

Tilt Sensor A

1. Move the aerial platform on to a slope not greater than 5°.
2. Extend “” fly boom approximately 12 in. (30 cm).
Result: Platform alarm should sound, tilt warning light should come on and all drive functions should not operate.

**Tilt Sensor B**

1. Open control cowling.
2. Locate tilt sensor on top of control box.
3. Extend “” fly boom approximately 30 cm (12 in.). Turn engine off. Press down one side of tilt sensor until level bubble is no longer in the center.



Result: Platform alarm should sound, tilt warning light should come on and all drive functions should not operate.

- **Test Emergency Power**

1. On base control console, push in “” emergency stop button to turn engine off.
2. On platform control console, push in “” emergency stop button.

**CAUTION**

When operating on auxiliary power, do not operate more than one function at a time to avoid overloading 12-Volt auxiliary pump motor. Do not use emergency power unit continuously for more than two minutes.

NOTE

To conserve battery power, test each function through a partial cycle.

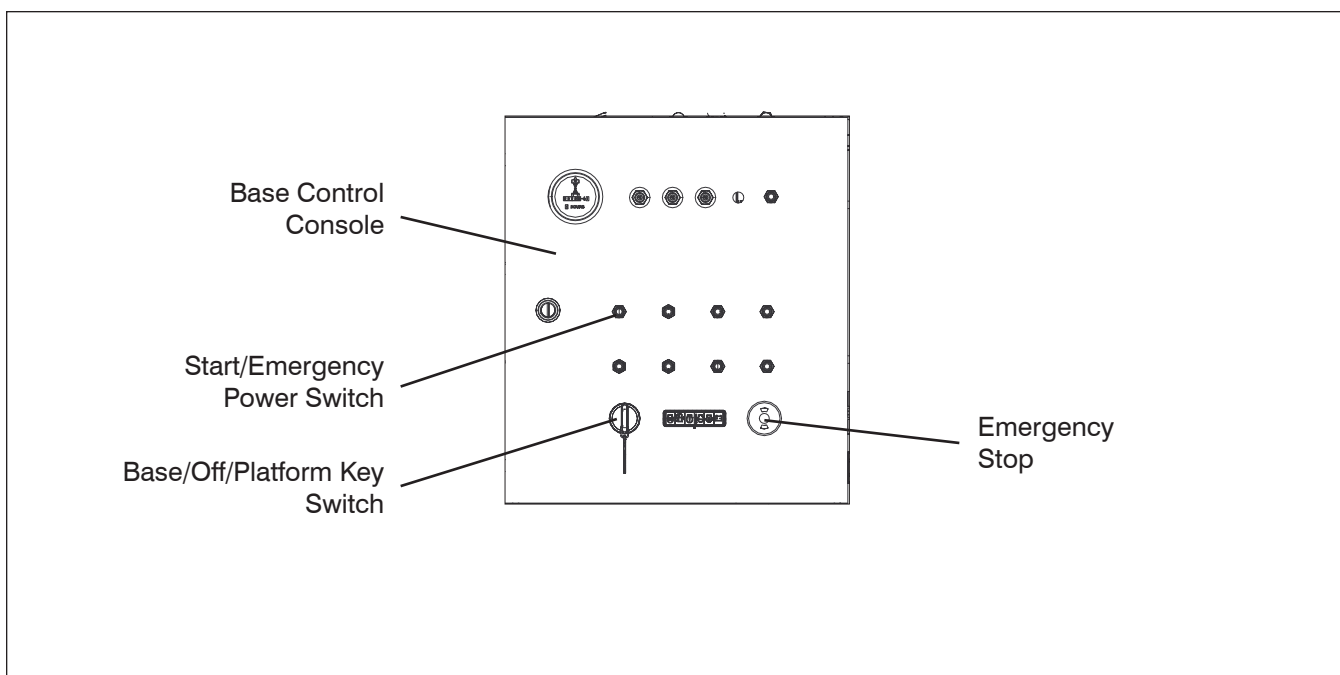
**WARNING**

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

3. On base control console, pull out “” emergency stop button.
4. For CE, turn base/off/platform key switch to “” platform position.
5. Select “ ” emergency power position from start/emergency power switch and activate each boom function.
Result: All selected functions should operate.




For CE

6. Turn base/off/platform key switch to “” base position.
7. Select “ ” emergency power position from start/emergency power switch and activate each boom function.
Result: All selected functions should operate.

**NOTE**

The emergency power unit has two-minute duty cycle.




- **Test Base/Off/Platform Switch**

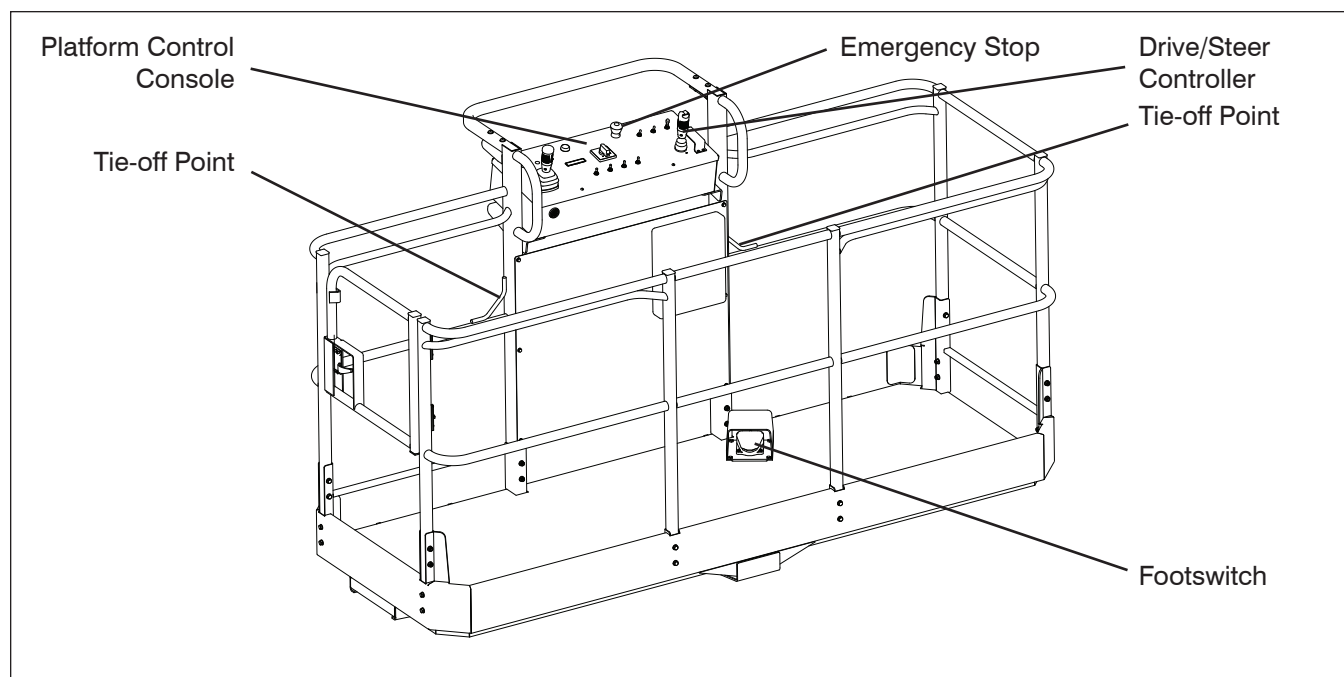
1. Ensure “” emergency stop button is pulled out.
2. Start engine.
3. On base control console, turn base/off/platform key switch to “” off position.
Result: Engine should shut down and aerial platform functions should not operate.
4. On base control console, turn base/off/platform key switch to “” platform position.

**WARNING**

Ensure that you maintain three points of contact to mount/dismount platform.

5. Enter platform and close gate.

6. On platform control console, select “” start position from start/emergency power switch and until engine starts.
7. Dismount from platform.
8. On base control console, attempt to activate each boom and platform switch while holding function enable switch.
Result: All boom and platform functions should not operate while holding function enable switch.
9. Push in “” emergency stop button to turn engine off.
10. Pull out “” emergency stop button.



1.2-3 Platform Control Console



WARNING

Ensure that you maintain three points of contact to mount/dismount platform.

1. Enter platform and close gate.



WARNING

DO NOT operate any control on platform control console without proper fall protection secured to designated location in platform. Failure to avoid this hazard could result in death or serious injury!




WARNING




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

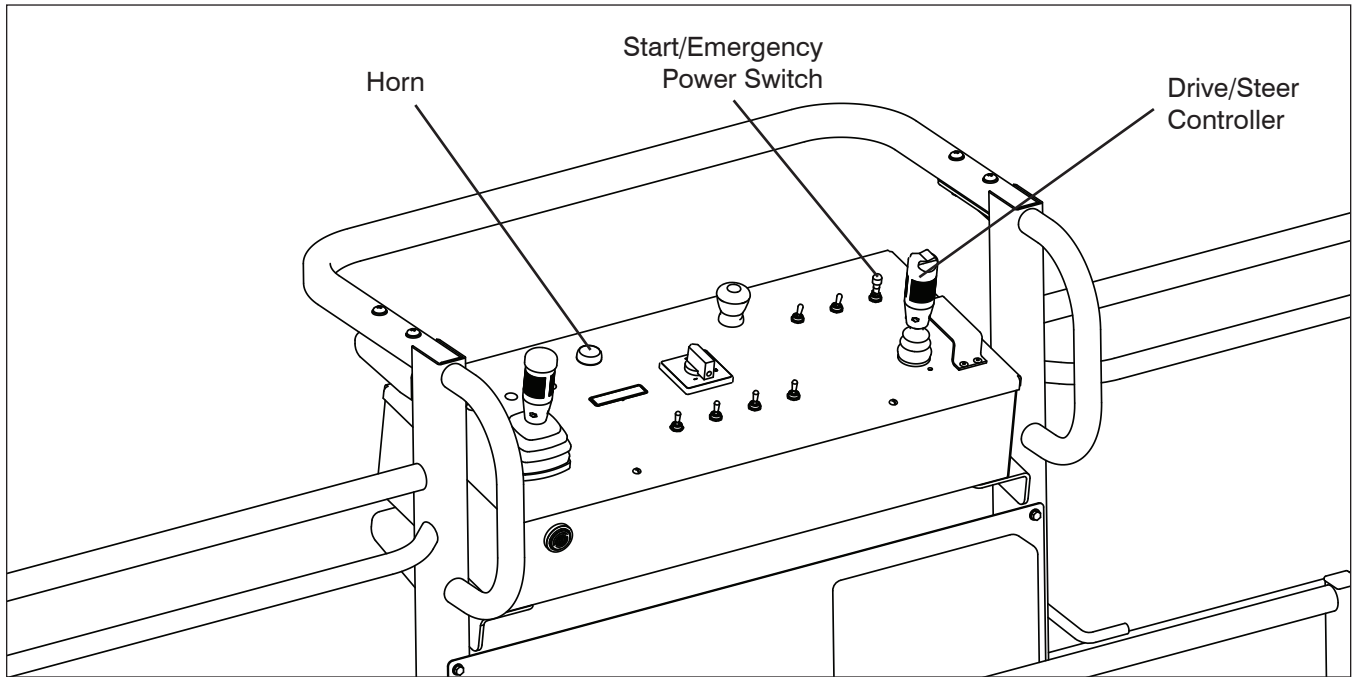
• Test Load Sensing System - CE

1. Push in “” emergency stop button.

2. Pull out “” emergency stop button.
Result: After four seconds of time elapses, the red light and audible alarm pulse two times. This indicates the system is active and there are no faults.

• Test Footswitch

1. Pull out “” emergency stop button.
2. Do not start engine.
3. Select generator on/off switch to “” off position (if equipped).
4. Depress and hold footswitch and attempt to start engine by selecting “” start position from start/emergency power switch.
Result: Engine should not start.
5. Without depressing footswitch, try to start engine.
Result: Engine should start.



6. With engine running and without depressing footswitch, test each boom and platform function.

Result: Aerial platform functions should not operate.

NOTE

The emergency power unit has two-minute duty cycle.

NOTE

A 15-second anti-tiedown feature deactivates footswitch when operator depresses it for 15 seconds without activating any function.

- **Test Engine Enable Switch - CE**

1. Ensure engine is running.
2. Select “○” off position from engine enable switch.
Result: Engine should shut down and platform control console is disabled.
3. Select “|” on position from engine enable switch.
Result: Platform control console is enabled.

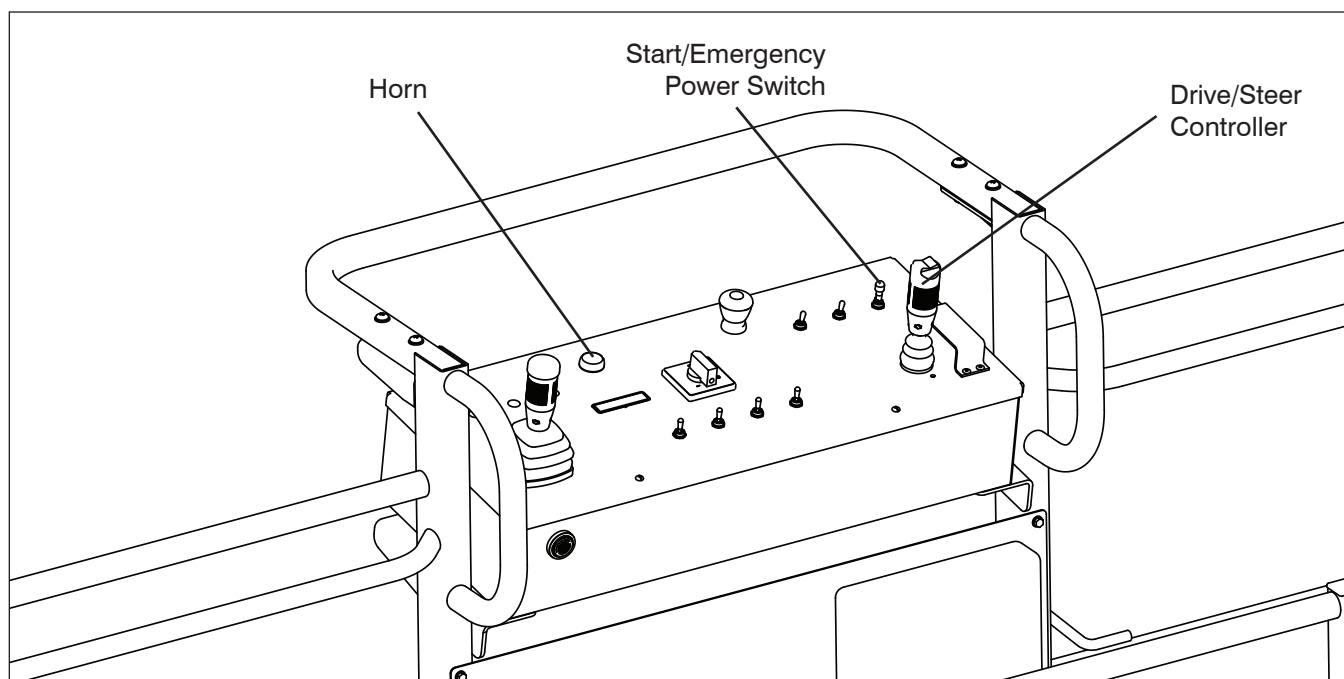
4. Start engine.

- **Test Emergency Stop**



1. Ensure engine is running.
2. Push in “●” emergency stop button.
Result: Engine should shut down and aerial platform functions should not operate.

- **Test Steering**


1. Pull out “●” emergency stop button.
2. Start engine by selecting “⏻” start position from start/emergency power switch.
3. Depress and hold footswitch.
4. Press rocker switch on top of drive/steer controller to “←” left and “→” right.
Result: Steer wheels should turn left and right.




• Test Driving Function

1. Ensure path of intended motion is clear.
2. Ensure boom is in stowed position and fly boom fully retracted.
3. Depress and hold footswitch.
4. Slowly move drive/steer controller in  forward or  reverse direction until aerial platform begins to move, and then return handle to center position.
Result: Aerial platform should move in forward or reverse direction, and then come to a stop.

• Test Driving Speed

1. Depress and hold footswitch.
2. Raise  main boom approximately 14 ft. (4 m) and then slowly move drive/steer controller to full drive position.
Result: The maximum achievable drive speed should be significantly less than stowed drive speed.
3. Lower boom to stowed position.

4. Extend  fly boom approximately 12 in. (30 cm) and then slowly move drive/steer controller to full drive position.
Result: The maximum achievable drive speed should be significantly less than stowed drive speed.

• Test Emergency Power





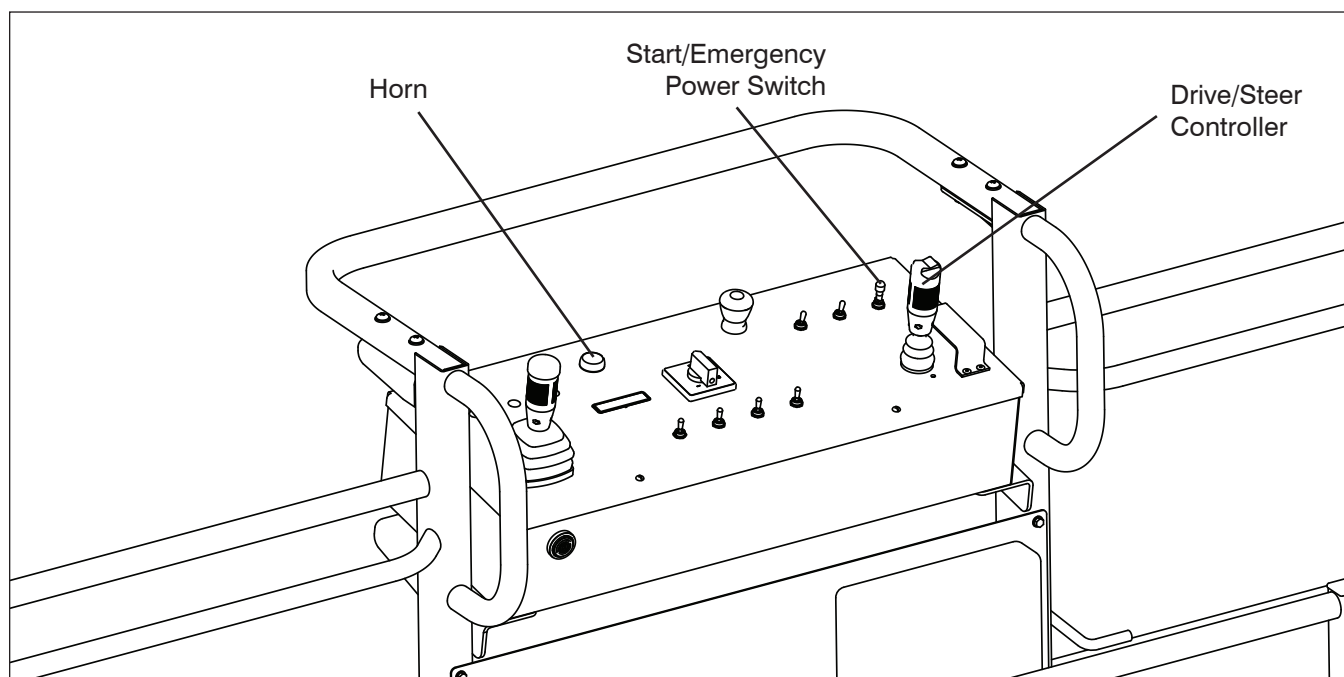
CAUTION


When operating on auxiliary power, do not operate more than one function at a time to avoid overloading 12-Volt auxiliary pump motor. Do not use emergency power unit continuously for two minutes.

NOTE

To conserve battery power, test each function through a partial cycle.

1. On platform control console, push in  emergency stop button to turn engine off.
2. Pull out  emergency stop button.
3. Depress and hold footswitch.



4. Select “” emergency power position from start/emergency power switch and activate each function control handle or switch.

Result: All boom and steer functions should operate. Drive functions should not operate.

NOTE

The emergency power unit has two-minute duty cycle.

• Test Horn

1. Push “” horn pushbutton.

Result: Horn should sound.

• Test Brakes





WARNING

Brakes will engage instantly when you release footswitch, causing aerial platform to stop immediately.

1. Move aerial platform to a firm level surface to ensure similar traction on left and right.

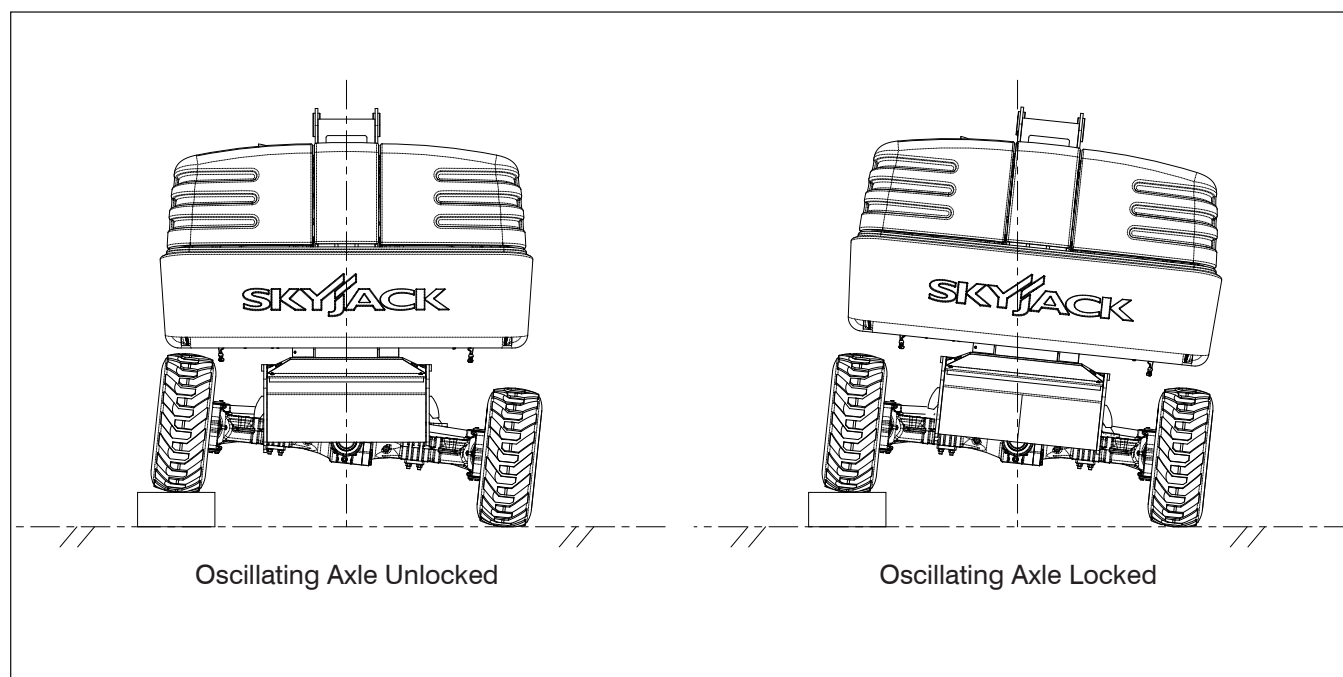
2. Ensure boom is in stowed position.

3. Depress and hold footswitch and drive

aerial platform first “” forward then “” reverse at full speed.

4. Remove your foot from footswitch.

Result: Aerial platform should come to an instant and abrupt stop. If aerial platform does not stop immediately, or if aerial platform pulls to one side while stopping, do not operate aerial platform until brake adjustments have been checked.



- **Test Oscillating Axles**

**WARNING**

DO NOT operate any control on platform control console without proper fall protection secured to designated location in platform. Failure to avoid this hazard could result in death or serious injury!

1. Extend fly boom 12 in. (30 cm) while on a firm level ground.
Result: The steer axles should be locked.
2. Drive one of the steer tires up onto a 6 in. (15 cm) block or curb.
Result: An appropriate tilt of the aerial platform chassis should occur.
3. Retract fly boom while in tilt position.
Result: The steer axles should unlock and the aerial platform chassis should level itself to ground.

- **Test Cables (61T/66T)**

1. Raise the main boom to approximately horizontal.
2. Extend and retract the boom sections.
Result: There should be no delay in the movement of the fly boom section.

Section 2

MAINTENANCE TABLES AND DIAGRAMS

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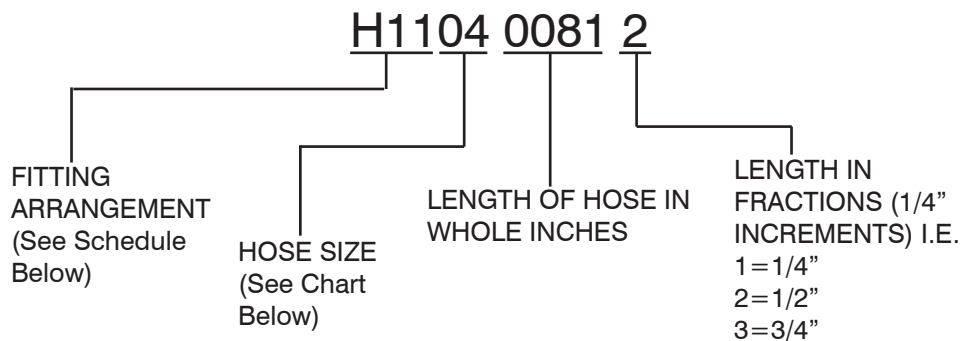
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Table 2.1 Standard Hose Numbering System



Using the number above as an example (H1104 0081 2). This hose requires a 37° JIC, female swivel fitting on one end. A medium length 90° JIC, female swivel fitting for the other end. The Hose must meet or exceed 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 (Continued on the following page)

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
H15	REUSABLE, FEMALE, 37° JIC, SWIVEL	REUSABLE, FEMALE, 37° JIC, SWIVEL	300 PSI

Table 2.1 Standard Hose Numbering System (Continued)**Fitting Arrangement Schedule (Continued from the previous page)**

Hose Prefix	Hose End Fitting	Hose End Fitting	S.A.E. Hose Specification
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, 37° JIC, SWIVEL	SHORT 90°, FEMALE, 37° JIC, SWIVEL	100R4
H21	FEMALE, 37° JIC, SWIVEL	SHORT 90°, FEMALE, 37° JIC, SWIVEL	100R2AT
H22	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R2AT
H23	FEMALE, 37° JIC, SWIVEL	LONG 90°, FEMALE, 37° JIC, SWIVEL	100R2AT
H24	FEMALE, 37° JIC, SWIVEL	SHORT 90°, FEMALE, 37° JIC, SWIVEL	100R13
H25	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R4
H26	SHORT 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H27	LONG 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H28	FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H29	45°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17
H30	MEDIUM 90°, FEMALE, 37° JIC, SWIVEL	FEMALE, 37° JIC, SWIVEL	100R17

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Table 2.2 Aerial Platform Torque Specifications

Location	Description	Torque (ft-lb)	Torque (Nm)
Base			
Trunnion Mount	BOLT, Hex head (3/4"-10 x 4.5", Grade 8)	210	285
Rear Axle Mount	BOLT, Hex head (M20 x 2.5 120mm, Grade 10.9)	210	285
Oscillating axle Mount	BOLT, Hex head (M20 x 2.5 120mm, Grade 10.9)	280	380
Lockout Cylinder Pin	BOLT, Hex head (3/8"-16 x 1", Grade 5)	23	31
Swing Drive Motor	BOLT, Hex head (3/4"-10 x 2", Grade 8)	280	380
Rotation Gear (40T / 45T)	BOLT, Hex head (5/8"-11 x 4.5", Grade 8)	205	278
Rotation Gear (61T / 66T)	BOLT, Hex head (3/4"-10 x 5", zinc, Grade 5)	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 (40T / 45T)	BOLT, Hex head (5/8"-11 x 4.5", Grade 8)	205	278
Rotation Gear (61T / 66T)	BOLT, Hex head (3/4"-10 x 4", zinc, Grade 5)	280	380
Engine (40T/45T)			
Deutz Engine Mount	BOLT, Hex head (1/2"-13 x 3.75", Grade 5)	55	75
Coupling Assembly (Deutz)	BOLT (M10)	29-33	39-45
Muffler	NUT	40	55
GM Engine Mount	NUT, Hex head (1/2"-13, Grade 5)	50	68
Cylinders			
Lift	ROD NUT	425	576
Extension (61T/66T)	ROD NUT	300	407
Extension (40T/45T)	ROD NUT	350	475
Master			
Slave			
Jib			
Axle Lockout			
Lift Cylinder Bracket (40T/45T)	BOLT, Hex head (3/4"-10 x 2.5", Grade 5)	210	285
	BOLT, Hex head (3/4"-10 x 2.5", Grade 8)	200	271
Master Cylinder Pin (40T/45T)	SCREW, Socket head cap (1/2"-13 x 1", nylon, patch, zinc)	80	108
Platform			
Rotary Mount	BOLT, Hex head, patch (3/8"-16 x 7/8", zinc, Grade 8)	35	48
	BOLT, Hex head (1"-8 x 10.5", zinc, Grade 8)	480	569
Rotary Manifold	BOLT, Hex head (1/2"-13 x 2", Grade 8)	80	108
Rotary Actuator	BOLT, Hex head (3/4"-10 x 3", Grade 8)	210	285
Load Cell Mounting (CE)	BOLT, Hex head patch (ZP, M16 x 1.5 x 4.5", Grade 8.8)	130	177
	BOLT, Hex head (1/2"-13 x 2.25", Grade 8)	80	108
Special Options (If equipped)			
Generator Support (40T/45T)	BOLT, Hex head (1/2"-13 x 2", Grade 8)	55	75
Oil Cooler Support (40T/45T)	BOLT, Hex head (1/2"-13 x 2", Grade 8)	55	75

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Table 2.3 Axles Torque Specifications

Size of Bolt		Type of Bolt					
		8.8		10.9		12.9	
		Normali Loctite 242 (Nm)	Loctite 270 (Nm)	Normali Loctite 242 (Nm)	Loctite 270 (Nm)	Normali Loctite 242 (Nm)	Loctite 270 (Nm)
Course 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

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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.

Table 2.4 Axles Maintenance Intervals

Operation		Frequency	Lubricants
Check Levels	Differential	monthly	SAE85W90 (API GL4 - MIL L-2105) With additives for oil-bath brakes
	Planetary reduction	every 200 hours	
Oil Change	Differential	every 800 hours *	
	Planetary reduction	every 1000 hours *	
	Self-locking differential gear	every 700 * &	

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

Adjustments and Checks			
Unit	Operation	Frequency	Service Brake Circuit
Negative Brake	Adjustment	every 1000 hours *	Only for mineral oil use, e.g., ATF Dexron II. Make sure that master cylinder seals are suitable for mineral oil.
Service Brake	Adjustment	every 500 hours	
Wheel Nuts	Tightening	every 200 hours	

* Initially after 100 working hours

& When it starts sounding noisy

Gear Box Lubricant Intervals	
Check levels	monthly
Oil change	once at 50 hours after every 1000 hours
Screw/bolt tighten	every 200 hours
Lubricant	SAE 90 oil API GL3

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	-	-

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Note: 1 Nm = 0.7376 ft-lb

Table 2.5 Tire Specifications

	SJ 40T/45T	SJ 61T/66T
Tire Size	12" x 16.5" (30.5 cm x 41.9 cm)	15" x 19.5" (38.1 cm x 49.5 cm)
Pressure	65 psi (448.2 kPa)	95 psi (655 kPa)
Tire Ply Rating	10	16
Wheel Nuts Torque	290 ft-lb (393.2 Nm)	290 ft-lb (393.2 Nm)

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**WARNING**

Intermixing tires of different types or using tires of types other than those originally supplied with this equipment can adversely affect stability. Therefore, replace tires only with the exact original Skyjack-approved type. Failure to operate with matched approved tires in good condition may result in death or serious injury.

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 aerial platform.

Table 2.6 Floor Loading Pressure

MODEL	Total Aerial Platform Weight		Total Aerial Platform Load					
			Wheel		LCP		OUP	
	lb.	kg	lb.	kg	psi	kPa	psf	kPa
SJ 40T (Standard configuration)	15,550	7,053	7,775	3,527	136	937.7	283	13.6
SJ 45T (Standard configuration)	16,350	7,416	8,175	3,708	137	944.6	292	14.0
SJ 61T (Standard configuration)	24,300	11,022	12,690	5,756	138	951.0	266	12.7
SJ 66T (Standard configuration)	27,800	12,610	14,240	6,459	145	1,001.0	304	14.6

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- Standard Configuration (40/45T) = 4WD + Oscillating Axle + 12" x 16.5" (30.5 cm x 41.9 cm) Air Tires
- Standard Configuration (61/66T) = 4WD + Oscillating Axle + 15"X19.5" (38.1cm x 49.5 cm) Air Tires
- Total Aerial Platform Weight = Weight + platform capacity
- LCP – Locally Concentrated Pressure – is a measure of how hard the aerial platform tire tread presses on the area in direct contact with the floor. The floor covering (tile, carpet, etc.) must be able to withstand more than the indicated values above.
- OUP – Overall Uniform Pressure – is a measure of the average load the aerial platform imparts on the whole surface projected directly underneath it. The structure of the operating surface (beams, etc.) must be able to withstand more than the indicated values above.
- 40/45T: Foam tires option will add approximately 800 lb. (362.9 kg) to total aerial platform weight and 200 lb. (91 kg) to max. wheel load. OUP will increase by 5% and LCP will increase by approx. 68%.
- 61/66T: Foam tires option will add approximately 1364 lb. (616 kg) to total aerial platform weight and 340 lb. (154 kg) to max wheel load. OUP will increase by 5% and LCP will increase by approx 18%.
- Welder option will add approximately 350 lb. (158.8 kg) to total aerial platform weight and 175 lb. (79.4 kg) to max. wheel load.

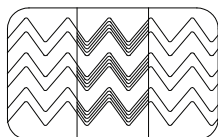
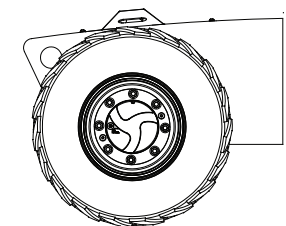
NOTE:

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

Locally Concentrated Pressure (LCP):

Foot Print Area = Tread Contact Area

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

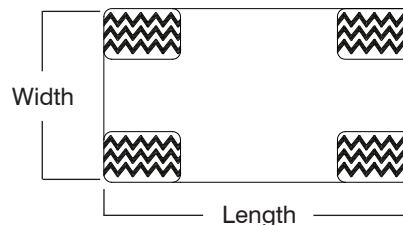
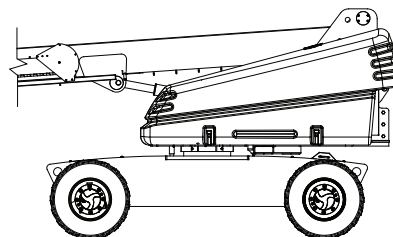


Tread Contact Area

Overall Uniform Pressure (OUP):

Base Area = Length x Width

$$\text{OUP} = \frac{\text{Aerial Platform Weight} + \text{Capacity}}{\text{Base Area}}$$

**WARNING**

Intermixing tires of different types or using tires of types other than those originally supplied with this equipment can adversely affect stability. Therefore, replace tires only with the exact original Skyjack-approved type. Failure to operate with matched approved tires in good condition may result in death or serious injury.

Table 2.7 Hydraulic Specifications

DESCRIPTION			SJ 40T / 45T	SJ 45T	SJ 61T / 66T	SJ 66T
			ANSI	CE	ANSI	CE
Pump Specifications	Drive Pump	Displacement - 2600 rpm	2.8 CIR 30 gpm @ 2600 rpm	46 CC	2.8 CIR 30 gpm @ 2600 rpm	46 CC
		Drive Pump Pressure	5000 psi	345 bar	4350 psi	300 bar
		Charge Pump Displacement	0.85 CIR	13.9 CC	0.85 CIR	13.9 CC
		Charge Pump Pressure	313 psi	22 bar	313 psi	22 bar
	System Pump	Displacement - Static	1.83 CIR / 20.6 gpm @ 2600 rpm	30 CC	1.83 CIR / 20.6 gpm @ 2600 rpm	30 CC
		System Pump Pressure	2175 psi	150 bar	3000 psi	207 bar
Filter Specifications		Charge Pump Filter	50 psi	9 μm/35	25 psi	9 μm/35
		High Pressure Filter	87 psi	10 μm/25	87 psi	10 μm/25
		Return Filter	25 psi	10 μm/60	25 psi	10 μm/60
Motor Specifications	Drive Motor	Displacement - Low	1.55 CIR / 15.2 gpm @ 2600 rpm	25 CC	0.88 CIR / 15.2 gpm @ 2600 rpm	14.4 CC
		Displacement - High	2.32 CIR / 22.8 gpm @ 2600 rpm	38 CC	2.32 CIR / 22.8 gpm @ 2600 rpm	38 CC
	Swing Motor	Motor Displacement	4 CIR / 39.4 gpm @ 2600 rpm	65.56 CC	4 CIR / 39.4 gpm @ 2600 rpm	65.56 CC
		Maximum Swing Pressure	1400 psi	96 bar	1400 psi	96 bar
Cylinder Specifications	Extension Cylinder	Bore	2.5 in.	6.4 cm	2.5 in.	6.35 cm
		Rod Diameter	1.5 in.	3.8 cm	3.5 in.	8.89 cm
		Stroke	175 in.	4.45 m	167 in.	4.45 m
		Maximum Boom Pressure	1500 psi	103 bar	3000 psi	207 bar
	Lift Cylinder	Bore	4 in.	10.2 cm	6 in.	15.24 cm
		Rod Diameter	3 in.	7.6 cm	3 in.	7.6 cm
		Stroke	60.52 in.	1.54 m	44.28 in.	1.12 m
		Maximum Lift Pressure	2175 psi	150 bar	3000 psi	207 bar
	Steering Cylinder	Differential Area	3.07 in.	7.8 cm	3.07 in.	7.8 cm
		Steering Cylinder Stroke	4.32 in.	10.9 cm	4.32 in.	10.9 cm
		Maximum Steering Pressure	2175 psi	150 bar	2175 psi	150 bar
For other component specifications, refer to hydraulic schematic.						

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Table 2.8a Specifications and Features

MODEL			SJ 40T	SJ 45T	SJ 61T	SJ 66T
Maximum Load Capacity			650 lb. (295 kg)	500 lb (227 kg)	500 lb (227 kg)	500 lb (227 kg)
Platform Size	Total Platform Length (Outside)		96 in. (243.8 cm)	96 in. (243.8 cm)	96 in. (243.8 cm)	96 in. (243.8 cm)
	Total Platform Depth (Outside)		36 in. (91.4 cm)	36 in. (91.4 cm)	36 in. (91.4 cm)	36 in. (91.4 cm)
Height	Working		44 ft. (13.4 m)	48 ft. (14.6 m)	65 ft. (19.8 m)	70 ft. (21.3 m)
	Platform Elevated		40 ft. (12.4 m)	45 ft. (13.7 m)	61 ft. (18.6 m)	66 ft. (20.1 m)
	Drive		driveable at all heights		driveable at all heights	
	Turret		7 ft. 10 in. (2.4 m)	7 ft. 10 in. (2.4 m)	8 ft. 5 in. (2.6 m)	8 ft. 5 in. (2.6 m)
Length	Overall with platform		25 ft. 5 in. (7.7 m)	28 ft. 10 in. (8.8 m)	30 ft. 4 in. (9.2 m)	33 ft. 11 in. (10.3 m)
	Base and tires		12 ft. 3 in. (3.7 m)	12 ft. 3 in. (3.7 m)	11 ft. 5 in. (3.5 m)	11 ft. 5 in. (3.5 m)
Width	Outside std. tires		7 ft. 6 in. (2.3 m)	7 ft. 6 in. (2.3 m)	8 ft. (2.4 m)	8 ft. (2.4 m)
	Turret		7 ft. 4 in. (2.2 m)	7 ft. 4 in. (2.2 m)	7 ft. 6 in. (2.3 m)	7 ft. 6 in. (2.3 m)
Weight	Weight (with air tires)		14,900 lb. (6,759 kg)	15,850 lb. (7,189 kg)	23,800 lb. (10,796 kg)	27,300 lb. (12,383 kg)
	Weight (with foam-filled tires)		15,700 lb. (7,121 kg)	16,650 lb. (7,552 kg)	25,200 lb. (11,431 kg)	28,700 lb. (13,018 kg)
Platform Rotation			170 degrees	180 degrees	170 degrees	180 degrees
Horizontal Reach			34 ft. (10.4 m)	39 ft. 9 in. (12.1 m)	51 ft. 3 in. (15.6 m)	57 ft. (17.4 m)
Wheelbase			8 ft. (2.4 m)	8 ft. (2.4 m)	8 ft. (2.4 m)	8 ft. (2.4 m)
Turret Rotation			360 degrees continuous		360 degrees continuous	
Turret Tailswing			3 ft. 1 in. (94 cm)	3 ft. 1 in. (94 cm)	3 ft. 11 in. (145 cm)	3 ft. 11 in. (145 cm)
Gradeability (torque equivalent to)			45%	45%	45%	45%
Ground Clearance Between Wheels			11 in. (28 cm)	11 in. (28 cm)	16 in. (41 cm)	16 in. (41 cm)
Turning Radius	Inside	2WD	7 ft. 7 in. (2.3 m)	7 ft. 7 in. (2.3 m)	9 ft. 3 in. (2.8 m)	9 ft. 3 in. (2.8 m)
		4WD	9 ft. (2.7 m)	9 ft. (2.7 m)	9 ft. 3 in. (2.8 m)	9 ft. 3 in. (2.8 m)
	Outside	2WD	17 ft. (5.2 m)	17 ft. (5.2 m)	16 ft. 7 in. (5.0 m)	16 ft. 7 in. (5.0 m)
		4WD	18 ft. 7 in. (5.7 m)	18 ft. 7 in. (5.7 m)	16 ft. 7 in. (5.0 m)	16 ft. 7 in. (5.0 m)
System Voltage			12 VDC		12 VDC	
Battery	Type		Lead Acid		Lead Acid	
	Cold Cranking Amperes		800 A		800 A	
Operating Times	Main boom up		30 - 40 seconds (approx.)		45 - 60 seconds (approx.)	
	Main boom down		30 - 40 seconds (approx.)		45 - 60 seconds (approx.)	
	Fly boom extend		30 - 40 seconds (approx.)		60 - 70 seconds (approx.)	
	Fly boom retract		30 - 40 seconds (approx.)		60 - 70 seconds (approx.)	
	Jib up		20 - 30 seconds (approx.)		20 - 30 seconds (approx.)	
	Jib down		14 - 24 seconds (approx.)		14 - 24 seconds (approx.)	
	Turret rotate - counterclockwise 360° (fully stowed)		70 - 110 seconds (approx.)		83 - 120 seconds (approx.)	
	Platform rotate - full		10 - 20 seconds (approx.)		10 - 20 seconds (approx.)	
Driving Speeds	Drive Speed (maximum-stowed)		4.5 mph (7.2 km/h)		4.5 mph (7.2 km/h)	
	Drive Speed (maximum-elevated)		0.5 mph (0.8 km/h)		0.5 mph (0.8 km/h)	

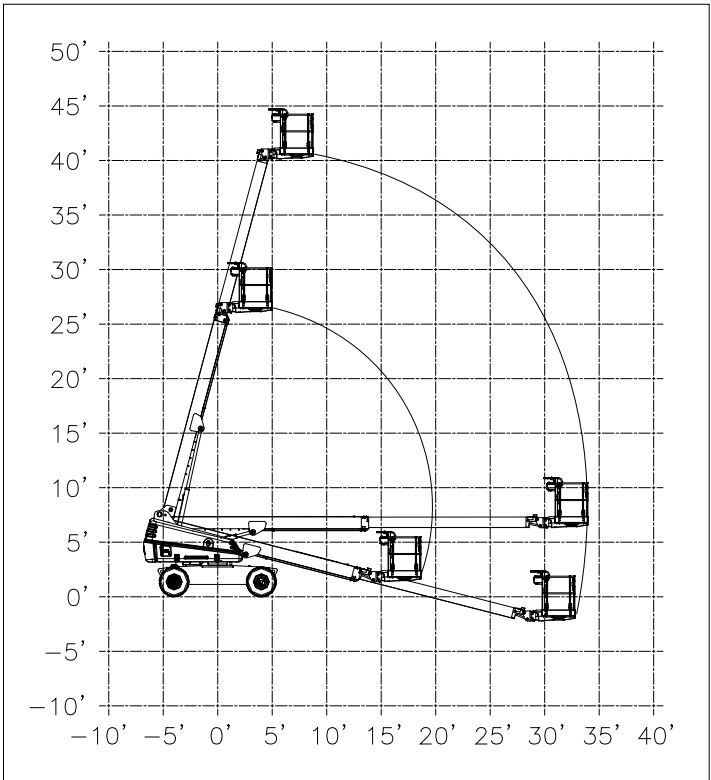
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Table 2.8b Specifications and Features

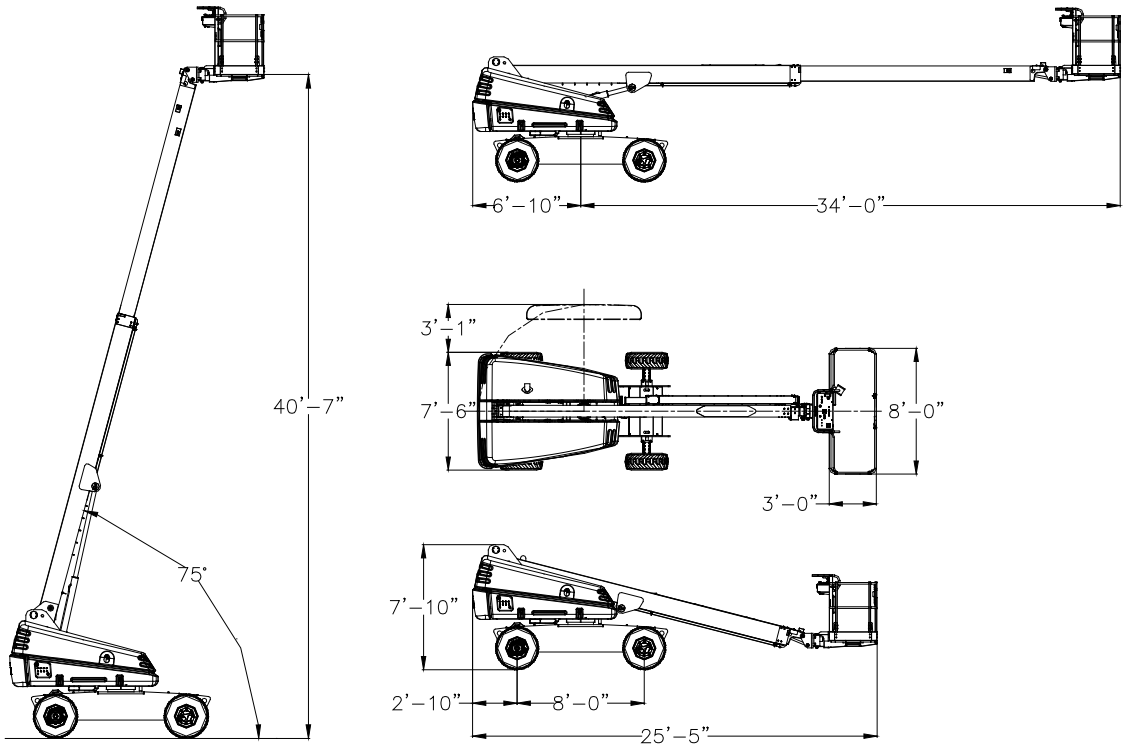
MODEL				SJ 40T	SJ 45T	SJ 61T	SJ 66T
Engine - Deutz	Engine Type			Deutz D2011L03i		Deutz D2011L04i	
	RPM Settings			1600 Low / 2100 / 2675 High		1600 Low / 2100 / 2675 High	
	Gross Intermittent HP			36 kW / 48 Hp		48 kW / 65 Hp	
	Horsepower @ 2600 rpm (intermittent)			34 kW / 45 Hp		48 kW / 65 Hp	
	Fuel Type			Diesel			
	Fuel Tank Capacity			45 gal (170.3 L)			
	Standard Oil Factory Fill	Ambient Temperature Limits	0°F to 115°F (- 18°C to +45°C)	SAE 15W-40 API CF/CG/CH-4			
	Cold Lube Oil Option		- 20°F to 90°F (- 29°C to +32°C)	SAE 5W-30 API CF/CG/CH-4			
	Arctic Lube Oil Option		- 40°F to 115°F (- 40°C to +45°C)	SAE 0W-40 API CF/CG/CH-4			
	Apporved Alternates			See Engine Manual			
Lube Oil Sump Capacity			1.45 gal (5.5 L)		2.64 gal (10.0 L)		
Engine - GM	Engine Type			3.0L GM Dual Fuel			
	RPM Settings			900 Low / 1600 / 2675 High			
	Gross Intermittent HP			46 kW / 62 Hp			
	Horsepower @ 2600 rpm (intermittent)			45 kW / 60 Hp			
	Fuel Type - Dual			Gasoline/Propane			
	Fuel Tank Capacity			45 gal (170.3 L)			
	Standard Oil Factory Fill	Ambient Temperature Limits	- 40°F to 115°F (- 40°C to +45°C)	SAE 5W-30 API SL			
	Apporved Alternates			See Engine Manual			
	Lube Oil Capacity			1.19 gal (4.5 L)			
	Standard Coolant	Ambient Temperature Limits	- 20°F to 115°F (- 29°C to +45°C)	GM 50/50 Extended Life Coolant			
	Arctic Coolant Option		- 40°F to 115°F (- 40°C to +45°C)	GM 60/40 Extended Life Coolant			
	Coolant Capacity			3.0 gal (11.4 L)			
Hydraulic Oil	Hyd Cooler Option	Ambient Temperature Limits	100°F to 115°F (+38°C to +45°C)	Oil cooler option recommended			
	Standard Factory Fill		-15°F to 100°F (-26°C to +38°C)	Shell Tellus T46			
	Arctic Oil Option		- 40°F to 100°F (- 40°C to +38°C)	Esso/Mobil UNIVIS HVI 26 Petro-Canada HYDREX EXTREME			
	Apporved Alternates		-15°F to 100°F (-26°C to +38°C)	Mobilfluid 424, Esso UNIVIS N46, Chevron Rycon MV			
			- 40°F to 80°F (- 40°C to +27°C)	Mobil DTE 13M, Esso UNIVIS N22 Petro-Canada HYDREX MV Arctic 15			
	Hydraulic Tank Capacity			59 gal (223.3 L)			

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Diagram 2.1 Dimension and Reach Diagram - SJ 40T

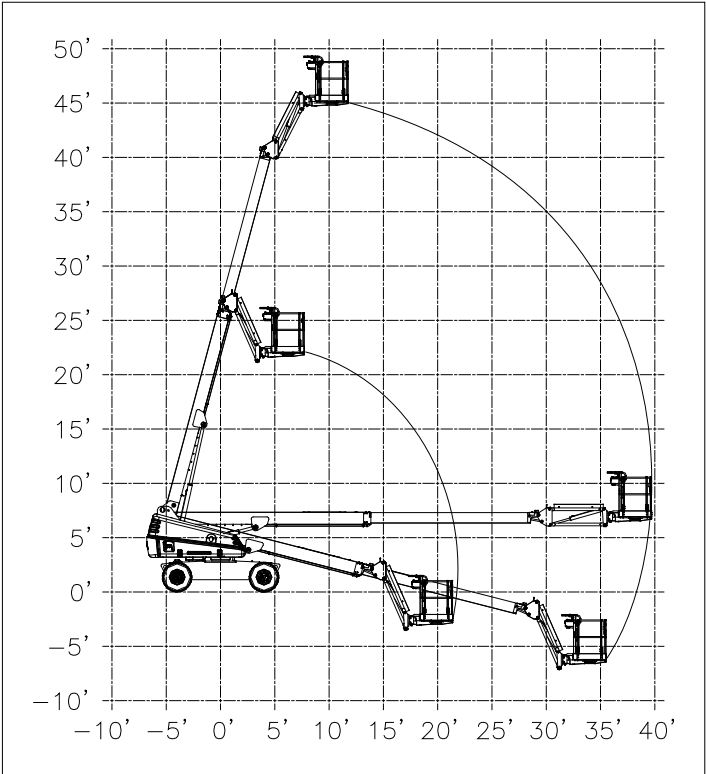


Reach Diagram - 40T

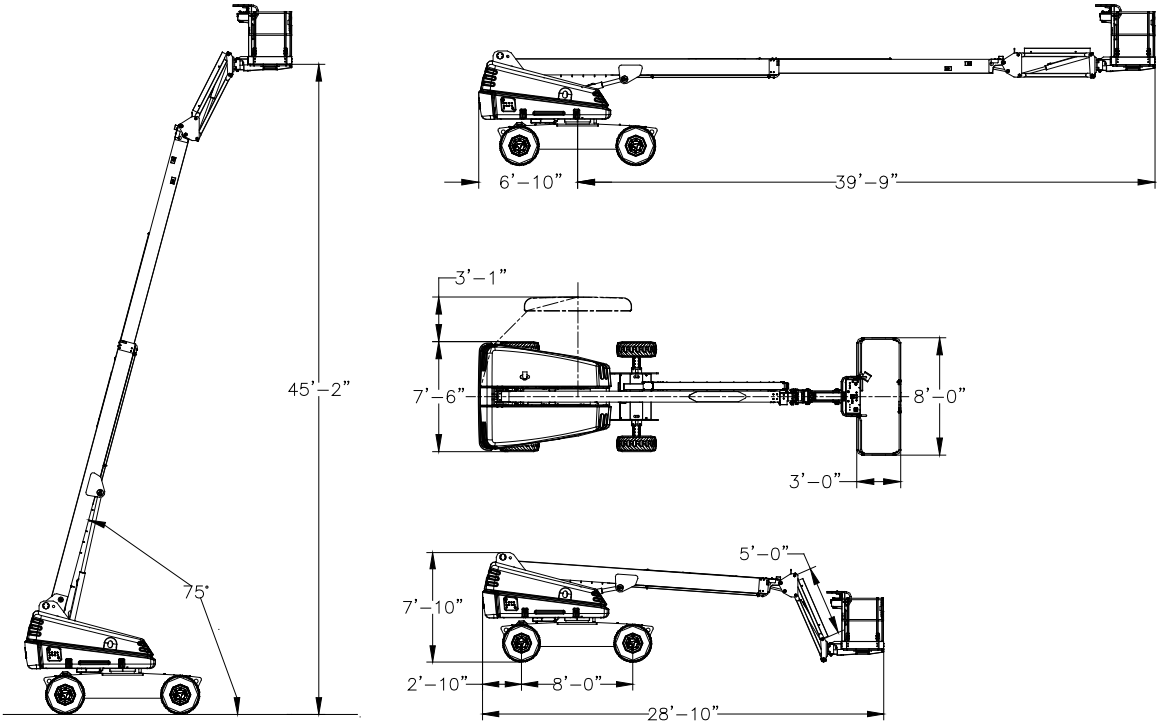


Dimensions - 40T

Diagram 2.2 Dimension and Reach Diagram - SJ 45T

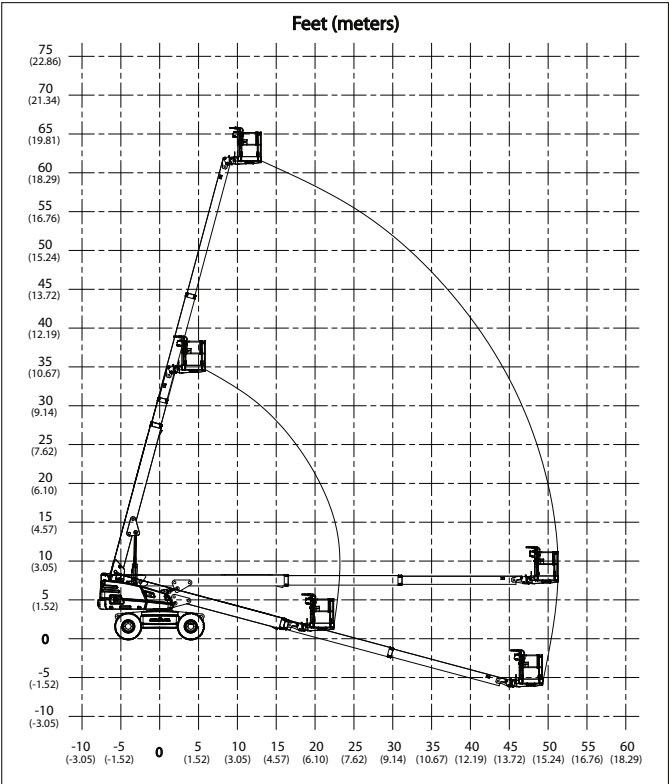


Reach Diagram - 45T

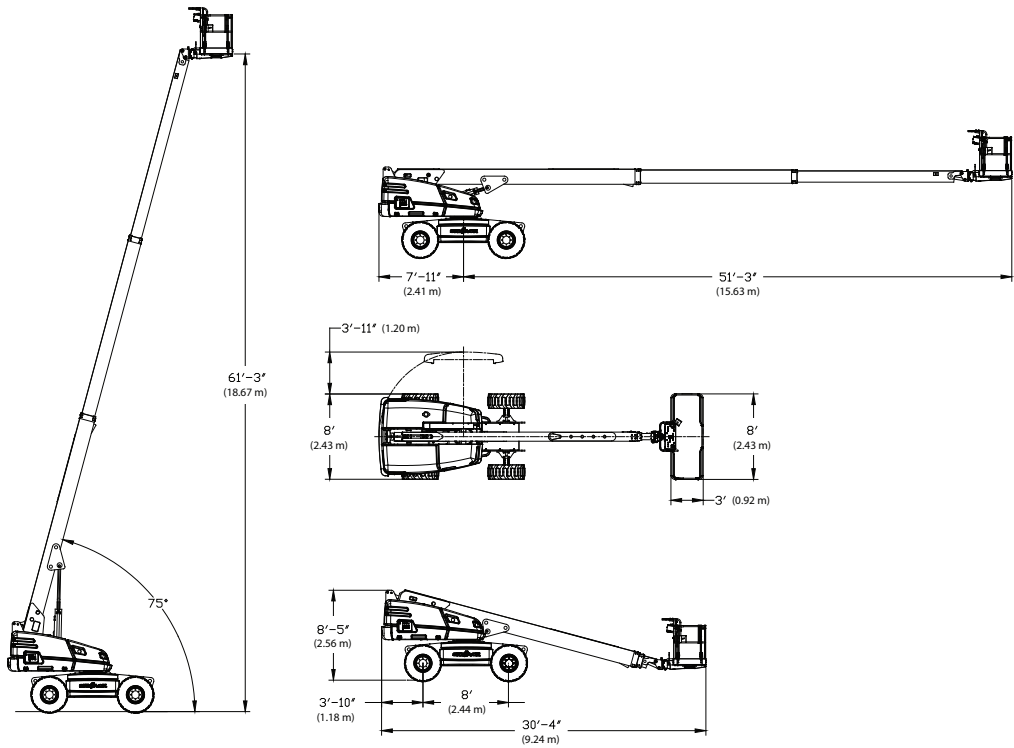


Dimensions - 45T

Diagram 2.3 Dimension and Reach Diagram - SJ 61T

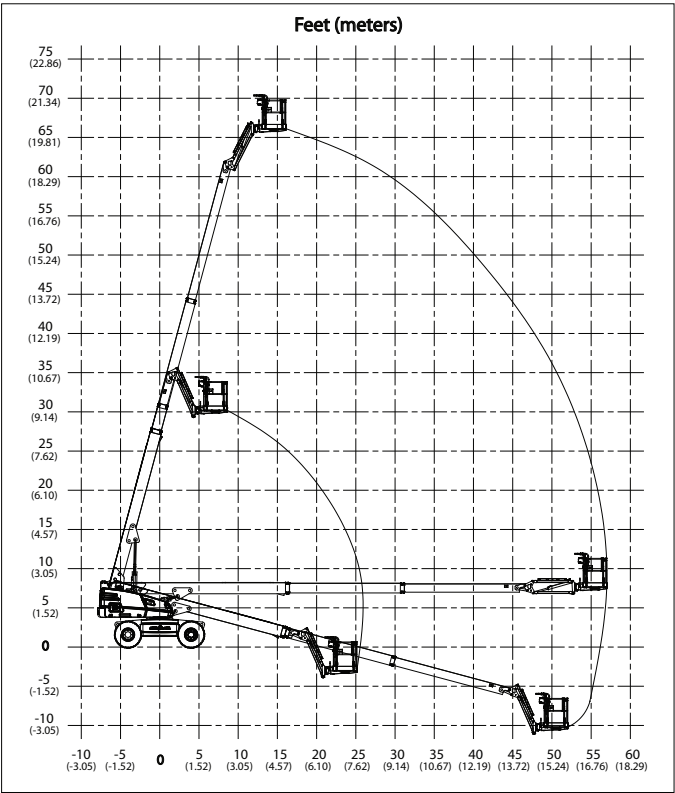


Reach Diagram - 61T

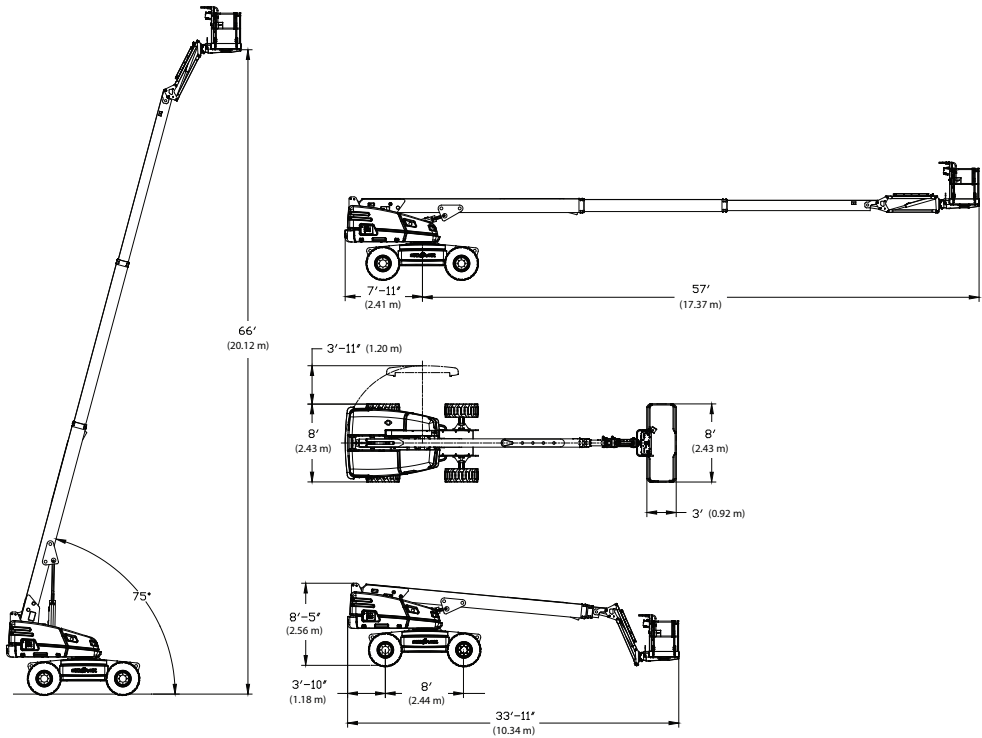


Dimensions - 61T

Diagram 2.4 Dimension and Reach Diagram - SJ 66T



Reach Diagram - 66T



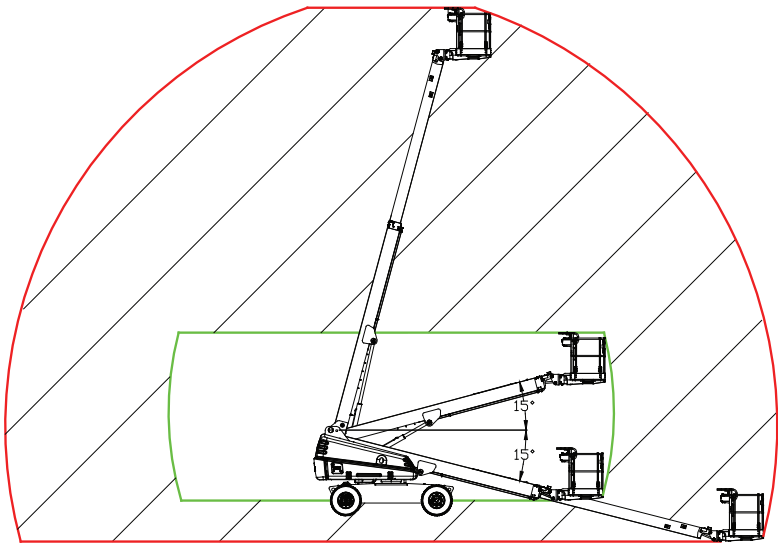
Dimensions - 66T



Diagram 2.5 Axle Oscillation Diagrams



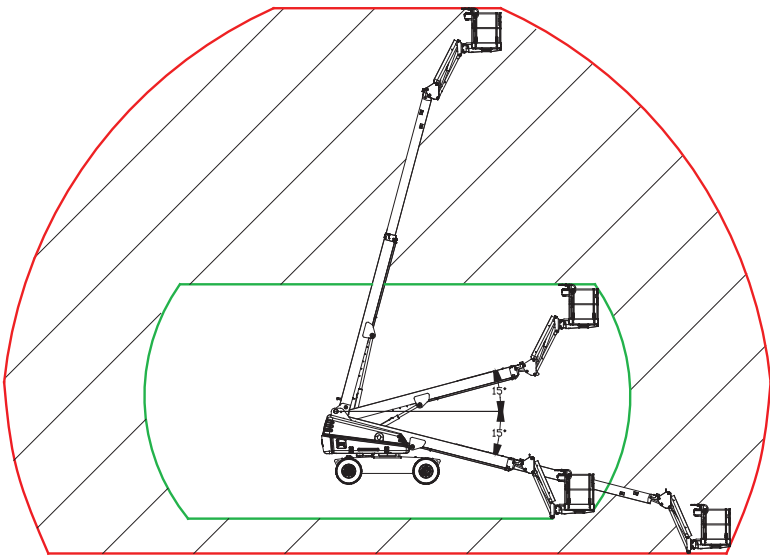
WARNING



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



-  Axle oscillation free (travel mode) - drive speed 4.5 mph max.
-  Axle oscillation locked (work mode) - drive speed 0.5 mph max.

Axle Oscillation - No Jib Boom



-  Axle oscillation free (travel mode) - drive speed 4.5 mph max.
-  Axle oscillation locked (work mode) - drive speed 0.5 mph max.

Axle Oscillation - Jib Boom

Section 3

SYSTEM COMPONENT IDENTIFICATION AND SCHEMATICS

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











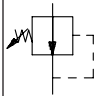




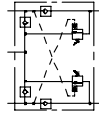



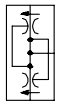



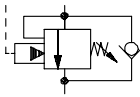





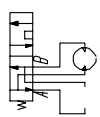


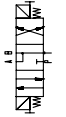
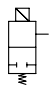

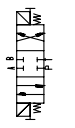
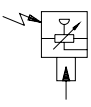


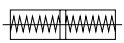
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


































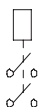
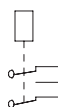

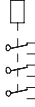


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3.1 Hydraulic Symbol Chart

	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						

3.2 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	

3.3 Wire Number and Color Code

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

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

3.4 Hydraulic Schematic Parts List

AB

Index No.	Skyjack Part No.	Qty.	Description
2H-21A	141408	1	VALVE, Pressure dump
2H-42	141418	1	VALVE, Control (Flow enable)
3H-15	141486	1	VALVE, Control (Drive pump control reverse)
3H-16	141486	1	VALVE, Control (Drive pump control forward)
3H-26	141435	1	VALVE, Control (Brake apply)
3H-45	141435	1	VALVE, Control (2 speed motor)
3H-65	139093	1	VALVE, Control (Axle lockout)
3H-V1	N/A	1	VALVE, Control (Pressure compensator)
3H-V2	N/A	1	VALVE, Control (Load sense compensator)
4H-13	141430	1	VALVE, Control (Boom lower)
4H-14	141430	1	VALVE, Control (Boom raise)
4H-23A	141410	1	VALVE, Control (Steering right)
4H-24A	141410	1	VALVE, Control (Steering left)
4H-32	141417	1	VALVE, Control (Boom rotation left)
4H-33	141417	1	VALVE, Control (Boom rotation right)
4H-34	141421	1	VALVE, Control (Jib lower)
4H-35	141421	1	VALVE, Control (Jib raise)
4H-36	141421	1	VALVE, Control (Platform rotate left)
4H-37	141421	1	VALVE, Control (Platform rotate right)
4H-38	141430	1	VALVE, Control (Boom retract)
4H-39	141430	1	VALVE, Control (Boom extend)
4H-40	141421	1	VALVE, Control (Platform leveling down)
4H-41	141421	1	VALVE, Control (Platform leveling up)
C1	138500	1	CYLINDER (Boom lift)
C2	138501	1	CYLINDER (Boom extension)
C3	138502	1	CYLINDER (Platform leveling - master)
C4	138503	1	CYLINDER (Platform leveling - slave)
C5	138504	1	CYLINDER (Jib lift)
C6	141046	1	CYLINDER (Front axle steering - 4WD)
C7	138171	1	CYLINDER (Axle lockout)
C8	138171	1	CYLINDER (Axle lockout)
C9	141083	1	CYLINDER (Front axle steering - 2WD)
CB1	141407	1	VALVE, Counterbalance (Main control)
CB2	141407	1	VALVE, Counterbalance (Main control)
CB3	144570	1	VALVE, Counterbalance (Swing drive)
CB4	144570	1	VALVE, Counterbalance (Swing drive)
CB5	701827	1	VALVE, Counterbalance (Boom lift)
CB6	141453	1	VALVE, Counterbalance (Boom extension)
CB7	141453	1	VALVE, Counterbalance (Boom extension)
CB8	710088	1	VALVE, Counterbalance (Platform leveling - slave)
CB9	710088	1	VALVE, Counterbalance (Platform leveling - slave)
CB10	701827	1	VALVE, Counterbalance (Jib lift)
CB11	701827	1	VALVE, Counterbalance (Jib lift)
CB12	141399	1	VALVE, Counterbalance (Platform rotary actuator)
CB13	141399	1	VALVE, Counterbalance (Platform rotary actuator)
CB14	104569	1	VALVE, Counterbalance (Axle lockout cylinder)
			Parts list continued on following page.

3.4 Hydraulic Schematic Parts List (Continued)

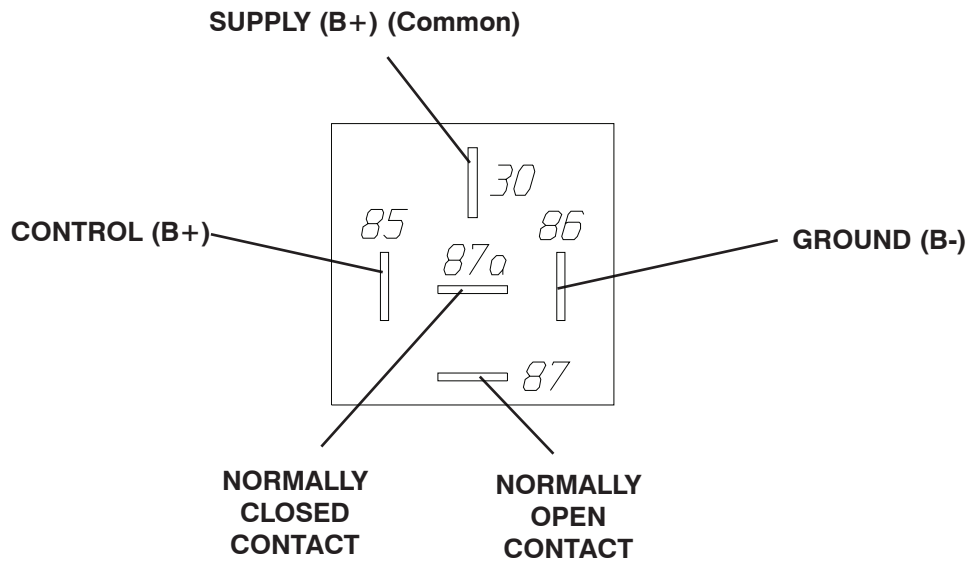
AC

Index No.	Skyjack Part No.	Qty.	Description
Parts list continued from previous page.			
CB15	104569	1	VALVE, Counterbalance (Axle lockout cylinder)
CB16	104569	1	VALVE, Counterbalance (Axle lockout cylinder)
CB17	104569	1	VALVE, Counterbalance (Axle lockout cylinder)
CV1	141404	1	VALVE, Check (Main control valve - P1)
CV2	141405	1	VALVE, Check (Main control valve - P2)
CV3	141406	1	VALVE, Check (Main control valve - steer)
CV4	141406	1	VALVE, Check (Main control valve - steer)
CV5	141412	1	VALVE, Check (Main control valve - steer)
CV6	141412	1	VALVE, Check (Main control valve - steer)
CV7	141406	1	VALVE, Check (Main control valve - DSV1)
CV8	141406	1	VALVE, Check (Main control valve - DSV2)
CV9	141406	1	VALVE, Check (Main control valve - DSV3)
CV10	141406	1	VALVE, Check (Main control valve - CB2)
CV11	141406	1	VALVE, Check (Main control valve - CB1)
CV12	141406	1	VALVE, Check (Main control valve - PP)
CV13	138406	1	VALVE, Check (Generator option)
CV14	141444	1	VALVE, Check (Brake valve - 247 psi spring)
CV15	N/A	1	VALVE, Check (EPU)
CV16	139205	1	VALVE, Check (Brake valve hand pump)
DSV1	141416	1	VALVE, Differential sensing (Swing)
DSV2	141416	1	VALVE, Differential sensing (Lift)
DSV3	141416	1	VALVE, Differential sensing (Extend)
EPU	706921	1	EMERGENCY POWER UNIT
F1	138398	1	FILTER, Charge pump (9 micron abs, 50 psi bp)
F2	139148	1	FILTER, high pressure (10 micron abs, 87 psi bp)
F3	138404	1	FILTER, return (10 micron abs, 25 psi bp)
GCV1	138405	1	VALVE, Generator control (110/120V Generator option)
GCV2	138989	1	VALVE, Generator control (Welder Generator option)
M1	138118	1	MOTOR, Drive (2 speed)
M2	138280	1	MOTOR, Turret rotation
M3	144419	1	MOTOR, Hydraulic (110/120V Generator option)
M4	146075	1	MOTOR, Hydraulic (Welder Generator option)
OR1	141420	1	ORIFICE, 0.078" (Main control valve)
OR2	141415	1	ORIFICE, 0.031" (Main control valve)
OR3	141415	1	ORIFICE, 0.031" (Main control valve)
OR4	141415	1	ORIFICE, 0.031" (Main control valve)
OR5	141423	1	ORIFICE, 0.040" (Main control valve)
OR6	141443	1	ORIFICE, 0.073" (Brake valve)
OR7	144120	1	ORIFICE (Generator LS)
P1	138116	1	PUMP, Drive
P1A	N/A	1	PUMP, Charge
P2	138117	1	PUMP, System
PR1	141438	1	VALVE, Control (Pressure reducing)
QD1	122420	1	QUICK DISCONNECT (CE)
Parts list continued on following page.			

3.4 Hydraulic Schematic Parts List (Continued)

AC

Index No.	Skyjack Part No.	Qty.	Description
Parts list continued from previous page.			
RA1	138232	1	ACTUATOR, Platform rotary
RA2	138280	1	ACTUATOR, Turret rotation swing drive
RV1	141287	1	VALVE, Relief (Drive pump)
RV2	141287	1	VALVE, Relief (Drive pump)
RV3	141230	1	VALVE, Relief (Drive pump)
RV4	141440	1	VALVE, Relief (Brake)
RV5	N/A	1	VALVE, Relief (EPU)
RV6	141403	1	VALVE, Relief (Main control swing drive)
RV7	141403	1	VALVE, Relief (Main control boom extend)
RV8	146015	1	VALVE, Relief (Main control clipping)
SV1	141439	1	VALVE, Shuttle (Brake valve)
SV2	141441	1	VALVE, Shuttle (Brake valve - M1 / M2)
SV3	141414	1	VALVE, Shuttle (Main control valve - RA / RB)
SV4	141414	1	VALVE, Shuttle (Main control valve - LA / LB)
SV5	141414	1	VALVE, Shuttle (Main control valve - EA / EB)
SV6	146014	1	VALVE, Shuttle (Boom rotation)
SV7	138394	1	VALVE, Shuttle (Generator option)
V1	141436	1	VALVE, Control (Brake release override)
V2	141442	1	VALVE, Control (Loop flush)
V3	141437	1	VALVE, Control (Brake hand pump)



Index No.	Skyjack Part No.	Qty.	Description
01CR	127131	1	RELAY, 12 Volt 40 Amp (e-pump)
08BCR	127131	1	ENABLE RELAY, 12 Volt 40 Amp
08CR	127131	1	RELAY, 12 Volt 40 Amp (engine start interlock)
09CR	127131	1	RELAY, 12 Volt 40 Amp (engine power on)
17ACR1	127131	1	RELAY, 12 Volt 40 Amp (steering reversal)
17ACR2	127131	1	RELAY, 12 Volt 40 Amp (steering reversal)
21CR	127131	1	RELAY, 12 Volt 40 Amp (dump valve)
49CR	127131	1	RELAY, 12 Volt 40 Amp (horn)
51CR	127131	1	RELAY, 12 Volt 40 Amp (drive enable)
51CR1	127131	1	RELAY, 12 Volt 40 Amp (tilt alarm)
54ACR	138844	1	RELAY, 12 Volt 80 Amp (SPST)
57ACR	127131	1	RELAY, 12 Volt 40 Amp (anti restart)
57BCR	127131	1	RELAY, 12 Volt 40 Amp (anti restart)
57BCR1	127131	1	RELAY, 12 Volt 40 Amp (engine start)
59CR	127131	1	RELAY, 12 Volt 40 Amp (optional axle lock)
60CR	127131	1	RELAY, 12 Volt 40 Amp (system power)
78CR	127131	1	RELAY, 12 Volt 40 Amp (high idle)
79CR	127131	1	RELAY, 12 Volt 40 Amp (low idle)
81CR	127131	1	RELAY, 12 Volt 40 Amp (optional light)
107CR	127131	1	RELAY, 12 Volt 40 Amp (level interlock)
2H-21A	143970	1	COIL, 12 Volt (Dump valve)
2H-42	143966	1	COIL, 12 Volt (Proportional flow enable)
			Parts list continued on the following page.

3.5 Electrical Component Parts List

AE

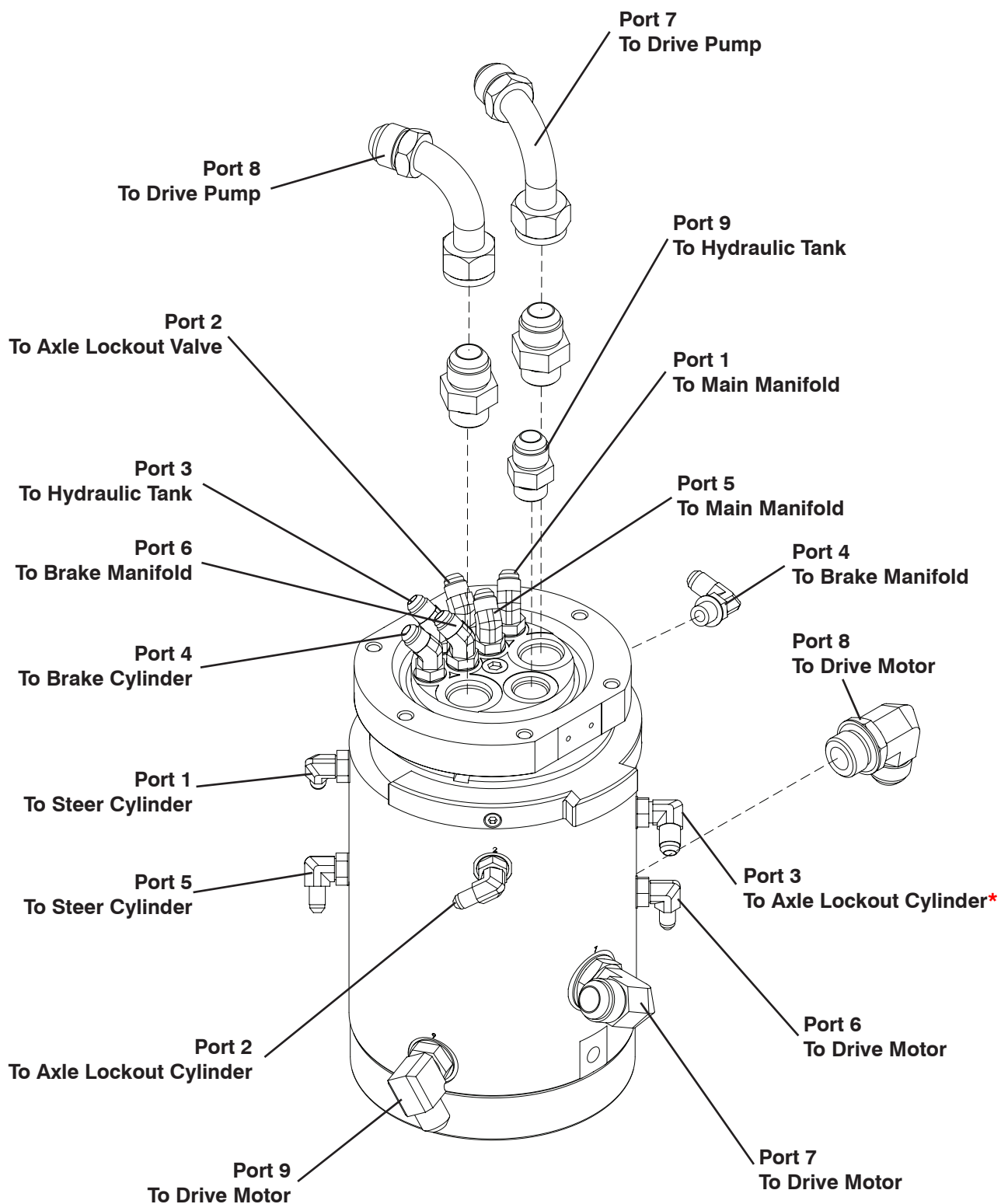
Index No.	Skyjack Part No.	Qty.	Description
Parts list continued on the following page.			
2H-85	143967	1	COIL, 12 Volt (Optional generator valve)
3H-45	143970	1	COIL, 12 Volt (Motor 2-speed valve)
3H-26	143970	1	COIL, 12 Volt (Brake valve)
3H-65	143966	1	COIL, 12 Volt (Optional axle lock valve)
4H-13	143964	1	COIL, 12 Volt (Boom down valve)
4H-14	143964	1	COIL, 12 Volt (Boom up valve)
3H-15	143965	1	COIL (Reverse drive valve)
3H-16	143965	1	COIL (Forward drive valve)
4H-23A	143968	1	COIL, 12 Volt (Right steer valve)
4H-24A	143968	1	COIL, 12 Volt (Left steer valve)
4H-32	143964	1	COIL, 12 Volt (Left turret rotate valve)
4H-33	143964	1	COIL, 12 Volt (Right turret rotate valve)
4H-34	143969	1	COIL, 12 Volt (Platform level down valve)
4H-35	143969	1	COIL, 12 Volt (Platform level down valve)
4H-36	143969	1	COIL, 12 Volt (Platform level down valve)
4H-37	143969	1	COIL, 12 Volt (Platform level down valve)
4H-38	143964	1	COIL, 12 Volt (Telescope in valve)
4H-39	143964	1	COIL, 12 Volt (Telescope out valve)
4H-40	143969	1	COIL, 12 Volt (Platform level down valve)
4H-41	143969	1	COIL, 12 Volt (Platform level up valve)
A1	138225	1	JOYSTICK, Boom/turret
A2	138224	1	JOYSTICK, Drive/steer
A3	138226	1	CONTROLLER, Speed control selector
B1	703719	1	BATTERY, 12V (wet)
B2	144527	1	BATTERY, 12V (450 CCA) (CE)
BP1	103057	1	BEEPER, 4-28 VDC Slow pulsing (Platform control console)
BP2	103056	1	BEEPER, 7.5-16 VDC (Base control console)
BP3	144387	1	ALARM, Overload (CE)
CB1	117325	1	CIRCUIT BREAKER, 15 Amp
CB2	117325	1	CIRCUIT BREAKER, 15 Amp
CB3	117325	1	CIRCUIT BREAKER, 15 Amp
CB4	141630	1	CIRCUIT BREAKER, 15 Amp
CB5	141631	1	CIRCUIT BREAKER, 50 Amp
DXX	102921	AR	DIODE
FU1	138848	1	FUSE, 50 Amp
FU2	121504	1	FUSE, 20 Amp (If equipped)
FS1	136119	1	SWITCH, Low fuel
H1	102850	1	HORN, 12 Volt
LB2	143971	1	LIGHT, Optional strobe
LB4	138806	1	LIGHT, Optional chassis
LB5	138806	1	LIGHT, Optional chassis
LS1	133075	1	LIMIT SWITCH, High drive tilt override NO, held closed
LS2	133075	1	LIMIT SWITCH, Direction sensing, NC held open
LS3	138719	1	LIMIT SWITCH, Fly, NO, held closed (SJ 45T)
	138720	1	LIMIT SWITCH, Fly, NO, held closed (SJ 40T)
Parts list continued on the following page.			

3.5 Electrical Component Parts List (Continued)

AD

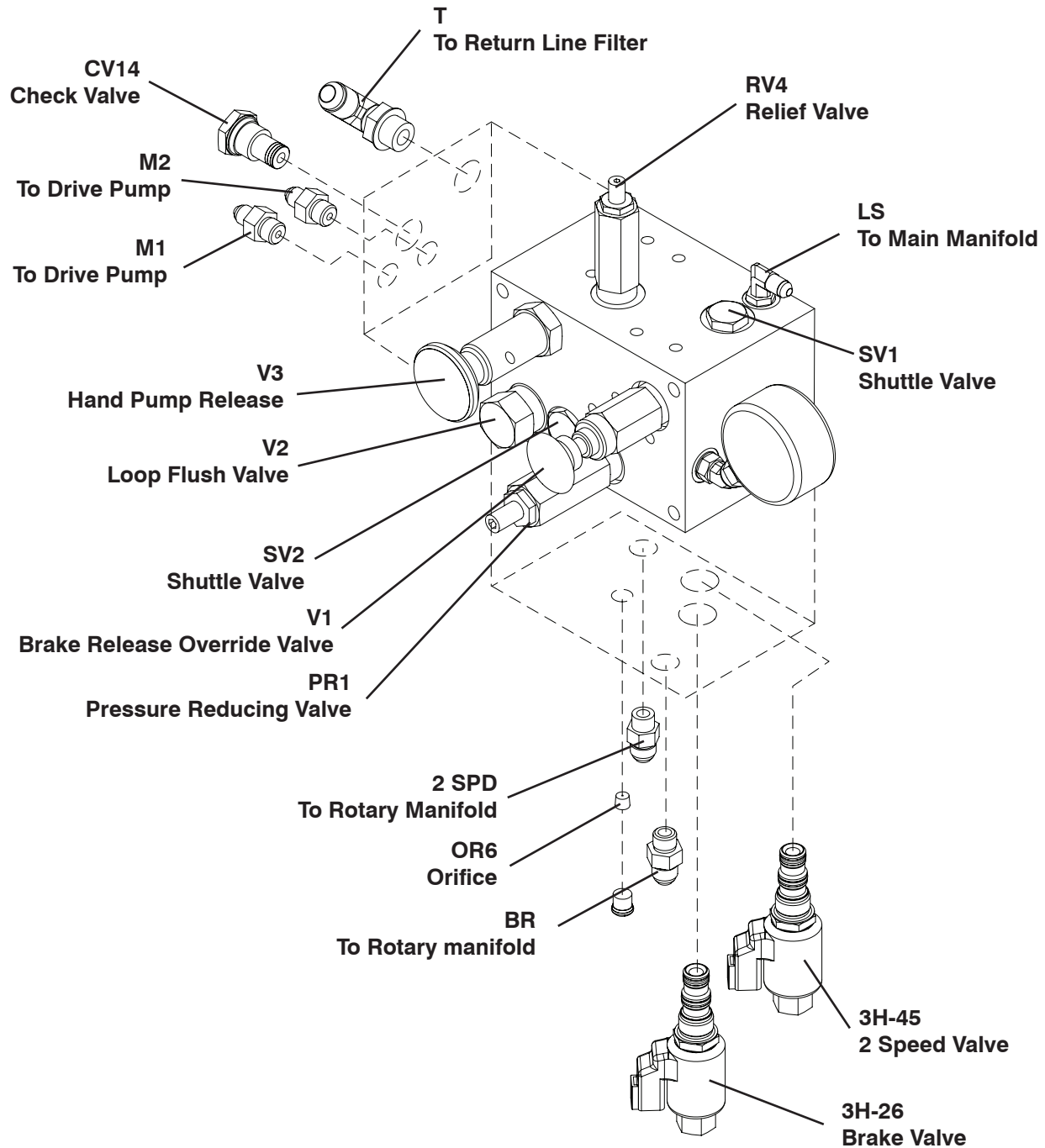
Index No.	Skyjack Part No.	Qty.	Description
Parts list continued on the following page.			
M1	706921	1	PUMP, Emergency
PL1	138228	1	MODULE, Lower indicating (Base control console)
PL2	138229	1	MODULE, Upper indicating (Platform control console)
PL3	137785	1	SWITCH, LED block (Emergency stop) (Base control console)
PL4	137785	1	SWITCH, LED Block (Emergency stop) (Platform control console)
R1	139088	1	RESISTOR, (6 OHM 25 watt) (ANSI/CSA)
	144523	1	RESISTOR, (7 OHM 25 watt) (CE)
R2	139089	1	RESISTOR, (12 OHM 25 watt) (SJ 45T)
	139196	1	RESISTOR, (15 OHM 25 watt) (SJ 40T)
R3	139080	1	RESISTOR, (30 OHM 3 Watt, wire wound)
R4	139080	1	RESISTOR, (30 OHM 3 Watt, wire wound)
R5	143952	1	RESISTOR, (51 OHM 2 Watt)
R6	144523	1	RESISTOR, (680 OHM 1 watt, axial lead 2%) (CE)
S1	119725	1	SWITCH, Main power disconnect
	108714	1	LEVER, Locking
S2	138277	1	KEYSWITCH, Base/off platform
S3	137783	2	NC CONTACT, Emergency stop (Base control console)
S4	137783	2	NC CONTACT, Emergency stop (Platform control console)
S5	138278	1	SWITCH, Ignition/emergency pump toggle (Base control console)
S6	138278	1	SWITCH, Ignition/emergency toggle (Platform control console)
S7	102853	1	SWITCH, Function enable toggle (Base control console)
S8	102853	1	SWITCH, Diagnose toggle (Base control console)
S9	102853	1	SWITCH, Diagnose toggle (Base control console)
S10	115747	1	SWITCH, Throttle toggle (Platform control console)
S11	138721	1	ASSEMBLY, Footswitch
S12	138278	1	SWITCH, Boom up/down toggle (Base control console)
S13	102853	1	SWITCH, Turret rotate toggle (Base control console)
S14	102853	1	SWITCH, Telescope in/out toggle (Base control console)
S15	102853	1	SWITCH, Platform leveling toggle (Base control console)
S16	102853	1	SWITCH, Platform rotate toggle (Base control console)
S17	102853	1	SWITCH, Jib up/down toggle (Base control console) (SJ 45T)
S18	102853	1	SWITCH, Telescope in/out toggle (Platform control console)
S19	102853	1	SWITCH, Platform leveling toggle (Platform control console)
S20	102853	1	SWITCH, Platform rotate toggle (Platform control console)
S21	102853	1	SWITCH, Jib up/down toggle (Platform control console) (SJ 45T)
S22	115747	1	SWITCH, Electrical generator
S23	137782	1	NO SPRING CONTACT, Horn (Platform control console) (ANSI/CSA)
	102853	1	SWITCH, Horn (Platform control console) (CE)
S24	115574	1	SWITCH, Optional lights (Platform control console)
S25	137782	1	NO SPRING CONTACT, Engine enable (Platform control console) (CE)
S48	115574	1	SWITCH, Drive torque toggle (Platform control console)
TS1	139014	1	SWITCH, Tilt (5°/ 5°)
TT1	103336	1	HOUR METER
X22	138576	1	PORT, Diagnose
X23	138575	1	CONNECTOR, Engine

3.6 Rotary Manifold and Port Identifications



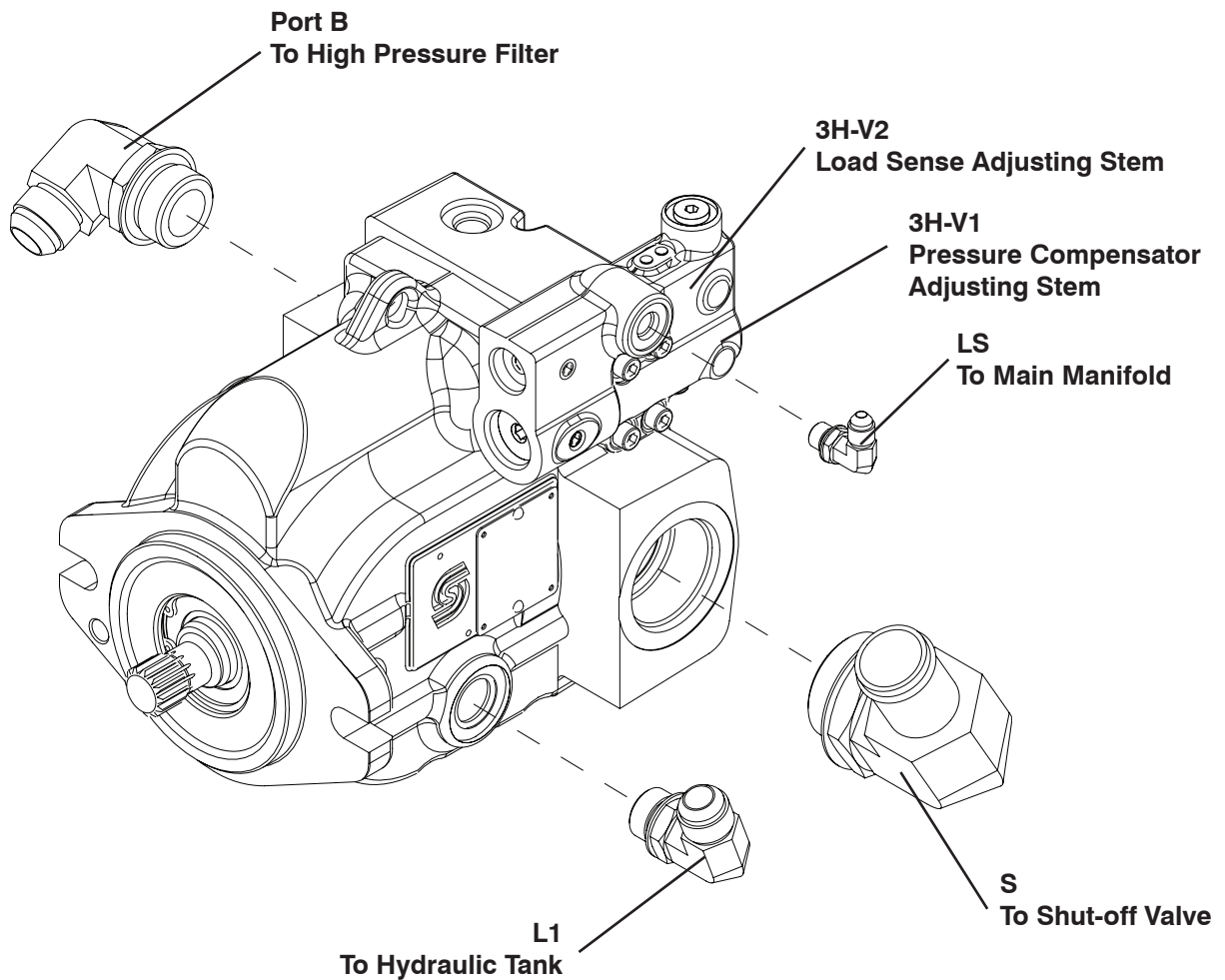
M139167AA_S3

3.7 Brake Manifold and Port Identifications



M139131AA_S3

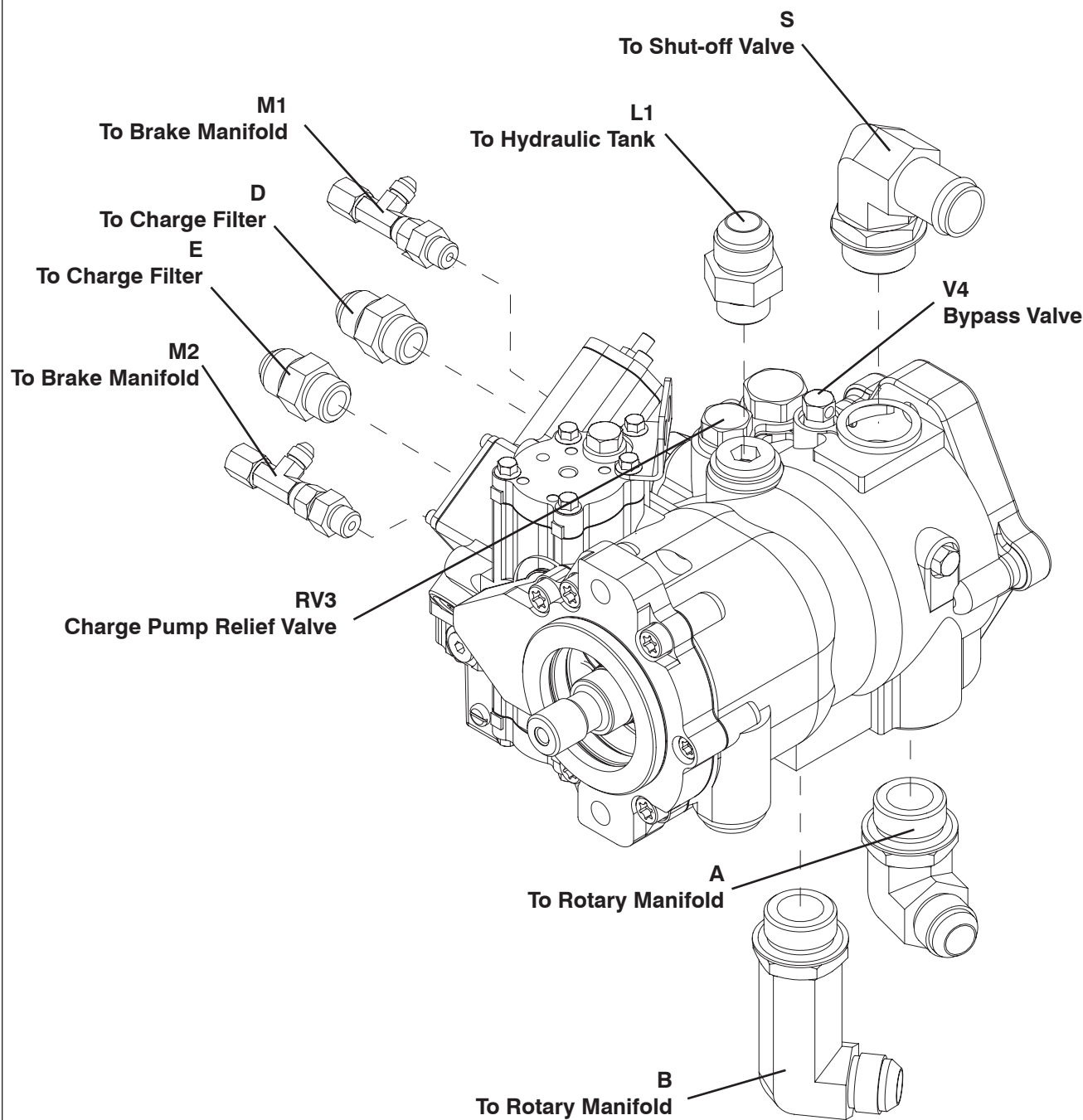
3.8 System Pump and Port Identifications



(For pressure adjustment, refer to [section 5](#))

M138117AA_S3

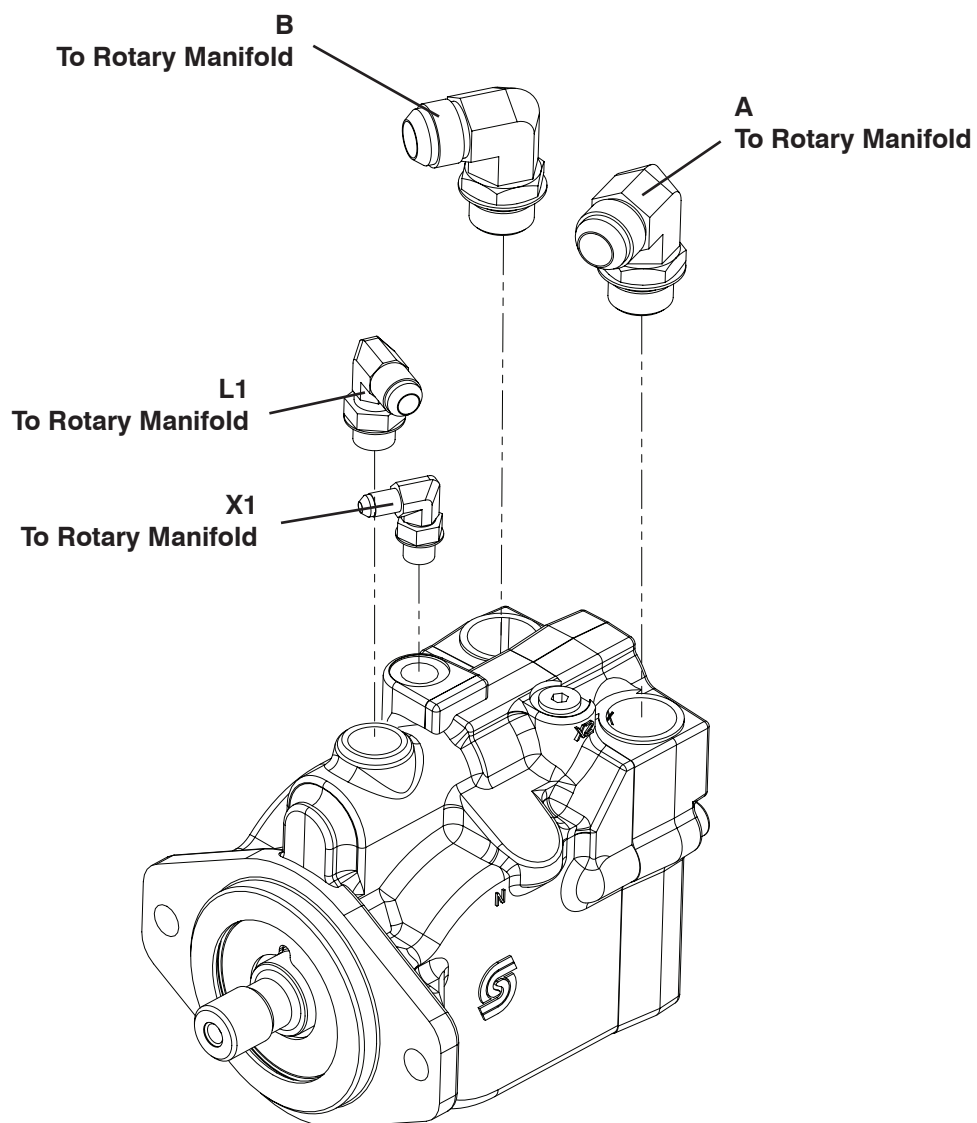
3.9 Drive Pump and Port Identifications



(For pressure test, refer to [section 5](#))

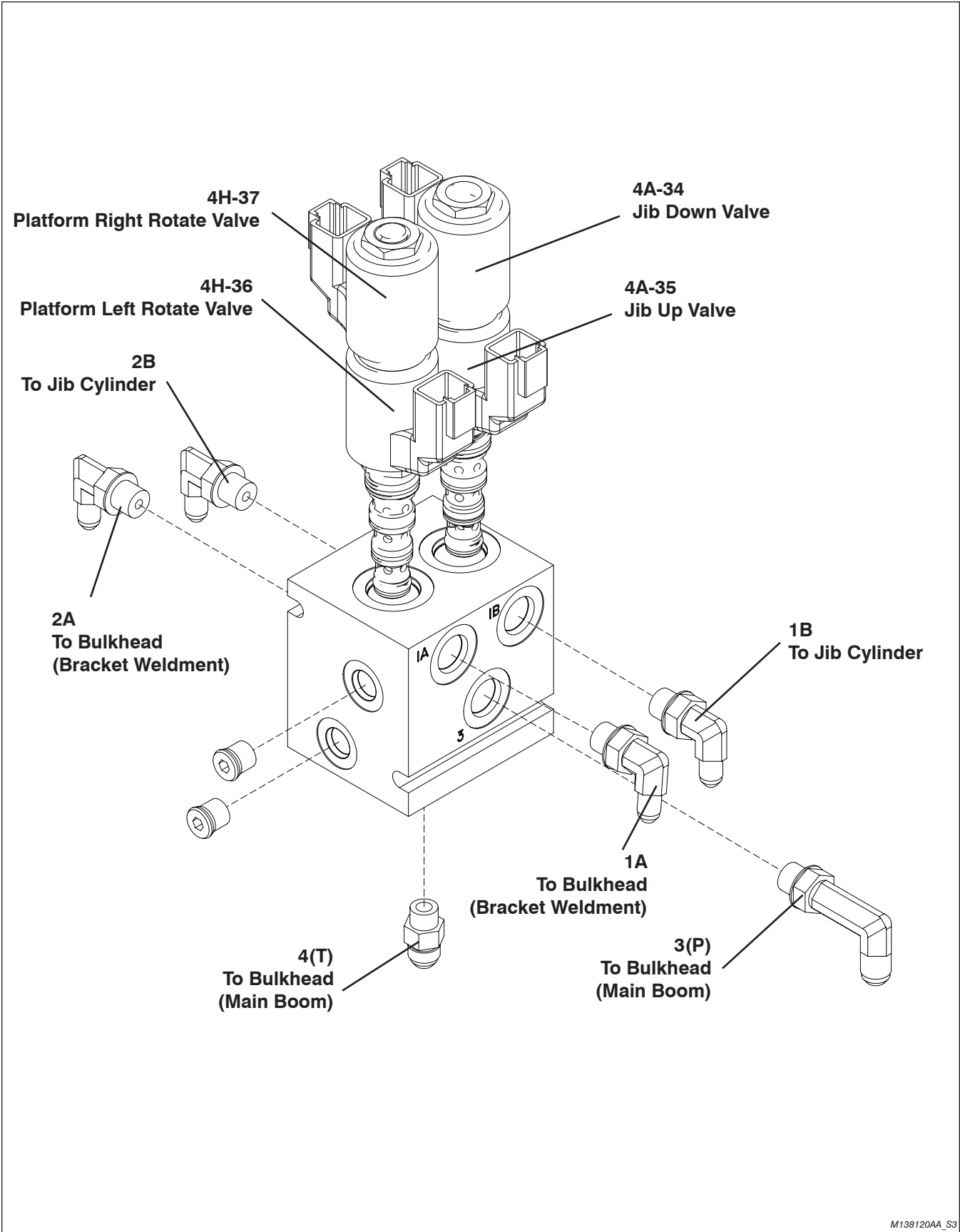
M138116AA_S3

3.10 Drive Motor and Port Identifications



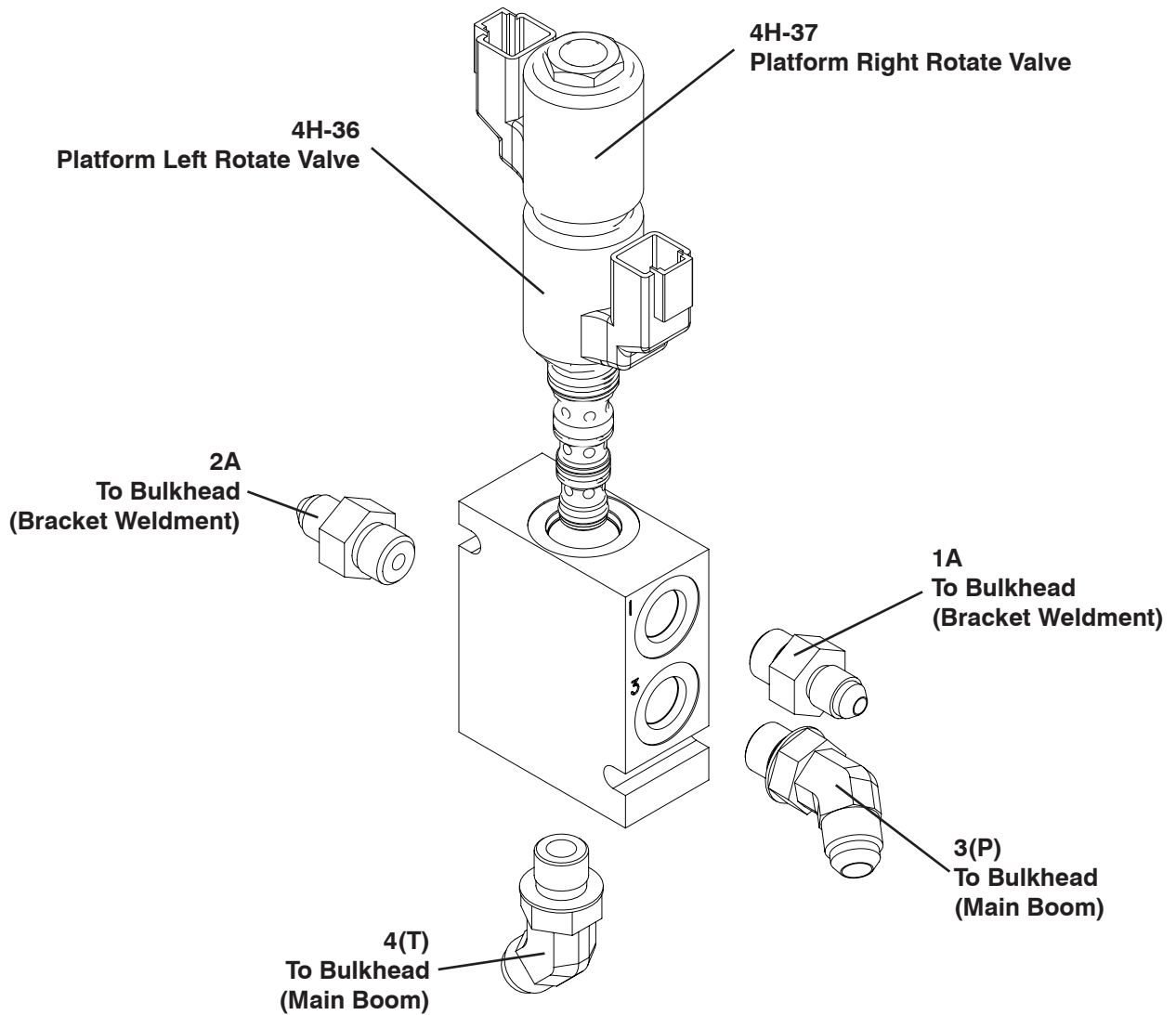
M138118AA_S3

3.11 Jib Valve and Port Identifications



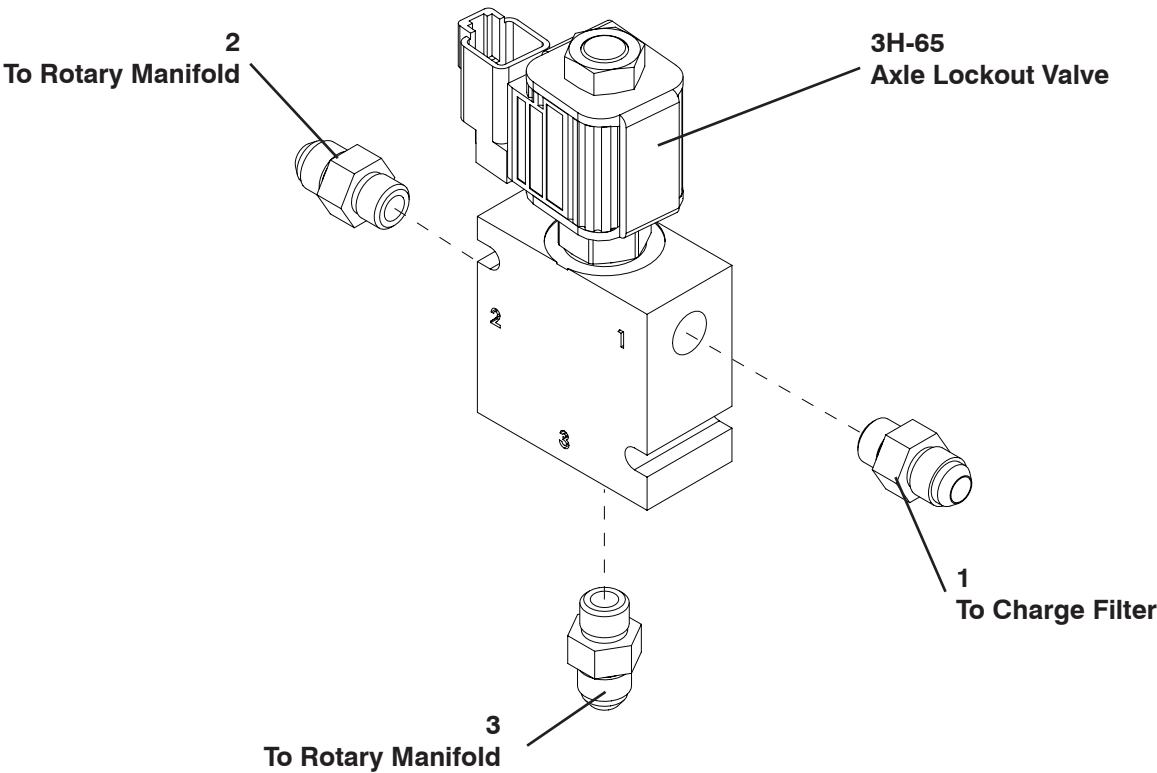
M138120AA_S3

3.12 No Jib Valve and Port Identifications



M138395AA

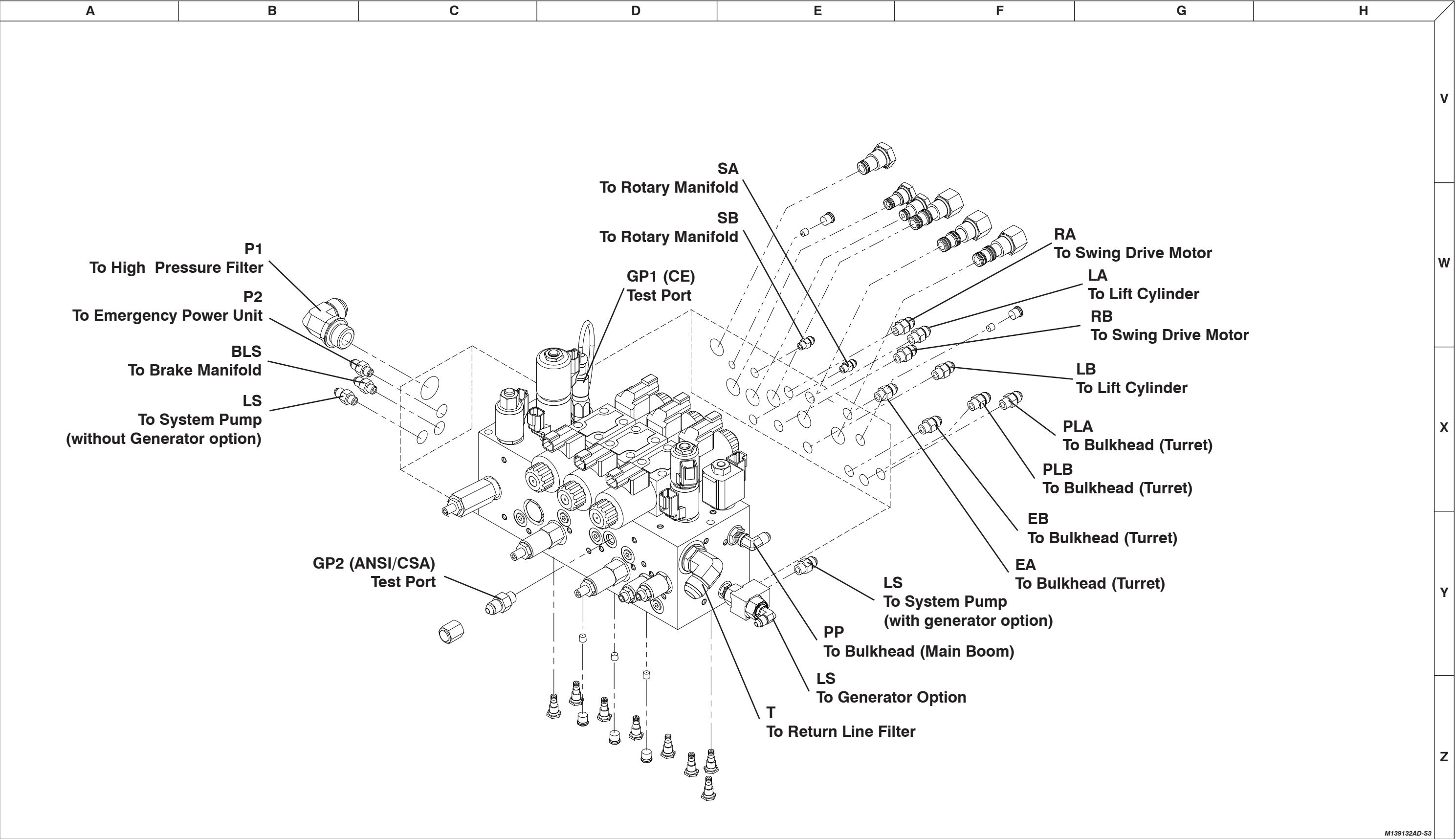
3.13 Axle Lockout Valve and Port Identifications



M139133AA_S3

3.14a Main Manifold and Port Identifications

AD



V

W

X

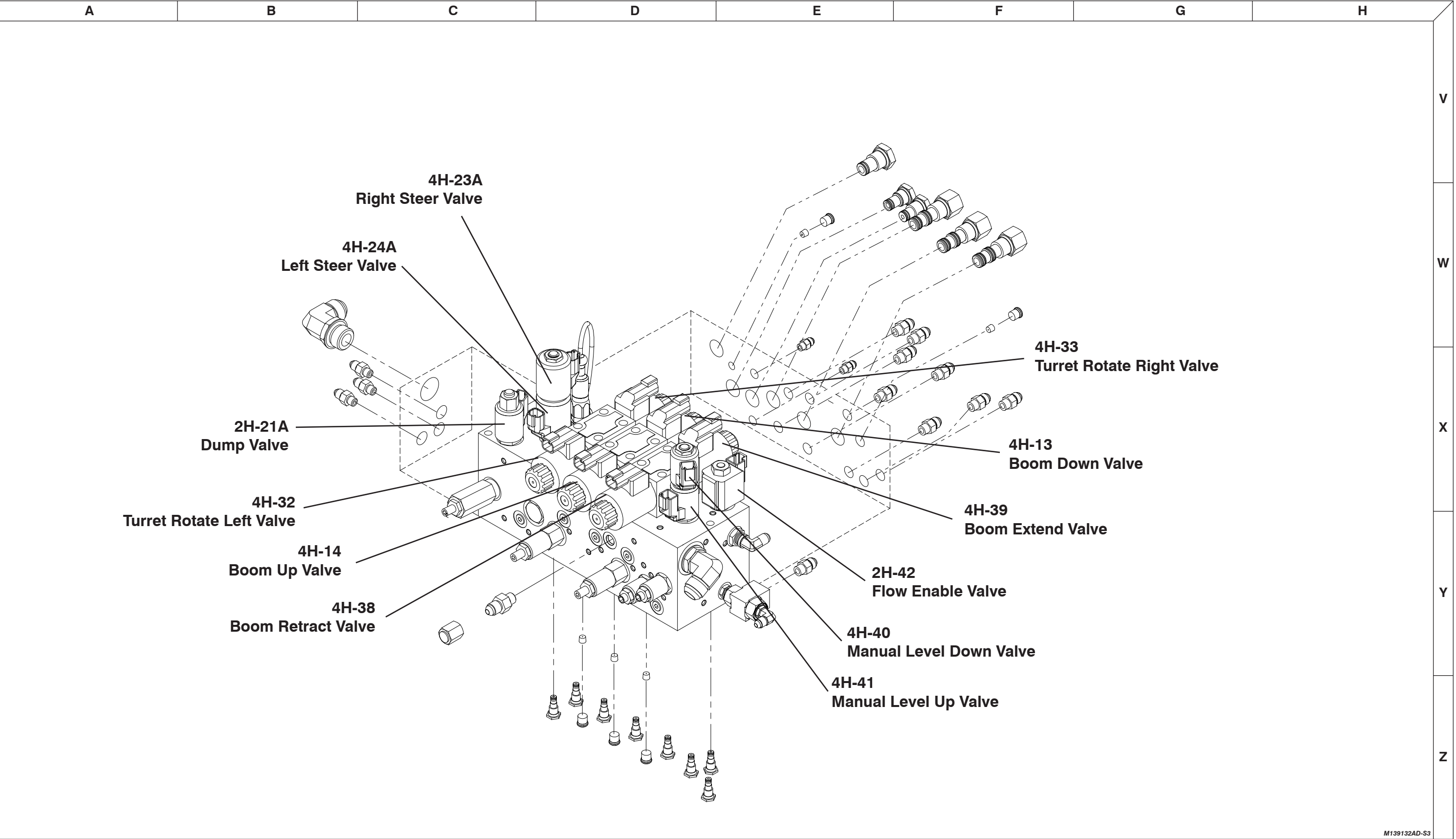
Y

Z

M139132AD-S3

3.14b Main Manifold and Electrical Identifications

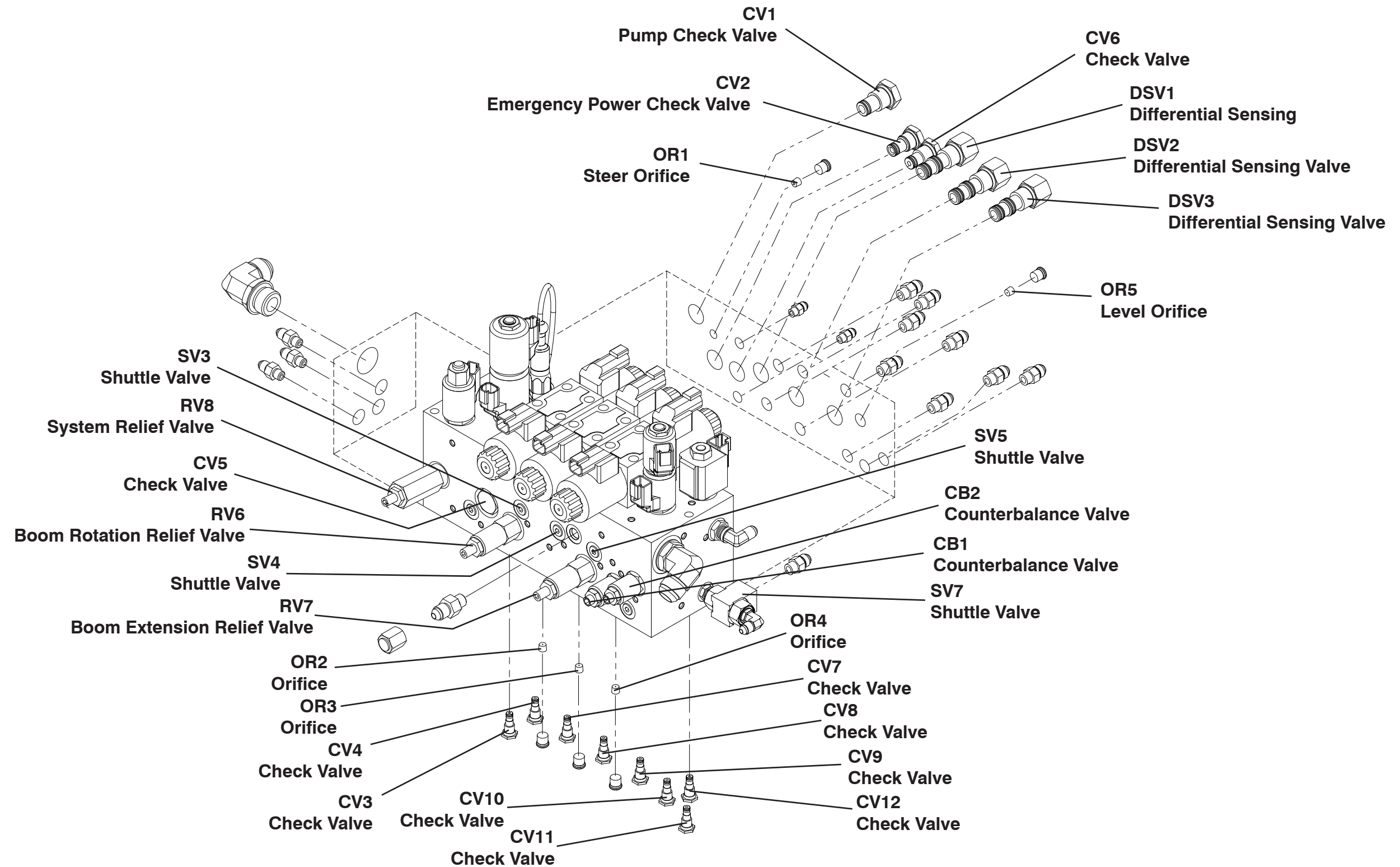
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M139132AD-S3

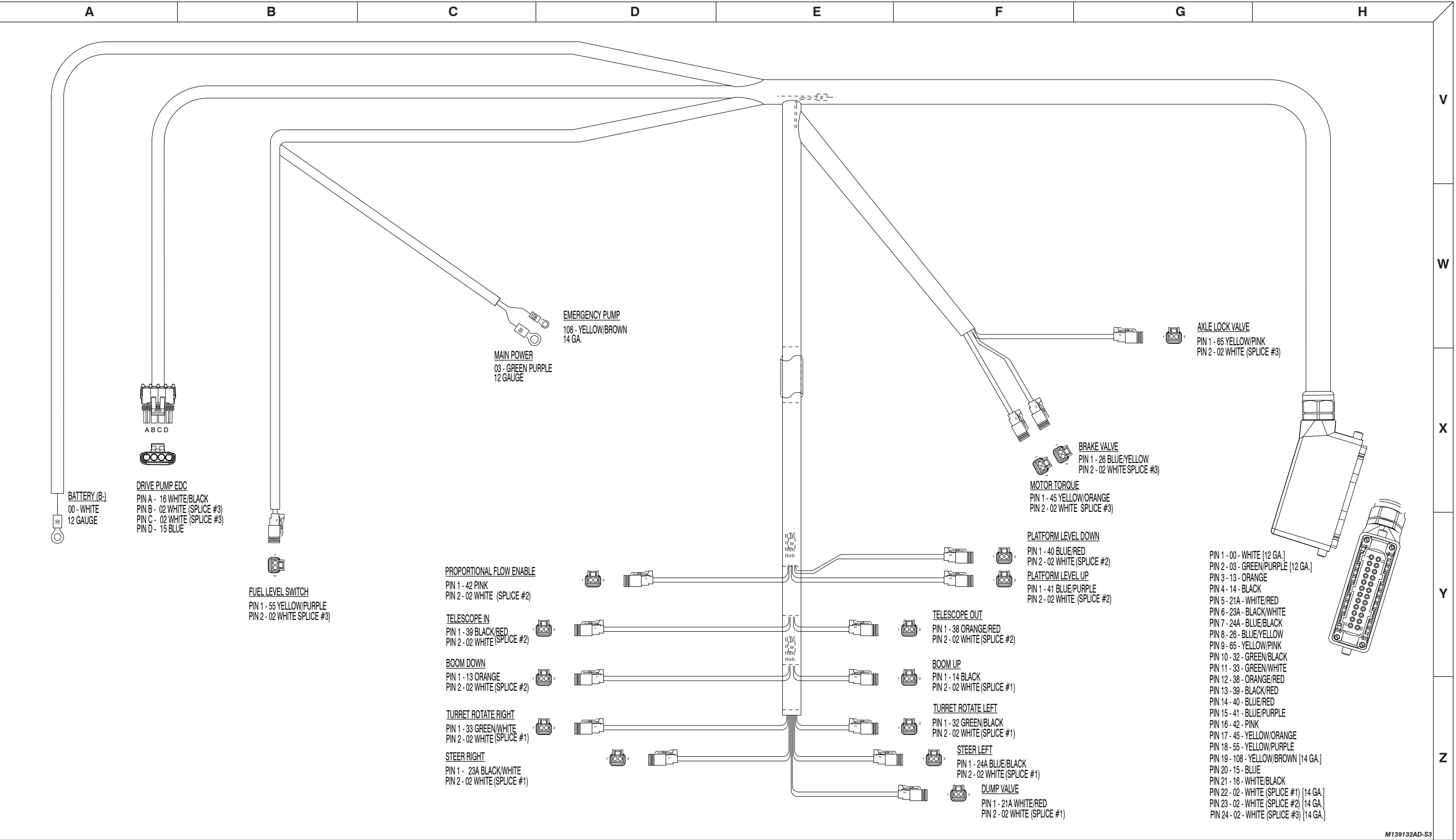
3.14c Main Manifold and Hydraulic Identifications

AB



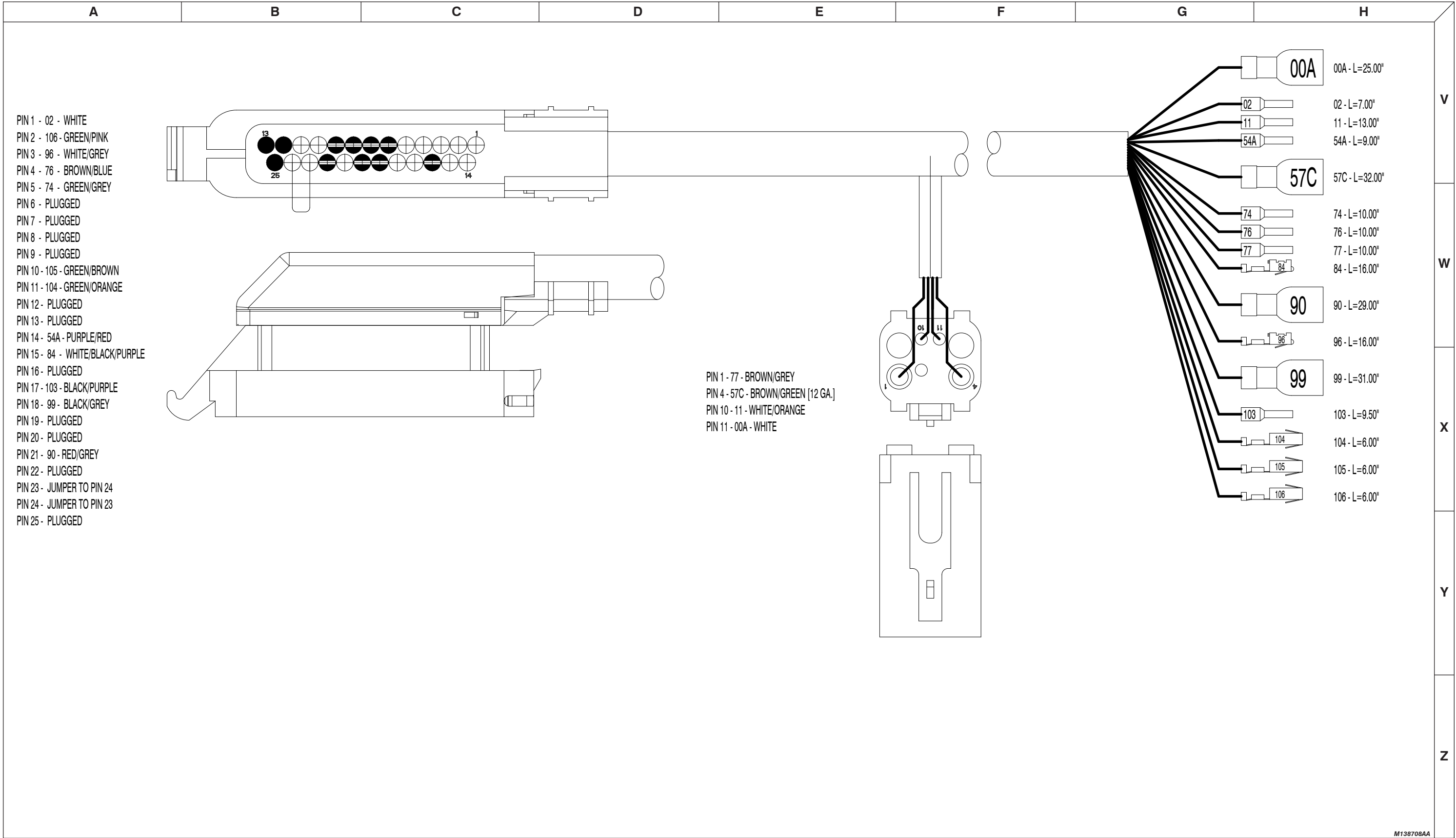
M139132AD-S3

3.15 Main Harness Wiring Diagram



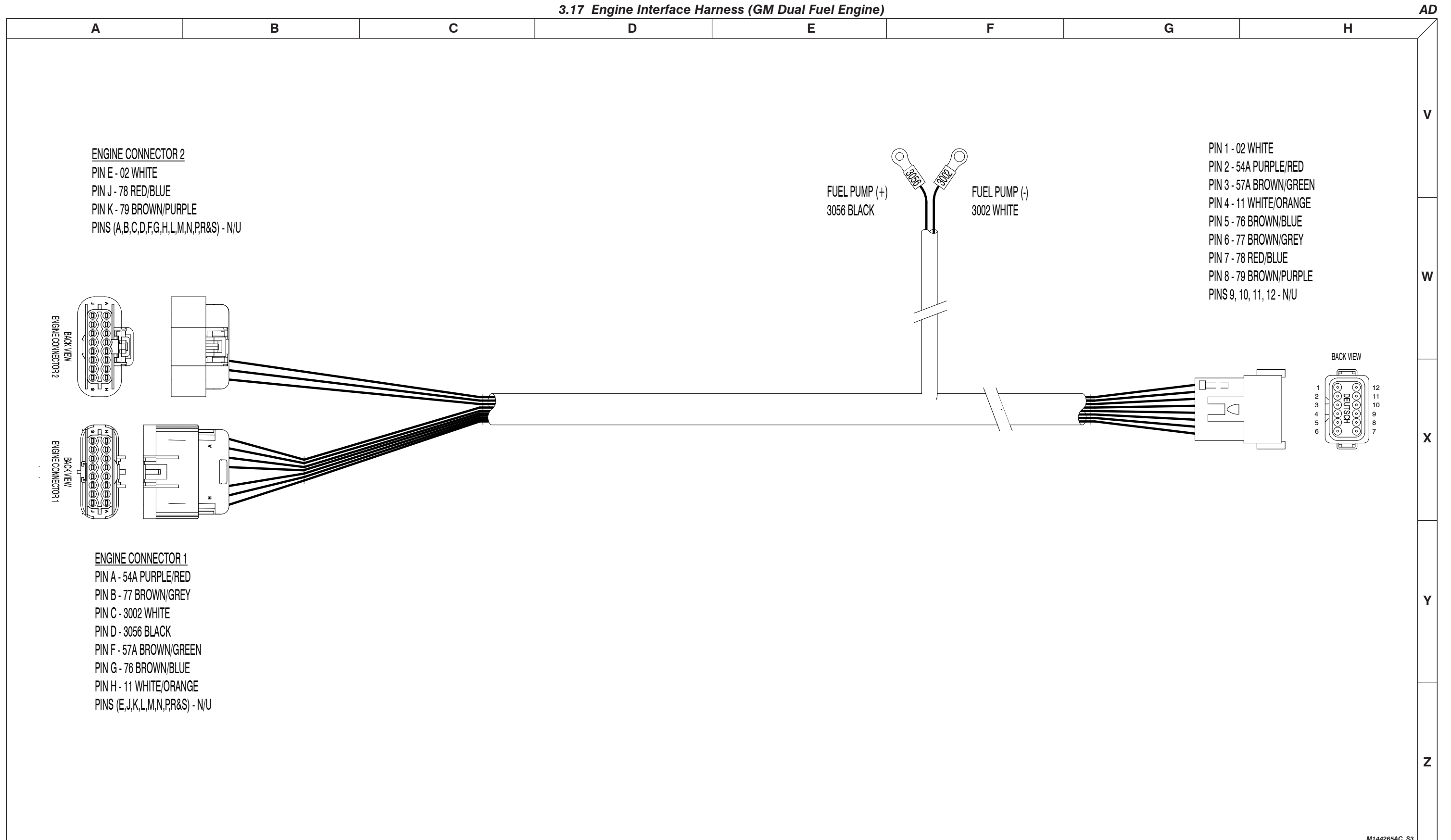
M139132AD-S3

3.16 ECU Engine Wiring Diagram (Deutz Diesel Engine)

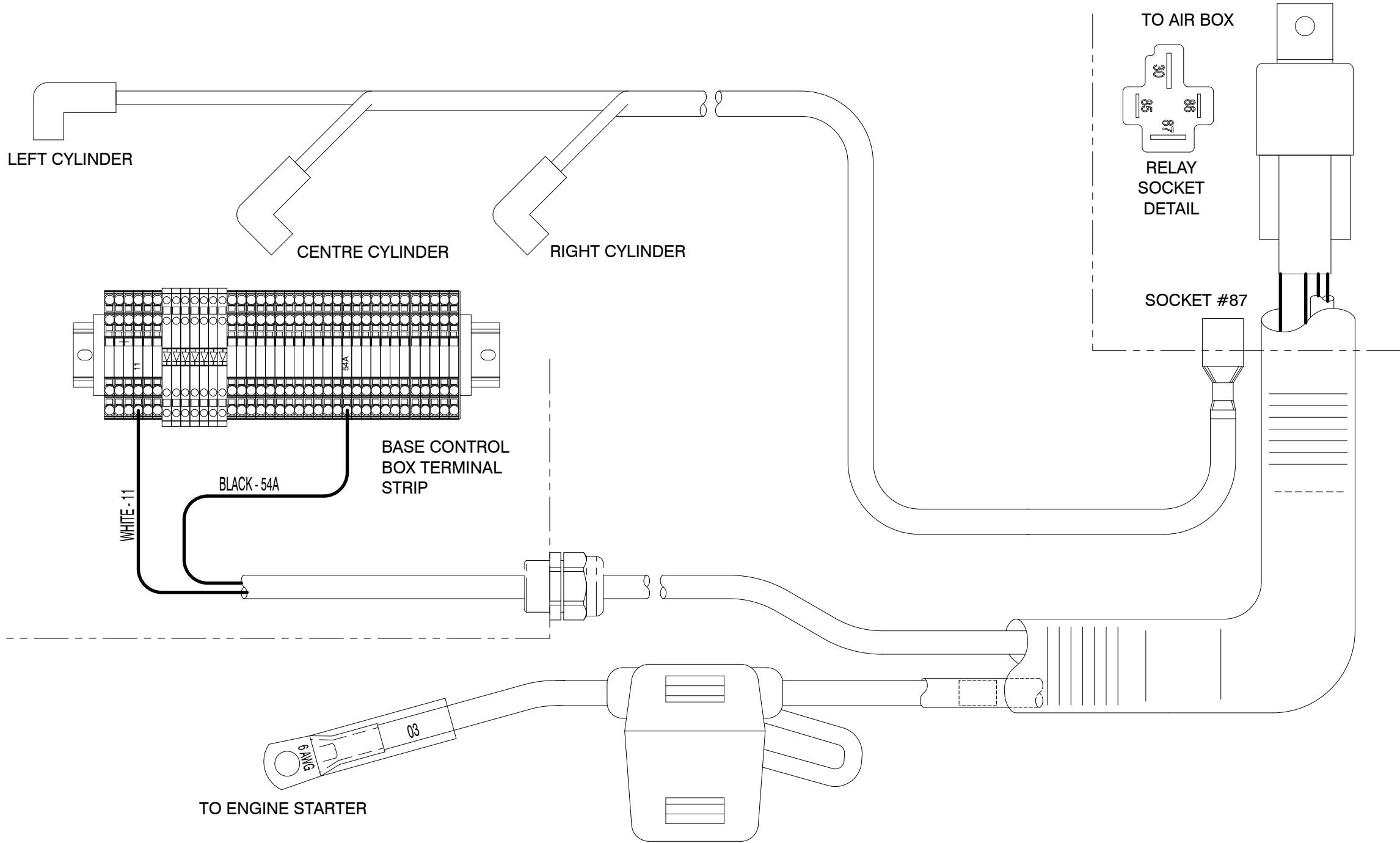


M138708AA

3.17 Engine Interface Harness (GM Dual Fuel Engine)

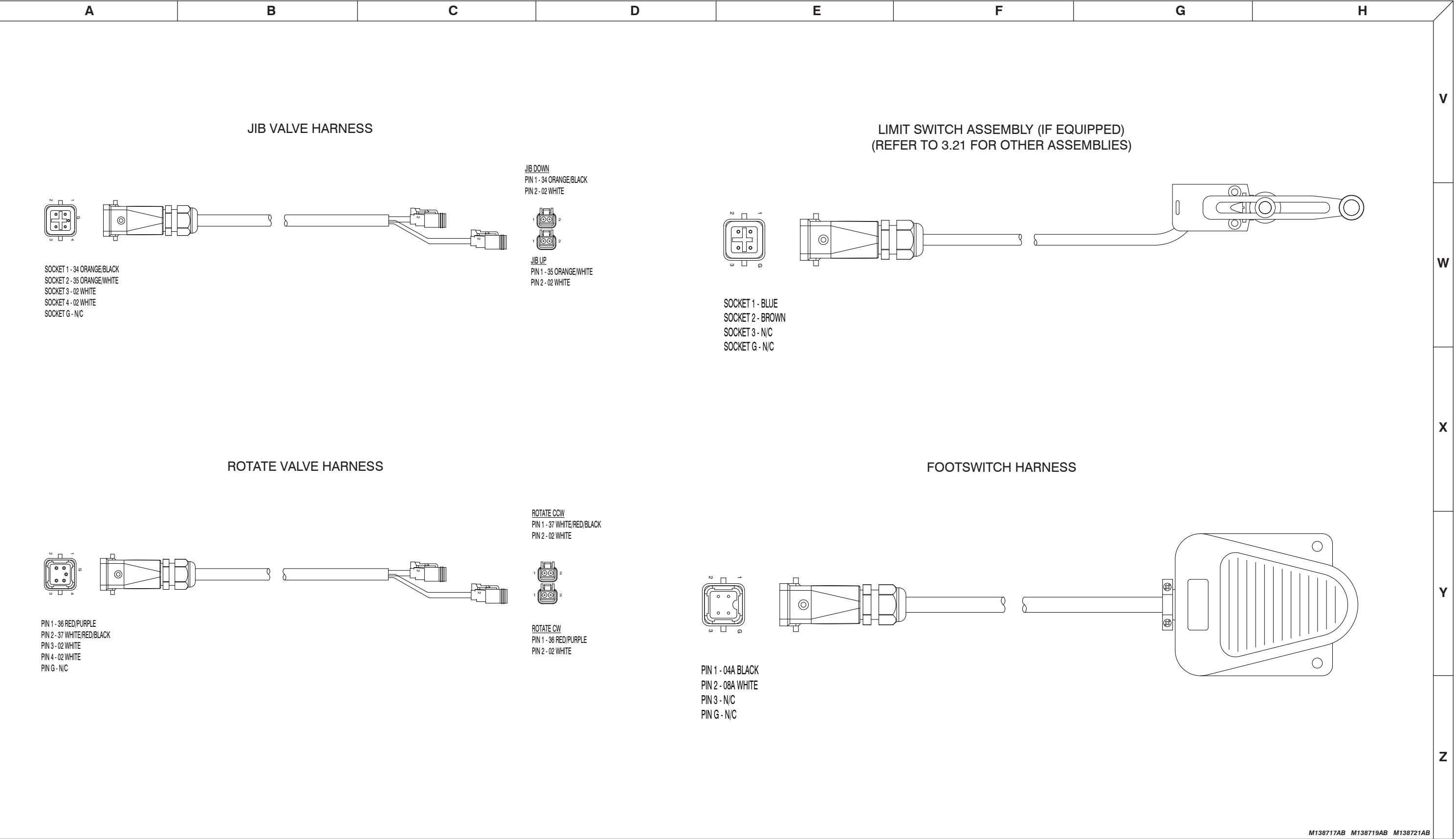


3.18 Glow Plug Harness



M138849AB

3.19 Harnesses

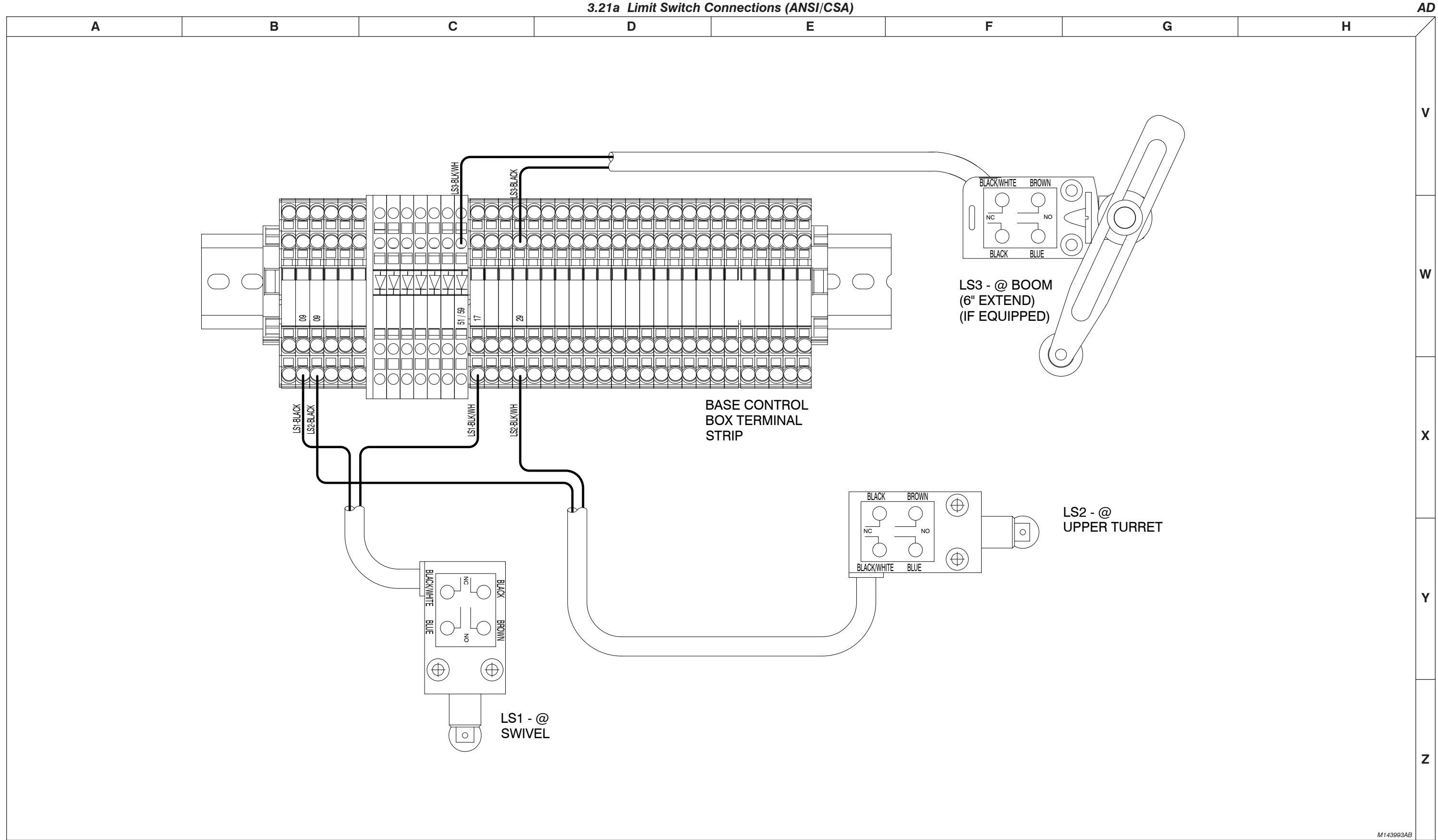


M138717AB M138719AB M138721AB

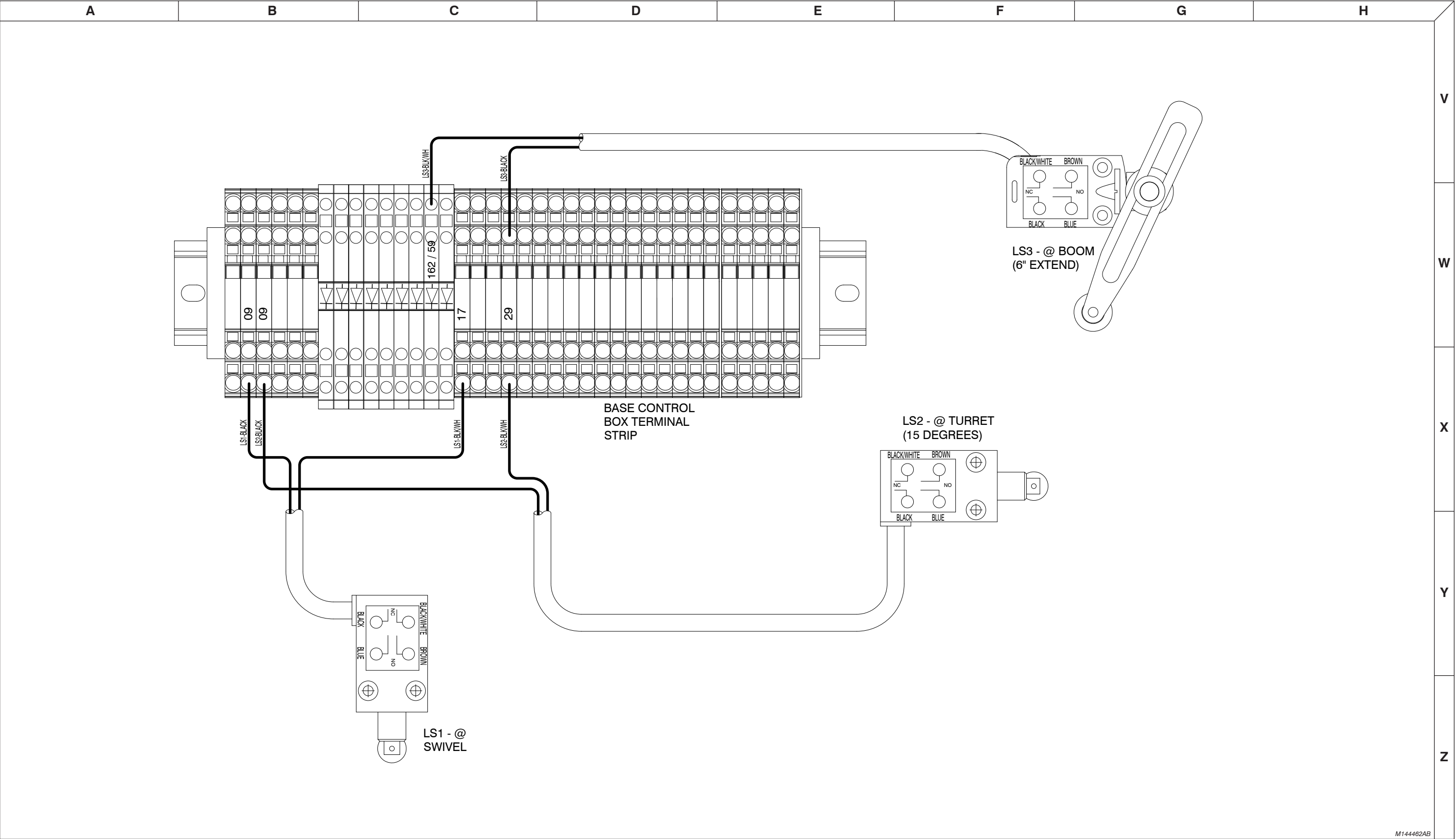
3.20 Platform Control Cable Harnesses

D

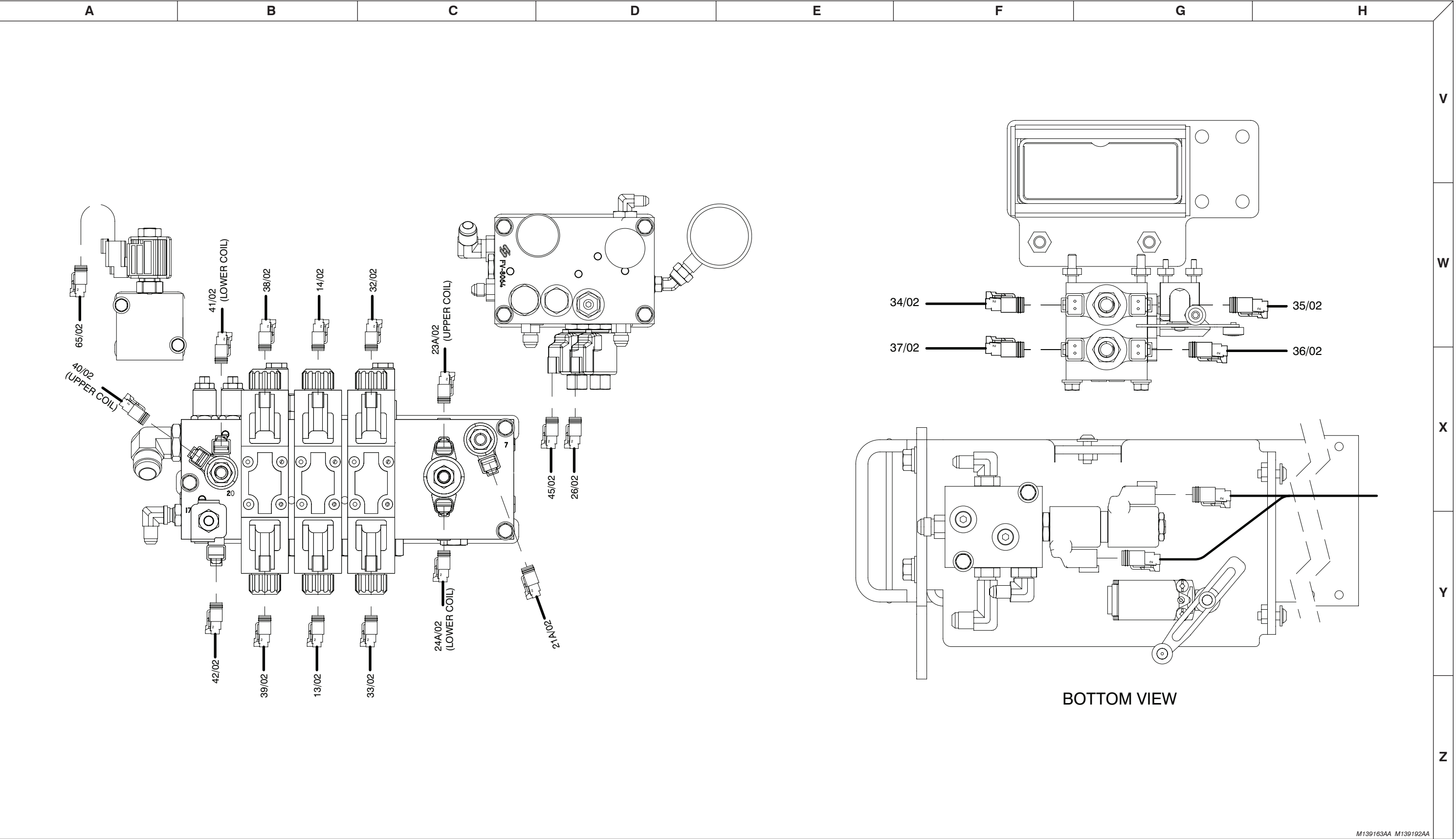
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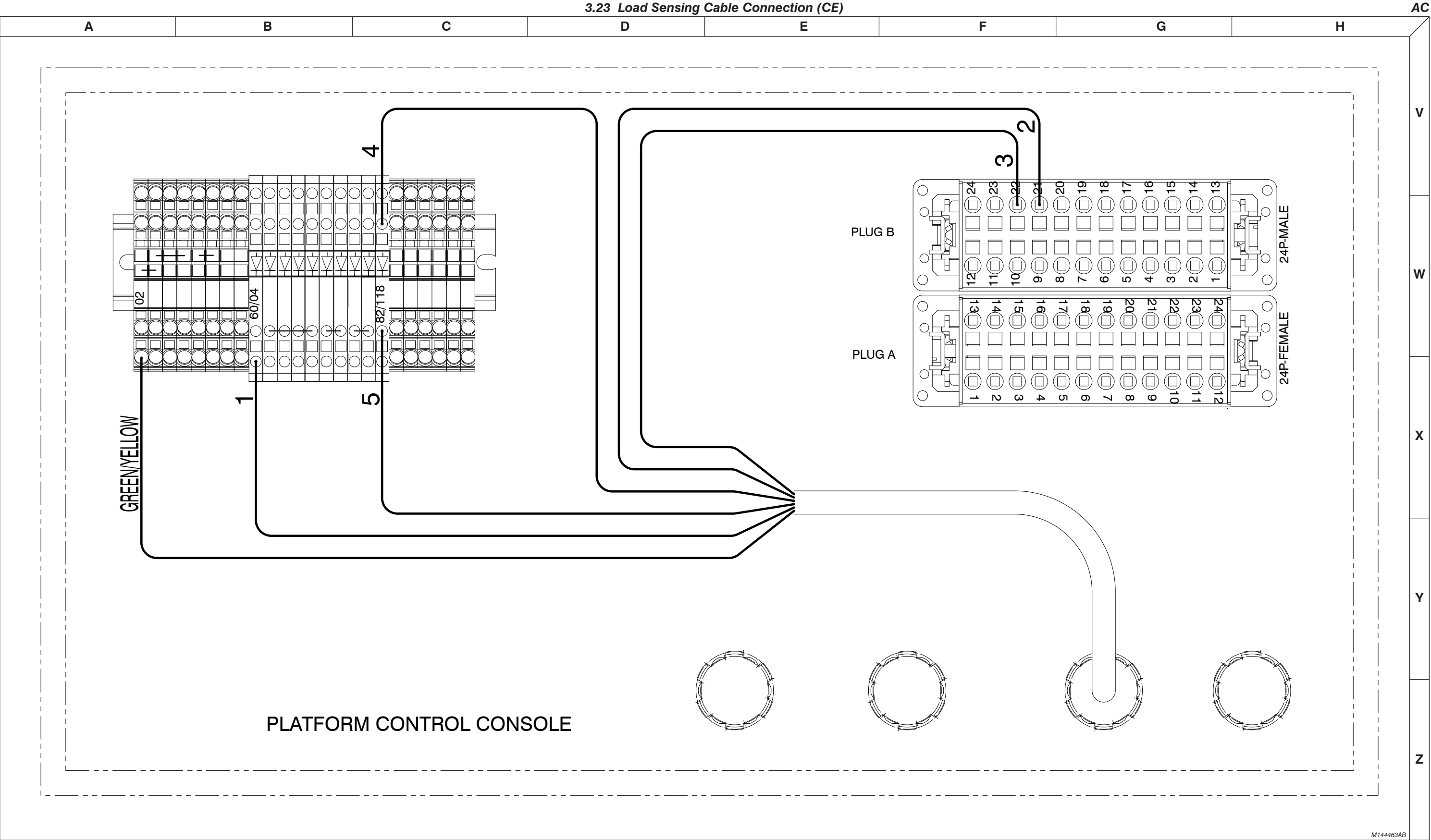
3.21b Limit Switch Connections (CE)



3.22 Harness Connection Assemblies

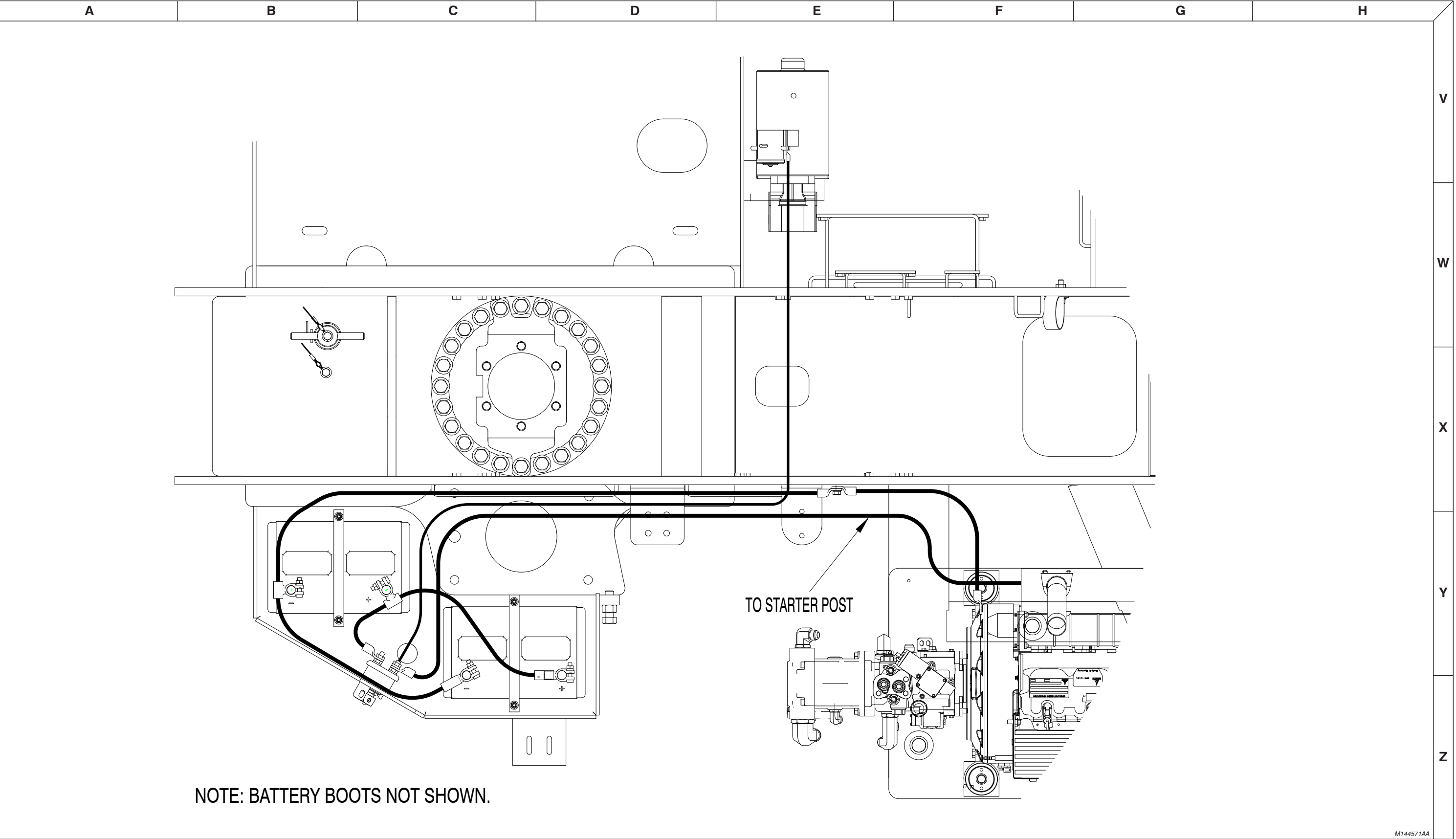


3.23 Load Sensing Cable Connection (CE)



M144463AB

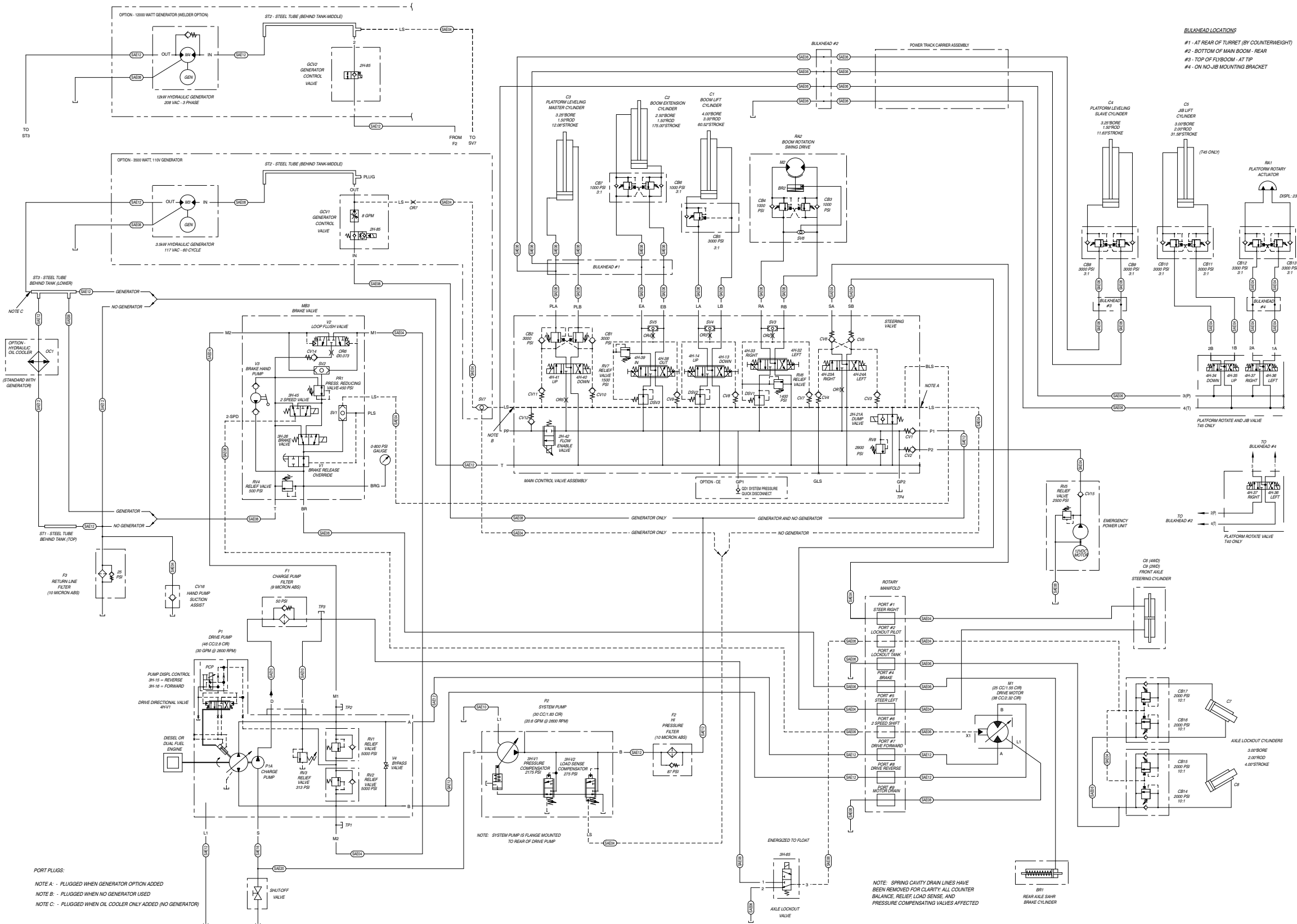
3.24 Deutz Diesel Engine Battery Cable Locations (CE)



NOTE: BATTERY BOOTS NOT SHOWN.

M144571AA

3.25 Hydraulic Schematic Diagram



M143950AH1

AD

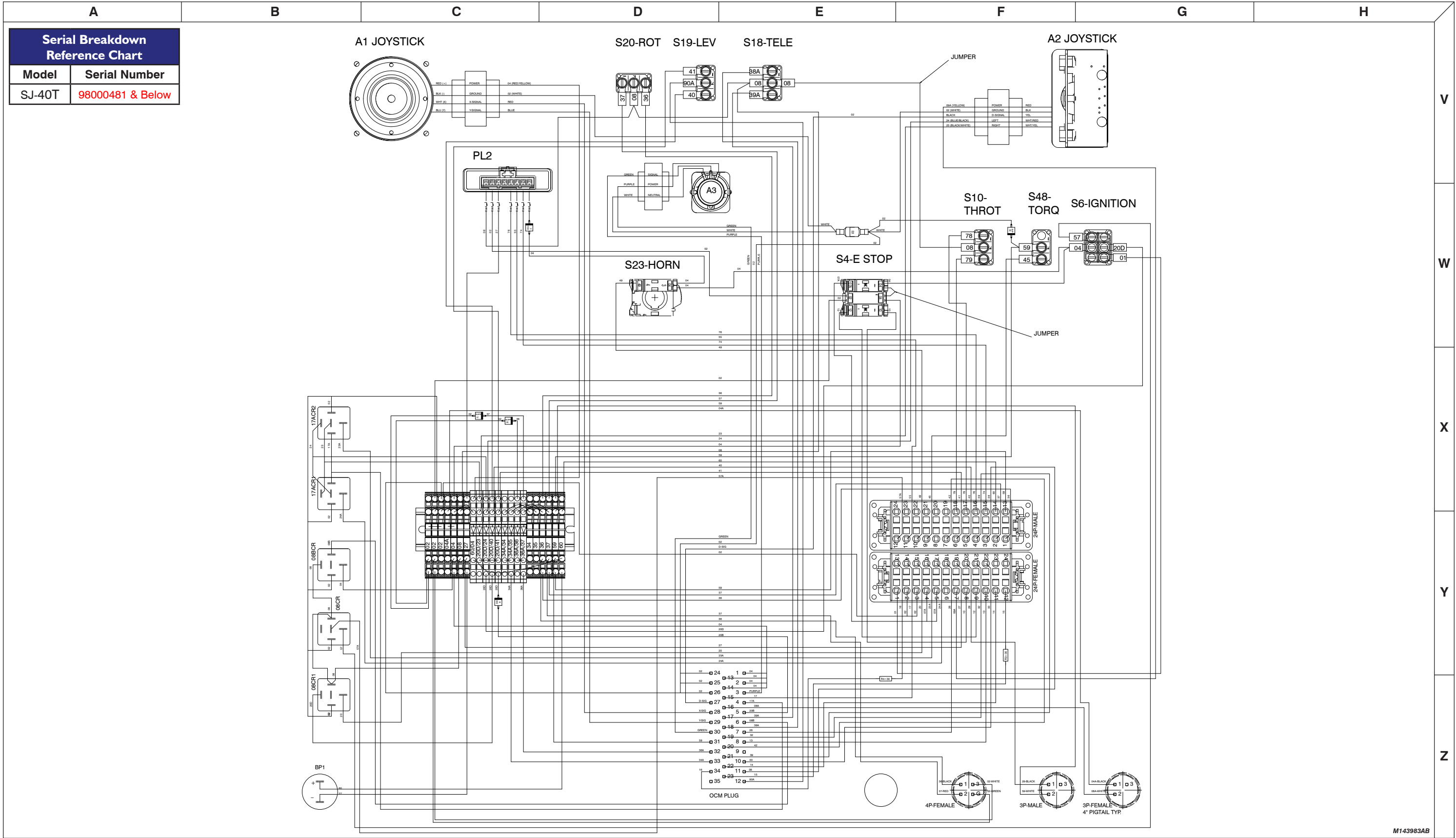
V

X

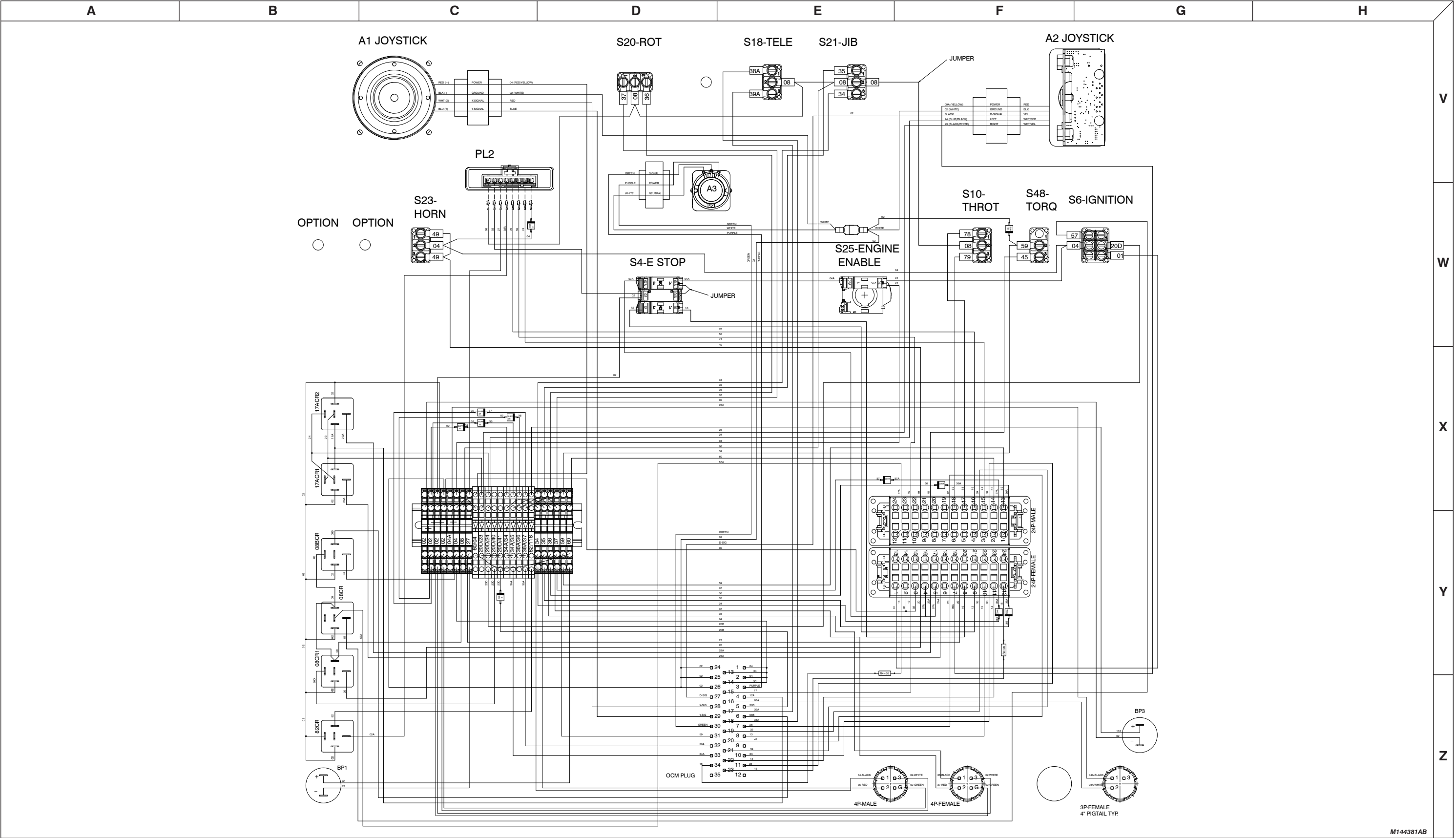
Y

Z

3.27 Platform Control Console Diagram (ANSI/CSA SJ 40T - Deutz Diesel Engine)



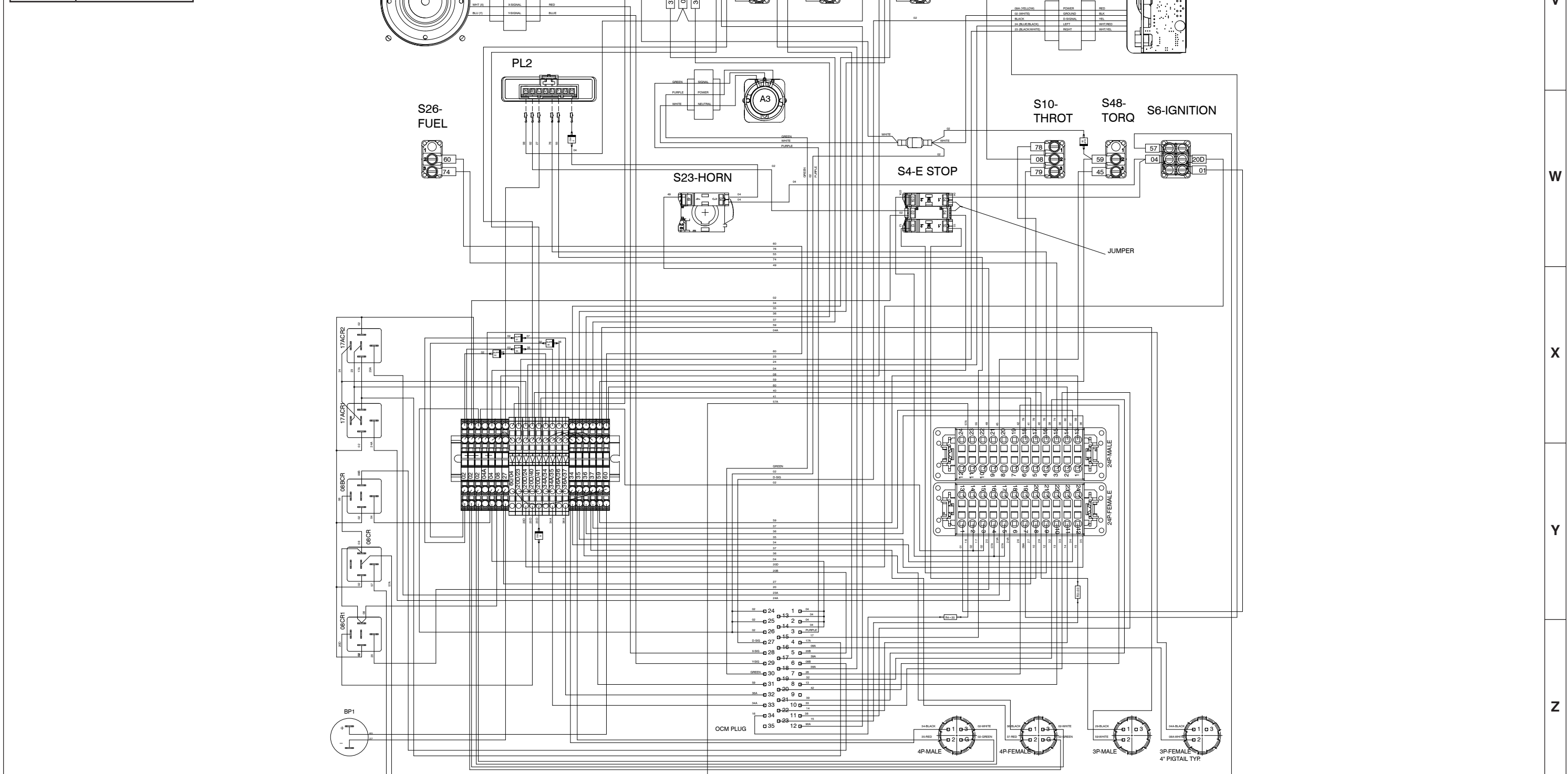
3.28 Platform Control Console Diagram (CE SJ 45T - Deutz Diesel Engine)



NOTE: To determine the correct electrical schematic that resembles your aerial platform, refer to the “Table Of Contents” found at the beginning of this section.

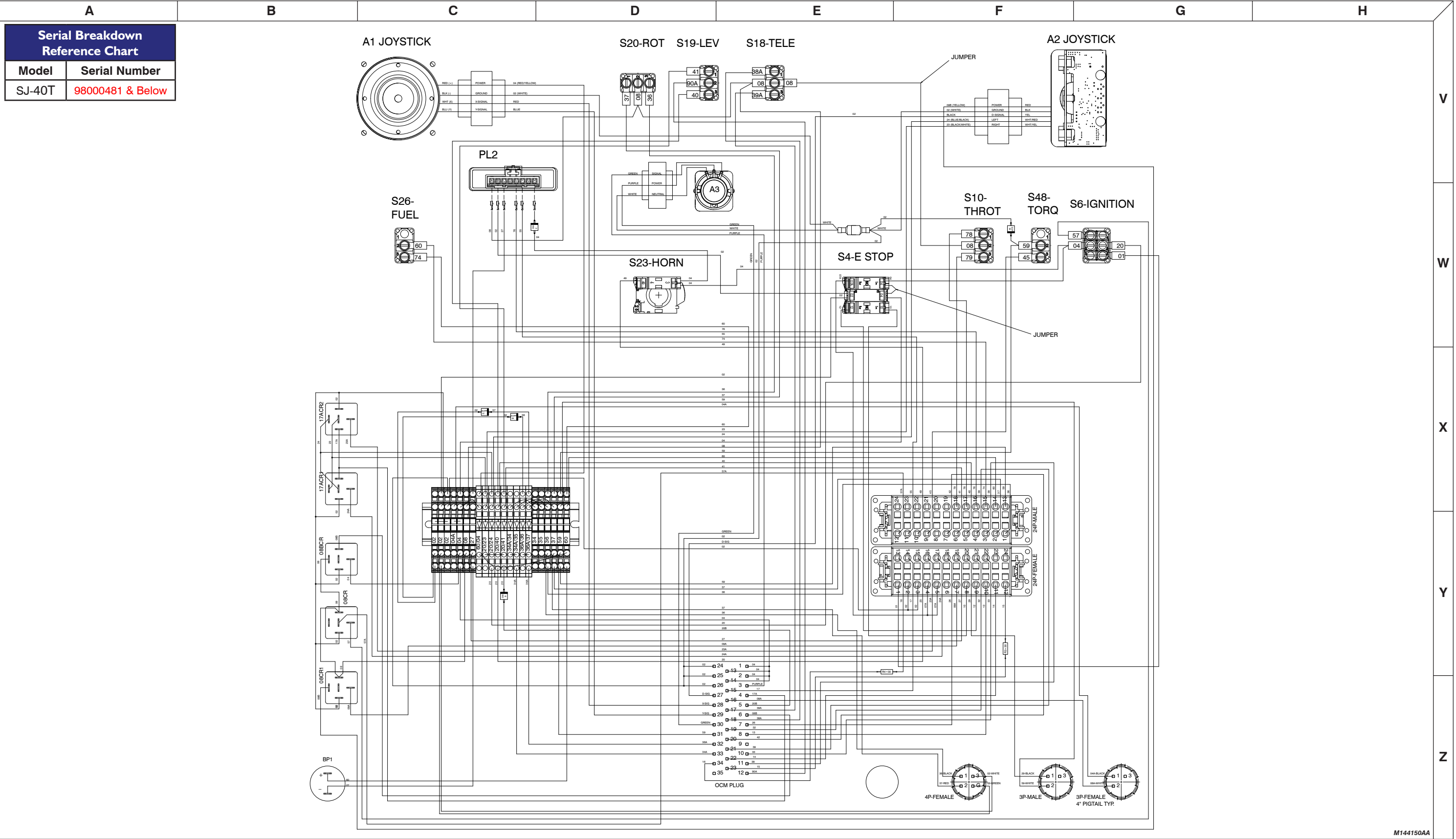
A	B	C	D	E	F	G	H
---	---	---	---	---	---	---	---

Serial Breakdown Reference Chart		A1 JOYSTICK					S20-ROT	S19-LEV	S18-TELE	S21-JIB	A2 JOYSTICK	
Model	Serial Number											
SJ-45T	98000481 & Below											



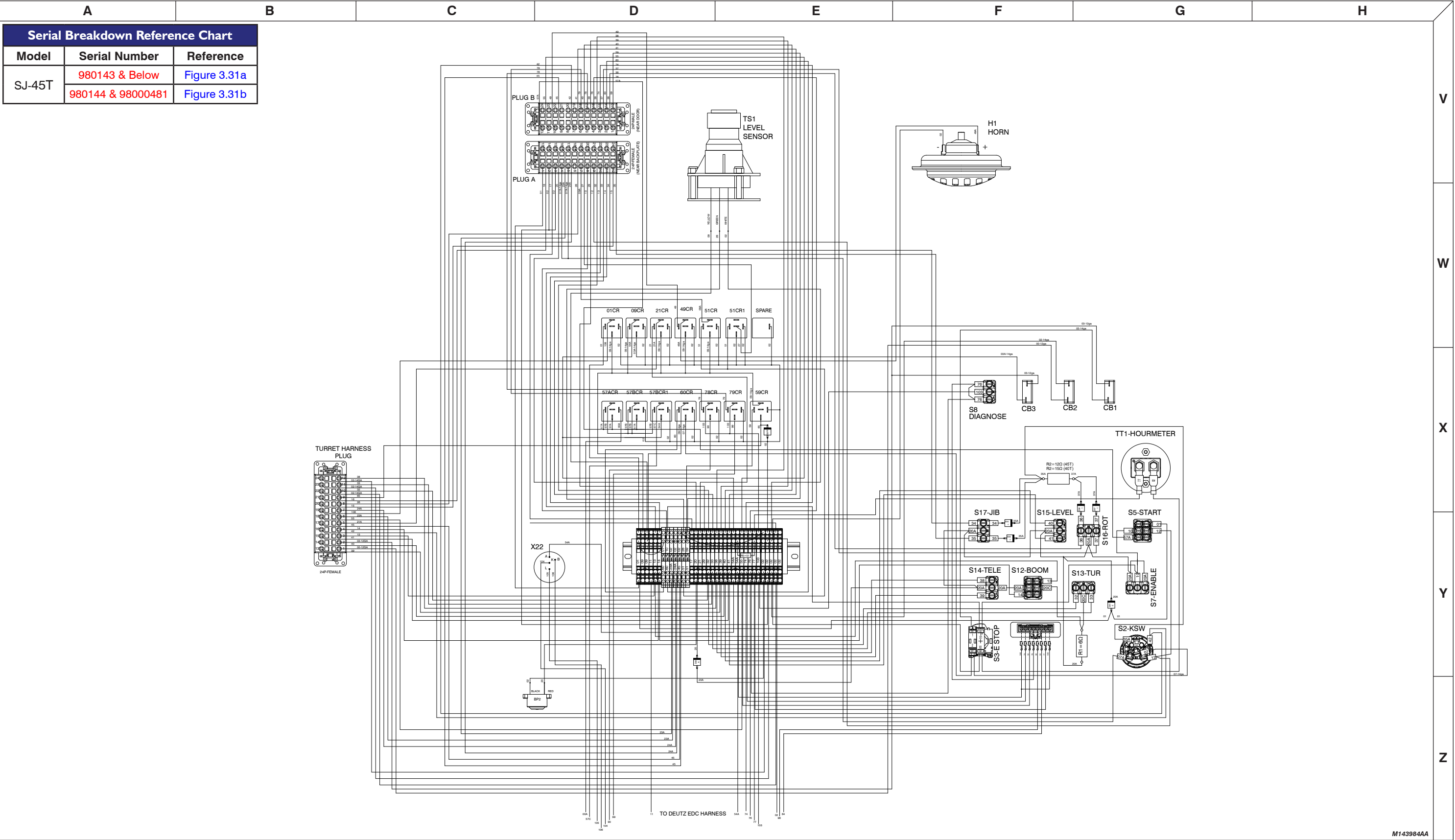
M144152AA

3.30 Platform Control Console Diagram (ANSI/CSA SJ 40T - GM Dual Fuel Engine)

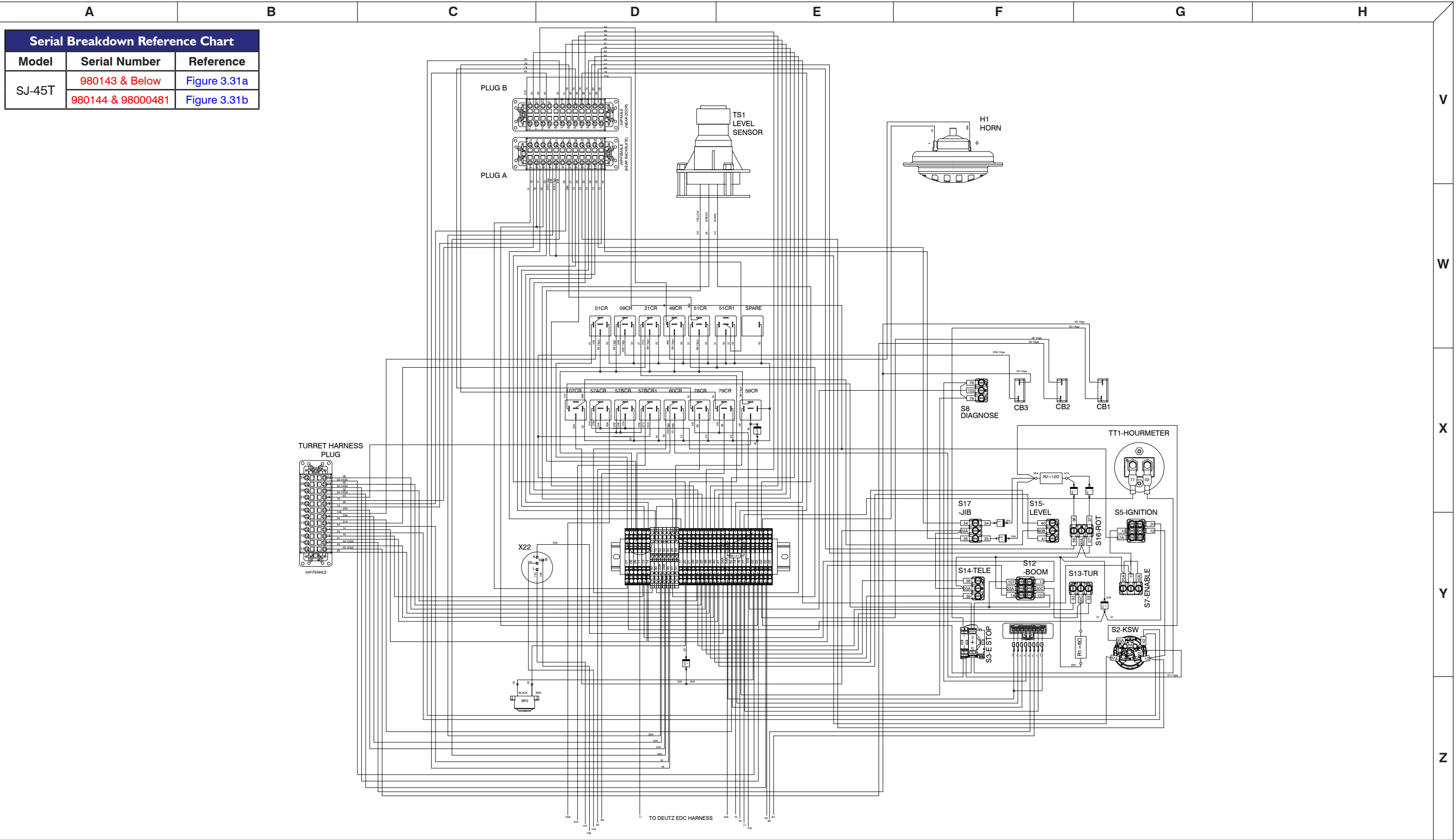


NOTE: To determine the correct electrical schematic that resembles your aerial platform, refer to the "Table Of Contents" found at the beginning of this section.

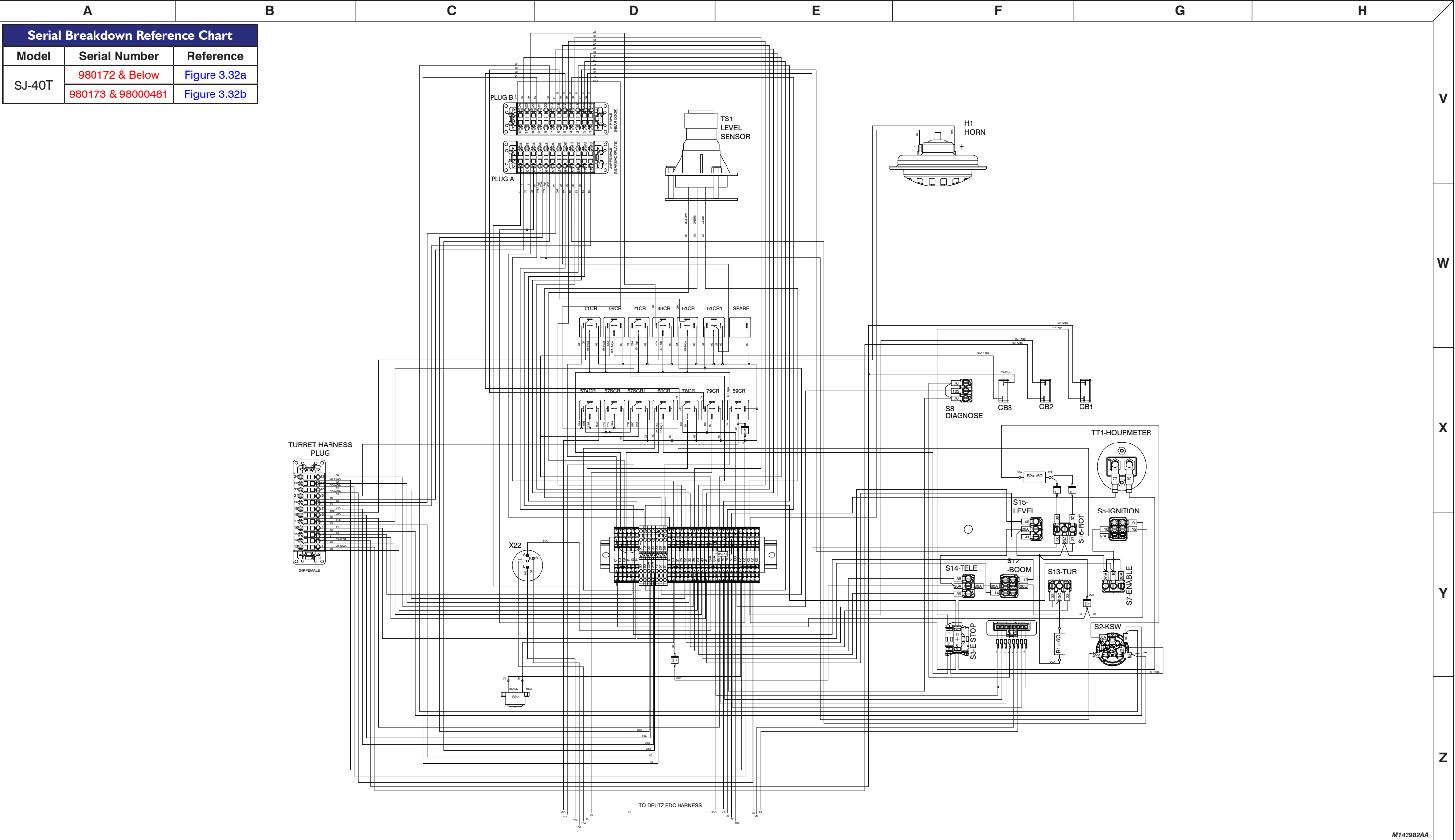
3.31a Base Control Console Diagram (ANSI/CSA SJ 45T - Deutz Diesel Engine)



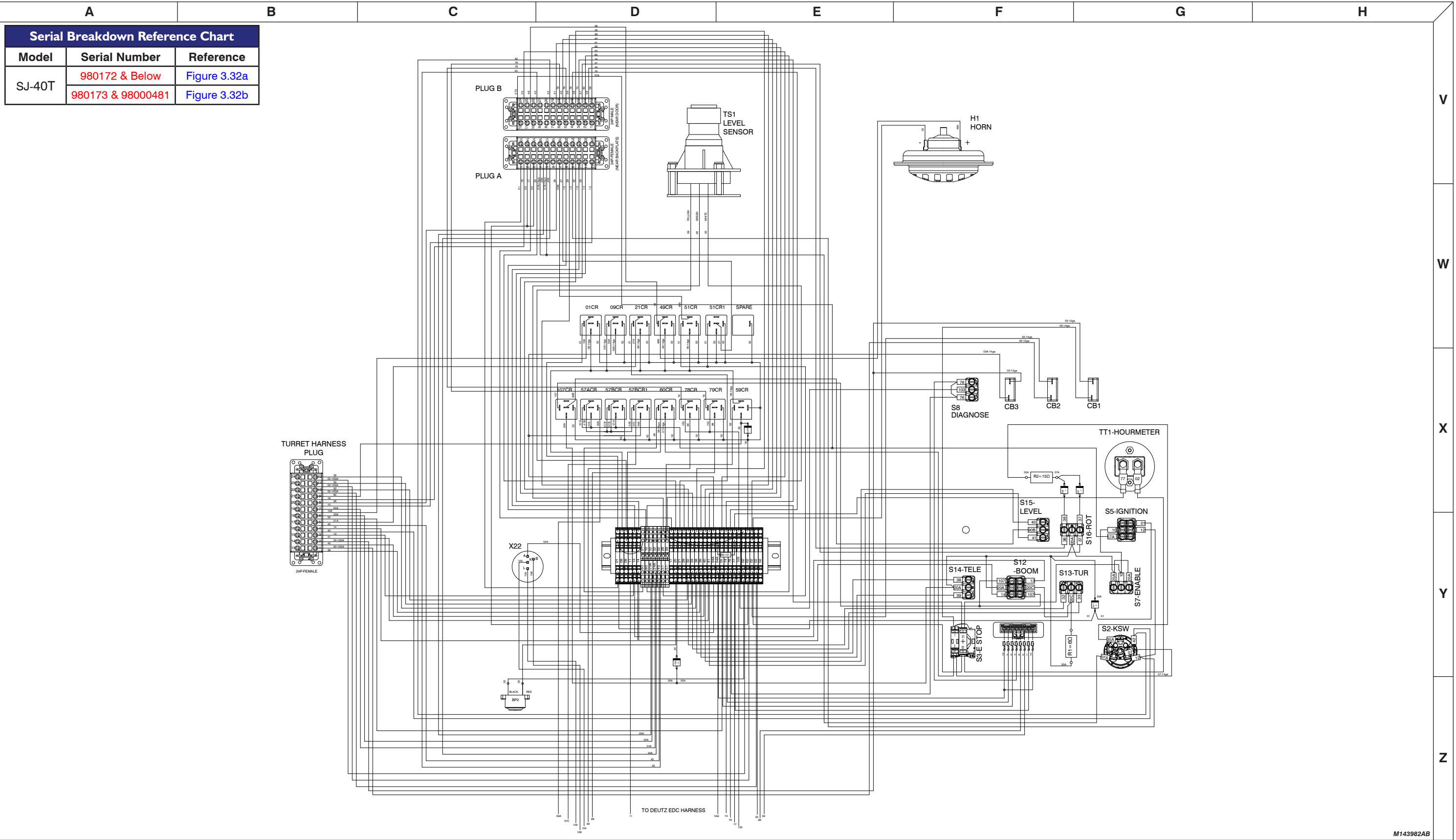
3.31b Base Control Console Diagram (ANSI/CSA SJ 45T - Deutz Diesel Engine)



3.32a Base Control Console Diagram (ANSI/CSA SJ 40T - Deutz Diesel Engine)

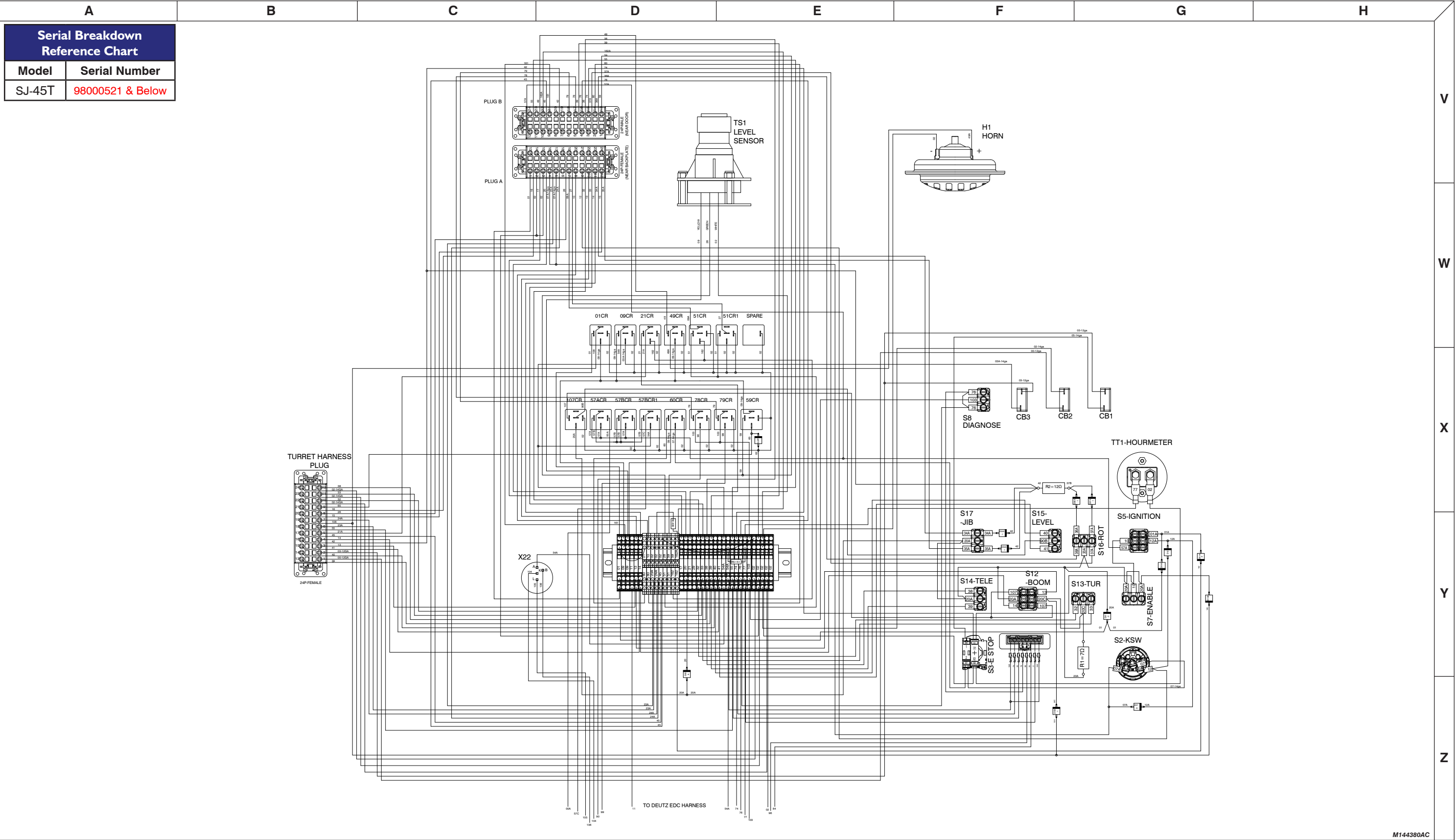


3.32b Base Control Console Diagram (ANSI/CSA SJ 40T - Deutz Diesel Engine)

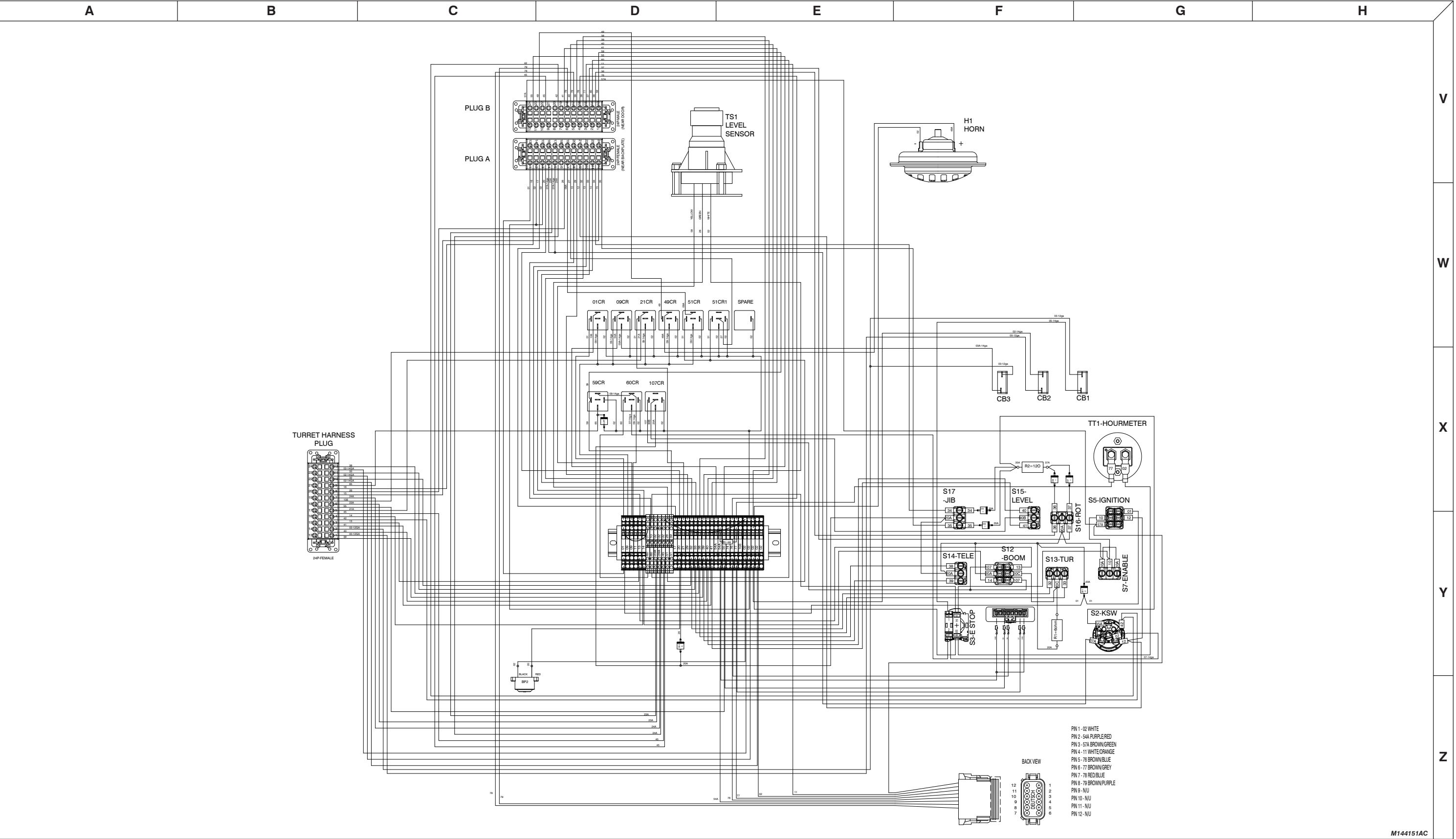


NOTE: To determine the correct electrical schematic that resembles your aerial platform, refer to the “Table Of Contents” found at the beginning of this section.

3.33 Base Control Console Diagram (CE SJ 45T - Deutz Diesel Engine)

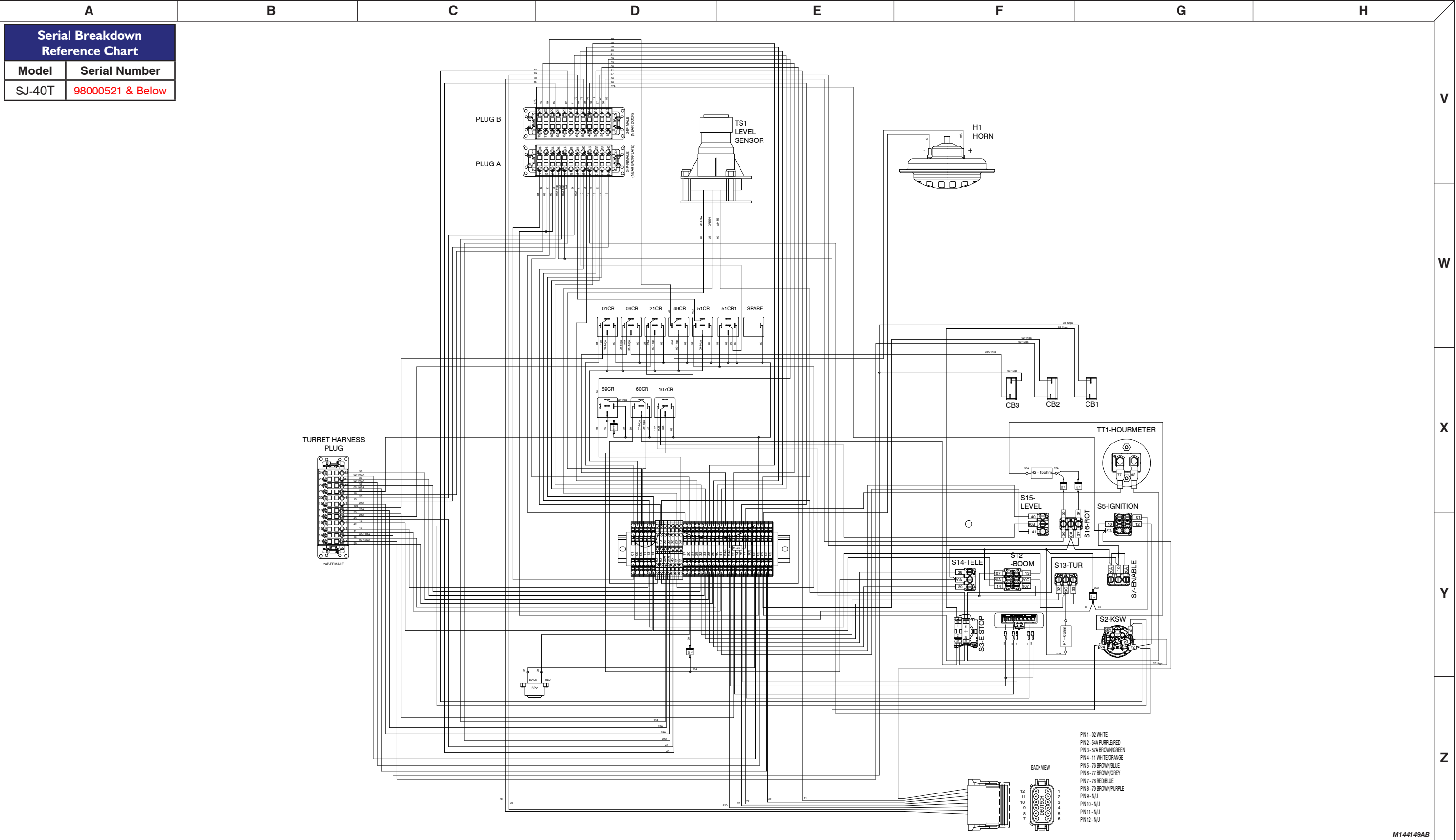


3.34 Base Control Console Diagram (ANSI/CSA SJ 45T - GM Dual Fuel Engine)



NOTE: To determine the correct electrical schematic that resembles your aerial platform, refer to the “Table Of Contents” found at the beginning of this section.

3.35 Base Control Console Diagram (ANSI/CSA SJ 40T - GM Dual Fuel Engine)

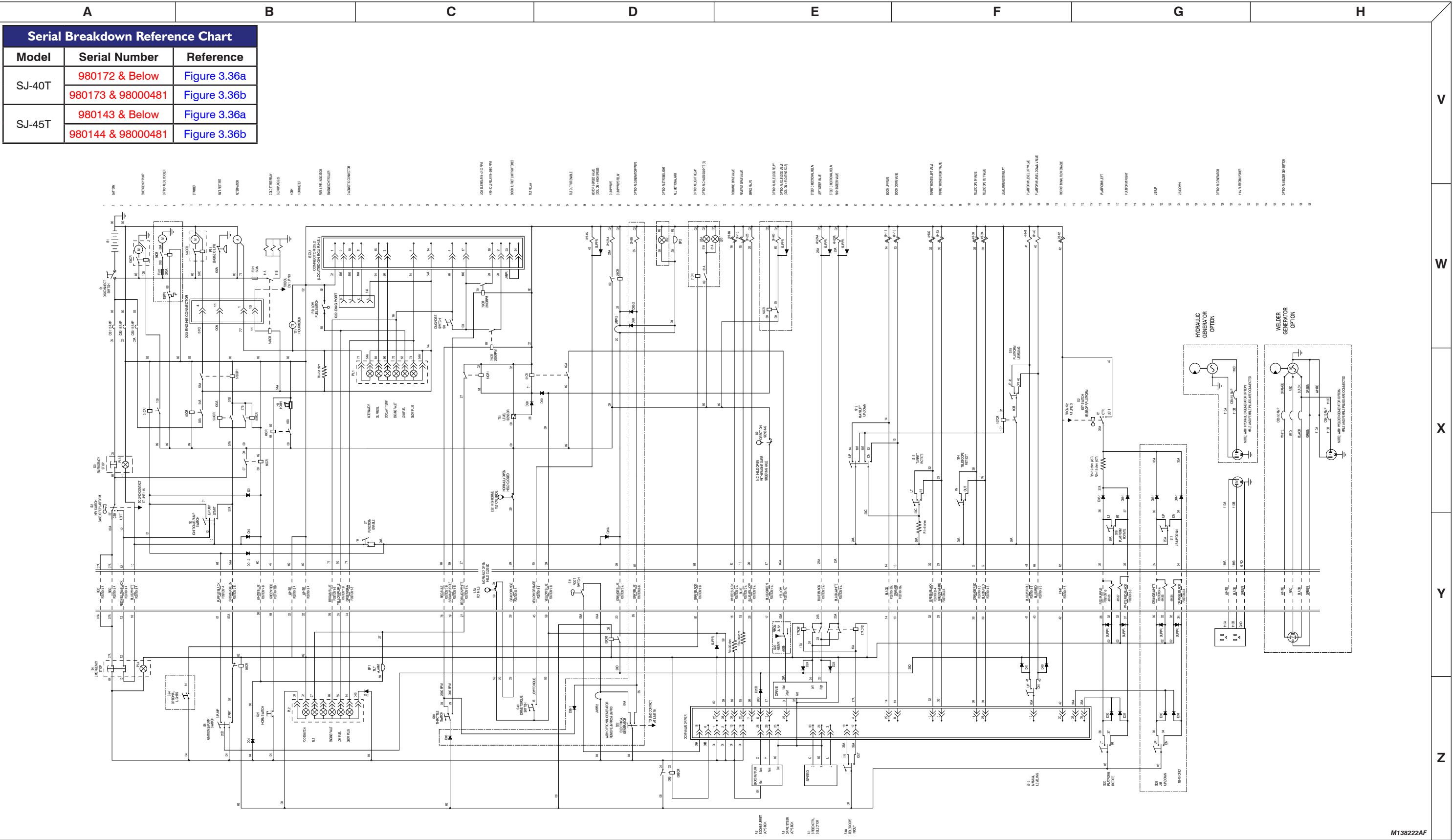


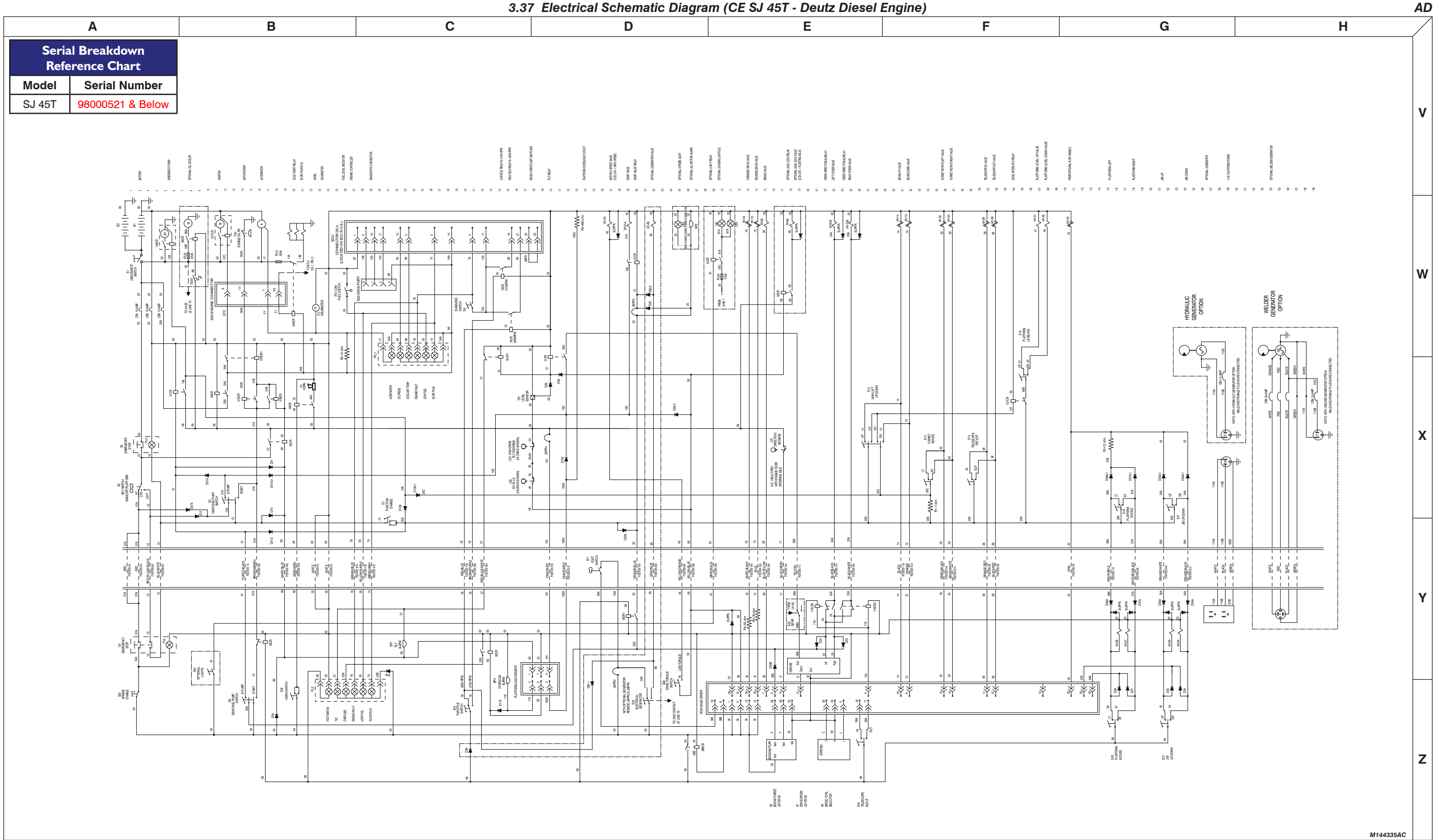
AD

V

Telescopic Boom Series
Models SJ 40T & 45T
143844

3.36b Electrical Schematic Diagram (ANSI/CSA - Deutz Diesel Engine)





NOTE: To determine the correct electrical schematic that resembles your aerial platform, refer to the "Table Of Contents" found at the beginning of this section.

AD

V

W

X

Y

Z

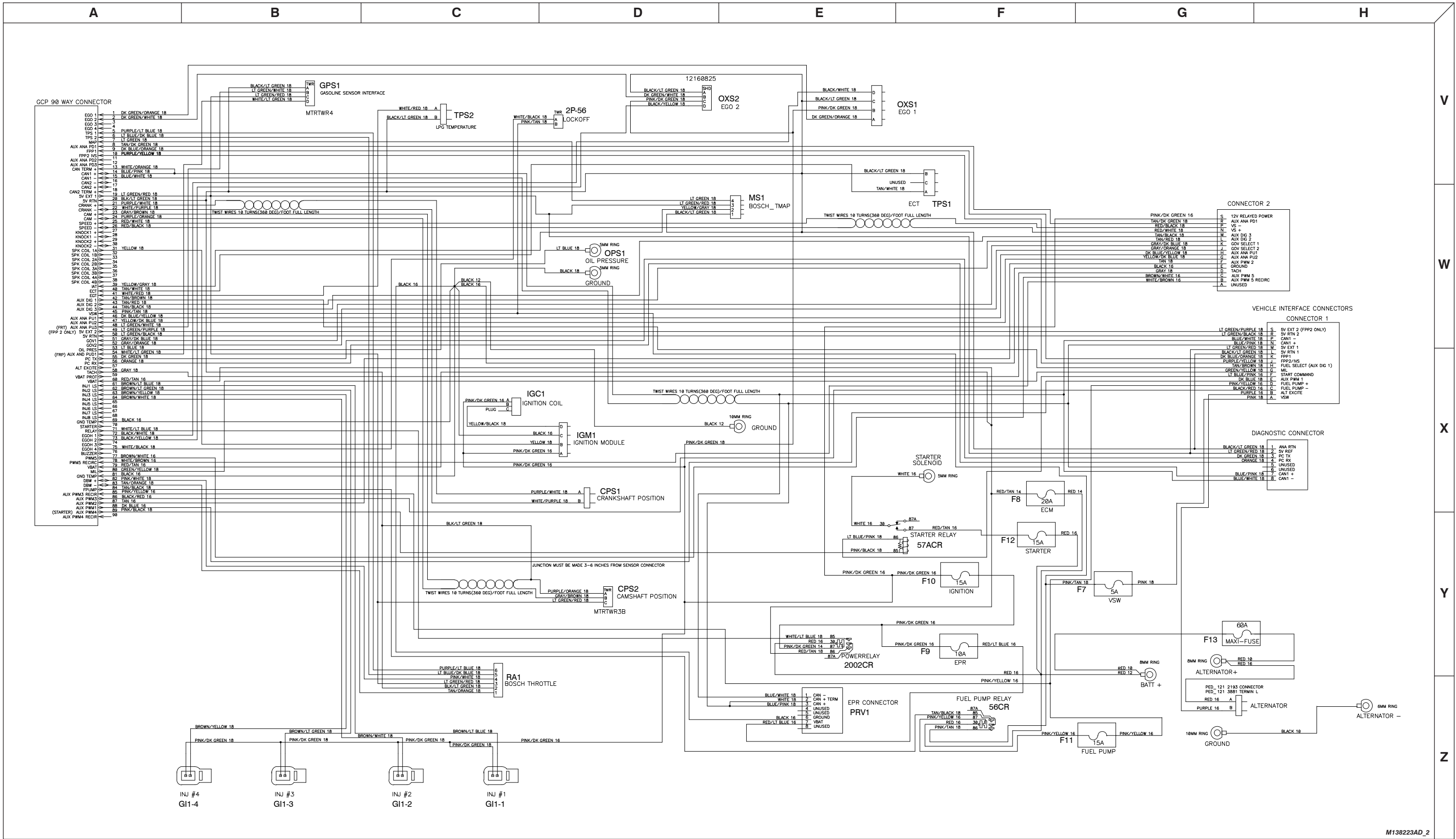
1

AD



3.40 Engine Harnesses - GM Dual Fuel Engine

AD



V

W

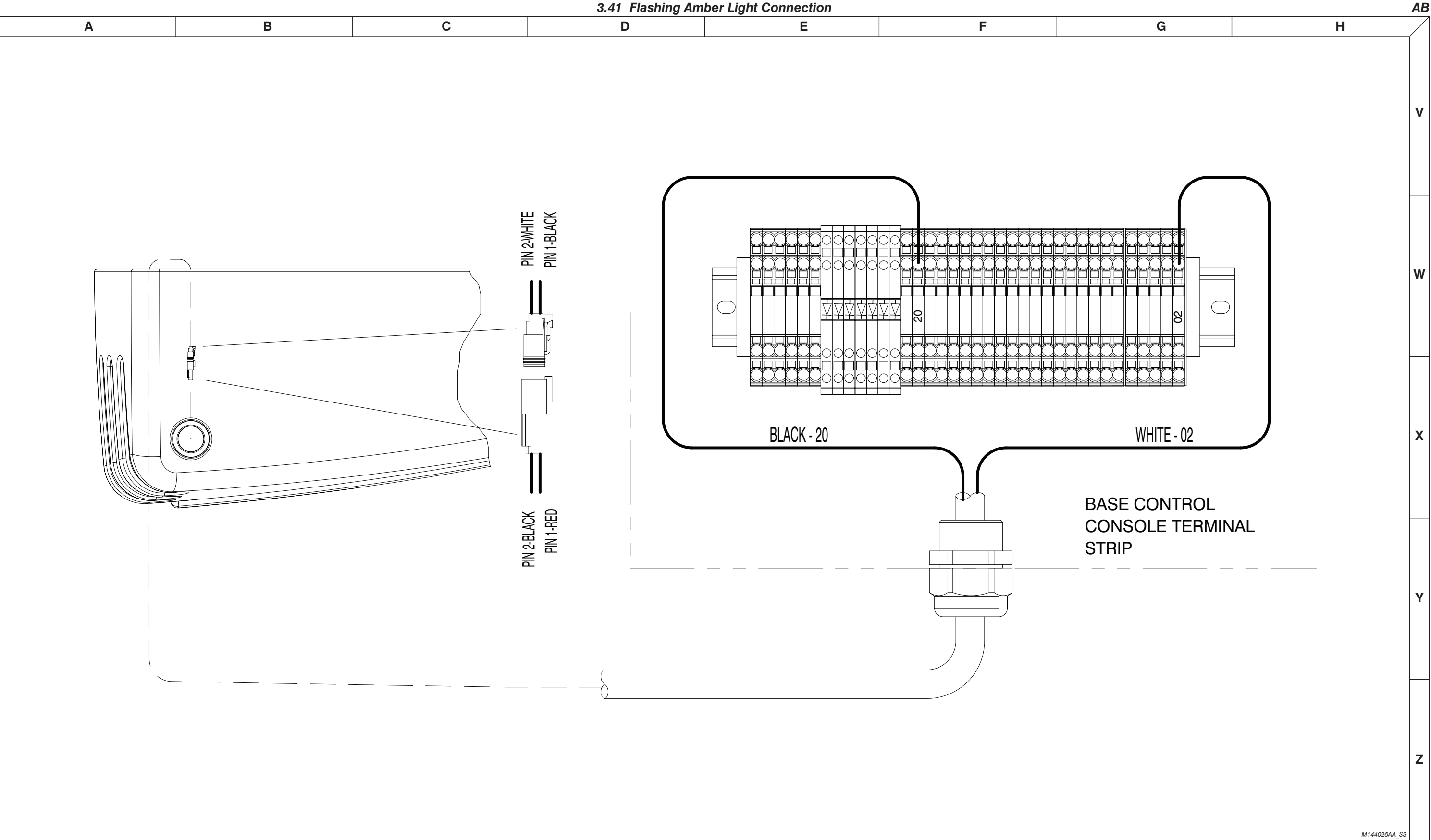
X

Y

Z

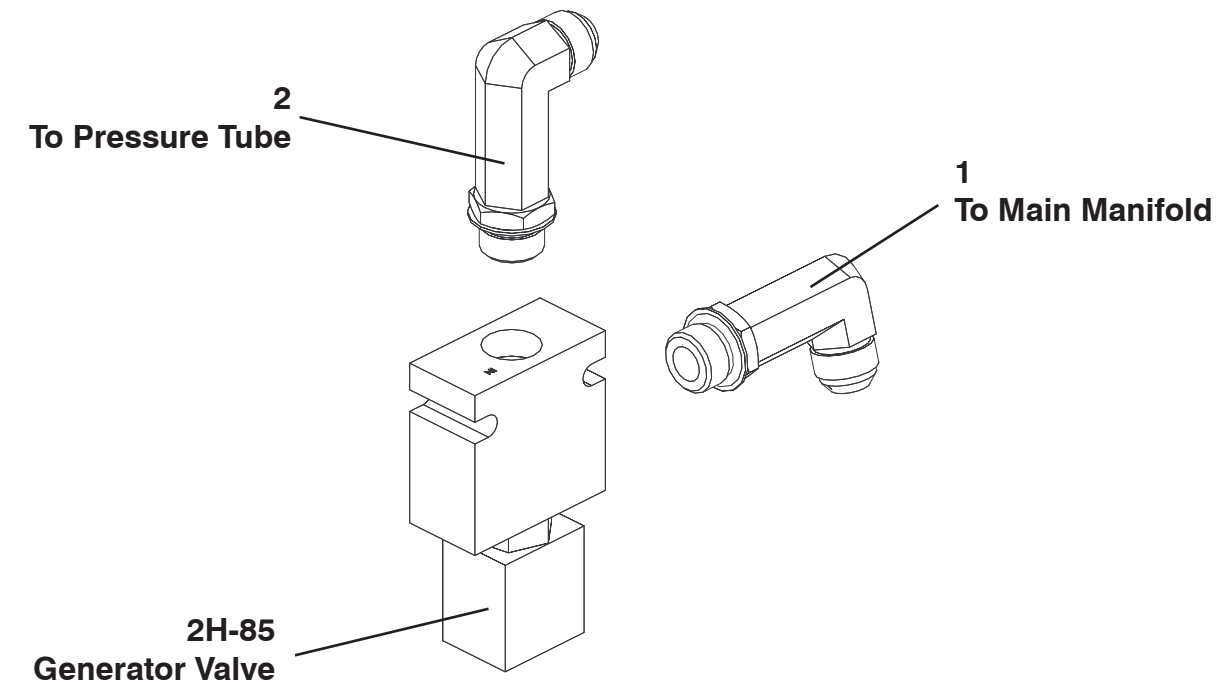
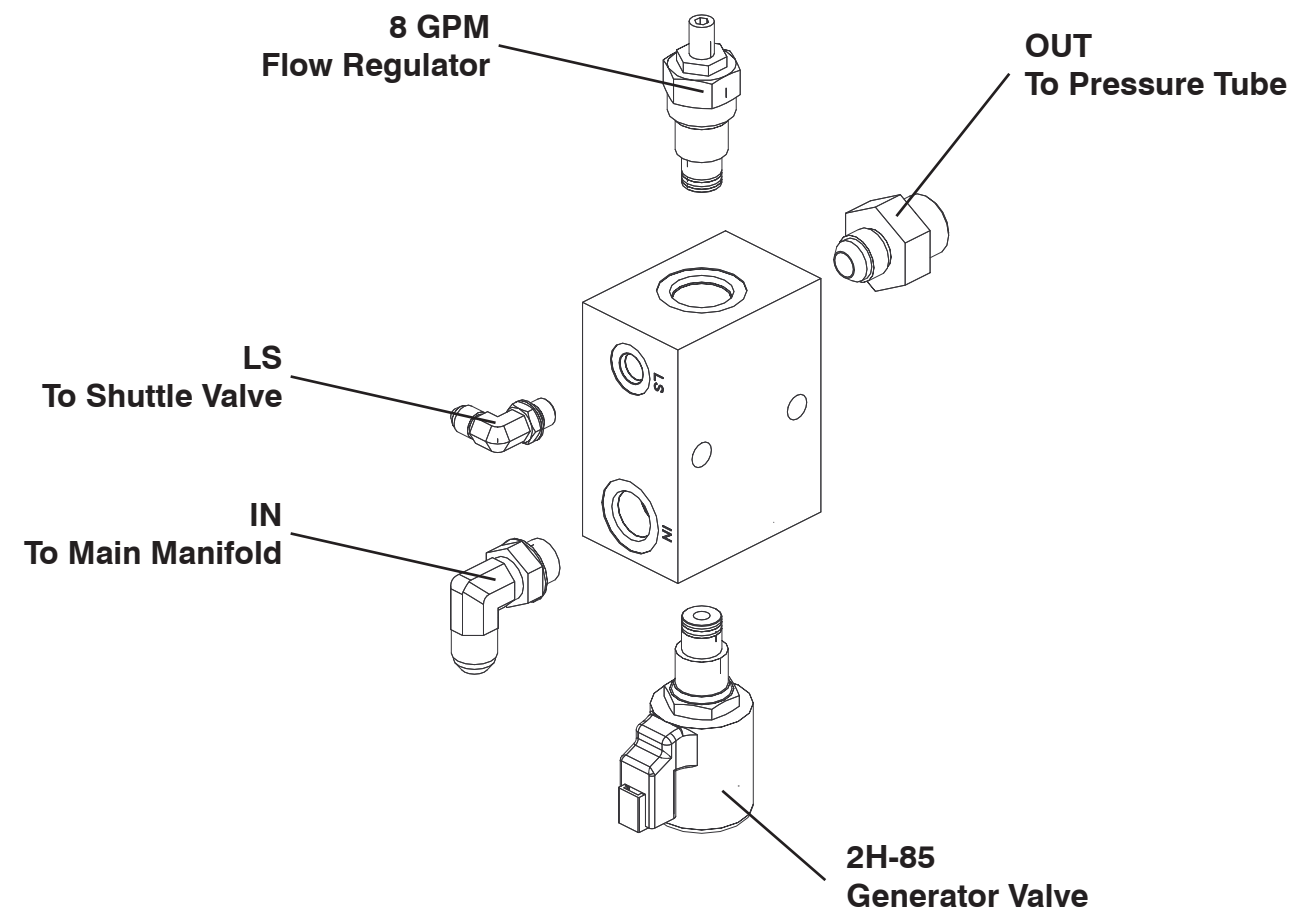
NOTE: To determine the correct electrical schematic that resembles your aerial platform, refer to the "Table Of Contents" found at the beginning of this section.

3.41 Flashing Amber Light Connection

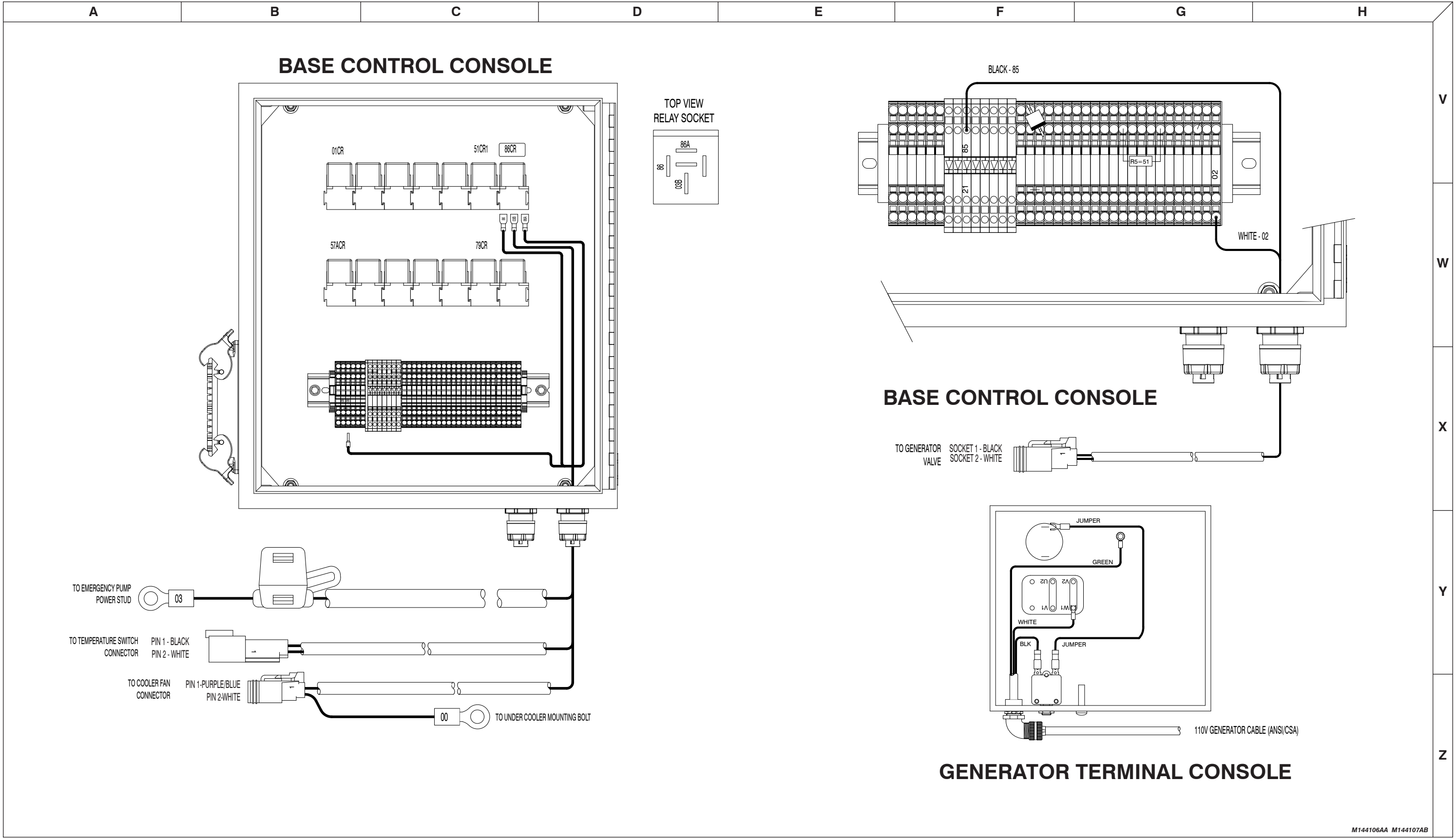


3500W Generator

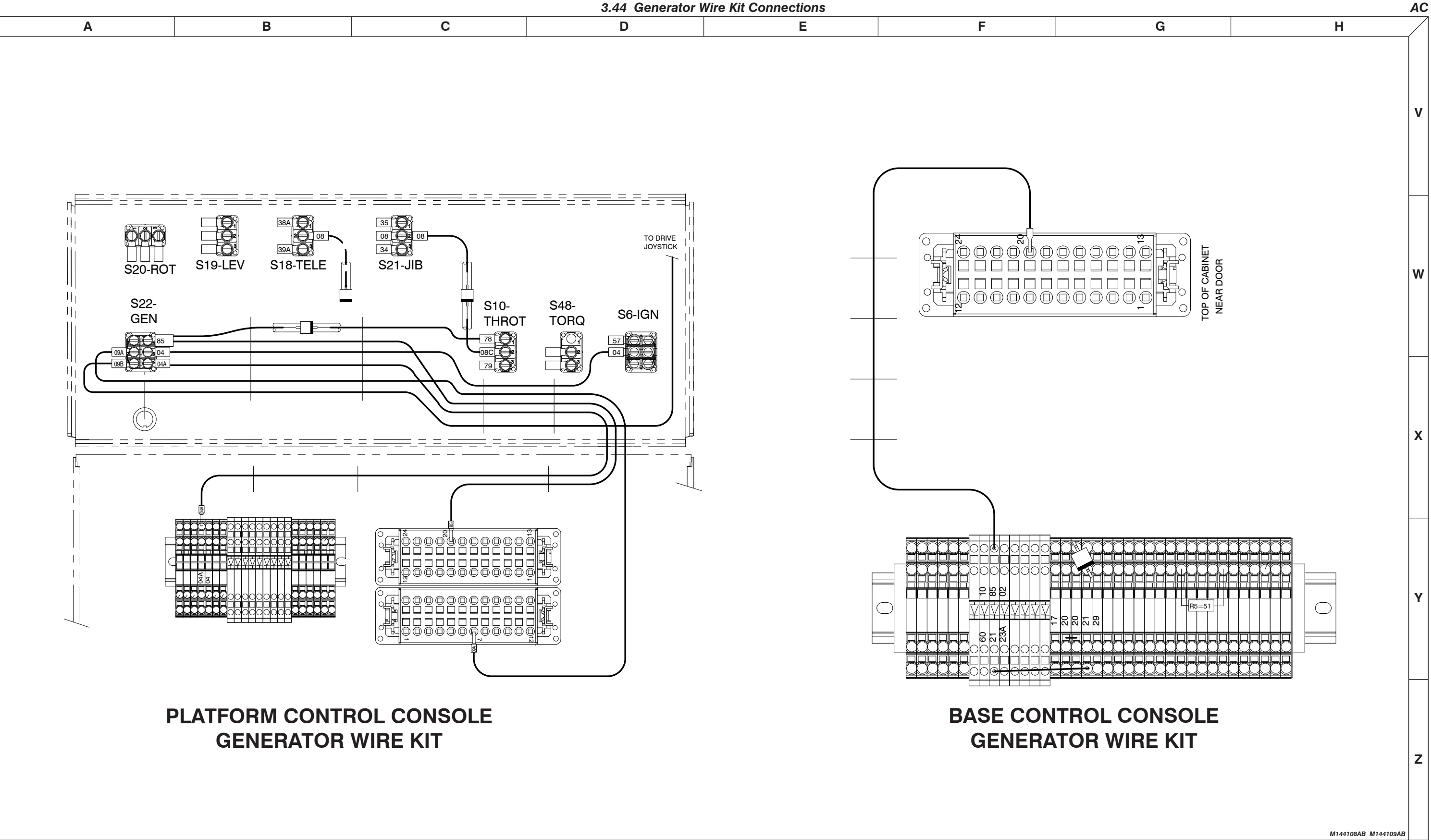
12kW Generator (Welder option)



M138405AA_S3 M138989AA_S3

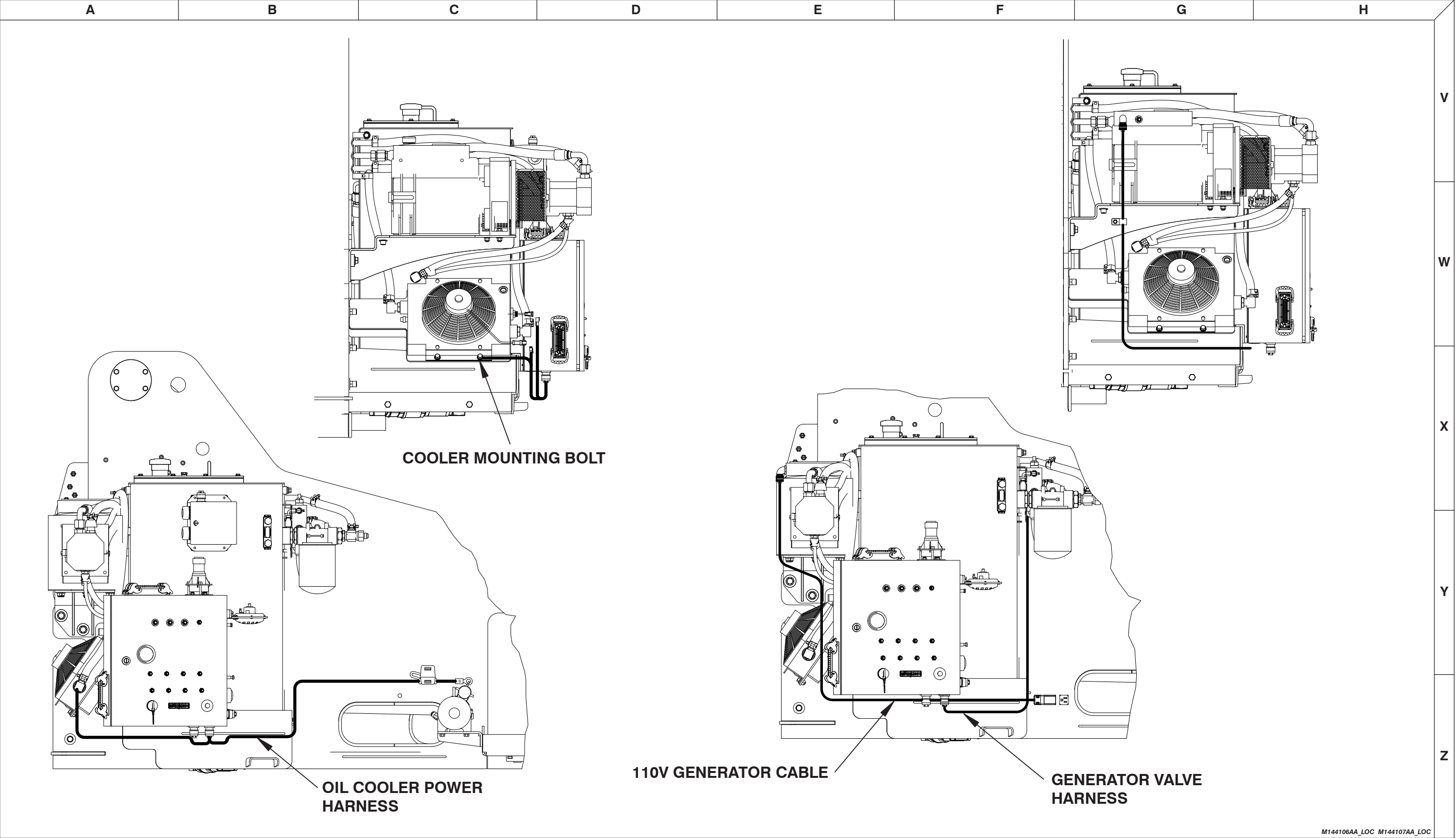


3.44 Generator Wire Kit Connections



3.45 Generator and Oil Cooler Connection Locations

AB



M144106AA_LOC M144107AA_LOC

LOCATED ON PLATFORM



3.47 12 kW Generator Connection Locations

AC

A

B

C

D

E

F

G

H

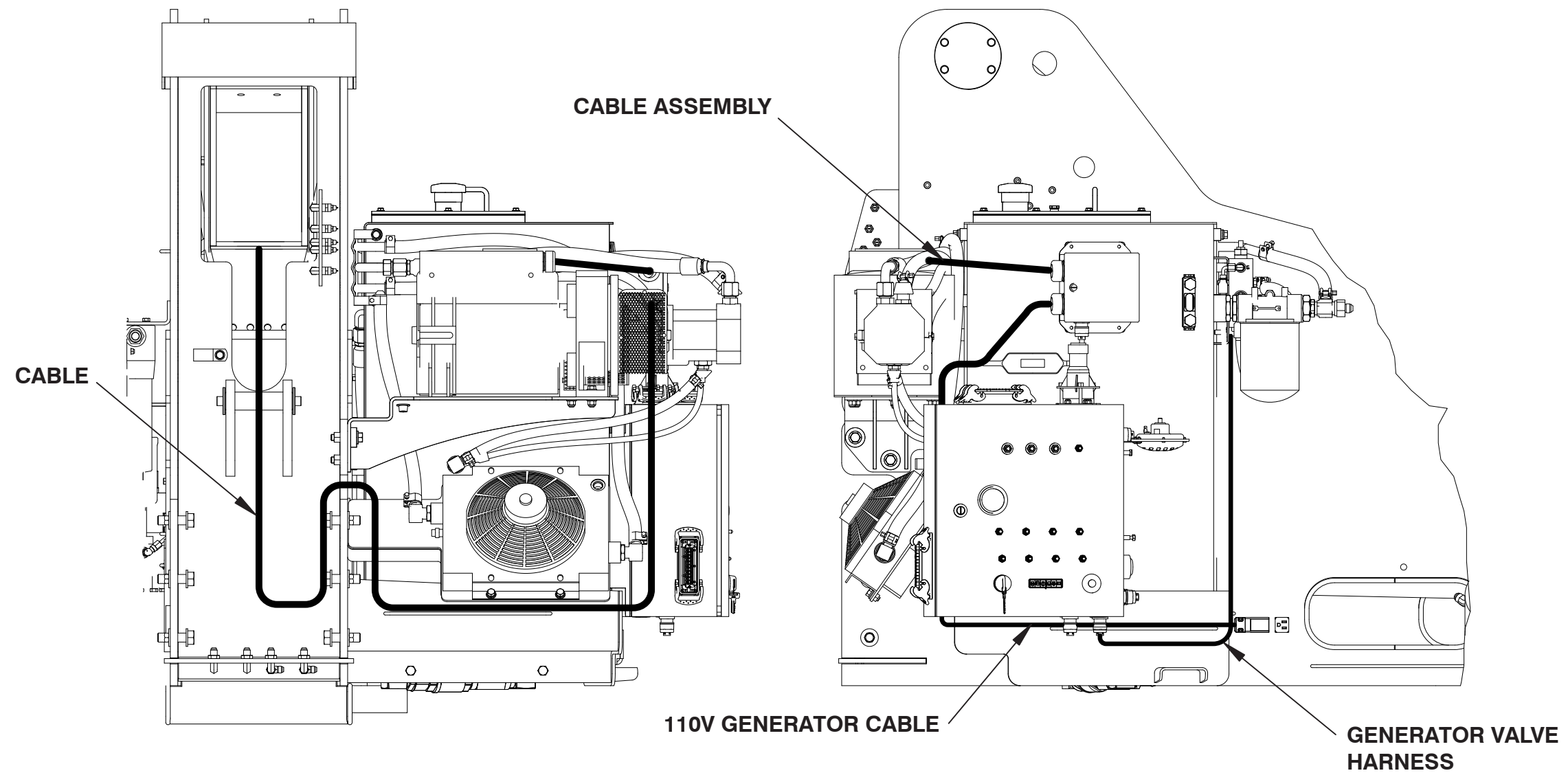
V

W

X

Y

Z



M144163AC

Section 4

TROUBLESHOOTING INFORMATION

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Introduction

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

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

1. Probable Cause
 - [Remedy](#)

Electrical System

NOTE

All tests should be performed with boom over non-steering axle.

4.1-1 All Controls Inoperative

1. Battery disconnected or discharged.
 - [Connect battery or recharge.](#)
2. Loose or broken wire #03 from battery to circuit breaker CB1.
 - [Check continuity. Replace if defective.](#)
3. Circuit breaker CB1 tripped or defective.
 - [Reset breaker, check for defective wiring. Replace if defective.](#)
4. Loose or broken wire #05 from circuit breaker CB1 to base emergency stop switch S3.
 - [Check continuity. Replace if defective.](#)
5. Open or defective base emergency stop switch S3.
 - [Close switch. Replace if defective.](#)
6. Loose or broken wire #07 from base emergency stop switch S3 to base key S2.
 - [Check continuity. Replace if defective.](#)
7. Open or defective key select switch S2.
 - [Close switch. Replace if defective.](#)
8. Loose or broken wire #60 from base terminal block to relay 60CR.
 - [Check continuity. Replace if defective.](#)
9. Loose or broken wire #07 from base emergency stop switch S3 to relay 60CR.
 - [Check continuity. Replace if defective.](#)
10. Loose or broken wire #02 from relay 60CR to base terminal block.
 - [Check continuity. Replace if defective.](#)
11. Defective relay 60CR.
 - [Check relay. Replace if defective.](#)
12. Loose or broken wire #9 from relay 60CR to base terminal block.
 - [Check continuity. Replace if defective.](#)
13. Loose or broken wire #02 from base terminal block to circuit breaker CB2.
 - [Check continuity. Replace if defective.](#)
14. Circuit breaker CB2 tripped or defective.
 - [Reset breaker, check for defective wiring. Replace if defective.](#)
15. Loose or broken wire #00 from circuit breaker CB2 to battery negative.
 - [Check continuity. Replace if defective.](#)

4.1-2 No Power To Platform

1. Open or defective key select switch S2.
 - [Close switch. Replace if defective.](#)
2. Loose or broken wire #07A from key select switch S2 to plug A pins # 4 & 5 in base control console.
 - [Check continuity. Replace if defective.](#)
3. Loose or broken wire #07A from plug A pins # 4 & 5 in platform control console to platform emergency stop switch S4.
 - [Check continuity. Replace if defective.](#)
4. Open or defective platform emergency stop switch S4.
 - [Check switch. Replace if defective.](#)

Electrical System (Continued)

4.1-3 No Power to Base

1. Open or defective base key switch S2.
 - Select base position on key switch. Check continuity through base key switch. Replace if defective.
2. Loose or broken wire #12 from base key switch S2 to start switch S5.
 - Check continuity. Replace if defective.
3. Loose or broken wire #12 from base key switch S2 to base connector plug A pin #9.
 - Check continuity. Replace if defective.
4. Loose or broken wire #12 in boom cable A or its connectors.
 - Check for continuity between pins #9 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
5. Loose or broken wire #12 from plug A pin #9 to emergency stop switch S4 in platform control console.
 - Check continuity. Replace if defective.
6. Open or defective emergency stop switch S4.
 - Check switch is in on position. Check continuity through switch. Replace if defective.
7. Loose or broken wire #10 from emergency stop switch S4 to plug A pin #8.
 - Check continuity. Replace if defective.
8. Loose or broken wire #10 in boom cable A or its connectors.
 - Check for continuity between pins #8 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #10 from plug A pin #8 to base terminal block.
 - Check continuity. Replace if defective.
10. Loose or broken wire #10 from base terminal block to emergency stop switch S3.
 - Check continuity. Replace if defective.
11. Loose or broken wire #10 from emergency stop switch S3 to enable switch S7.
 - Check continuity. Replace if defective.
12. Loose or broken wire #10 from enable switch S7 to start switch S5.
 - Check continuity. Replace if defective.

4.1-4 Engine Will Not Crank from Base

1. Loose or broken wire #10 from enable switch S7 to base start switch S5.
 - Check continuity. Replace if defective.
2. Loose or broken wire #57A from base start switch S5 to relay 57ACR.
 - Check continuity. Replace if defective.
3. Defective base start switch S5.
 - Check start button. Replace if defective.

4.1-5 Engine Will Not Crank from Platform

NOTE

Engine will not crank from platform with footswitch depressed.

1. Loose or broken wire #4 from emergency stop switch S4 to start switch S6.
 - Check continuity. Replace if defective.
2. Defective start switch S6.
 - Check continuity through switch. Replace if defective.
3. Loose or broken wire #57 from start switch S6 to relay 08CR.
 - Check continuity. Replace if defective.

Electrical System (Continued)

4. Defective relay 08CR.
 - Check continuity through contacts of relay. Replace if defective.
5. Loose or broken wire #57A from relay 08CR to plug B pin #12.
 - Check continuity. Replace if defective.
6. Loose or broken wire #57A in boom cable B or its connectors.
 - Check for continuity between pin #12 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
7. Loose or broken wire #57A from plug B pin #12 to relay 57ACR in base control console.
 - Check continuity. Replace if defective.

4.1-6 Engine Will Not Crank from Platform or Base (Deutz Diesel)

1. Loose or broken wire #57A at relay 57ACR (2 places).
 - Check for connections at relay. Check for voltage on relay (2 places).
2. Loose or broken wire #57A from relay 57ACR to relay 57BCR.
 - Check continuity. Replace if defective.
3. Loose or broken wire #00A from X23 engine connector pin #11 to relay 57ACR.
 - Check continuity. Replace if defective.
4. Loose or broken wire #00A from X23 engine connector pin #11 to engine oil pressure switch.
 - Check continuity. Replace if defective.
5. Defective relay 57ACR.
 - Check relay. Replace if defective.
6. Loose or broken wire #09 from base terminal block to relay 09CR.
 - Check continuity. Replace if defective.
7. Loose or broken wire #03A from circuit breaker CB3 to relay 09CR.
 - Check continuity. Replace if defective.
8. Tripped or defective circuit breaker CB3.
 - Reset circuit breaker. Check continuity through circuit breaker. Replace if defective.
9. Loose or broken wire #3 from circuit breaker CB3 to turret harness plug pin #2.
 - Check continuity. Replace if defective.
10. Loose or broken wire #02 from relay 09CR to base terminal block.
 - Check continuity. Replace if defective.
11. Defective relay 09CR.
 - Check relay. Replace if defective.
12. Loose or broken wire #54A from relay 09CR to base terminal block.
 - Check continuity. Replace if defective.
13. Loose or broken wire #54A from base terminal block to relay 57BCR1.
 - Check continuity. Replace if defective.
14. Defective contacts in relay 57BCR1.
 - Check continuity between wires #54A and #57C when cranking. If no continuity, replace relay.
15. Loose or broken wire #57C from relay 57BCR1 to X23 engine connector pin #4.
 - Check continuity. Replace if defective.
16. Loose or broken wire #57C from X23 engine plug to start solenoid 57CCR.
 - Check continuity. Replace if defective.
17. Loose or broken starter cable #03 from disconnect switch S1 to start solenoid 57CCR.
 - Check continuity. Replace if defective.
18. Defective start solenoid 57CCR.
 - Check solenoid. Replace if defective.
19. Defective starter motor.
 - Check starter motor. Replace if defective.

Electrical System (Continued)

4.1-7 Engine Cranks but Will Not Start (Deutz Diesel)

1. Loose or broken wire #57B from relay 57ACR to relay 57BCR (2 places).
 - 57BCR maintains power for start circuit before engine starts and after oil pressure switch opens to relay 57BCR1. Check wire #57B for continuity. Replace if defective.
2. Loose or broken wire #57A from relay 57ACR to relay 57BCR.
 - Check continuity. Replace if defective.
3. Loose or broken wire #02 from base terminal block to relay 57BCR.
 - Check continuity. Replace if defective.
4. Defective relay 57BCR.
 - Check relay. Replace if defective.
5. Glow plug circuit not operating.
 - See "Glow Plug Circuit Inoperative" in this section.
6. No fuel in fuel tank or fuel line obstructions.
 - Check fuel level and flow through lines. Fill or repair if necessary.

NOTE

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

4.1-8 Engine Will Not Crank from Platform or Base Control (GM Dual Fuel)

1. Loose or broken wire #54A from base terminal block TB1 to engine harness plug.
 - Check continuity. Replace if defective.
2. Loose or broken wire #54A from engine harness plug to GM engine connector 1.
 - Check continuity. Replace if defective.
3. Loose or broken pink wire from GM engine connector 1 to fuse F7.
 - Check continuity. Replace if defective.
4. Defective fuse F7.
 - Check fuse. Replace if defective
5. Loose or broken pink/tan wire from fuse F7 to ECU connector pin #45.
 - Check continuity. Replace if defective
6. Loose or broken red wire from battery positive to ECU fuse F8.
 - Check continuity. Replace if defective.
7. Defective fuse F8.
 - Check fuse. Replace if defective.
8. Loose or broken red/tan wire from fuse F8 to ECU connector pin #60 and pin #79.
 - Check continuity. Replace if defective.
9. Loose or broken black wire from engine ground to ECU connector pin #69 and #81.
 - Check continuity. Replace if defective.
10. Loose or broken light blue/pink wire from GM engine connector 1 to relay 57ACR.
 - Check continuity. Replace if defective.
11. Loose or broken pink/black wire from ECU connector pin #89 to relay 57ACR.
 - Check continuity. Replace if defective.
12. Defective relay 57ACR.
 - Check relay. Replace if defective.
13. Loose or broken red wire from battery positive to starter fuse F12.
 - Check continuity. Replace if defective.
14. Defective fuse F12.
 - Check fuse. Replace if defective.
15. Loose or broken red/tan wire from fuse F12 to relay 57ACR.
 - Check continuity. Replace if defective.

Electrical System (Continued)

16. Loose or broken white wire from relay 57ACR to start solenoid 32BCR.
 - Check continuity. Replace if defective.
17. Defective starter solenoid 32BCR.
 - Check solenoid. Replace if defective.
18. Loose or broken battery cable from starter solenoid 32BCR to starter motor.
 - Check continuity. Replace if defective.
19. Defective starter motor.
 - Check motor. Repair or replace if defective.

4.1-9 Engine Cranks but Will Not Start (GM Dual Fuel)

NOTE

For additional engine troubleshooting refer to diagnostic trouble codes for use with the check engine light.

1. Loose or broken red wire from battery positive to relay 2002CR.
 - Check continuity. Replace if defective.
2. Loose or broken red/tan wire from ECU fuse F8 to relay 2002CR.
 - Check continuity. Replace if defective.
3. Loose or broken white/ light blue wire from ECU connector pin #71 to relay 2002CR.
 - Check continuity. Replace if defective.
4. Defective relay 2002CR.
 - Check relay. Replace if defective.
5. Loose or broken pink/dark green wire from relay 2002CR to ignition fuse F10.
 - Check continuity. Replace if defective.
6. Defective fuse F10.
 - Check fuse. Replace if defective.
7. Loose or broken pink/dark green wire from fuse F10 to ignition coil IGC1 pin #A.
 - Check continuity. Replace if defective.
8. Loose or broken yellow wire from ignition coil IGC1 pin #B to ignition module IGM1.
 - Check continuity. Replace if defective.
9. Defective ignition coil IGC1.
 - Check coil for spark. Replace if defective.
10. Loose or broken pink/dark green wire from fuse F10 to ignition module IGM1 pin #A.
 - Check continuity. Replace if defective.
11. Loose or broken black wire from ignition module IGM1 pin #C to engine ground.
 - Check continuity. Replace if defective.
12. Loose or broken yellow wire from ignition module IGM1 pin #B to ECU connector pin #31.
 - Check continuity. Replace if defective.
13. Defective ignition module IGM1.
 - Check module for operation. Replace if defective.
14. Loose or broken pink/dark green wire from fuse F10 to gas injectors GI-1, GI-2, GI-3 and GI-4.
 - Check continuity. Replace if defective.
15. Loose or broken pink/white wire from ECU connector pin #82 to throttle actuator RA1.
 - Check continuity. Replace if defective.
16. Loose or broken tan/orange wire from ECU connector pin #83 to throttle actuator RA1.
 - Check continuity. Replace if defective.
17. Loose or broken light green/red wire from ECU connector pin #19 to throttle actuator RA1.
 - Check continuity. Replace if defective.

Electrical System (Continued)

18. Loose or broken black/light green wire from ECU connector pin #20 to throttle actuator RA1.
 - Check continuity. Replace if defective.
19. Loose or broken light blue/dark blue wire from ECU connector pin #6 to throttle actuator RA1.
 - Check continuity. Replace if defective.
20. Loose or broken purple/light blue wire from ECU connector pin #5 to throttle actuator RA1.
 - Check continuity. Replace if defective.

Fuel Related Problems (Gasoline Only)

21. Loose or broken pink/tan wire from fuse F7 to fuel pump relay 56CR.
 - Check continuity. Replace if defective.
22. Loose or broken red wire from battery positive to fuel pump relay 56CR.
 - Check continuity. Replace if defective.
23. Loose or broken tan/black wire from ECU connector pin #84 to fuel pump relay 56CR.
 - Check continuity. Replace if defective.
24. Defective fuel pump relay 56CR.
 - Check relay. Replace if defective.
25. Loose or broken pink/yellow wire from fuel pump relay 56CR to fuse F11.
 - Check continuity. Replace if defective.
26. Defective fuse F11.
 - Check fuse. Replace if defective.
27. Loose or broken pink/yellow wire from fuse F11 to fuel pump FP.
 - Check continuity. Replace if defective.
28. Defective fuel pump FP.
 - Check fuel pump by putting 12 volts and a ground to it. Replace if defective.
29. Loose or broken wire #3002 from fuel pump FP to GM engine connector 1.
 - Check continuity. Replace if defective.
30. Loose or broken black/red wire from GM engine connector to ECU connector pin #86.
 - Check continuity. Replace if defective.

(Propane Only)

NOTE

The fuel select switch is defaulted to gasoline. The engine will run on gasoline if propane is selected from the switch and either the switch is bad or a wire is loose or broken from the switch. This is providing there is nothing wrong on the gasoline side of the system. Disconnect fuel pump to test propane side.

31. Loose or broken wire #60 from platform terminal block to fuel select switch S26.
 - Check continuity. Replace if defective.
32. Defective fuel select switch S26.
 - Check switch. Replace if defective.
33. Loose or broken wire #11 from fuel select switch S26 to plug B pin #15 in platform control console.
 - Check continuity. Replace if defective.
34. Loose or broken wire #11 in boom cable B or its connectors.
 - Check continuity between pins #15 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
35. Loose or broken wire #11 from plug B pin #15 to engine harness plug.
 - Check continuity. Replace if defective.

Electrical System (Continued)

36. Loose or broken wire #11 from engine harness plug to GM engine connector 1.
 - Check continuity. Replace if defective.
37. Loose or broken tan/brown wire from GM engine connector 1 to ECU connector pin #42.
 - Check continuity. Replace if defective.
38. Loose or broken pink/tan wire from fuse F7 to propane lock off 2P-56.
 - Check continuity. Replace if defective.
39. Loose or broken white/black wire from ECU connector pin #75 to propane lock off 2P-56.
 - Check continuity. Replace if defective.
40. Defective propane lock off 2P-56.
 - Check lock off. Replace if defective.
41. Loose or broken pink/dark green wire from fuse F10 to fuse F9.
 - Check continuity. Replace if defective.
42. Defective fuse F9.
 - Check fuse. Replace if defective.
43. Loose or broken red/light blue wire from fuse F9 to propane regulator PRV1.
 - Check continuity. Replace if defective.
44. Loose or broken black wire from engine ground to propane regulator PRV1.
 - Check continuity. Replace if defective.

4.1-10 Glow Plug Circuit Inoperative

1. Defective glow plug fuse FU1 50 amp.
 - Check fuse. Replace if defective.
2. Loose or broken wire #03 from start solenoid 57CCR to fuse holder FU1.
 - Check continuity. Replace if defective.
3. Loose or broken wire #11A from fuse holder FU1 to relay 54ACR.
 - Check continuity. Replace if defective.
4. Loose or broken wire #11B from relay 54ACR to glow plugs.
 - Check continuity. Replace if defective.
5. Loose or broken wire #54A from base terminal strip to relay 54ACR.
 - Check continuity. Replace if defective.
6. Loose or broken wire #11 from base terminal block to relay 54ACR.
 - Check continuity. Replace if defective.
7. Defective relay 54ACR.
 - Check relay. Replace if defective.
8. Defective glow plugs.
 - Check glow plugs. Replace if defective.

NOTE

For other glow plug related problems, consult engine manufacturer's manual.

Electrical System (Continued)

4.1-11 All Base Control Console Inoperative

1. Loose or broken wire #10 from base emergency stop switch S3 to function enable switch S7.
 - Check continuity. Replace if defective.
2. Defective enable switch S7.
 - Check continuity through switch when activated. Replace if defective.
3. Loose or broken wire #20A from function enable switch S7 to basket rotation switch S16.
 - Check continuity. Replace if defective.
4. Loose or broken wire #20A from telescope switch S14 to diode D20A.
 - Check continuity. Replace if defective.
5. Open or defective diode D20A.
 - Check diode. Replace if defective.
6. Loose or broken wire #20 from diode D20A to base terminal block.
 - Check continuity. Replace if defective.
7. Missing or broken jumper JMPR3 on base terminal block between wires #20 and #21.
 - Check for jumper. Replace if missing or broken.

NOTE

Jumper is removed if equipped with generator option.

8. Loose or broken wire #21 from base terminal block to relay 21CR.
 - Check continuity. Replace if defective.
9. Loose or broken wire #02 from base terminal block to relay 21CR.
 - Check continuity. Replace if defective.
10. Loose or broken wire #09 from base terminal block to relay 21CR.
 - Check continuity. Replace if defective.
11. Defective relay 21CR.
 - Check relay. Replace if defective.
12. Loose or broken wire #21A from relay 21CR to turret harness plug pin #5.
 - Check continuity. Replace if defective.
13. Loose or broken wire #21A from turret harness plug pin #5 to dump valve 2H-21A.
 - Check continuity. Replace if defective.
14. Loose or broken wire #02 from dump valve 2H-21A to turret harness plug.
 - Check continuity. Replace if defective.
15. Defective dump valve coil 2H-21A.
 - Check continuity and resistance through coil. Replace if defective.

4.1-12 No Main Boom Down or Turret Rotate from Base Control Console

1. Loose or broken wire #20A from function enable switch S7 to resistor R1.
 - Check continuity. Replace if defective.
2. Open resistor R1.
 - Check resistor for 6 ohms. If no resistance found, replace resistor.
3. Loose or broken wire #20C from resistor R1 to turret rotate switch S13 and boom down switch S12.
 - Check continuity. Replace if defective.

Electrical System (Continued)

4.1-13 No Boom Up from Base Control Console

1. Loose or broken wire #20A from function enable switch S7 to boom switch S12.
 - Check continuity. Replace if defective.
2. Defective boom switch S12.
 - Check continuity through switch while activating up function between wires #20C and #14. Replace switch if no continuity.
3. Loose or broken wire #14 from boom switch S12 to base terminal block.
 - Check continuity. Replace if defective.
4. Loose or broken wire #14 from base terminal block to turret harness plug pin #4.
 - Check continuity. Replace if defective.
5. Loose or broken wire #14 from turret harness plug pin #4 to boom up valve 4H-14.
 - Check continuity. Replace if defective.
6. Loose or broken wire #02 from turret harness plug to boom up valve 4H-14.
 - Check continuity. Replace if defective.
7. Defective boom up coil 4H-14.
 - Check continuity and resistance through coil. Replace if defective.

4.1-14 No Boom Down from Base Control Console

1. Loose or broken wire #20C from resistor R1 to boom down switch S12.
 - Check continuity. Replace if defective.
2. Defective boom switch S12.
 - Check continuity through switch while activating down function between wires #20C and #13. If no continuity found, replace switch.
3. Loose or broken wire #13 from boom down switch S12 to base terminal block.
 - Check continuity. Replace if defective.
4. Loose or broken wire #13 from base terminal block to turret harness plug pin #3.
 - Check continuity. Replace if defective.
5. Loose or broken wire #13 from turret harness plug pin #3 to boom down valve 4H-13.
 - Check continuity. Replace if defective.
6. Loose or broken wire #02 from turret harness plug to boom down valve 4H-13.
 - Check continuity. Replace if defective.
7. Defective boom down coil 4H-13.
 - Check continuity and resistance through coil. Replace if defective.

4.1-15 No Turret Rotate Left from Base Control Console

1. Loose or broken wire #20C from resistor R1 to turret rotate switch S13.
 - Check continuity. Replace if defective.
2. Defective turret rotate switch S13.
 - Check continuity through switch while activating rotate left function between wires #20C and #32. If no continuity found, replace switch.
3. Loose or broken wire #32 from turret rotate switch S13 to base terminal block.
 - Check continuity. Replace if defective.
4. Loose or broken wire #32 from base terminal block to turret harness plug pin #10.
 - Check continuity. Replace if defective.
5. Loose or broken wire #32 from turret harness plug pin #10 to turret rotate left valve 4H-32.
 - Check continuity. Replace if defective.

Electrical System (Continued)

6. Loose or broken wire #02 from turret harness plug to turret rotate left valve 4H-32.
 - Check continuity. Replace if defective.
7. Defective turret rotate left valve coil 4H-32.
 - Check continuity and resistance through coil. Replace if defective.

4.1-16 No Turret Rotate Right from Base Control Console

1. Loose or broken wire #20C from resistor R1 to turret rotate switch S13.
 - Check continuity. Replace if defective.
2. Defective turret rotate switch S13.
 - Check continuity through switch while activating rotate right function between wires #20C and #33. If no continuity found, replace switch.
3. Loose or broken wire #33 from turret rotate switch S13 to base terminal block.
 - Check continuity. Replace if defective.
4. Loose or broken wire #33 from base terminal block to turret harness plug pin #11.
 - Check continuity. Replace if defective.
5. Loose or broken wire #33 from turret harness plug pin #10 to turret rotate right valve 4H-33.
 - Check continuity. Replace if defective.
6. Loose or broken wire #02 from turret harness plug to turret rotate right valve 4H-33.
 - Check continuity. Replace if defective.
7. Defective turret rotate right valve coil 4H-33.
 - Check continuity and resistance through coil. Replace if defective.

4.1-17 No Telescope Retract From Base Control Console

1. Loose or broken wire #20A from function enable switch S7 to telescope switch S14.
 - Check continuity. Replace if defective.
2. Defective telescope switch S14.
 - Check continuity through switch while activating retract function between wires #20A and #38. If no continuity found, replace switch.
3. Loose or broken wire #38 from telescope switch S14 to base terminal block.
 - Check continuity. Replace if defective.
4. Loose or broken wire #38 from base terminal block to turret harness plug pin #12.
 - Check continuity. Replace if defective.
5. Loose or broken wire #38 from turret harness plug pin #12 to telescope retract valve 4H-38.
 - Check continuity. Replace if defective.
6. Loose or broken wire #02 from turret harness plug to telescope retract valve 4H-38.
 - Check continuity. Replace if defective.
7. Defective telescope retract valve coil 4H-38.
 - Check continuity and resistance through coil. Replace if defective.

4.1-18 No Telescope Extend From Base Control Console

1. Loose or broken wire #20A from function enable switch S7 to telescope switch S14.
 - Check continuity. Replace if defective.
2. Defective telescope switch S14.
 - Check continuity through switch while activating extend function between wires #20A and #39. If no continuity found, replace switch.
3. Loose or broken wire #39 from telescope switch S14 to base terminal block.
 - Check continuity. Replace if defective.
4. Loose or broken wire #39 from base terminal block to turret harness plug pin #12.
 - Check continuity. Replace if defective.

Electrical System (Continued)

5. Loose or broken wire #39 from turret harness plug pin #13 to telescope extend valve 4H-39.
 - Check continuity. Replace if defective.
6. Loose or broken wire #02 from turret harness plug to telescope extend valve 4H-39.
 - Check continuity. Replace if defective.
7. Defective telescope extend valve coil 4H-39.
 - Check continuity and resistance through coil. Replace if defective.

4.1-19 No Platform Rotate Left From Base Control Console

1. Loose or broken wire #20A from function enable switch S7 to platform rotate switch S16.
 - Check continuity. Replace if defective.
2. Defective platform rotate switch S16.
 - Check continuity through switch while activating rotate left function between wires #20A and #36. If no continuity found, replace switch.
3. Open or defective diode D36-1.
 - Check diode. Replace if defective.
4. Loose or broken wire #37A from diode D36-1 to resistor R2.
 - Check continuity. Replace if defective.
5. Loose or broken wire #36 from platform rotate switch S16 to base connector plug B pin #1.
 - Check continuity. Replace if defective.
6. Loose or broken wire #36 in boom cable B or its connectors.
 - Check for continuity between pins #1 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
7. Loose or broken wire #36 plug B pin #1 to platform terminal block.
 - Check continuity. Replace if defective.
8. Loose or broken wire #36 from platform terminal block to platform rotate left valve 4H-36.
 - Check continuity. Replace if defective.
9. Loose or broken wire #02 from platform terminal block to platform rotate left valve 4H-36.
 - Check continuity. Replace if defective.
10. Defective platform rotate left valve coil 4H-36.
 - Check continuity and resistance through coil. Replace if defective.

4.1-20 No Platform Rotate Right from Base Control Console

1. Loose or broken wire #20A from function enable switch S7 to platform rotate switch S16.
 - Check continuity. Replace if defective.
2. Defective platform rotate switch S16.
 - Check continuity through switch while activating rotate right function between wires #20A and #37. If no continuity found, replace switch.
3. Open or defective diode D37-1.
 - Check diode. Replace if defective.
4. Loose or broken wire #37A from diode D37-1 to resistor R2.
 - Check continuity. Replace if defective.
5. Loose or broken wire #37 from platform rotate switch S16 to base connector plug B pin #2.
 - Check continuity. Replace if defective.
6. Loose or broken wire #37 in boom cable B or its connectors.
 - Check for continuity between pins #2 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
7. Loose or broken wire #37 plug B pin #2 to platform terminal block.
 - Check continuity. Replace if defective.

Electrical System (Continued)

8. Loose or broken wire #37 from platform terminal block to platform rotate right valve 4H-37.
 - Check continuity. Replace if defective.
9. Loose or broken wire #02 from platform terminal block to platform rotate right valve 4H-37.
 - Check continuity. Replace if defective.
10. Defective platform rotate right valve coil 4H-37.
 - Check continuity and resistance through coil. Replace if defective.

4.1-21 No Platform Rotate Left or Right from Base Control Console

1. Open resistor R2.
 - Check resistor for 12 ohms (45T) or 15 ohms (40T). If no resistance found, replace resistor.
2. Loose or broken wire #35A from resistor R2 to base key switch S2.
 - Check continuity. Replace if defective.
3. Open or defective base key switch S2.
 - Select base control on switch. Check continuity through switch. Replace if defective.
4. Loose or broken wire #42 from base key switch S2 to turret harness plug pin #16.
 - Check continuity. Replace if defective.
5. Loose or broken wire #42 from turret harness plug pin #16 to proportional flow enable valve 2H-42.
 - Check continuity. Replace if defective.
6. Loose or broken wire #02 from turret harness plug to proportional flow enable valve 2H-42.
 - Check continuity. Replace if defective.
7. Defective proportional flow enable valve coil 2H-42.
 - Check continuity and resistance through coil. Replace if defective.

4.1-22 No Jib Up from Base Control Console

1. Loose or broken wire #20A from function enable switch S7 to jib switch S17.
 - Check continuity. Replace if defective.
2. Defective jib up switch S17.
 - Check continuity through switch while activating jib up function between wires #20A and #35. If no continuity found, replace switch.
3. Open or defective diode D35-1.
 - Check diode. Replace if defective.
4. Loose or broken wire #35A from diode D35-1 to resistor R2.
 - Check continuity. Replace if defective.
5. Loose or broken wire #35 from jib up switch S17 to base connector plug A pin #24.
 - Check continuity. Replace if defective.
6. Loose or broken wire #35 in boom cable A or its connectors.
 - Check for continuity between pins #24 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
7. Loose or broken wire #35 from plug A pin #24 to platform terminal block.
 - Check continuity. Replace if defective.
8. Loose or broken wire #35 from platform terminal block to jib up valve 4H-35.
 - Check continuity. Replace if defective.
9. Loose or broken wire #02 from platform terminal block to jib up valve 4H-35.
 - Check continuity. Replace if defective.
10. Defective jib up valve coil 4H-35.
 - Check continuity and resistance through coil. Replace if defective.

Electrical System (Continued)

4.1-23 No Jib Down from Base Control Console

1. Loose or broken wire #20A from function enable switch S7 to jib switch S17.
 - Check continuity. Replace if defective.
2. Defective jib down switch S17.
 - Check continuity through switch while activating jib down function between wires #20A and #34. If no continuity found, replace switch.
3. Open or defective diode D34-1.
 - Check diode. Replace if defective.
4. Loose or broken wire #35A from diode D34-1 to resistor R2.
 - Check continuity. Replace if defective.
5. Loose or broken wire #34 from jib down switch S17 to base connector plug A pin #23.
 - Check continuity. Replace if defective.
6. Loose or broken wire #34 in boom cable A or its connectors.
 - Check for continuity between pins #23 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
7. Loose or broken wire #34 from plug A pin #23 to platform terminal block.
 - Check continuity. Replace if defective.
8. Loose or broken wire #34 from platform terminal block to jib down valve 4H-34.
 - Check continuity. Replace if defective.
9. Loose or broken wire #02 from platform terminal block to jib down valve 4H-34.
 - Check continuity. Replace if defective.
10. Defective jib down valve coil 4H-34.
 - Check continuity and resistance through coil. Replace if defective.

4.1-24 No Jib Up Or Down From Base Control Console

1. Loose or broken wire #35A from resistor R2 to base key switch S2.
 - Check continuity. Replace if defective.
2. Open or defective base key switch S2.
 - Select base control console on switch. Check continuity through switch. Replace if defective.
3. Loose or broken wire #42 from base key switch S2 to turret harness plug pin #16.
 - Check continuity. Replace if defective.
4. Loose or broken wire #42 from turret harness plug pin #16 to proportional flow enable valve 2H-42.
 - Check continuity. Replace if defective.
5. Loose or broken wire #02 from turret harness plug to proportional flow enable valve 2H-42.
 - Check continuity. Replace if defective.
6. Defective proportional flow enable valve coil 2H-42.
 - Check continuity and resistance through coil. Replace if defective.

4.1-25 No Manual Platform Level Up From Base Control Console

1. Loose or broken wire #20A from function enable switch S7 to platform level switch S15.
 - Check continuity. Replace if defective.
2. Defective platform level switch S15.
 - Check continuity through switch while activating level up function between wires #20A and #41. If no continuity found replace switch.
3. Loose or broken wire #41 from platform level switch S15 to base terminal block.
 - Check continuity. Replace if defective.
4. Loose or broken wire #41 from base terminal block to turret harness pin plug pin#15.
 - Check continuity. Replace if defective.
5. Loose or broken wire #41 from turret harness pin plug pin#15 platform level up valve 4H-41.
 - Check continuity. Replace if defective.

Electrical System (Continued)

6. Loose or broken wire #02 from turret harness pin plug platform level up valve 4H-41.
 - Check continuity. Replace if defective.
7. Defective platform level up valve coil 4H-41.
 - Check continuity and resistance through coil. Replace if defective.
8. Loose or broken wire #41 from base terminal block to base connector plug B pin #6.
 - Check continuity. Replace if defective.
9. Loose or broken wire #41 in boom cable B or its connectors.
 - Check for continuity between pins #6 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
10. Loose or broken wire #41 from plug B pin #6 to platform terminal block.
 - Check continuity. Replace if defective.
11. Open diode D41 located in platform terminal block.
 - Check diode. Replace if defective.

4.1-26 No Manual Platform Level Down From Base Control Console

1. Loose or broken wire #20A from function enable switch S7 to platform level switch S15.
 - Check continuity. Replace if defective.
2. Defective platform level switch S15.
 - Check continuity through switch while activating level down function between wires #20A and #40. If no continuity found replace switch.
3. Loose or broken wire #40 from platform level switch S15 to base terminal block.
 - Check continuity. Replace if defective.
4. Loose or broken wire #40 from base terminal block to turret harness pin plug pin #14.
 - Check continuity. Replace if defective.
5. Loose or broken wire #40 from turret harness pin plug pin #14 platform level down valve 4H-40.
 - Check continuity. Replace if defective.
6. Loose or broken wire #02 from turret harness pin plug platform level down valve 4H-40.
 - Check continuity. Replace if defective.
7. Defective platform level down valve coil 4H-40.
 - Check continuity and resistance through coil. Replace if defective.
8. Loose or broken wire #40 from base terminal block to base connector plug B pin #5.
 - Check continuity. Replace if defective.
9. Loose or broken wire #40 in boom cable B or its connectors.
 - Check for continuity between pins #5 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
10. Loose or broken wire #40 from plug B pin #5 to platform terminal block.
 - Check continuity. Replace if defective.
11. Open diode D40 located in platform terminal block.
 - Check diode. Replace if defective.

4.1-27 No Manual Platform Level Up From Platform Control Console

NOTE

This function times out after 15 seconds when operating this function only.

1. Loose or broken wire #90A from valve driver pin #12 to platform level switch S19.
 - Check continuity. Replace if defective.

Electrical System (Continued)

2. Defective platform level switch S19.
 - Check continuity through switch while activating level up function between wires #90A and #41. If no continuity found replace switch.
3. Loose or broken wire #41 from platform level switch S19 to platform terminal block.
 - Check continuity. Replace if defective.
4. Open diode D41 located in platform terminal block.
 - Check diode. Replace if defective.

4.1-28 No Manual Platform Level Down From Platform Control Console

NOTE

This function times out after 15 seconds when operating this function only.

1. Loose or broken wire #90A from valve driver pin #12 to platform level switch S19.
 - Check continuity. Replace if defective.
2. Defective platform level switch S19.
 - Check continuity through switch while activating level down function between wires #90A and #40. If no continuity found replace switch.
3. Loose or broken wire #40 from platform level switch S19 to platform terminal block.
 - Check continuity. Replace if defective.
4. Open diode D40 located in platform terminal block.
 - Check diode. Replace if defective.

4.1-29 All Controls Inoperative From Platform Control Console

1. Open or defective emergency stop switch S4.
 - Pull emergency switch out. Check continuity through switch. Replace if defective.
2. Loose or broken wire #4 from emergency stop switch S4 to platform terminal block.
 - Check continuity. Replace if defective.
3. Loose or broken jumper wire #4 on emergency stop switch S4.
 - Check continuity. Replace if defective.
4. Loose or broken pin jumper between #04 and #04A on platform terminal block (without generator option only).
 - Check continuity. Replace if defective.
5. Loose or broken wire #04 from platform terminal block to generator switch S22 (generator option only).
 - Check continuity. Replace if defective.
6. Generator switch S22 in generator mode or is open or defective (generator option only).
 - Select OFF mode on generator switch. Check continuity through switch from #04 to #04A. Replace if defective.
7. Loose or broken wire #04A from generator switch S22 to platform terminal block (generator option only).
 - Check continuity. Replace if defective.
8. Loose or broken wire #04A from platform terminal block to footswitch S11.
 - Check continuity. Replace if defective.
9. Open or defective footswitch S11.
 - Check continuity through switch while activating footswitch function between wires #04A and #08A. If no continuity found replace switch.

Electrical System (Continued)

10. Loose or broken wire #08A from footswitch S11 to valve driver pin #16.
 - Check continuity. Replace if defective.
11. Loose or broken wire #04 from platform terminal block to valve driver pin #1, 2, 13 & 14.
 - Check continuity. Replace if defective.
12. Loose or broken wire #02 from platform terminal block to valve driver pin #24, 25 & 26.
 - Check continuity. Replace if defective.
13. No output on pin #16 of the valve driver to wire #08B.
 - Check pin #6 for 12 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
14. Loose or broken wire #08B from valve driver pin #6 to relay 08BCR.
 - Check continuity. Replace if defective.
15. Loose or broken wire #02 from platform terminal block to relay 08BCR.
 - Check continuity. Replace if defective.
16. Loose or broken wire #04 from platform terminal block to relay 08BCR.
 - Check continuity. Replace if defective.
17. Loose or broken wire #08 from relay 08BCR to platform terminal block.
 - Check continuity. Replace if defective.
18. Defective relay 08BCR.
 - Check relay. Replace if defective.
19. Loose or broken wire #08 or #02 from platform terminal block to relay 08CR1.
 - Check continuity. Replace if defective.
20. Loose or broken wire #20D from platform terminal block to relay 08CR1.
 - Check continuity. Replace if defective.
21. Loose or broken wire #20 from 08CR1 relay to plug A pin #15 in platform control console.
 - Check continuity. Replace if defective.
22. Defective relay 08CR1.
 - Check relay. Replace if defective.

4.1-30 No Boom Up From Platform Control 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 A1 to valve driver pin #29.
 - Check continuity. Replace if defective.
5. No output on pin #5 of the valve driver to wire #20B.
 - Check pin #5 for 12 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
6. No output on pin #22 of the valve driver to wire #14.
 - Check pin #22 for minimum 3.5 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
7. Loose or broken wire #14 from valve driver pin #22 to plug A pin #11 in platform control console.
 - Check continuity. Replace if defective.
8. Loose or broken wire #14 in boom cable A or its connectors.
 - Check for continuity between pins #11 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #14 from base connector plug A pin #11 to base terminal block.
 - Check continuity. Replace if defective.

Electrical System (Continued)

10. Loose or broken wire #14 from base terminal block to turret harness plug pin #4.
 - Check continuity. Replace if defective.
11. Loose or broken wire #14 from turret harness plug pin #4 to boom up valve 4H-14.
 - Check continuity. Replace if defective.
12. Loose or broken wire #02 from turret harness plug to boom up valve 4H-14.
 - Check continuity. Replace if defective.
13. Defective boom up valve coil 4H-14.
 - Check continuity and resistance through coil. Replace if defective.

4.1-31 No Boom Down From Platform Control 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 A1 to valve driver pin #29.
 - Check continuity. Replace if defective.
5. No output on pin #5 of the valve driver to wire #20B.
 - Check pin #5 for 12 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
6. No output on pin #8 of the valve driver to wire #13.
 - Check pin #8 for minimum 3.5 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
7. Loose or broken wire #13 from valve driver pin #8 to plug A pin #10 in platform control console.
 - Check continuity. Replace if defective.
8. Loose or broken wire #13 in boom cable A or its connectors.
 - Check for continuity between pins #10 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #13 from base connector plug A pin #10 to base terminal block.
 - Check continuity. Replace if defective.
10. Loose or broken wire #13 from base terminal block to turret harness plug pin #3.
 - Check continuity. Replace if defective.
11. Loose or broken wire #13 from turret harness plug pin #3 to boom down valve 4H-13.
 - Check continuity. Replace if defective.
12. Loose or broken wire #02 from turret harness plug to boom down valve 4H-13.
 - Check continuity. Replace if defective.
13. Defective boom down valve coil 4H-13.
 - Check continuity and resistance through coil. Replace if defective.

4.1-32 No Turret Left from Platform Control 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 A1 to valve driver pin #28.
 - Check continuity. Replace if defective.

Electrical System (Continued)

5. No output on pin #5 of the valve driver to wire #20B.
 - Check pin #5 for 12 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
6. No output on pin #19 of the valve driver to wire #32.
 - Check pin #19 for minimum 3.5 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
7. Loose or broken wire #32 from valve driver pin #19 to plug A pin #21 in platform control console.
 - Check continuity. Replace if defective.
8. Loose or broken wire #32 in boom cable A or its connectors.
 - Check for continuity between pins #21 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #32 from base connector plug A pin #21 to base terminal block.
 - Check continuity. Replace if defective.
10. Loose or broken wire #32 from base terminal block to turret harness plug pin #10.
 - Check continuity. Replace if defective.
11. Loose or broken wire #32 from turret harness plug pin #10 to turret left valve 4H-32.
 - Check continuity. Replace if defective.
12. Loose or broken wire #02 from turret harness plug to turret left valve 4H-32.
 - Check continuity. Replace if defective.
13. Defective turret left valve coil 4H-32.
 - Check continuity and resistance through coil. Replace if defective.

4.1-33 No Turret Right from Platform Control 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 A1 to valve driver pin #28.
 - Check continuity. Replace if defective.
5. No output on pin #5 of the valve driver to wire #20B.
 - Check pin #5 for 12 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
6. No output on pin #10 of the valve driver to wire #33.
 - Check pin #10 for minimum 3.5 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
7. Loose or broken wire #33 from valve driver pin #10 to plug A pin #22 in platform control console.
 - Check continuity. Replace if defective.
8. Loose or broken wire #33 in boom cable A or its connectors.
 - Check for continuity between pins #22 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
9. Loose or broken wire #33 from base connector plug A pin #22 to base terminal block.
 - Check continuity. Replace if defective.
10. Loose or broken wire #33 from base terminal block to turret harness plug pin #11.
 - Check continuity. Replace if defective.
11. Loose or broken wire #33 from turret harness plug pin #11 to turret right valve 4H-33.
 - Check continuity. Replace if defective.

Electrical System (Continued)

12. Loose or broken wire #02 from turret harness plug to turret right valve 4H-33.
 - Check continuity. Replace if defective.
13. Defective turret right valve coil 4H-33.
 - Check continuity and resistance through coil. Replace if defective.

4.1-34 No Telescope In from Platform Control Console

NOTE

Toggle switch controls are speed controlled through a speed control selector A3.

1. Loose or broken wire #08 from platform terminal block to telescope switch S18.
 - Check continuity. Replace if defective.
2. Defective telescope switch S18.
 - Check continuity through switch while activating in function between wires #08 and #38A.
3. Loose or broken wire #38A from telescope switch S18 to valve driver pin #18.
 - Check continuity. Replace if defective.
4. No output on pin #5 of the valve driver to wire #20B.
 - Check pin #5 for 12 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
5. No output on pin #11 of the valve driver to wire #38.
 - Check pin #11 for minimum 3.5 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
6. Loose or broken wire #38 from valve driver pin #11 to plug B pin #3 in platform control console.
 - Check continuity. Replace if defective.
7. Loose or broken wire #38 in boom cable B or its connectors.
 - Check for continuity between pins #3 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
8. Loose or broken wire #38 from base connector plug B pin #3 to base terminal block.
 - Check continuity. Replace if defective.
9. Loose or broken wire #38 from base terminal block to turret harness plug pin #12.
 - Check continuity. Replace if defective.
10. Loose or broken wire #38 from turret harness plug pin #12 to telescope in valve 4H-38.
 - Check continuity. Replace if defective.
11. Loose or broken wire #02 from turret harness plug to telescope in valve 4H-38.
 - Check continuity. Replace if defective.
12. Defective telescope in valve coil 4H-38.
 - Check continuity and resistance through coil. Replace if defective.

4.1-35 No Telescope Out from Platform Control Console

1. Loose or broken wire #08 from platform terminal block to telescope switch S18.
 - Check continuity. Replace if defective.
2. Defective telescope switch S18.
 - Check continuity through switch while activating out function between wires #08 and #39A.
3. Loose or broken wire #39A from telescope switch S18 to valve driver pin #17.
 - Check continuity. Replace if defective.
4. No output on pin #5 of the valve driver to wire #20B.
 - Check pin #5 for 12 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.

Electrical System (Continued)

5. No output on pin #21 of the valve driver to wire #39.
 - Check pin #21 for minimum 3.5 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
6. Loose or broken wire #39 from valve driver pin #21 to plug B pin #4 in platform control console.
 - Check continuity. Replace if defective.
7. Loose or broken wire #39 in boom cable B or its connectors.
 - Check for continuity between pins #4 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
8. Loose or broken wire #39 from base connector plug B pin #4 to base terminal block.
 - Check continuity. Replace if defective.
9. Loose or broken wire #39 from base terminal block to turret harness plug pin #13.
 - Check continuity. Replace if defective.
10. Loose or broken wire #39 from turret harness plug pin #13 to telescope out valve 4H-39.
 - Check continuity. Replace if defective.
11. Loose or broken wire #02 from turret harness plug to telescope out valve 4H-39.
 - Check continuity. Replace if defective.
12. Defective telescope out valve coil 4H-39.
 - Check continuity and resistance through coil. Replace if defective.

4.1-36 No Platform Rotate or Jib Function from Platform Control Console

1. Loose or broken wire #08 from platform terminal block to rotate wswitch S20 and jib switch S21.
 - Check continuity. Replace if defective.
2. No output on pin #20 of the valve driver to wire #42.
 - Check pin #20 for minimum 3.5 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
3. Loose or broken wire #42 from valve driver pin #20 to plug B pin #7 in platform control console.
 - Check continuity. Replace if defective.
4. Loose or broken wire #42 in boom cable B or its connectors.
 - Check for continuity between pins #7 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
5. Loose or broken wire #42 from base connector plug B pin #7 to base key switch S2.
 - Check continuity. Replace if defective.
6. Loose or broken wire #42 from base key switch S2 to turret harness plug pin #16.
 - Check continuity. Replace if defective.
7. Loose or broken wire #42 from turret harness plug pin #16 to proportional flow enable valve 2H-42.
 - Check continuity. Replace if defective.
8. Loose or broken wire #02 from turret harness plug to proportional flow enable valve 2H-42.
 - Check continuity. Replace if defective.
9. Defective proportional flow enable valve 2H-42.
 - Check continuity and resistance through coil. Replace if defective.

4.1-37 No Platform Rotate Left from Platform Control Console

1. Defective platform rotate switch S20.
 - Check continuity through switch while activating rotate left function between wires #08 and #36.
2. Loose or broken wire #36 from platform rotate switch S20 to platform terminal block.
 - Check continuity. Replace if defective.
3. Loose or broken jumper wire #36 on platform terminal block.
 - Check continuity. Replace if defective.

Electrical System (Continued)

4. Open or defective diode D36 in platform terminal block.
 - Check diode. Replace if defective.
5. Loose or broken wire #36A from platform terminal block to valve driver pin #32.
 - Check continuity. Replace if defective.
6. Loose or broken wire #36 or #02 from platform terminal block to rotate left valve 4H-36.
 - Check continuity. Replace if defective.
7. Defective rotate left valve coil 4H-36.
 - Check continuity and resistance through coil. Replace if defective.

4.1-38 No Platform Rotate Right from Platform Control Console

1. Defective platform rotate switch S20.
 - Check continuity through switch while activating rotate right function between wires #08 and #37.
2. Loose or broken wire #37 from platform rotate switch S20 to platform terminal block.
 - Check continuity. Replace if defective.
3. Loose or broken jumper wire #37 on platform terminal block.
 - Check continuity. Replace if defective.
4. Open or defective diode D37 in platform terminal block.
 - Check diode. Replace if defective.
5. Loose or broken wire #36A from platform terminal block to valve driver pin #32.
 - Check continuity. Replace if defective.
6. Loose or broken wire #37 or #02 from platform terminal block to rotate right valve 4H-37.
 - Check continuity. Replace if defective.
7. Defective rotate right Valve coil 4H-37.
 - Check continuity and resistance through coil. Replace if defective.

4.1-39 No Jib Up from Platform Control Console

1. Defective jib switch S21.
 - Check continuity through switch while activating jib up function between wires #08 and #35.
2. Loose or broken wire #35 from jib switch S21 to platform terminal block.
 - Check continuity. Replace if defective.
3. Loose or broken jumper wire #35 on platform terminal block.
 - Check continuity. Replace if defective.
4. Open or defective diode D35 in platform terminal block.
 - Check diode. Replace if defective.
5. Loose or broken wire #34A from platform terminal block to valve driver pin #33.
 - Check continuity. Replace if defective.
6. Loose or broken wire #35 or #02 from platform terminal block to jib up valve 4H-35.
 - Check continuity. Replace if defective.
7. Defective jib up valve coil 4H-35.
 - Check continuity and resistance through coil. Replace if defective.

4.1-40 No Jib Down from Platform Control Console

1. Defective jib switch S21.
 - Check continuity through switch while activating jib down function between wires #08 and #34.
2. Loose or broken wire #34 from jib switch S21 to platform terminal block.
 - Check continuity. Replace if defective.
3. Loose or broken jumper wire #34 on platform terminal block.
 - Check continuity. Replace if defective.

Electrical System (Continued)

4. Open or defective diode D34 in platform terminal block.
 - Check diode. Replace if defective.
5. Loose or broken wire #34A from platform terminal block to valve driver pin #33.
 - Check continuity. Replace if defective.
6. Loose or broken wire #34 or #02 from platform terminal block to jib down valve 4H-34.
 - Check continuity. Replace if defective.
7. Defective jib down valve coil 4H-34.
 - Check continuity and resistance through coil. Replace if defective.

4.1-41 Mid Throttle Inoperative

1. Loose or broken wire #08 from platform terminal block to throttle switch S10.
 - Check continuity. Replace if defective.
2. Defective throttle switch S10.
 - Check continuity through switch while activating mid throttle function between wires #08 and #79. If no continuity found replace switch.
3. Loose or broken wire #79 from throttle switch S10 to plug B pin #18 in platform control console.
 - Check continuity. Replace if defective.
4. Loose or broken wire #79 in Cable B or its connectors.
 - Check for continuity between pins #18 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.

(Deutz Diesel Only)

5. Loose or broken wire #79 from base plug B pin #18 to relay 79CR.
 - Check continuity. Replace if defective.
6. Loose or broken wire #02 from base terminal block to relay 79CR.
 - Check continuity. Replace if defective.
7. Loose or broken wire #99 from relay 79CR to ECU connector pin #18.
 - Check continuity. Replace if defective.
8. Loose or broken wire #103 from relay 79CR to base terminal block.
 - Check continuity. Replace if defective.
9. Loose or broken wire #103 from base terminal block to ECU connector pin #17.
 - Check continuity. Replace if defective.
10. Defective relay 79CR.
 - Check relay. Replace if defective.

(GM Engine Only)

11. Loose or broken wire #79 from base plug B pin #18 to engine harness plug.
 - Check continuity. Replace if defective
12. Loose or broken wire #79 from engine harness plug to GM engine connector 2.
 - Check continuity. Replace if defective.
13. Loose or broken gray/dark blue wire from GM engine connector to ECU connector pin #51.
 - Check continuity. Replace if defective.
14. Loose or broken purple/light blue wire from ECU connector pin #5 to throttle actuator RA1.
 - Check continuity. Replace if defective.
15. Defective throttle actuator RA1.
 - Check actuator. Replace if defective.

Electrical System (Continued)

4.1-42 High Throttle Inoperative

1. Loose or broken wire #08 from platform terminal block to throttle switch S10.
 - Check continuity. Replace if defective.
2. Defective throttle switch S10.
 - Check continuity through switch while activating high throttle function between wires #08 and #78. If no continuity found replace switch.
3. Loose or broken wire #78 from throttle switch S10 to plug B pin #17 in platform control console.
 - Check continuity. Replace if defective.
4. Loose or broken wire #78 in Cable B or its connectors.
 - Check for continuity between pins #17 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.

(Deutz Diesel Only)

5. Loose or broken wire #78 from base plug B pin #17 to relay 78CR.
 - Check continuity. Replace if defective.
6. Loose or broken wire #02 from base terminal block to relay 78CR.
 - Check continuity. Replace if defective.
7. Loose or broken wire #90 from relay 78CR to ECU connector pin #21.
 - Check continuity. Replace if defective.
8. Loose or broken wire #103 from relay 78CR to base terminal block.
 - Check continuity. Replace if defective.
9. Loose or broken wire #103 from base terminal block to ECU connector pin #17.
 - Check continuity. Replace if defective.
10. Defective relay 78CR.
 - Check relay. Replace if defective.

(GM Engine Only)

11. Loose or broken wire #78 from base plug B pin #17 to engine harness plug.
 - Check continuity. Replace if defective.
12. Loose or broken wire #78 from engine harness plug to GM engine connector 2.
 - Check continuity. Replace if defective.
13. Loose or broken gray/orange wire from GM engine connector 2 to ECU connector pin #52.
 - Check continuity. Replace if defective.
14. Loose or broken light blue/dark blue wire from ECU connector pin #6 to throttle actuator RA1.
 - Check continuity. Replace if defective.
15. Defective throttle actuator RA1.
 - Check actuator. Replace if defective.

4.1-43 Brake will not Release

1. No output on pin #7 from valve driver to wire #26 when operating a drive function.
 - Check pin #7 for 12 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
2. Loose or broken wire #26 from valve drive pin #7 to plug A pin #18 in platform control console.
 - Check continuity. Replace if defective.
3. Loose or broken wire #26 in Cable A or its connectors.
 - Check for continuity between pins #18 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
4. Loose or broken wire #26 from base plug A pin #18 to turret harness plug pin #8.
 - Check continuity. Replace if defective.

Electrical System (Continued)

5. Loose or broken wire #26 or #02 from turret harness plug to brake valve 3H-26.
 - Check continuity. Replace if defective.
6. Defective brake valve coil 3H-26.
 - Check continuity and resistance through coil. Replace if defective.

4.1-44 No Drive and Steer

NOTE

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

1. Loose or broken wire #51 or #02 from base terminal block to relay 51CR.
 - Check continuity. Replace if defective.
2. Loose or broken wire #09 from base terminal block to relay 51CR.
 - Check continuity. Replace if defective.
3. Defective relay 51CR.
 - Check relay. Replace if defective.
4. Loose or broken wire #09A from relay 51CR to base plug A pin #7.
 - Check continuity. Replace if defective.
5. Loose or broken wire #09A in cable A or its connectors.
 - Check for continuity between pins #7 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
6. Loose or broken wire #09A from plug A pin #7 to drive joystick A2 in platform control console.
 - Check continuity. Replace if defective.
7. Loose or broken wire #02 from platform terminal block to drive joystick A2.
 - Check continuity. Replace if defective.

4.1-45 No Forward 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 valve driver pin #27.
 - Check continuity. Replace if defective.
3. No output from valve driver pin #34 to wire #16.
 - Check pin #34 for minimum 2 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
4. Loose or broken wire #16 from valve driver pin #34 to resistor R4.
 - Check continuity. Replace if defective.
5. Open resistor R4.
 - Check resistor for 30 ohms. If no resistance found replace resistor.
6. Loose or broken wire #16 from resistor R4 to plug A pin #13 in platform control console.
 - Check continuity. Replace if defective.
7. Loose or broken wire #16 in cable A or its connectors.
 - Check for continuity between pins #13 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
8. Loose or broken wire #16 from base plug A pin #13 to turret harness plug pin #21.
 - Check continuity. Replace if defective.
9. Loose or broken wire #16 or #02 from turret harness plug to forward drive valve 3H-16.
 - Check continuity. Replace if defective.
10. Defective forward drive valve coil 3H-16.
 - Check continuity and resistance through coil. Replace if defective.

Electrical System (Continued)

4.1-46 No 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 valve driver pin #27.
 - Check continuity. Replace if defective.
3. No output from valve driver pin #23 to wire #15.
 - Check pin #23 for minimum 2 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
4. Loose or broken wire #15 from valve driver pin #23 to resistor R3.
 - Check continuity. Replace if defective.
5. Open resistor R3.
 - Check resistor for 30 ohms. If no resistance found replace resistor.
6. Loose or broken wire #15 from resistor R3 to plug A pin #12 in platform control console.
 - Check continuity. Replace if defective.
7. Loose or broken wire #15 in cable A or its connectors.
 - Check for continuity between pins #12 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
8. Loose or broken wire #15 from base plug A pin #12 to turret harness plug pin #20.
 - Check continuity. Replace if defective.
9. Loose or broken wire #15 or #02 from turret harness plug to reverse drive valve 3H-15.
 - Check continuity. Replace if defective.
10. Defective reverse drive valve coil 3H-15.
 - Check continuity and resistance through coil. Replace if defective.

4.1-47 No High Speed Drive

NOTE

Aerial platform must be level and boom must be below 15 degrees
and fully retracted for high speed drive.

1. Loose or broken wire #09 from base terminal block to limit switch LS2.
 - Check continuity. Replace if defective.
2. Open or defective limit switch LS2.
 - Ensure boom is below 15 degrees. Adjust switch if required. Check continuity through switch. Replace if required.
3. Loose or broken wire #29 from limit switch LS2 to base terminal block.
 - Check continuity. Replace if defective.
4. Loose or broken wire #29 from limit switch LS2 to base plug A pin #20.
 - Check continuity. Replace if defective.
5. Loose or broken wire #29 in cable A or its connectors.
 - Check for continuity between pins #20 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
6. Loose or broken wire #29 from plug A pin #20 to limit switch LS3 in platform control console.
 - Check continuity. Replace if defective.
7. Open or defective limit switch LS3.
 - Ensure boom is fully retracted. Adjust switch if required. Check continuity through switch. Replace if defective.
8. Loose or broken wire #59 from limit switch LS3 to platform terminal block.
 - Check continuity. Replace if defective.
9. Loose or broken wire #59 from platform terminal block to plug B pin #13.
 - Check continuity. Replace if defective.

Electrical System (Continued)

10. Loose or broken wire #59 in boom cable B or its connectors.
 - Check for continuity between pins #13 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
11. Loose or broken wire #59 from base plug B pin #13 to base terminal block.
 - Check continuity. Replace if defective.
12. Open or defective diode D59 in base terminal block.
 - Check diode. Replace if defective.
13. Loose or broken wire #59 from platform terminal block to valve driver pin #31.
 - Check continuity. Replace if defective.
14. Defective valve driver channel input for high drive enable.
 - See section 5 for test procedure on valve driver.
15. Loose or broken wire #59 from platform terminal block to torque switch S48.
 - Check continuity. Replace if defective.
16. Open or defective torque switch S48.
 - Check continuity through switch while activating low torque function between wires #59 and #45. If no continuity found replace switch.
17. Loose or broken wire #45 from torque switch S48 to plug B pin #9 in platform control console.
 - Check continuity. Replace if defective.
18. Loose or broken wire #45 in cable B or its connectors.
 - Check for continuity between pins #9 on cable B. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
19. Loose or broken wire #45 from plug B pin #9 in base terminal block.
 - Check continuity. Replace if defective.
20. Loose or broken wire #45 from base terminal block to turret harness plug pin #17.
 - Check continuity. Replace if defective.
21. Loose or broken wire #45 or #02 from turret harness plug to 2 speed valve 3H-45.
 - Check continuity. Replace if defective.
22. Defective 2 speed valve 3H-45.
 - Check continuity and resistance through coil. Replace if defective.

4.1-48 No Elevated Drive

NOTE

Aerial platform must be level to drive elevated.

1. Loose or broken wire #09 or #02 from base terminal block to level sensor TS1.
 - Check continuity. Replace if defective.
2. Misadjusted, no output or defective level sensor TS1.
 - Adjust level sensor if required. Check for 12 volts on wire #28 with drive activated. If no voltage present or if defective, replace level sensor.
3. Loose or broken wire #28 from level sensor TS1 to base terminal block.
 - Check continuity. Replace if defective.
4. Open or defective diode D28 in base terminal block.
 - Check diode. Replace if defective.

Electrical System (Continued)

4.1-49 No Left Steer

NOTE

This function times out after 15 seconds when operating this function only.

1. Loose or broken wire #24 from drive joystick A2 to platform terminal block.
 - Check continuity. Replace if defective.
2. Open or defective diode D24 in platform terminal block.
 - Check diode. Replace if defective.
3. Loose or broken wire #24 from platform terminal block to relay 17ACR1.
 - Check continuity. Replace if defective.
4. Defective N/C contacts in relay 17ACR1.
 - Check relay. Replace if defective.
5. Loose or broken wire #24A from relay 17ACR1 to plug A pin #17 in platform control console.
 - Check continuity. Replace if defective.
6. Loose or broken wire #24A in boom cable A or its connectors.
 - Check for continuity between pins #17 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
7. Loose or broken wire #24A from base plug A pin #17 in base terminal block.
 - Check continuity. Replace if defective.
8. Loose or broken wire #24A from base terminal block to turret harness plug pin #7.
 - Check continuity. Replace if defective.
9. Loose or broken wire #24A or #02 from turret harness plug to left steer valve 4H-24A.
 - Check continuity. Replace if defective.
10. Defective left steer valve coil 4H-24A.
 - Check continuity and resistance through coil. Replace if defective.

4.1-50 No Right Steer

NOTE

This function times out after 15 seconds when operating this function only.

1. Loose or broken wire #23 from drive joystick A2 to platform terminal block.
 - Check continuity. Replace if defective.
2. Open or defective diode D23 in platform terminal block.
 - Check diode. Replace if defective.
3. Loose or broken wire #23 from platform terminal block to relay 17ACR2.
 - Check continuity. Replace if defective.
4. Defective N/C contacts in relay 17ACR2.
 - Check relay. Replace if defective.
5. Loose or broken wire #23A from relay 17ACR2 to plug A pin #16 in platform control console.
 - Check continuity. Replace if defective.
6. Loose or broken wire #23A in boom cable A or its connectors.
 - Check for continuity between pins #16 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
7. Loose or broken wire #23A from base plug A pin #16 to base terminal block.
 - Check continuity. Replace if defective.
8. Loose or broken wire #23A from base terminal block to turret harness plug pin #6.
 - Check continuity. Replace if defective.

Electrical System (Continued)

9. Loose or broken wire #23A or #02 from turret harness plug to right steer valve 4H-23A.
 - Check continuity. Replace if defective.
10. Defective left steer valve coil 4H-23A.
 - Check continuity and resistance through coil. Replace if defective.

4.1-51 Direction Sensing Inoperative

1. Loose or broken wire #09 from base terminal block to limit switch LS1.
 - Check continuity. Replace if defective.
2. Open or defective limit switch LS1.
 - Adjust limit switch if required. Check continuity through switch. Replace if defective.
3. Loose or broken wire #17 from limit switch LS1 to base terminal block.
 - Check continuity. Replace if defective.
4. Loose or broken wire #17 from base terminal block to base plug A pin #14.
 - Check continuity. Replace if defective.
5. Loose or broken wire #17 in boom cable A or its connectors.
 - Check for continuity between pins #14 on cable A. Check for loose or corroded connections on cable connectors. Replace if wire is defective.
6. Loose or broken wire #17 from base plug A pin #14 to valve driver pin #15 in platform control console.
 - Check continuity. Replace if defective.
7. Defective valve driver channel input for direction sense enable.
 - See section 5 for test procedure on valve driver.

4.1-52 Steer Direction Sensing Inoperative

1. No output on valve driver pin #4 to wire #17A.
 - Check pin #4 for 12 volts. If no voltage present with foot on footswitch check section 5 for valve driver test procedure.
2. Loose or broken wire #17A from valve driver pin #4 to relays 17ACR1 and 17ACR2.
 - Check continuity. Replace if defective.
3. Loose or broken wire #02 from platform terminal block to relays 17ACR1 and 17ACR2.
 - Check continuity. Replace if defective.
4. Defective relays 17ACR1 and 17ACR2.
 - Check relay. Replace if defective.

NOTE

If only one relay is bad and one is OK, you will have steer in one direction only.

Hydraulic System

4.2-1 All Controls Inoperative

1. Broken or defective drive pump shaft or coupling.
 - Check pump shaft and coupling. Replace if defective.
2. Hydraulic oil level low.
 - Check oil level. Fill to proper level.

4.2-2 All Boom Functions 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 RV8.
 - Set valve to specifications. Check o-rings and clean valve. Repair or replace valve as required.
3. System pump P2 out of adjustment or is defective.
 - Refer to section 5 for pump set up procedure. Replace if defective.
4. Defective load sense adjusting valve 3H-V2.
 - Check valve. Replace if defective.
5. Defective pressure compensator valve 3H-V1.
 - Check valve. Replace if defective.
6. Plugged or defective high pressure filter F2.
 - Check filter. Replace if plugged or defective.

4.2-3 No Main Boom Up

1. Stuck or defective lift up valve 4H-14.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective shuttle valve SV4.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective check valve CV8.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB5.
 - Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective lift cylinder C1.
 - Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.2-4 No Main Boom Down

1. Stuck or defective lift down valve 4H-13.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective shuttle valve SV4.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective check valve CV8.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve CB5.
 - Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective lift cylinder C1.
 - Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

Hydraulic System (Continued)

4.2-5 No Turret Rotate Left

1. Stuck or defective rotate left valve 4H-32.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective shuttle valve SV3.
 - Clean valve. Check O-rings on 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. 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 shuttle valve SV6.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
6. Stuck or defective counterbalance valve CB4.
 - Clean valve. Check O-rings on valve. Repair or replace valve as required.
7. Turret rotate brake BR2 not releasing.
 - Inspect brake for worn seals or broken components. Repair and replace as necessary.
8. Worn or defective swing drive motor M2.
 - Check motor. Repair or replace if defective.
 -

4.2-6 No Turret Rotate Right

1. Stuck or defective rotate right valve 4H-33.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective shuttle valve SV3.
 - Clean valve. Check O-rings on 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. 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 shuttle valve SV6.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
6. Stuck or defective counterbalance valve CB3.
 - Clean valve. Check O-rings on valve. Repair or replace valve as required.
7. Turret rotate brake BR2 not releasing.
 - Inspect brake for worn seals or broken components. Repair and replace as necessary.
8. Worn or defective swing drive motor M2.
 - Check motor. Repair or replace if defective.

Hydraulic System (Continued)

4.2-7 No Boom Extend

1. Stuck or defective boom extend valve 4H-39.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective shuttle valve SV5.
 - Clean valve. Check O-rings on valve. Check operation of 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 relief valve RV7.
 - Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
5. Stuck or defective counterbalance valve CB6.
 - 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.

4.2-8 No Boom Retract

1. Stuck or defective boom extend valve 4H-38.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective shuttle valve SV5.
 - Clean valve. Check O-rings on valve. Check operation of 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 relief valve RV7.
 - 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.
 -

4.2-9 No Jib Up

1. Stuck or defective proportional 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 CV12.
 - Clean valve. Check O-rings on 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 CB10.
 - Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective jib cylinder.
 - Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

Hydraulic System (Continued)

4.2-10 No Jib Down

1. Stuck or defective proportional 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 CV12.
 - Clean valve. Check O-rings on 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 CB11.
 - Clean valve. Check O-rings on valve. Repair or replace valve as required.
5. Defective jib cylinder.
 - Check seals on cylinder. Replace as necessary. Replace cylinder if defective.
 -

4.2-11 No Platform Rotation Right

1. Stuck or defective proportional 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 CV12.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective rotate right valve 4H-37.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve 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.
 -

4.2-12 No Platform Rotation Left

1. Stuck or defective proportional 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 CV12.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective rotate left valve 4H-36.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
4. Stuck or defective counterbalance valve 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.

Hydraulic System (Continued)

4.2-13 Platform will not Level Down

1. Stuck or defective platform level down valve 4H-40.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV10.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective counterbalance valve CB2 or counterbalance valve CB8.
 - Clean valve. Check O-rings on valve. Repair or replace valve as required.
4. Defective leveling cylinder C3 or slave cylinder C4.
 - Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.2-14 Platform will not Level Up

1. Stuck or defective platform level up valve 4H-41.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV11.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective counterbalance valve CB1 or counterbalance valve CB9.
 - Clean valve. Check O-rings on valve. Repair or replace valve as required.
4. Defective leveling cylinder C3 or slave cylinder C4.
 - Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.2-15 Brake will not Release

1. Stuck or defective shuttle valve SV2.
 - 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 SV1.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
5. Defective or misadjusted relief valve RV4.
 - 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 V3.
 - Clean valve. Check O-rings on valve. Repair or replace valve as required.
8. Bypassing or defective brake cylinder BR1.
 - Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

Hydraulic System (Continued)

4.2-16 Brake will not Engage

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

4.2-17 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 RV3.
 - Set valve to specifications. Check O-rings and clean valve. Repair or replace valve as required.
3. Plugged or defective charge pump filter F1.
 - Check filter. Replace if plugged or defective.
4. Worn charge pump P1A.
 - Check pump. Replace if defective.
5. Defective pump displacement control 3H-15 and 3H-16.
 - Check control. Replace if defective.
6. Open bypass valve V4.
 - Close bypass valve.
7. Drive directional valve 4H-V1 stuck in neutral position.
 - Check valve. Replace if defective.
8. Worn drive pump P1.
 - Check pump. Replace if defective.
9. Worn or defective drive motor M1.
 - Check motor. Replace if defective.

4.2-18 No Forward Drive

1. Defective pump displacement control 3H-16.
 - Check control. Replace if defective.
2. Defective or misadjusted drive relief valve RV1.
 - See section 5 for drive pump set up procedures.

4.2-19 No Reverse Drive

1. Defective pump displacement control 3H-15.
 - Check control. Replace if defective.
2. Defective or misadjusted drive relief valve RV2.
 - See section 5 for drive pump set up procedures.

Hydraulic System (Continued)

4.2-20 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 spool in drive motor M1.
 - Check motor. Repair or replace if necessary.

4.2-21 No Right Steer

1. Stuck or defective right valve 4H-23A.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV5 or CV6.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective check valve CV4.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. Defective steer cylinder C6 for 4WD or C9 for 2WD.
 - Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.2-22 No Left Steer

1. Stuck or defective left steer valve 4H-24A.
 - Clean valve. Check operation of valve. Repair or replace valve as required.
2. Stuck or defective check valve CV5 or CV6.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
3. Stuck or defective check valve CV3.
 - Clean valve. Check O-rings on valve. Check operation of valve. Repair or replace valve as required.
4. Defective steer cylinder C6 for 4WD or C9 for 2WD.
 - Check seals on cylinder. Replace as necessary. Replace cylinder if defective.

4.2-23 Axle Will Not Oscillate

NOTE

Axle will only oscillate when boom is fully retracted and is no greater than 15 degrees above horizontal.

1. Stuck or defective axle lockout valve 3H-65.
 - Clean valve. Replace if defective.
2. One or more counterbalance valves (CB14, CB15, CB16 or CB17) failed to shift or is defective.
 - Clean valve. Check O-rings on valve. Repair or replace valve as required.

Hydraulic System (Continued)

4.2-24 Axle Will Not Lock

NOTE

Axle is in constant float if boom is fully retracted and is below 15 degrees of elevation.

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. Blocked tank port #3 in rotary manifold.
 - Ensure port #3 in rotary manifold free flows back to tank.
3. Bypassing or defective axle cylinders C7 and C8.
 - Check seals on cylinder. Replace as necessary. Replace cylinder if defective.
4. Counterbalance valves (CB14, CB15, CB16 or CB17) out of adjustment or are defective.
 - Clean valve. Check O-rings on valve. Repair or replace valve as required.

Load Sensing System - CE

4.3-1 Green Power LED is not Flashing

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

4.3-2 Load Cell red Alarm LED is ON (with platform empty)

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

4.3-3 Red Error LED is ON

1. Open safety contact circuit.
 - Check for connections with wires #161 and #162A at platform terminal block and base terminal block. Check resistor R6 for 680 ohms.

4.3-4 Load Cell red Alarm LED is OFF (with platform overloaded)

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

4.3-5 Platform Indicator Light does not turn ON

1. Defective lamp.
 - Check lamp. Replace if defective.
2. Defective relay 82CR.
 - Check relay. Replace if defective.
3. Load cell circuit not operating.
 - Check for connections with wire #02A at pilot light strip and relay 82CR, and wire #82 at platform terminal block and relay 82CR.
4. Defective load cell.
 - Defective if 0V is measured between wire #82 and #02 from platform terminal block.

4.3-6 Audible Alarm does not turn ON

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

4.3-7 Boom and Drive Functions are Enabled (with boom extended)

1. "Fly IN" limit switch LS3 is not operating properly.
 - Check for voltage (0V) between wires #59 and #02 from platform terminal block. If 12V is measured, check for proper actuation of limit switch. Readjust limit switch if necessary.
2. Defective load cell. Safety contact remains closed.
 - Check for voltage (0V) between wires #162A and #02 from base terminal block. Defective if 12V is measured.

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General

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



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.

Platform

5.1-1 Human Machine Interface (HMI)

Maintaining proper calibration is essential for good performance of the aerial platform.

1. Ensure aerial platform is on a firm level surface, and is in stowed position and engine is off.
2. On base control, turn base/off/platform key switch to “” platform position.
3. Pull out “” emergency stop button.



WARNING

Ensure that you maintain three points of contact to mount/dismount platform.

3. Enter platform and close gate.



WARNING

DO NOT operate any control on platform control console without proper fall protection secured to designated location in platform. Failure to avoid this hazard could result in death or serious injury!



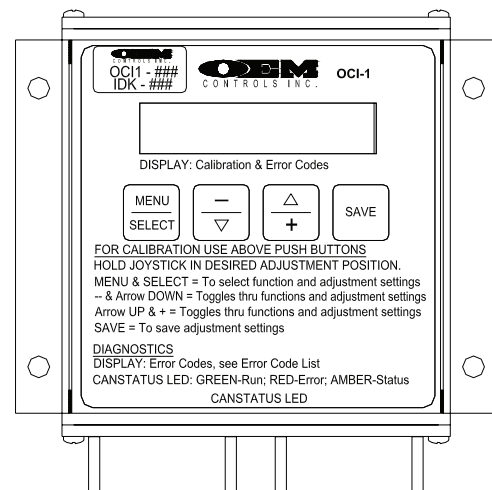
WARNING

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


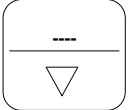
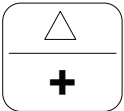

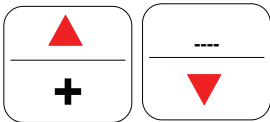
4. At platform control, open the cover of the console to access the OCI-1 console.

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



5.1-2 User Interface Keys

1.0		1.0-1 <MENU> enters a new menu screen and/or 1.0-2 <SELECT> select the flashing item.
1.1		1.1-1 <MINUS> decreases an adjustable parameter such as ramp time. 1.1-2 <DOWN> selects the previous item in the current menu's list.
1.2		1.2-1 <PLUS> increases an adjustable parameter. 1.2-2 <UP> 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 press <UP> and <DOWN> will reset the HMI to menu screen 0.

OCM Character Functions Charts

OCM Keypad		Function Attribute	
Keys	Short Form		
Menu/Select	(M/S)	THRESH	Threshold
▼/-	(-)	RAMPDN	Ramp Down
▲/+	(+)	RAMPUP	Ramp Up
Save/Exit	(S/E)	LOWRNG	Low Range
		MAXOUT	Maximum Output

OCM Function (Channel) Names	
DRIVE REV Fn01A	Drive Reverse
DRIVE FWD Fn01B	Drive Forward
ROTATE L Fn02A	Turret Rotate Left
ROTATE R Fn02B	Turret Rotate Right
BOOM DOWN Fn03A	Main Boom Down
BOOM UP Fn03B	Main Boom Up
FLY IN Fn04A	Boom Telescope Retract
FLY OUT Fn04B	Boom Telescope Extend
PROP FLOW Fn05A	Jib and Platform Rotate
PROP FLOW Fn05B	Unused Channel

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OCM Operating Values Chart

Input	Expected Value	Description
AI 1	0.5V to 8.5V	Drive Joystick
AI 2	0.5V to 8.5V	Turret Rotation Joystick
AI 3	0.5V to 8.5V	Boom Elevation Joystick
AI 4	0.5V to 7.5V	Flow Enable Rotary Potentiometer
DI 1	0 or 1	Direction Reverse Limit Sw.
DI 2	0 or 1	Footswitch Actuated
DI 3	0 or 1	Telescope Out Toggle Switch
DI 4	0 or 1	Telescope In Toggle Switch
DI 5	0 or 1	Jib Toggle Enabled
DI 6	0 or 1	Platform Rotation Toggle Enabled
DI 11	0 or 1	High Speed Drive Enable Limit Switch

Output	Adjustable Parameter	Description
PWM 1	25 to 75%	Drive Reverse
PWM 2	25 to 75%	Drive Forward
PWM 3	21 to 35%	Turret Rotate Left
PWM 4	21 to 35%	Turret Rotate Right
PWM 5	21 to 35%	Main Boom Down
PWM 6	38 to 47%	Main Boom Up
PWM 7	0 to 100%	Jib and Platform Rotate
PWM 11	40 to 48%	Boom Telescope Retract
PWM 12	45 to 70%	Boom Telescope Extend
Output	Expected Value	Description
DOUT 1	0 or 1	Steering Reverse Relay
DOUT 2	0 or 1	Load Sense Valve Enable
DOUT 3	0 or 1	Footswitch Actuated Indicator
DOUT 4	0 or 1	Holding Brake OFF (Energize to release)
DOUT 5	0 or 1	Manual Platform Level Enable

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5.1-3 How to View OCM Operation

As a joystick or toggle switch is being activated, the OCM screen will display the active function and % output. Also, the following procedure will allow monitoring of all input and output channels:

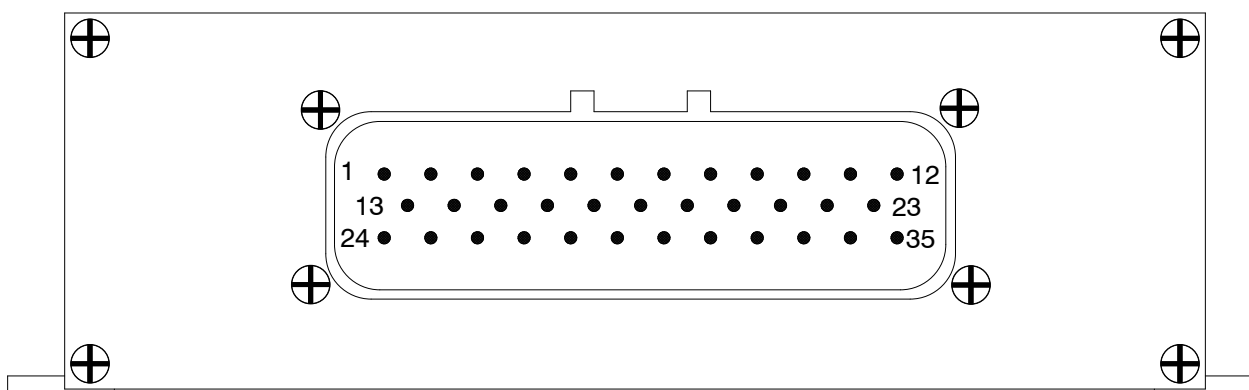
Press M/S, <ENTER PASSWORD> is displayed
Press +, two times until <IO TEST> is flashing
Press M/S, <Di> page is displayed, channels Di1 to Di5
Press +, channels Di6 to Di10 are displayed
Press +, channel Di11 is displayed
Press M/S, <Ai> page is displayed, channels Ai1 to Ai3
Press +, channels Ai4 to Ai6 are displayed
Press M/S <Do> page is displayed, channels Do1 to Do5
Press +, channels Do6 to Do8 are displayed
Press M/S, <PWM> page is displayed, channels PWM1 and PWM 2
Press +, channels PWM3 and PWM4 are displayed
Press +, channels PWM5 and PWM6 are displayed
Press +, channels PWM7 and PWM8 are displayed
Press +, channels PWM9 and PWM10 are displayed
Press +, channels PWM11 and PWM12 are displayed
Press M/S, <VDD POWER SUPPLY> is displayed
Press M/S, <8v SENSOR SUPPLY> is displayed
Press S/E, two times to return to <RUN MODE>

See [OCM Operating Values Chart on page 5](#) for operating valves for the previous observations.

5.1-4 How to Unlock and Modify OCM Settings

Press +, Part Number and Serial Number are displayed
Press + again, <UNLOCK SETUP?> is displayed
Press M/S, <ENTER PASSWORD> is displayed
Press + until "7" is flashing in first column
Press M/S
Press + until "5" is flashing in second column
Press M/S
Press + until "5" is flashing in third column
Press M/S, <SETUP UNLOCKED PRESS - OR +> is flashing
Press +, <SET DRIVE TIMER PRESS SELECT> is flashing
Press S/E, <RUN MODE: NORMAL> is displayed
Press M/S, <ADJUST> is flashing
Press M/S, <DRIVE REV THRESH> is flashing
Press + or - to toggle through the functions
Press M/S, <THRESH> is flashing
Press + or - to toggle through THRESH/MAXOUT/LOWRNG/RAMPUP/RAMPDN
When <LOWRNG> is flashing, press M/S, <XX.X%> is flashing
Press + or - to increase or decrease the value
Press S/E to Save the value
Press S/E to exit THRESH/MAXOUT/LOWRNG/RAMPUP/RAMPDN
Press S/E to exit function screen
Press S/E to enter RUN MODE

Cycle power to the OCM with the E-Stop to re-enable password protection.

5.1-5 OCM Pin Voltage Reference

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

- Pin 1 - 12 volt input from wire 4.
Test between pin 1 and 02 wire.
- Pin 2 - 12 volt input from wire 4.
Test between pin 2 and 02 wire.
- Pin 3 - 8 volt output (purple wire) to boom speed controller.
7.5 volts= speed control in circuit.
Test between pin 3 and 02 wire.
- Pin 4 - Turret position. 12 volt output on wire 17A to relays 17ACR1 and 17ACR2 for directional sensing.
0 volts= Platform over drive axle.
12 volts= Platform over steer axle.
Test between pin 4 and 02 wire.
- Pin 5 - 12 volt output on wire 20B to load sense dump valve when any function selected.
Test between pin 5 and 02 wire while selecting a function.
- Pin 6 - 12 volt output on wire 08B to boom function enable relay 08BCR.
Test between pin 6 and 02 wire.
- Pin 7 - 12 volt output on wire 26 to brake valve 3H-26 to release brakes.
Test between pin 7 and 02 wire.
- Pin 8 - Boom down selected. Proportional output on wire 13 to boom down valve 4H-13.
0 volts to 4.85 volts depending on position of joystick. Threshold= 1.5 volts.
Test between pin 8 and 02 wire while operating boom down.
- Pin 9 - Not used.

- Pin 10 - Turret rotate right selected. Proportional output on wire 33 to turret rotate right valve 4H-33.
0 volts to 5 volts depending on position of joystick. Threshold= .5 volts.
Test between pin 10 and 02 wire while operating turret rotate right.
- Pin 11 - Telescope in selected. Proportional output on wire 38 to telescope in valve 4H-38.
0 volts to 4.65 volts depending on boom speed control potentiometer.
Threshold= .95 volts.
Test between pin 11 and 02 wire while operating telescope in.
- Pin 12 - 12 volt output on wire 90A to manual platform level switch.
No voltage will be present if boom up or down function is activated.
Test between pin 12 and 02 wire.
- Pin 13 - 12 volt input from wire 4.
Test between pin 13 and 02 wire.
- Pin 14 - 12 volt input from wire 4.
Test between pin 14 and 02 wire.
- Pin 15 - Turret position. 12 volt input from wire 17 (limit switch LS1).
0 volts= Platform over drive axle.
12 volts= Platform over steer axle.
Test between 15 and 02 wire.
- Pin 16 - Foot switch activated. 12 volt input from wire 08A.
Test between pin 16 and 02 wire.
- Pin 17 - Telescope out selected. 12 volt input from wire 39A.
Test between pin 17 and 02 wire.
- Pin 18 - Telescope in selected. 12 volt input from wire 38A.
Test between pin 18 and 02 wire.
- Pin 19 - Turret rotate left selected. Proportional output on wire 32 to turret rotate left valve 4H-32.
0 volts to 5 volts depending on position of joystick. Threshold= .5 volts.
Test between pin 19 and 02 wire while operating turret rotate left.
- Pin 20 - Platform rotate or jib function selected. Proportional output on wire 42 to proportional flow enable valve 2H-42.
0 volts to 3.85 volts while operating platform rotate depending on boom speed control potentiometer position. Threshold= 2.3 volts.
0 volts to 9 volts while operating jib function depending on boom speed control potentiometer position. Threshold= 2.3 volts.
Test between pin 20 and 02 wire.
- Pin 21 - Telescope out selected. Proportional output on wire 39 to telescope out valve 4H-39.
0 volts to 6.8 volts depending on boom speed control potentiometer position. Threshold= .95 volts.
Test between pin 21 and 02 wire while operating telescope out.
- Pin 22 - Boom up selected. Proportional output on wire 14 to boom up valve 4H-14.
0 volts to 6.3 volts depending on joystick position. Threshold= 1.5 volts.
Test between pin 22 and 02 wire while operating boom up.

- Pin 23 - Reverse drive selected. Proportional output on wire 15 to reverse drive valve 3H-15.
0 volts to 7.5 volts depending on joystick position. Threshold= 1.5 volts.
Test between pin 23 and 02 wire while operating reverse drive.
- Pin 24 - Battery negative. Wire 02.
- Pin 25 - Battery negative. Wire 02.
- Pin 26 - Battery negative. Wire 02.
- Pin 27 - Accelerator input. Wire D from drive joystick controller.
Neutral position= 4.2 volts to 4.8 volts.
Forward function= 4.9 volts to 8.5 volts.
Reverse function= 4.1 volts to .5 volts.
Test between pin 27 and 02 wire.
- Pin 28 - Turret rotate input. Wire X from boom joystick controller.
Neutral position= 4.2 volts to 4.8 volts.
Rotate right function= 4.9 volts to 8.5 volts.
Rotate left function= 4.1 volts to .5 volts.
Test between pin 28 and 02 wire.
- Pin 29 - Boom elevation input. Wire Y from boom joystick controller.
Neutral position= 4.2 volts to 4.8 volts.
Boom up function= 4.9 volts to 8.5 volts.
Boom down function= 4.1 volts to .5 volts.
Test between pin 29 and 02 wire.
- Pin 30 - Accelerator input. Signal wire (green wire) from boom speed controller.
Proportional voltage. .5 volts= slow speed up to 7.5 volts= fast speed.
Test between pin 30 and 02 wire while operating telescope in/out, jib up/down or basket rotate.
- Pin 31 - 12 volt input from wire 59. From LS2 boom elevation limit switch and LS3 telescope limit switch.
12 volts= full speed. 0 volts= creep speed (one or more limit switches open).
Test between pin 31 and 02 wire.
- Pin 32 - Platform rotate enable. 12 volt input from wire 36A.
Test between pin 32 and 02 wire.
- Pin 33 - Jib function enable. 12 volt input from wire 34A.
Test between pin 33 and 02 wire.
- Pin 34 - Forward drive selected. Proportional output on wire 16 to forward drive valve 3H-16.
0 volts to 7.5 volts depending on joystick position. Threshold= 1.5 volts.
Test between pin 34 and 02 wire while operating forward drive.
- Pin 35 - Not used.

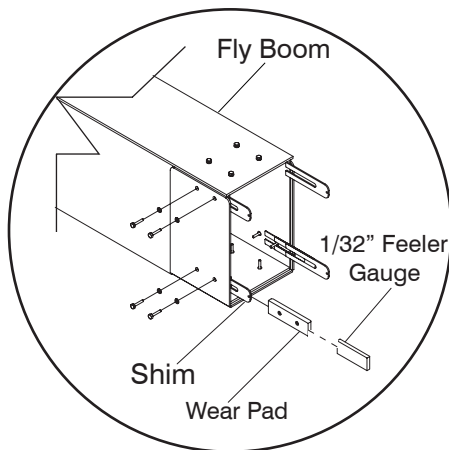
Boom

5.2-1 Check Wear Pads

1. Ensure aerial platform is on a firm level surface and is in stowed position.
2. Start engine from base control console.
3. Raise main boom to a comfortable working height (chest high), and then extend fly boom approximately 1 foot (30 cm).
4. Measure the thickness of each wear pad and replace wear pad if it is less than 7/16 inches (11 mm)
5. If wear pad is within specified thickness, shim as necessary.

5.2-2 Shimming Wear Pads

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



Shim & Feeler Gauge

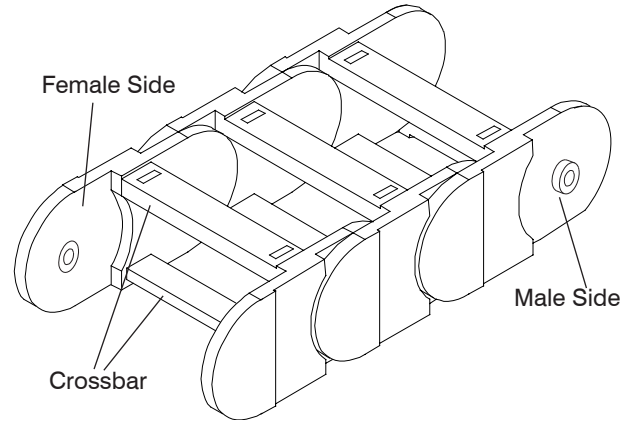
6. Extend and retract fly boom through the entire range of motion and observe for loose points.

NOTE

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

5.2-3 Cable Carrier Repair

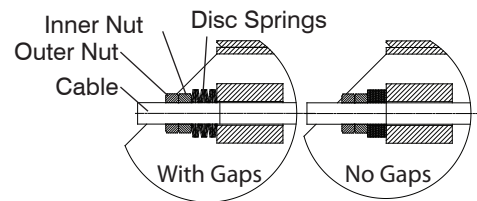
The cable carrier can be repaired by simply using a screwdriver. Each crossbar can be snapped off from either side of the chain either by hand or by using the screwdriver as a lever. New crossbars may be installed by snapping links together.



Cable Carrier Assembly

5.2-4 Cable Tension (61T/66T)

1. Loosen outer nut.
2. Tighten inner nut until no gaps are shown in between springs.
3. Tighten same nut with half a turn.
4. Tighten outer nut to secure inner nut.
5. Repeat step 1-4 for all cable ends with gaps.

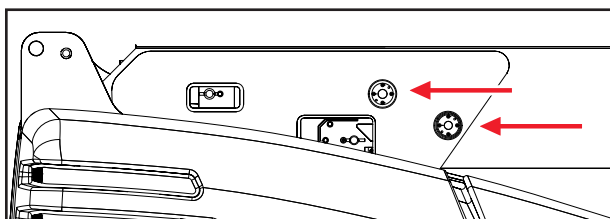


Cable Disc Springs

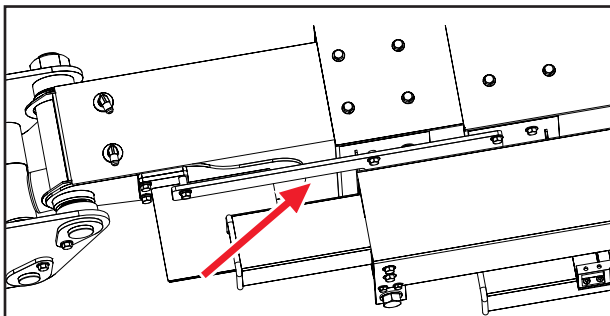
5.2-5 Inspection and Replacement of Boom Cables (61T/66T)

This inspection procedure involves completely removing the boom cable from the boom arm assembly and visually inspecting the cable for wear and tear, and then replacing boom cable if necessary. This inspection procedure must be done once at the start of the first 7th year of boom cable life, and then every 2 years if boom cable is not replaced.

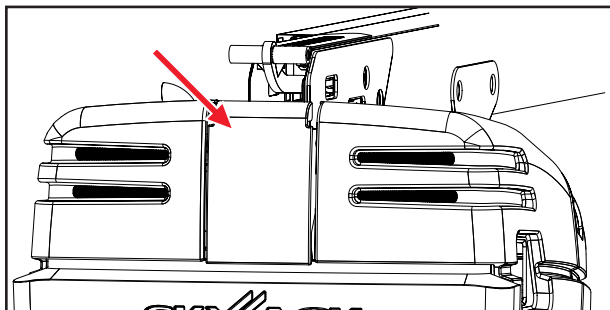
1. Ensure aerial platform is on flat level ground.
2. Raise/lower boom to horizontal level.
3. Extend/Retract boom to align flanges with boom holes.



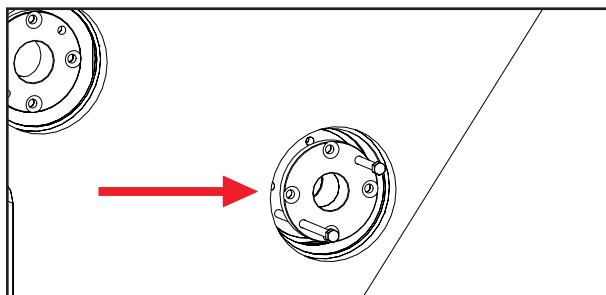
4. Install alignment bracket using side upper wear pad bolt holes.



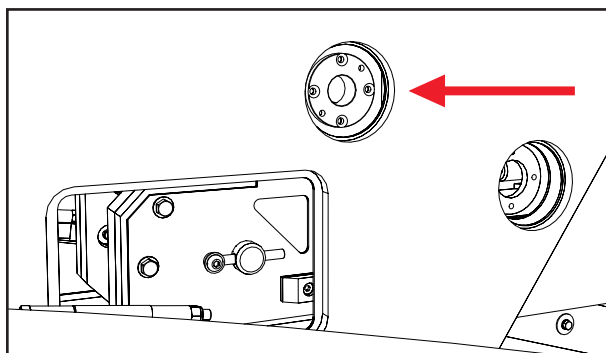
5. Turn engine off. Add a support underneath boom. Leave a 2" gap between boom and support.
6. Remove center cowling from turret.



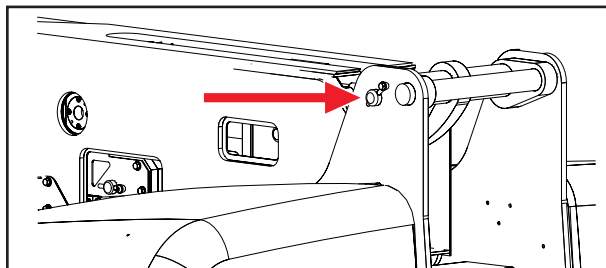
7. Loosen all four cables at anchor points.
8. Remove all fasteners on flanges.
9. Remove cable support weldment flanges with 2 long bolts (minimum 2" long) and tap out pin.



10. Remove extension cylinder flange pins from boom.

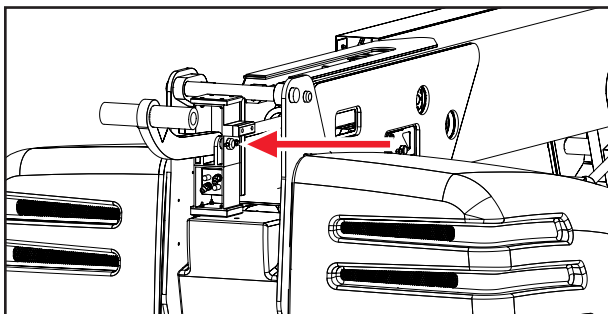


11. Remove link pin of link weldment at turret end of boom.



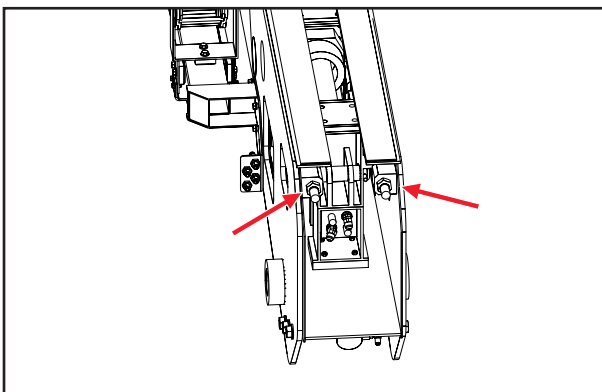
12. Lift up link weldment to access hydraulic hoses. Disconnect hydraulic hoses from extension cylinder, cap hoses and plug cylinder manifold connections.
13. Remove hydraulic hoses from link weldment bracket.
14. Slowly pull out extension cylinder assembly from the rear of turret until cylinder end passes boom counterweight.

15. Remove link pin of link weldment at cylinder end.

**WARNING**

Carefully lift link weldment from boom.

16. Remove upper cable from anchor points at turret end of boom.

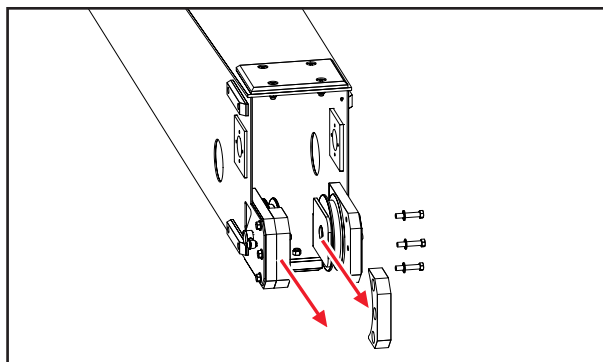


17. Pull out extension cylinder, along with upper cables, to about 1/3 of the way.

**CAUTION**

Avoid cable entanglement with other components while removing extension cylinder.

18. Remove mid boom cable stops from mid boom.



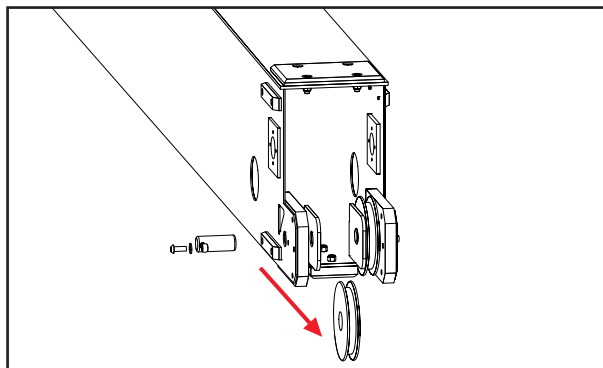
19. Continue to pull out cylinder to about 2/3 of the way.

20. Pull cable support weldment past mid boom pulleys.

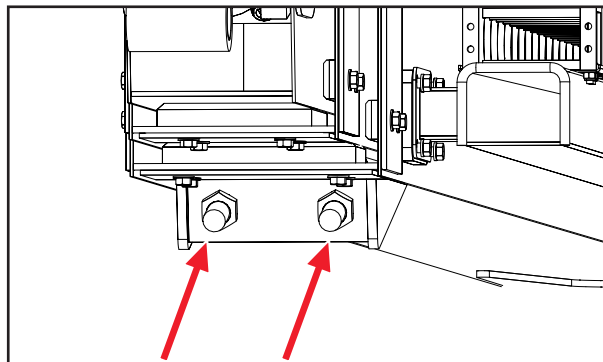
**CAUTION**

Avoid cable entanglement with other components while removing extension cylinder.

21. Remove mid boom pulleys from boom.



22. Remove lower cables from anchor points at platform end.



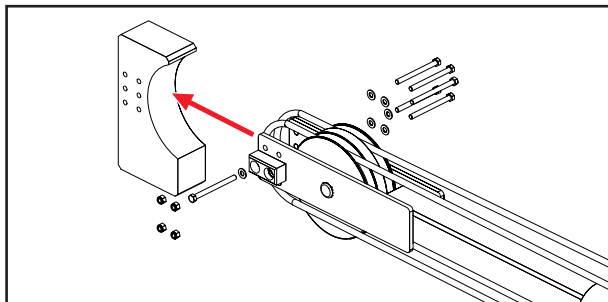
23. Remove extension cylinder and cables from boom.



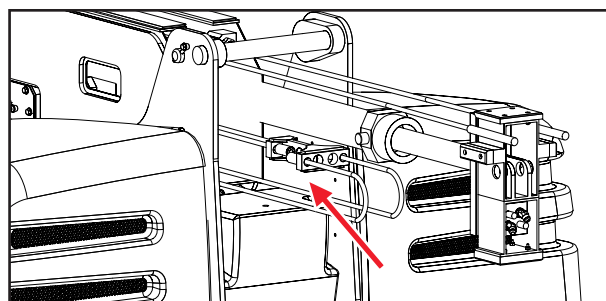
CAUTION

Slightly lift mid boom at turret end to allow lower cables to be pulled out from underneath of boom.

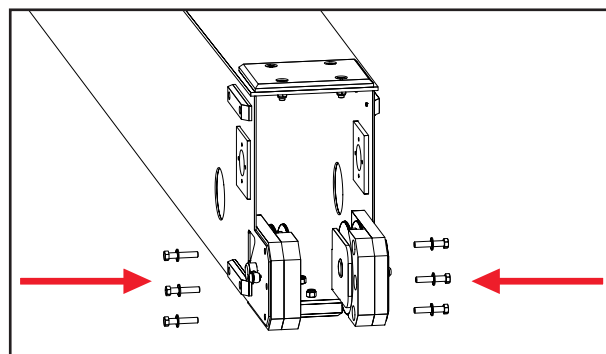
24. Lower extension cylinder onto suitable supports.
25. Remove cable stop and cables from extension cylinder pulley.



26. Replace old cables with new cables and reattach cable stop.

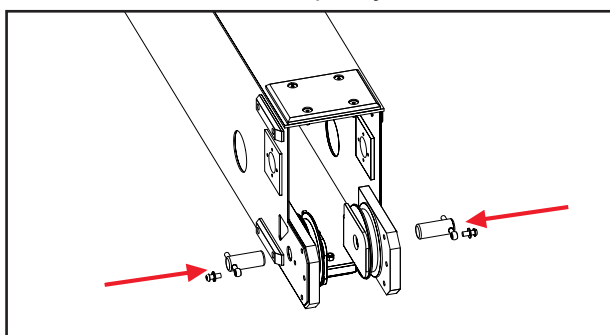


5. Align lower cables to mid boom pulleys and attach cable stops to mid boom pulleys.



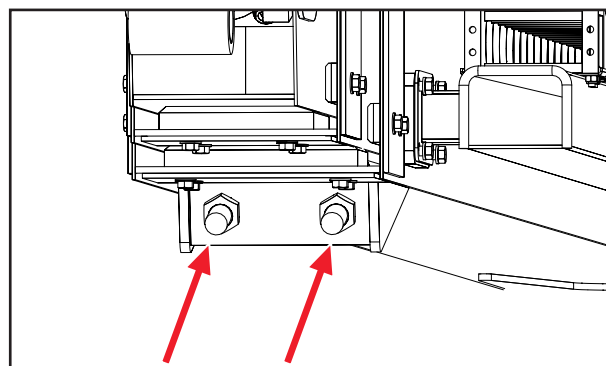
5.2-6 Installing Cables

1. Lift extension cylinder and position it to be inserted at turret end of boom.
2. Slightly lift mid boom and feed lower cables between mid and main boom weldment from turret end of boom to platform end.
3. Attach mid boom pulleys to mid boom.



4. Orient the cable support weldment to proper position and push extension cylinder rod end and cable support past the mid boom pulleys.

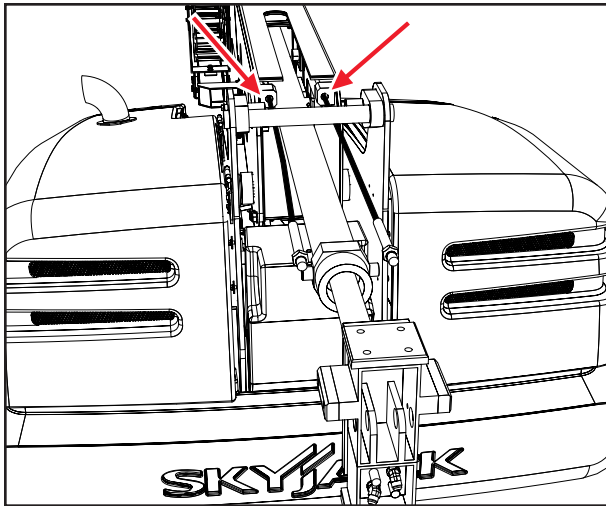
6. Feed lower cables further into boom and secure at anchor points.



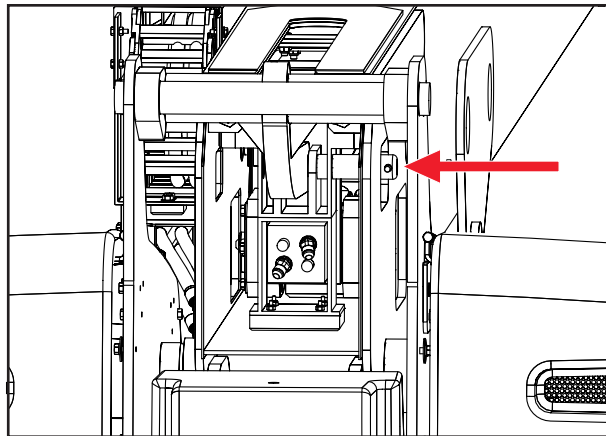
CAUTION

Avoid cable entanglement with other components while inserting extension cylinder.

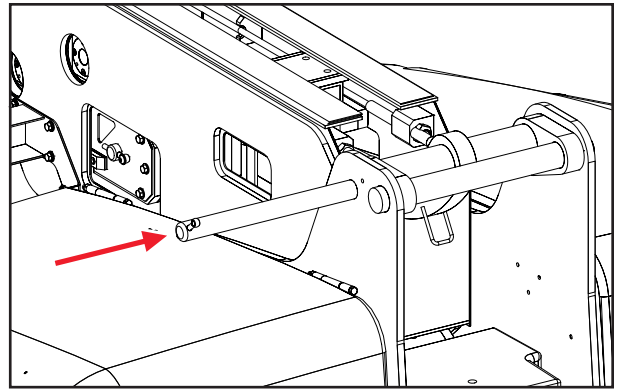
7. Insert extension cylinder 2/3 of the way, and then attach upper cables to anchor points at turret end of boom.



8. Fully insert extension cylinder into boom.
9. Install extension cylinder flange pins.
10. Install cable support weldment flange pins.
11. Install link pin of link weldment at cylinder end.



12. Lift up link weldment to access cylinder manifold.
13. Attach hydraulic hoses through link weldment bracket and reconnect hoses to cylinder manifold.
14. Install link pin of link weldment at turret end of boom.

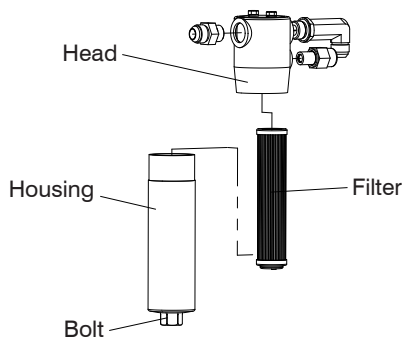


15. Remove alignment bracket.
16. Tighten cable anchors to reduce slack.

Turret

5.3-1 Check and Replace High Pressure Filter

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



High Pressure Filter

5. Using a 30 mm box wrench, loosen bolt and remove high pressure filter housing from filter head.
6. Remove high pressure filter from filter head and install a new high pressure filter.
7. Apply hydraulic oil to the o-ring on the high pressure filter housing.
8. Reinstall filter and re-tighten bolt. For torque specification, refer to [section 2](#).

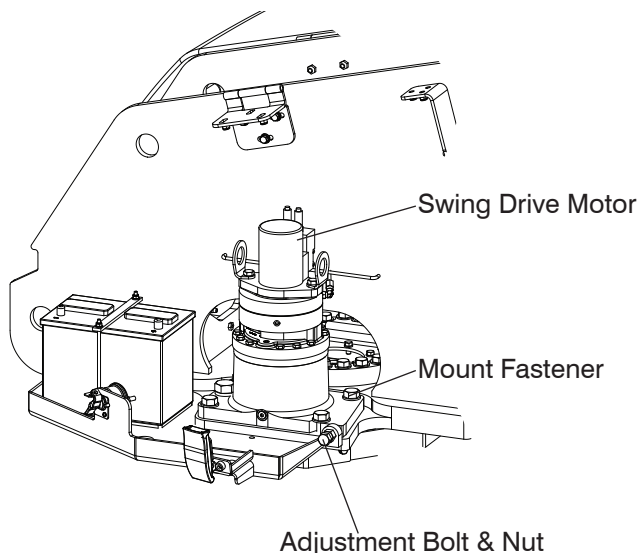
5.3-2 Adjust Turret Rotation Gear Backlash

The swing drive motor is located in the engine compartment.

NOTE

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

1. Ensure aerial platform is on a firm level surface.

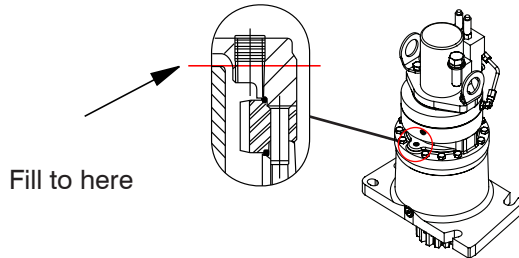


Swing Drive Assembly

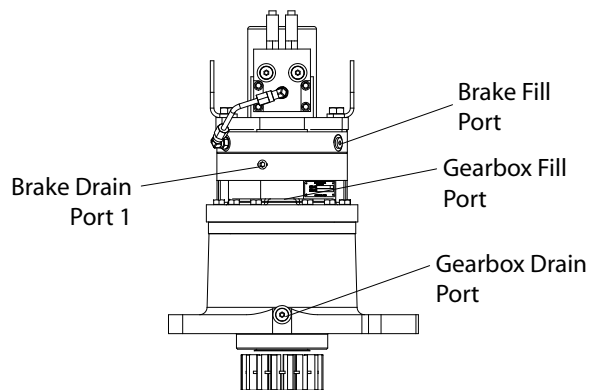
2. Loosen mounting fasteners on the swing drive motor.
3. Push the swing drive motor towards the turret as close as possible. (this will push the rotation gear into the rotation bearing)
4. Loosen lock nut on adjustment bolt.
5. Tighten adjustment bolt clockwise until it contacts the plate of gearbox.
6. Turn adjustment bolt $\frac{1}{2}$ turn counterclockwise, then tighten lock nut on adjustment bolt.
7. Pull swing drive motor away from turret until it contacts the adjustment bolt.
8. Tighten mounting fasteners on swing drive motor.
7. Rotate turret through an entire rotation and check for a smooth rotation of the turret.

5.3-3 Check Swing Drive Motor Gearbox Oil

1. Remove gearbox fill plug.
2. Check oil level (oil level should be slightly below the plug, see below). Add oil if needed. For oil specification, Refer to [section 2](#).

**Gearbox Fill Port****5.3-4 Change Swing Drive Motor Oil****NOTE**

Oil change must be performed on a flat level surface.

**Gearbox Ports**

- **Change Gearbox Oil**

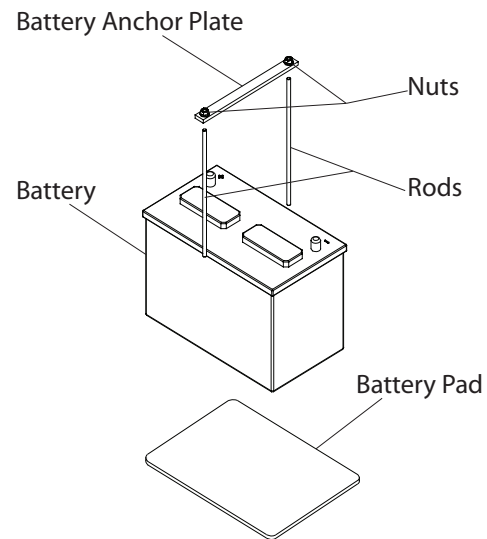
1. Remove plug at fill port.
2. Place suitable container under drain port.
3. Remove plug at drain port to drain the oil.
4. Reinstall the drain plug.
5. Refill gearbox with oil (32oz, 80W90)
6. Reinstall plug at fill port.

- **Change Brake Oil**

1. Remove plug at fill port.
2. Place suitable container under drain port.
2. Remove plug at drain port to drain the oil.
3. Reinstall the drain plug.
4. Refill brake with hydraulic oil (2.7oz, VG32)
5. Reinstall plug at fill port.

5.3-5 Battery Replacement

1. Turn main power disconnect switch to off position.

**Battery Assembly**

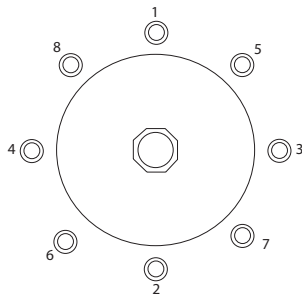
2. Remove positive and negative connector from battery.
3. Remove the battery.
4. Replace battery pad if needed.
5. Replace and secure the battery.
6. Clean terminal posts and clamps of battery, and apply acid-free and acid-resistant grease.
7. Re-connect battery with the positive and negative connector cables. (Ensure the clamps make good contact)

5.3-6 Bolt Torque Procedure

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

Rotary Actuator Bolt Torque Sequence

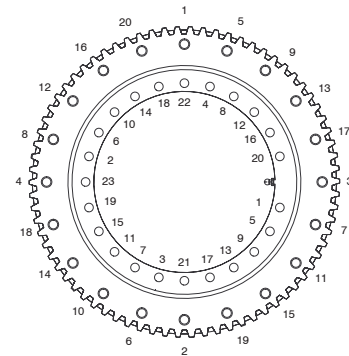
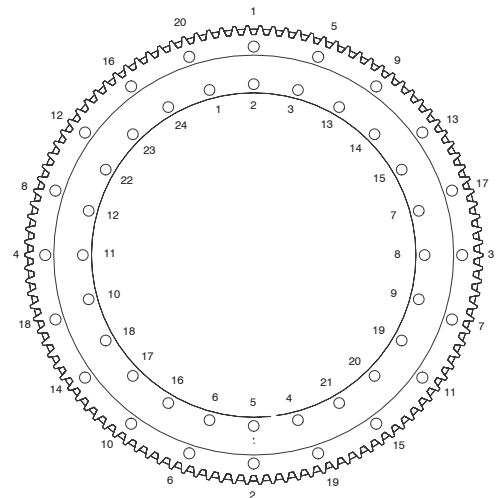
1. Ensure aerial platform is on a firm level surface and is in stowed position.
2. Turn main power disconnect switch to off position.
3. Set the torque wrench to 17 ft.lb and tighten mounting bolts in a cross pattern sequence.

**Bolt Torque Sequence**

4. Set torque wrench to 35 ft.lb and tighten mounting bolts with the same sequence.
5. Torque the center bolt to 480 ft.lb.

Turret Rotation Gear Bolt Torque Sequence

1. Ensure aerial platform is on a firm level surface and is in stowed position.
2. Turn main power disconnect switch to off position.
3. Set the torque wrench to 100 ft.lb (140 ft.lb for 61TT/66T) and tighten mounting bolts in a cross pattern sequence.

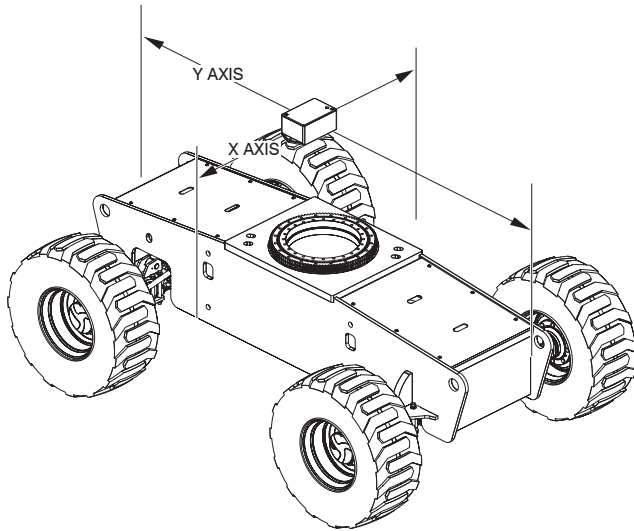
**Bolt Torque Sequence (40T/45T)****Bolt Torque Sequence (61T/66T)**

4. Set torque wrench to 205 ft.lb (280 ft.lb for 61T/66T) and tighten mounting bolts with the same sequence.

5.3-7 Electronic Tilt Switch Setup Procedure

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

Tilt Switch Replacement

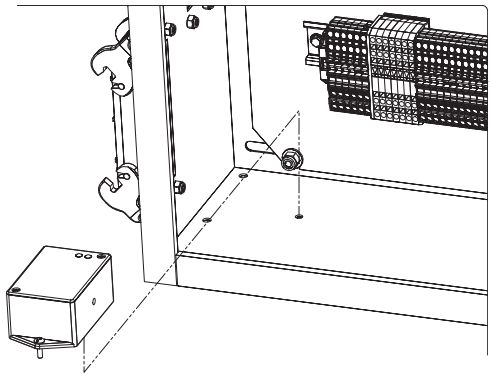


1. Ensure aerial platform is parked on a firm level surface.
2. Fully lower platform and retract fly boom.
3. Chock or block wheels to keep the aerial platform from rolling forward or backward.
4. Push in "●" emergency stop buttons and turn main disconnect switch to "○" off position.
5. Disconnect tilt switch from 4 pin connector.

NOTE

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

6. Remove old tilt switch from mount.



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

NOTE

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

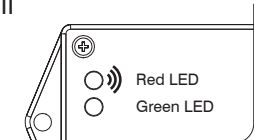
7. Turn main disconnect switch to "I" ON position.
8. Turn base/off/platform key switch to "⏻" base position.
9. Pull out "○" all emergency stop buttons.
10. Verify switch is powered. (Red or green LED will be continually blinking)



11.

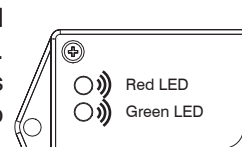
Program the Tilt Switch

- a. Press and release the set up button 3 times. Observe LED flash codes as shown below.
- b. Only the red LED will blink for 4 seconds.



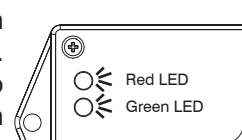
- c. Both LEDs will flash for 1 second.

Results: The switch is learning the new zero position.

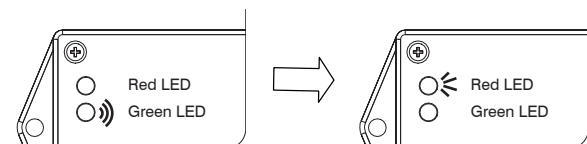


- d. Both LEDs will turn on solid for 1 second.

Results: The new zero position has been learned.



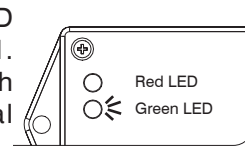
- e. The green LED will flash and then the red LED will turn on solid for 2 seconds.



Results: The switch is verifying the new zero position.

- f. The green LED will turn on solid.

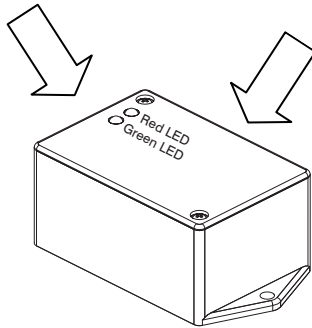
Results: The switch is ready for normal operation.



12. Turn main disconnect switch to “○” off position
13. Push in “●” emergency stop buttons.
14. Remove chock or wheel blocks.
15. Proceed to Test and Verify Tilt Circuit - Telescopic Booms.

Reprogramming Existing Tilt Switch

Light Indicators Set up button is located on this face next to harness

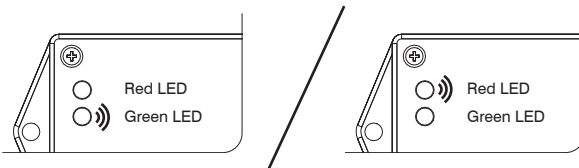


1. Ensure aerial platform is parked on a firm level surface.
2. Fully lower platform and retract fly boom.
3. Chock or block wheels to keep the aerial platform from rolling forward or backward.

NOTE

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

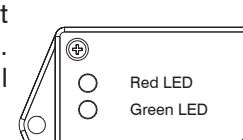
4. Turn main disconnect switch to "I" ON position.
5. Pull out "●" all emergency stop buttons.
6. Turn base/off/platform key switch to "🚧" base position.
7. Verify switch is powered. (Red or green LED will be continually blinking)



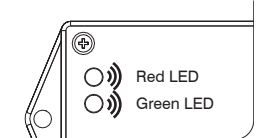
8.

Reprogram the Tilt Switch

- a. Press and hold the set up button for 3 seconds.
Results: Both LEDs will be OFF.



- b. Both LEDs will flash.

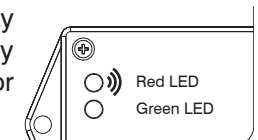


IMPORTANT

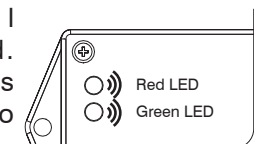
Step "c" must be completed within a 5 second period or the switch will automatically exit program mode and return to normal operation using previously stored data.

- c. Press and release set up button 3 times.
- d. If 5 second period has expired prior completion, repeat Step "a", "b" and "c".

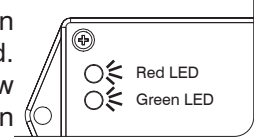
- e. Observe program delay / stabilization time. (Only the red LED will blink for 4 seconds)



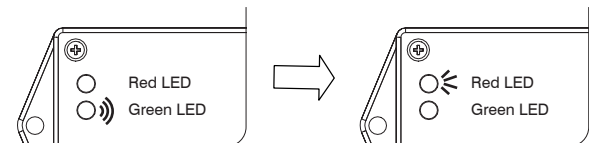
- f. Both LEDs will flash for 1 second.
Results: The switch is learning the new zero position.



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

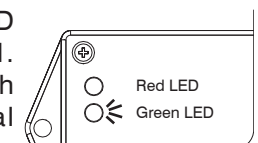


- h. The green LED will flash and then the red LED will turn on solid for 2 seconds.



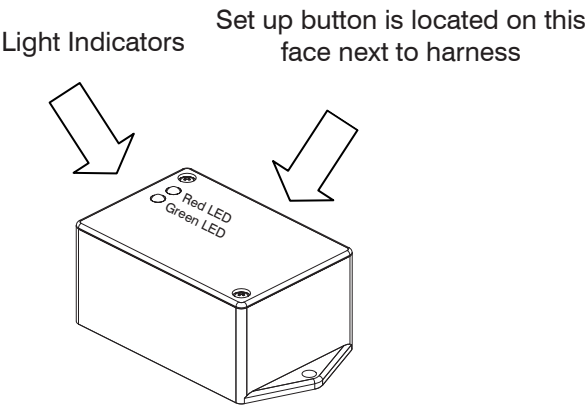
Results: The switch is verifying the new zero position.

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



- 9. Turn main disconnect switch to “○” off position.
- 10. Push in “●” emergency stop buttons.
- 11. Remove chock or wheel blocks.
- 12. Proceed to Test and Verify Tilt Circuit - Telescopic Booms.

Test and Verify Tilt Circuit



Operations of Tilt Switch

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

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

Tilt Circuit Test

- 1. Refer to section 2 for test tilt sensor procedure.

Deutz Diesel Engine

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

5.4-1 Replace Engine Oil and Filter

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

NOTE

Perform this operation after warming the engine to normal operating temperature.



CAUTION

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



CAUTION

When draining hot oil, there is a risk of scalding. Do not let used oil run into the soil, rather collect it in a container. Dispose of this in accordance with environmental regulations.

1. Ensure aerial platform is on a firm level surface.
2. Allow engine to warm up.
3. Remove bolts from engine tray.

4. Pull locking pin down and swing the engine tray away from the turret until it locks in place.
5. Place suitable container under engine.
6. Remove oil drain plug and allow all engine oil to drain into container.
7. Install oil drain plug with new seal ring and tighten firmly.
8. Remove oil filter and catch any escaping oil.
9. Clean inside the filter head.
10. Add clean engine oil to oil filter.
11. Apply a thin layer of engine oil to the new oil filter gasket.
12. Install filter and tighten it by hand.
13. Clean up any oil that may have spilled during this procedure.
14. Refill engine with new oil as per specifications (Refer to engine manual).
15. Swing engine tray back to its original position.
16. Reinstall bolts to engine tray.
17. Start engine from base control console and allow engine to run for 30 seconds then stop the engine.
18. Check for oil leakage.
19. Check engine oil level on dipstick and add oil if needed.

NOTE

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

5.4-2 Replace Fuel Filter

1. Remove bolts from engine tray.
2. Pull locking pin down and swing the engine tray away from the turret until it locks in place.
3. Close fuel shut-off valve.
4. Place suitable container under engine.
5. Remove fuel filter and catch any escaping fuel.
6. Clean any dirt from filter carrier sealing surface.
7. Apply a thin layer of oil or diesel fuel to rubber gasket of new fuel filter.
8. Install fuel filter and tighten it by hand then tighten filter cartridge with final half-turn.
9. Clean up any fuel that may have spilled during this procedure.
10. Open fuel shut-off valve.
11. Check for fuel leakage.
12. Swing engine tray back to its original position.
13. Reinstall bolts to engine tray.

NOTE

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

5.4-3 Replace Air Filter

Engine specifications require that this procedure be performed more often if dusty conditions exist. [Refer to engine manual.](#)

**CAUTION**

Perform this procedure with the engine off.

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

5.4-4 Check Engine Belt

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

**WARNING**

Do not inspect while the engine is running. Remove the key to secure from operation.

**CAUTION**

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

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

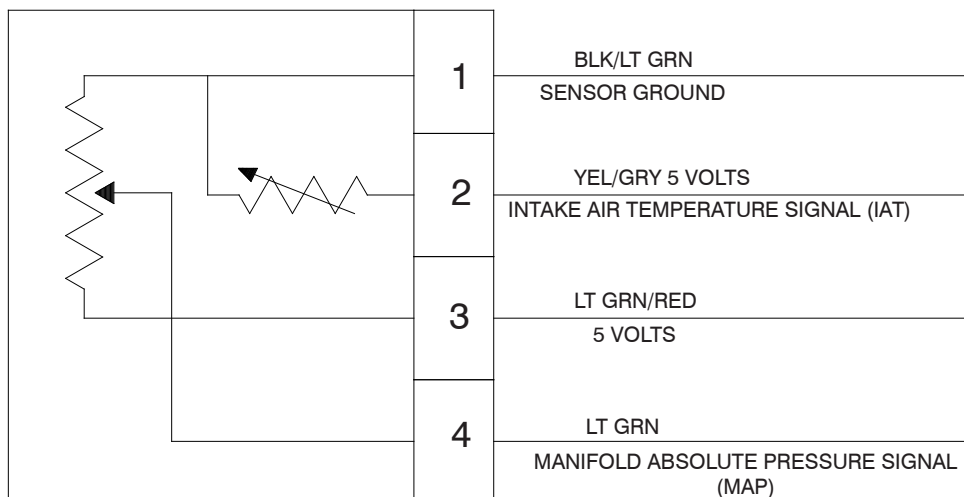
5.4-5 Check Oil Cooler

1. Remove cover from the side of engine.
2. Inspect oil cooler for leaks and physical damage.
3. Clean oil cooler of any kind of debris.
4. Reinstall cover.

GM Dual Fuel Engine

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

5.5-1 GM Map and IAT Sensor (3.0L GM Engine)

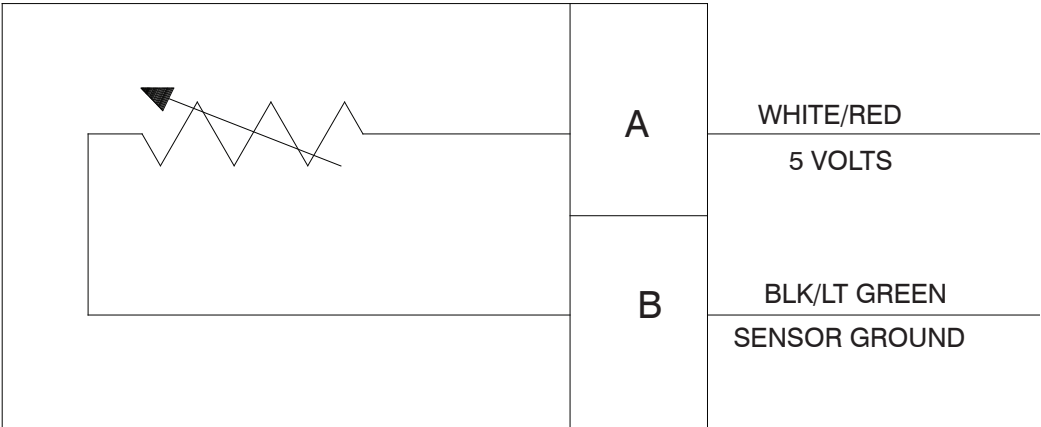


IAT Sensor Resistance

TEMPERATURE ° F	TOLERANCE ± 10% OHMS
248	110
239	125
221	162
203	214
185	284
167	383
149	522
131	721
104	1,200
77	2,063
50	3,791
23	7,419
-4	15,614
-22	26,854
-31	35,763
-40	48,153

60597AA

5.5-2 LPG Temperature Sensor (3.0L GM Engine)

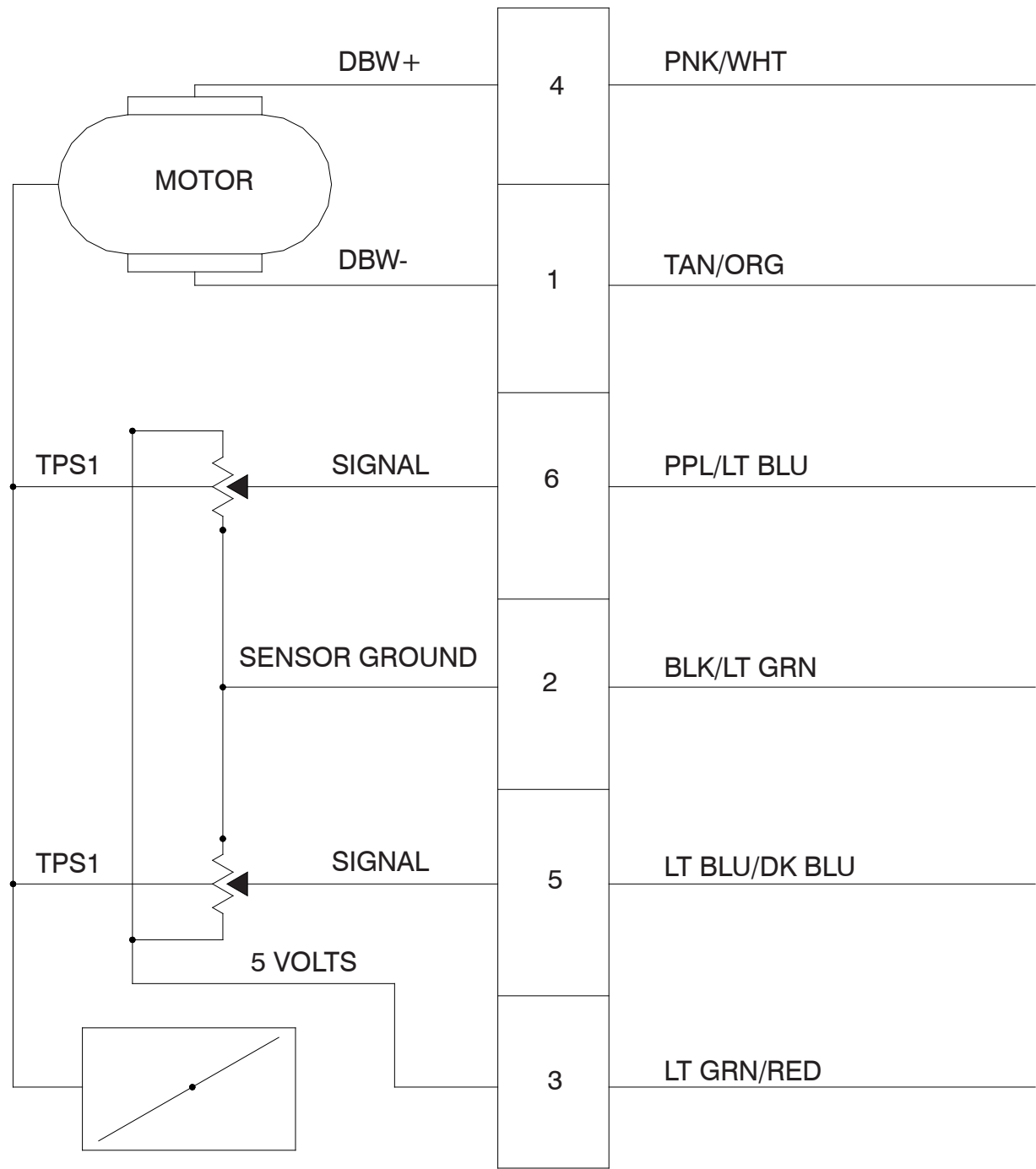


Temperature Sensor Resistance

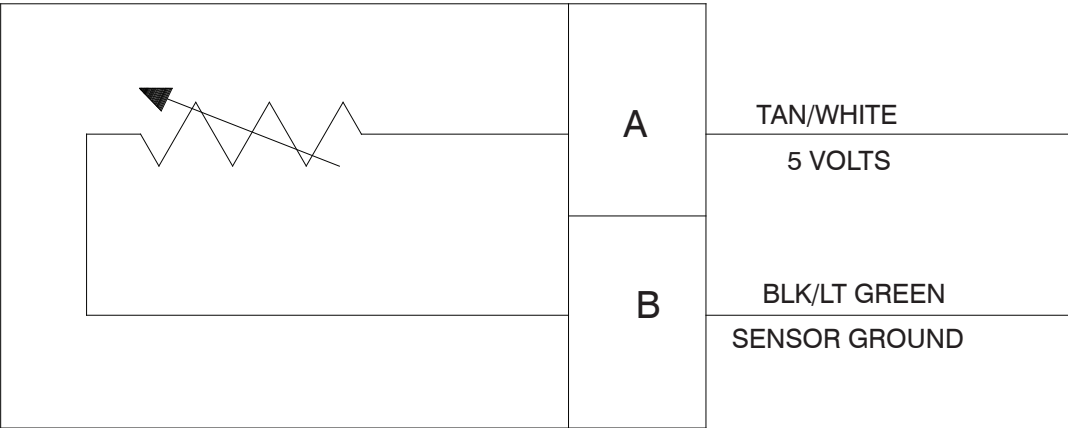
TEMPERATURE DEGREES F	TOLERANCE $\pm 10\%$ OHMS
220	153.7
200	214.6
190	255.4
180	305.5
170	367.3
160	444.1
140	660.6
120	1008
100	1582
80	2554
70	3284
60	4259
40	7357
20	13214
0	24705
-20	48300
-40	99318

60596AA

5.5-3 Throttle Actuator (3.0L GM Engine)



5.5-4 Engine Coolant Temperature Sensor (3.0L GM Engine)

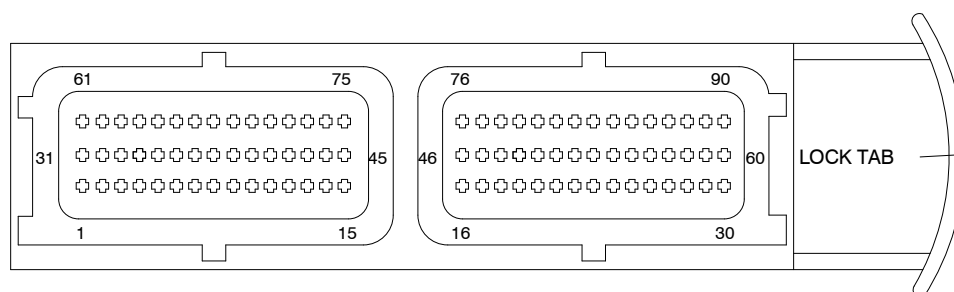


Temperature Sensor Resistance

TEMPERATURE ° F	TOLERANCE ± 10% OHMS
242.4	101
231.9	121
211.6	175
201.4	209
181.9	302
163.1	434
144.9	625
127.4	901
102.4	1,556
78.9	2,689
49.9	5,576
23.5	11,562
-5.7	28,770
-21.7	49,715
-30.8	71,589
-40	99,301

60595AA

5.5-5 ECU Pin Reference Chart (3.0L GM Engine)

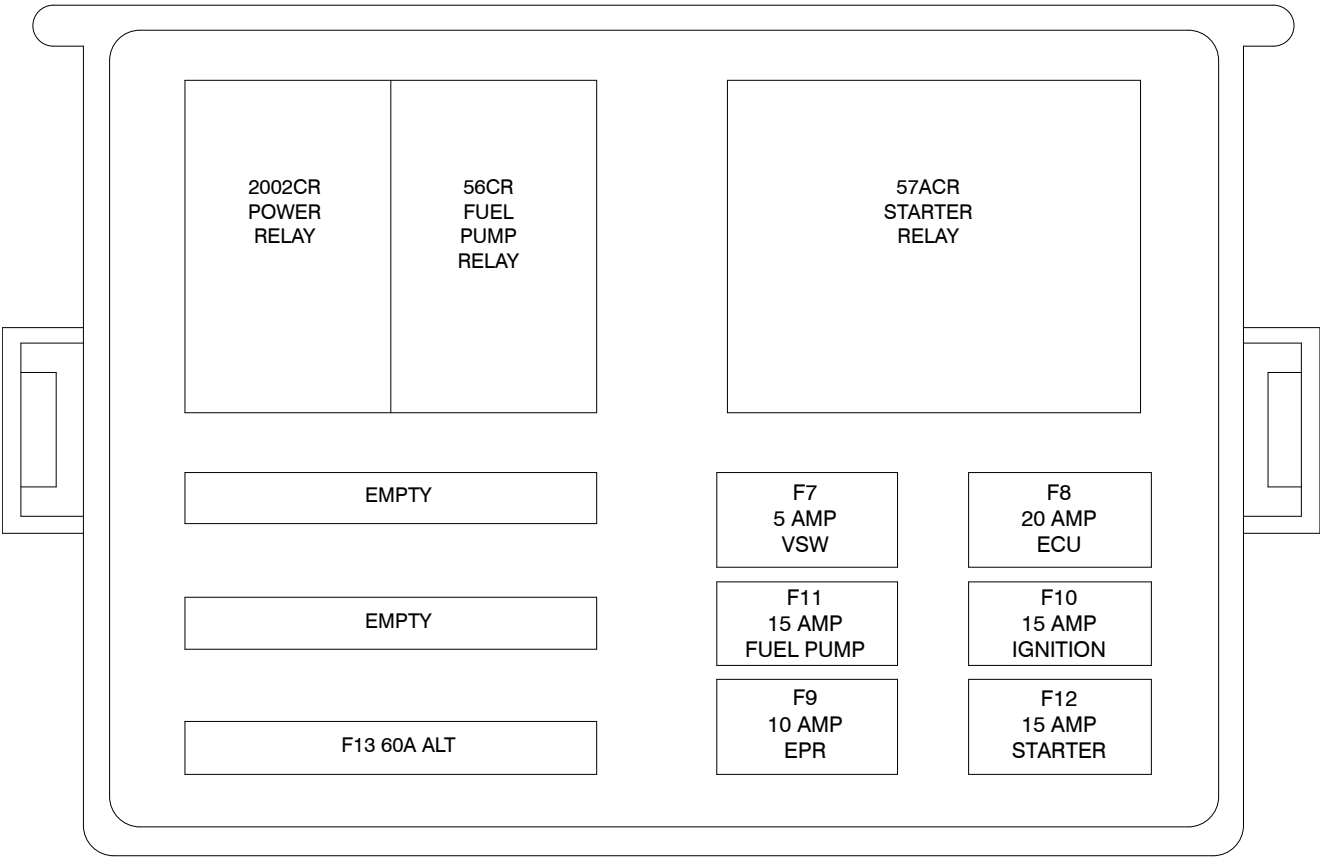


Diagnostics

Pin #	Wire Color	Description	Pin #	Wire Color	Description
1	DK GRN/ORN	EGO1 Signal	46	DK BLU/YEL	Not used
2	DK GRN/WHT	EGO2 Signal	47	YEL/DK BLU	Not used
3	EMPTY		48	LT GRN/WHT	Output to gasoline temp sensor
4	EMPTY		49	LT GRN/PPL	Not used
5	PPL/LT BLUE	Throttle position 1 signal	50	LT GRN/BLK	Not used
6	LT BLU/DK BLU	Throttle position 2 signal	51	GRY/DK BLU	Mid throttle input
7	LT GRN	MAP Signal	52	GRY/ORN	High throttle input
8	TAN/DK GRN	Not Used	53	LT BLU	Input from oil pressure switch
9	DK BLU/ORN	Not Used	54	WHT/LT GRN	Signal from gasoline pressure sensor
10	PPL/YEL	Not Used	55	DK GRN	To diagnostic connector (PC)
11	EMPTY		56	ORN	To diagnostic connector (PC)
12	EMPTY		57	EMPTY	
13	WHT/ORN	Connected to pin #14 below	58	GRY	Not used
14	BLU/PNK	CAN + to propane regulator	59	EMPTY	
15	BLU/WHT	CAN - from propane regulator	60	RED/TAN	Battery positive
16	EMPTY		61	BRN/LT BLU	To injector #1
17	EMPTY		62	BRN/LT GRN	To injector #3
18	EMPTY		63	BRN/YEL	To injector #4
19	LT GRN/RED	5 volt + from ECU to sensors	64	BRN/WHT	To injector #2
20	BLK/LT GREEN	5 volt - to ECU from sensors	65	EMPTY	
21	PPL/WHT	+V from crank position sensor	66	EMPTY	
22	WHT/PPL	-V from crank position sensor	67	EMPTY	
23	GRY/BRN	+V from camshaft position sensor	68	EMPTY	
24	PPL/ORN	-V from camshaft position sensor	69	BLK	Ground from engine block
25	RED/WHT	Not used	70	EMPTY	
26	RED/BLK	Not used	71	WHT/LT BLU	Negative supply to power relay 2002CR
27	EMPTY		72	BLK/WHT	EGO 1 Heater ground
28	EMPTY		73	BLK/YEL	EGO 2 Heater ground
29	EMPTY		74	EMPTY	
30	EMPTY		75	WHT/BLK	Negative supply to propane lock off
31	YEL	Output to ignition module	76	EMPTY	
32	EMPTY		77	BRN/WHT	Not used
33	EMPTY		78	WHT/BRN	Not used
34	EMPTY		79	RED/TAN	Battery positive
35	EMPTY		80	GRN/YEL	To check engine light (MIL)
36	EMPTY		81	BLK	Ground from engine block
37	EMPTY		82	PNK/WHT	Positive to throttle actuator motor
38	EMPTY		83	TAN/ORN	Negative from throttle actuator motor
39	YEL/GRY	Output to IAT (part of MAP)	84	TAN/BLK	Negative supply to fuel pump relay 56CR
40	TAN/WHT	Output to TPS1	85	PNK/YEL	Fuel pump excite wire
41	WHT/RED	Output to TPS2	86	BLK/RED	Negative supply to fuel pump
42	TAN/BRN	Propane selected	87	TAN	Not used
43	TAN/RED	Not used	88	DK BLU	Not used
44	TAN/BLK	Not used	89	PNK/BLK	Negative supply to starter relay 57ACR
45	PNK/TAN	12 volt input	90	EMPTY	

60594AB

5.5-6 Fuse Block Layout (3.0L GM Engine)



Hydraulic Tank

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

5.6-1 Change Hydraulic Tank Filter

1. Ensure aerial platform is on a firm level surface, is in stowed position and engine is off.
2. Place suitable container under the hydraulic tank filter.
3. Remove oil filter and catch any escaping oil.
4. Clean inside the filter head.
5. Apply a thin layer of clean hydraulic oil to the new oil filter gasket.
6. Install filter and tighten firmly.
7. Clean up any oil that may have spilled during this procedure.
8. Start engine from base control console.
9. Check for leakage.

NOTE

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

5.6-2 Change Hydraulic Oil

1. Ensure aerial platform is on a firm level surface and is in stowed position.
2. Allow hydraulic oil to warm up.
3. Turn main power disconnect switch to off position.
4. Place suitable container under the hydraulic tank.
5. Remove oil drain plug and allow all hydraulic oil to drain into container.
6. Install oil drain plug with new seal ring and tighten firmly.
7. Refill hydraulic tank with new oil as per specifications. (Refer to [section 2](#) of this manual)
8. Check for leakage.
9. Clean up any oil that may have spilled during this procedure.
10. Check hydraulic oil level. (The hydraulic oil level should be at or slightly above the top mark on the sight gauge)

NOTE

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

NOTE

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

Refer to [Table 1.2](#) of this manual.

Manifold and Hydraulic Pumps

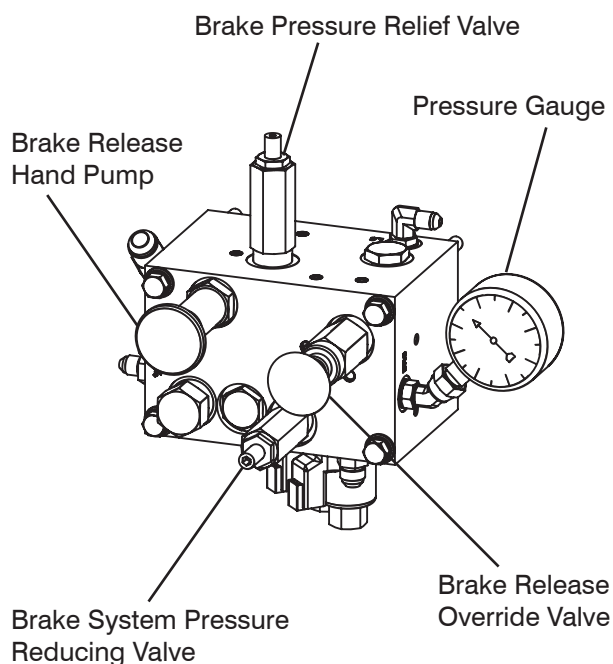
5.7-1 Hydraulic Brake Pressure Adjustment

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

1. Ensure aerial platform is on a firm level surface and is in stowed position.
2. Locate brake system pressure reducing valve and turn valve gently clockwise until it bottoms out.

NOTE

Remember to keep track of how many revolutions turned.



Brake Manifold

3. Locate brake pressure relief valve.



WARNING

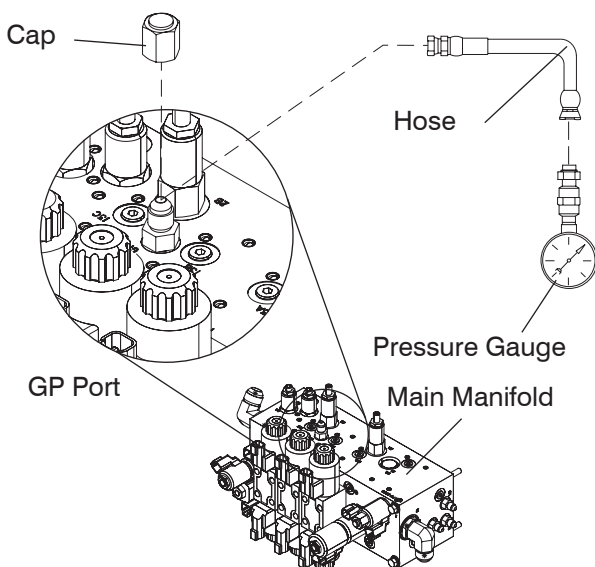
Ensure that there are no personnel or obstructions in test area and there is sufficient room for boom to swing.

4. Start engine from platform control console and extend boom slightly to achieve low speed drive.
5. Drive aerial platform forward or reverse. (Pressure gauge reading should be 500 psi)

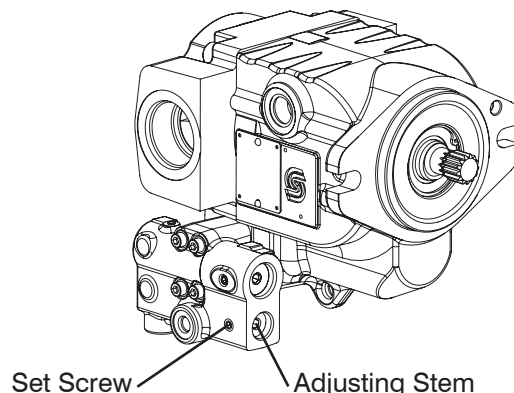
6. Stop aerial platform and adjust pressure relief valve 1/4 turn at a time by turning either clockwise to increase pressure or counterclockwise to decrease pressure.
7. Repeat step 5 and 6 until brake pressure is achieved (500 psi).
8. Locate brake system pressure reducing valve and turn valve gently counterclockwise to initial position.
9. Drive aerial platform forward or reverse. (Pressure gauge reading should be 450 psi)
10. Stop aerial platform and adjust pressure reducing valve 1/4 turn at a time by turning either clockwise to increase pressure or counterclockwise to decrease pressure.
11. Repeat step 9 and 10 with brake system pressure reducing valve until brake pressure is achieved (450 psi).

5.7-2 Hydraulic Standby Pressure Adjustment

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

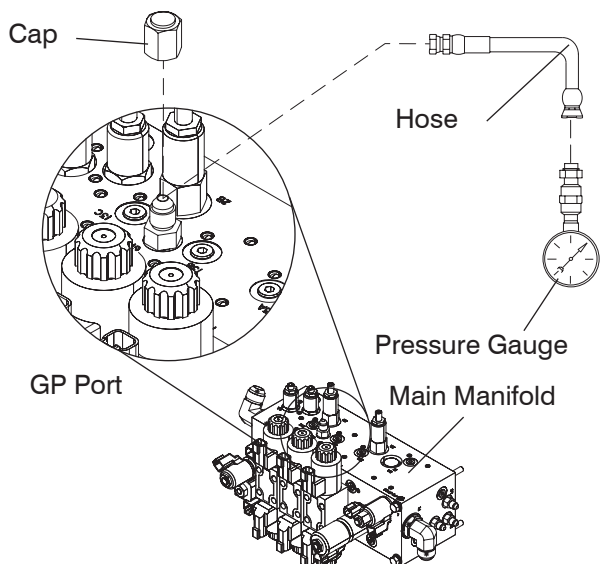
**Main Manifold and Pressure Gauge**

2. Connect a pressure gauge (600 psi) to GP Port.
3. Start engine from base control console and let it run for 2-5 minutes.
4. Check reading on gauge (standard pressure should be 275 psi) and follow the next steps for adjusting pressure if needed.
5. Locate set screw and adjusting stem on System Pump.
6. Loosen set screw half a turn counterclockwise.
7. Adjust system pump pressure by turning adjusting stem either clockwise to increase pressure or counterclockwise to decrease pressure.
8. Tighten set screw after pressure is set to 275 psi. (You must steer fully in one direction to activate pressure reading on gauge.)
9. Turn engine off.
10. Remove pressure gauge from GP Port and cap the port.

**System Pump**

5.7-3 Hydraulic High Pressure Adjustment

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

**Main Manifold and Pressure Gauge**

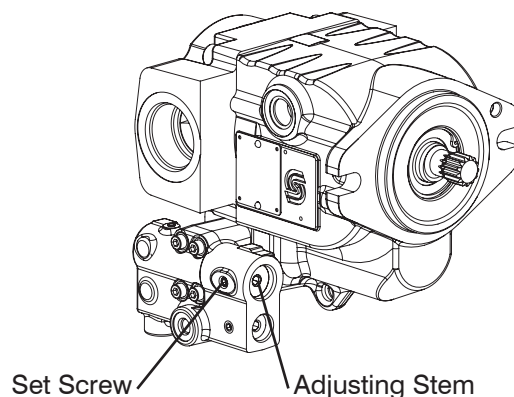
2. Connect a pressure gauge (5000 psi) to GP Port.

**WARNING**

Do not activate any controls during procedure to protect gauge.

3. Start engine from base control console and let it run for 2-5 minutes.
4. Steer fully to one direction and then check reading on gauge. Standard pressure should be 2175 psi (40T/45T), or 3000 psi (61T/66T). Follow the next steps for adjusting pressure if needed.

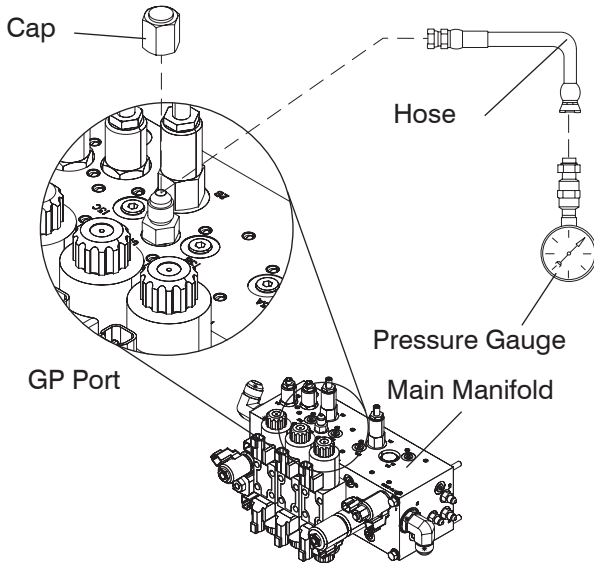
5. Locate set screw and adjusting stem on System Pump.

**System Pump**

6. Loosen set screw half a turn counterclockwise.
7. Adjust system pump pressure by turning adjusting stem either clockwise to increase pressure or counterclockwise to decrease pressure.
8. Tighten set screw after pressure is set to 2175 psi (40T/45T), or 3000 psi (61T/66T).
9. Turn engine off.
10. Remove pressure gauge from GP Port and cap the port.

5.7-4 Hydraulic System Relief Valve Adjustment

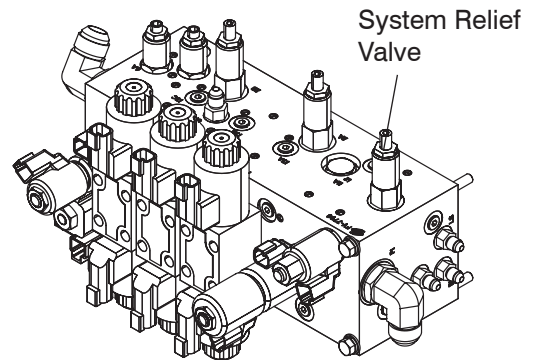
1. To adjust the system relief valve (RV8), you are required to temporarily adjust the high pressure setting on the system pump to 3000 psi. Refer to [Procedure 5.7-3](#).
2. Locate GP Port on main manifold and remove the cap.



Main Manifold and Pressure Gauge

3. Connect a pressure gauge (5000 psi) to GP Port.
4. Start engine from base control console and let it run for 2-5 minutes.
5. Steer fully to one direction and then check reading on gauge. Standard pressure should be 2900 psi (40T/45T), or 3200 psi (61T/66T). Follow the next steps for adjusting pressure if needed.

6. Locate system relief valve (RV8).

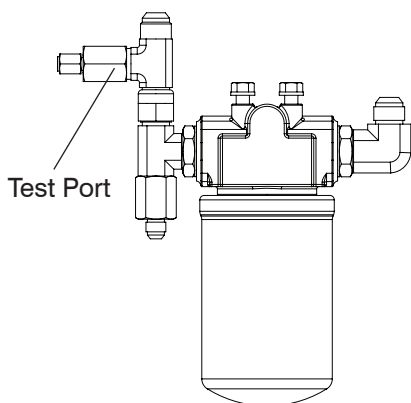


System Relief Valve

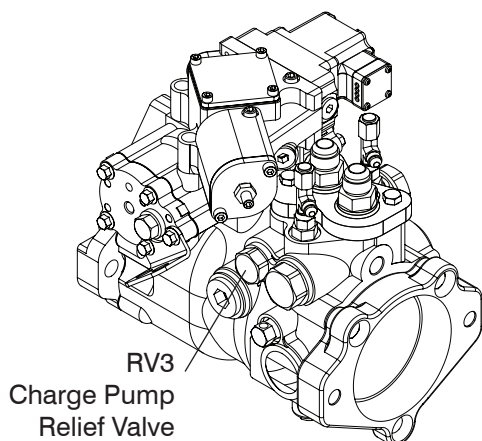
7. Loosen lock nut on system relief valve. Turn adjusting stem clockwise to increase pressure and counterclockwise to decrease pressure.
8. Tighten lock nut on system relief valve once 2900 psi (40T/45T), or 3200 psi (61T/66T) is observed on the gauge. (You must steer fully in one direction to activate pressure reading on gauge.)
9. Reset system pump to 2175 psi (40T/45T), or 3000 psi (61T/66T). Refer to [Procedure 5.7-3](#).

5.7-5 Test Charge Pump Pressure on Drive Pump

1. Locate test port beside charge pressure filter.

**Charge Pressure Filter**

2. Connect a pressure gauge (600 psi) to test port.
3. Start engine from base control console.
4. Check reading on gauge (standard pressure should be $313 \pm 10\%$ psi.)

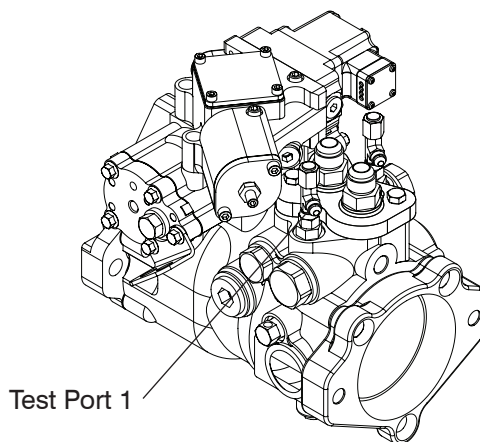
**Drive Pump**

5. Replace charge pump relief valve (RV3) if pressure is not achieved.
6. Repeat steps 2, 3, and 4 after charge pump relief valve is replaced.
7. If pressure still not in range, repair or replace the pump as necessary.

5.7-6 Test Forward Drive Pressure on Drive Pump**NOTE**

Make sure charge pump pressure test is completed first.

1. Locate test port 1 on the drive pump.

**Drive Pump**

2. Connect a pressure gauge (10000 psi) to test port 1.

**WARNING**

Do not activate any controls during procedure to protect gauge.

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

NOTE

Activating drive function too fast will stall the engine.

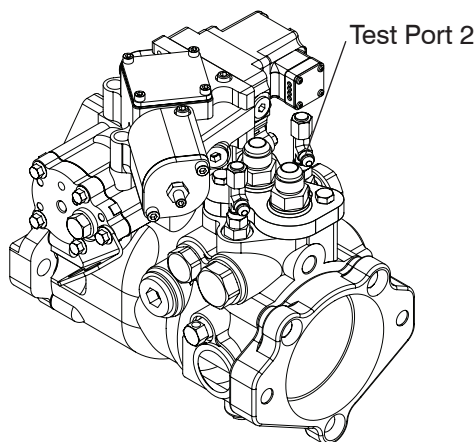
6. Check reading on gauges Standard pressure should be 5000 psi (40T/45T), or 4350 psi (61T/66T). Go to step 8 if pump pressure is achieved.
7. Replace pump if pressure is not achieved.
8. Turn engine off.
9. Remove pressure gauge from port, cap the port and re-plug brake solenoid power cable.

5.7-7 Test Reverse Drive Pressure on Drive Pump

NOTE

Make sure charge pump pressure test is completed first.

1. Locate test port 2 on the drive pump.



Drive Pump

2. Connect a pressure gauge (10000 psi) to test port 2.

**WARNING**

Do not activate any controls during procedure to protect gauge.

3. Start engine from platform control console.
4. Unplug brake solenoid power cable (26) on brake valve.
5. Activate drive function slowly reverse with engine at high speed. Wheels should not turn.

NOTE

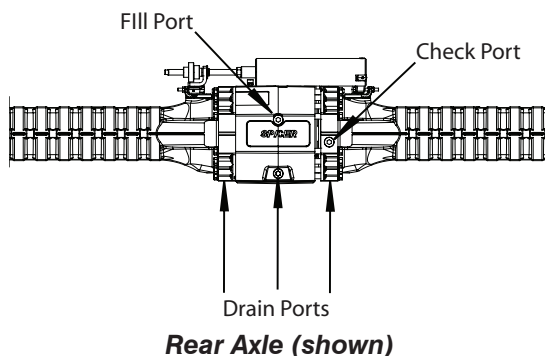
Activating drive function too fast will stall the engine.

6. Check reading on gauges Standard pressure should be 5000 psi (40T/45T), or 4350 psi (61T/66T). Go to step 8 if pump pressure is achieved.
7. Replace pump if pressure is not achieved.
8. Turn engine off.
9. Remove pressure gauge from port, cap the port and re-plug brake solenoid power cable.

Axles

5.8-1 Change Oil in Rear Axle (including Front Axle - 61T/66T)

1. Ensure aerial platform is on a firm level surface and is in stowed position.
2. Turn main power disconnect switch to off position.
3. Place suitable container under the axle
4. Remove fill plug.
5. Remove all three drain plugs to allow oil to drain into container.



6. Reinstall all drain plugs.
7. Remove check plug.

NOTE

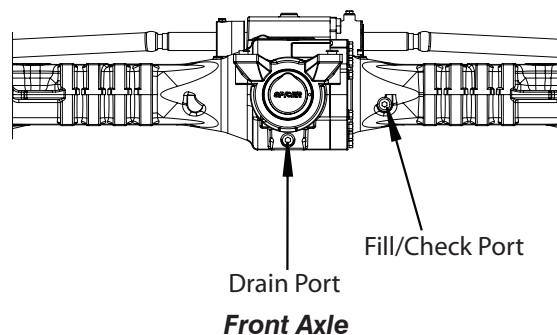
Axle is filled when oil is leaking from the check port.

8. Refill axle with new oil as per specifications. (Refer to [section 2](#) of this manual)
9. Reinstall both fill and check plugs.

5.8-2 Change Oil in Front Axle (4WD) (40T/45T)

1. Ensure aerial platform is on a firm level surface and is in stowed position.
2. Turn main power disconnect switch to off position.
3. Place suitable container under the axle.
4. Remove fill plug.

5. Remove drain plug to allow oil to drain into container.



6. Reinstall drain plug.

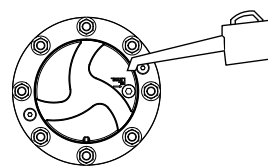
NOTE

Axle is filled when oil is leaking from the check port.

7. Refill axle with new oil as per specifications. (Refer to [section 2](#) of this manual)
8. Reinstall fill/check plug.

5.8-3 Check Oil Level in Torque Hub

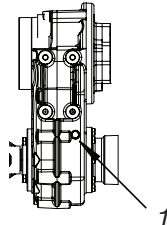
1. Drive the aerial platform to rotate the hub until the plug is located at 90 degrees.
2. Remove the plug and check the oil level. The oil level should be even with the bottom of the plug hole. Add oil if needed. For oil specification, Refer to [section 2](#) for specifications.



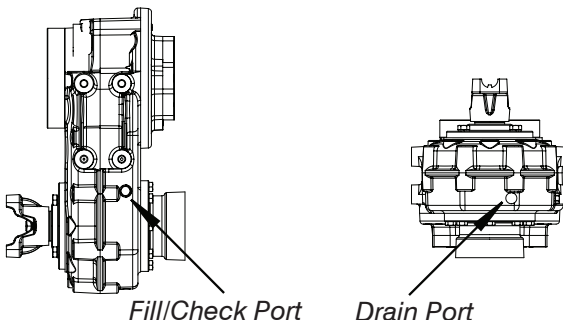
Drive Torque Hub

5.8-4 Check Oil Level in Axle Gearbox

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

**Gearbox****5.8-5 Change Oil in Axle Gearbox**

1. Ensure aerial platform is on a firm level surface and is in stowed position.
2. Turn main power disconnect switch to off position.
3. Place suitable container under the gearbox.
4. Remove fill plug.
5. Remove drain plug to allow oil to drain into container.

**Gearbox**

6. Reinstall drain plug.

NOTE

Gearbox is filled when oil is leaking from the check port.

7. Refill gearbox with new oil as per specifications. (Refer to [section 2](#) of this manual)
8. Reinstall fill/check plug.

5.8-6 Bleeding Oscillating Axle Cylinders

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

Items you will need before starting:

- oil container
 - hose lines (to reach from bleeders to bucket)
 - 10" high ramp
1. Locate bleeders on either side of the axle cylinder.
 3. Start bleeding from one side of the aerial platform that will be driven up the ramp.
 4. Hook up hose line to top bleeder and keep bottom bleeder capped.
 5. Ensure bleeder hose drains oil into container when aerial platform is driving.
 6. Drive aerial platform up and down the ramp until only a continuous stream of fluid is being released from the bleeders.
 7. Repeat step 6 with the otherside.
 8. Ensure bleeders are capped.

Grease Points

5.9-1 Lubrication

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



WARNING

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

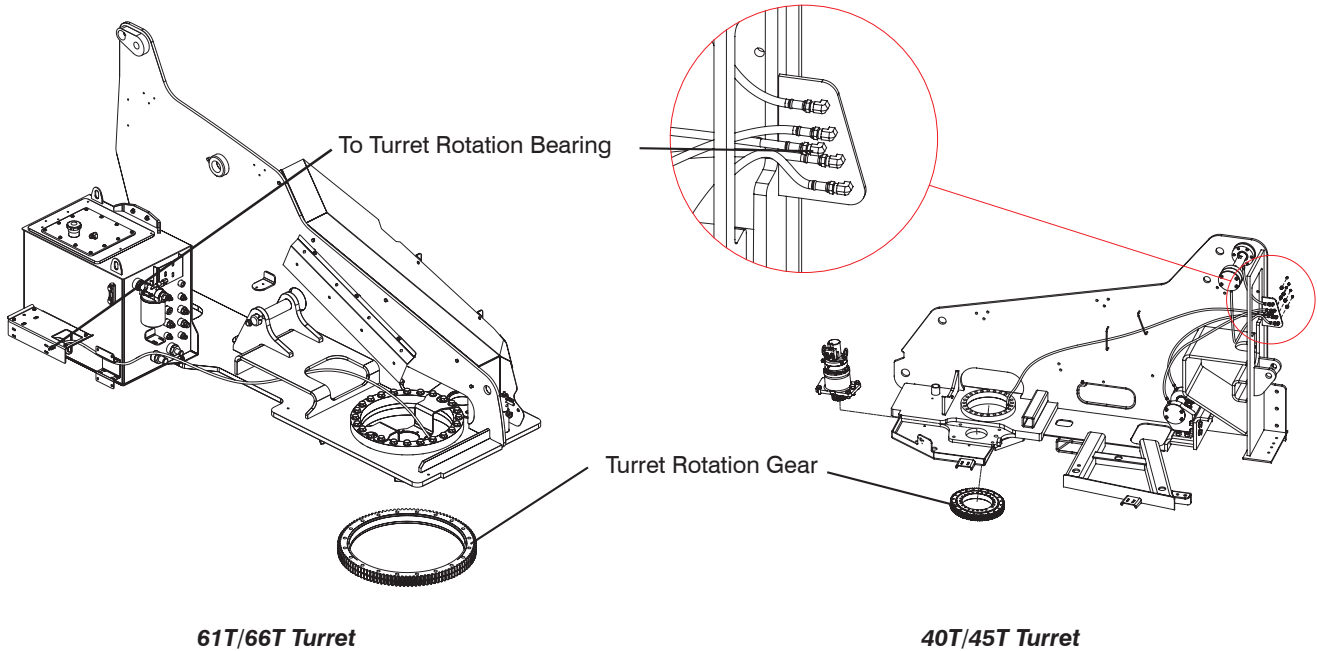
Grease Turret Rotation Bearing

- 1. Ensure aerial platform is on a firm level surface and is in stowed position.
- 2. Open control compartment and locate grease fitting beside the hydraulic tank.
- 3. Pump grease into the turret rotation bearing and continue pumping until new lube appears continuously around the grease seal lip. (Refer to the Race column in the Table below)
- 4. Rotate the turret in increments of 4 to 5 inches (10 to 13 cm) at a time, and repeat step 3 until the entire bearing has been greased.

Grease Turret Rotation Gear

- 1. Apply grease to each tooth of the drive gear, located under the turret. (Refer to the Gear column in the Table below)

GREASE		
Model	Recommended Grease Type	
	Race	Gear
SJ40T / 45T SJ61T / 66T	Mobil Mobilux EP2	Mobil Mobiltac C
	Texaco Multifax EP2	Texaco Crater 2X or 3X
	Sun Prestige 742 EP	Sun Gear Compound 407
	Shell Alvania EP2	Shell Cardium EP
	Exxon Ronex WB	Exxon Surret Fluid 30



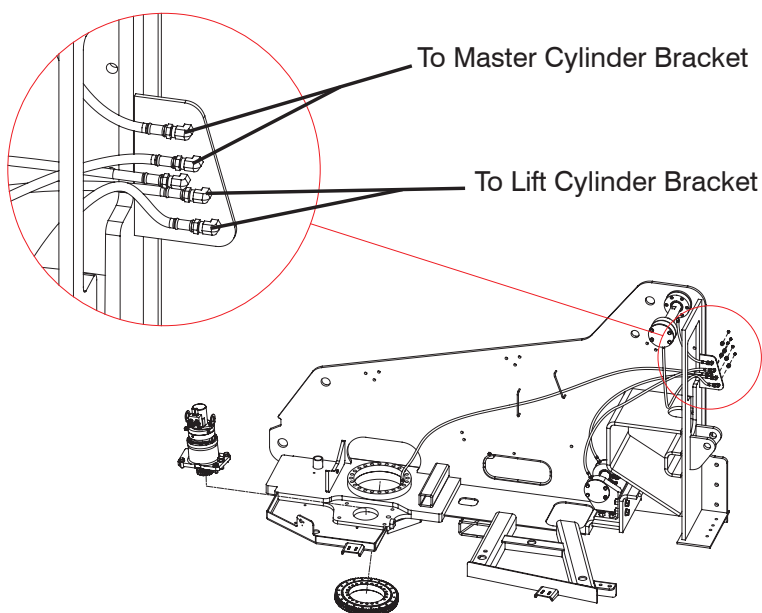
**WARNING**

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

Grease Cylinder Brackets (40T/45T)

1. Ensure aerial platform is on a firm level surface and is in stowed position.
2. Open control compartment and locate grease fitting beside the hydraulic tank.
3. Pump grease into the four grease fitting. (Refer to the Table below)

★GREASE	
Model	Recommended Grease Type
SJ40T / 45T	Mobil Mobilux EP2
	Texaco Multifax EP2
	Sun Prestige 742 EP
	Shell Alvania EP2
	Exxon Ronex WB



40T/45T Turret

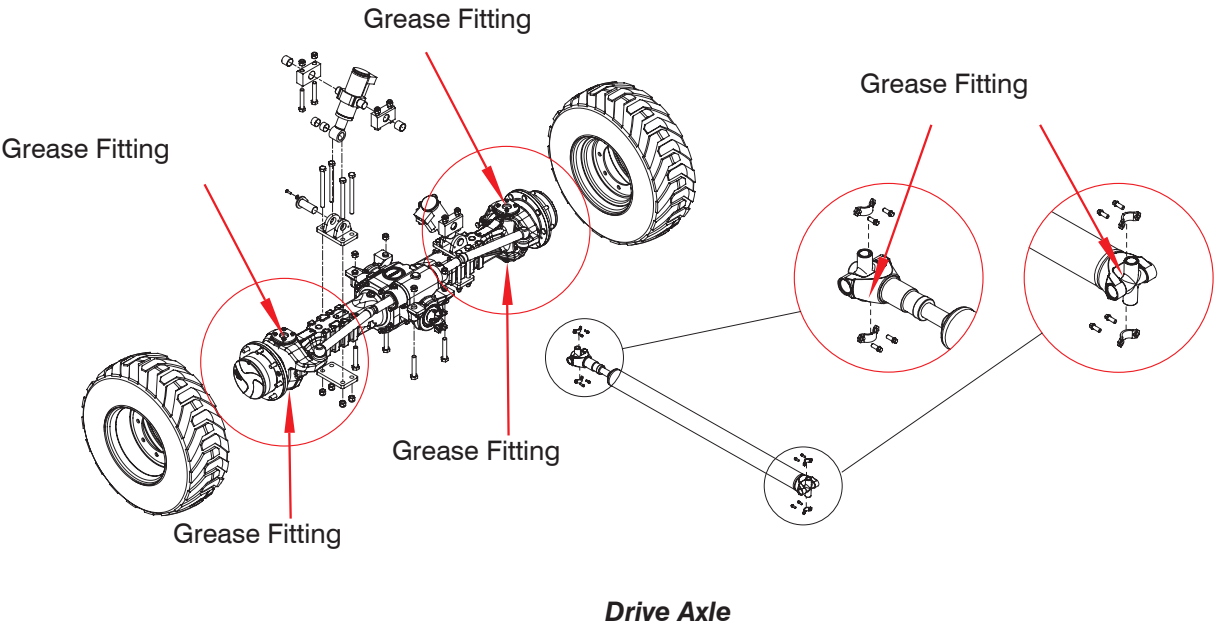
Grease Drive Axle

- 1. Ensure aerial platform is on a firm level surface and is in stowed position.
- 2. Open axle cover plate and locate grease fitting. (see diagram below)
- 3. Pump grease into the grease fittings. ([Refer to the Table below](#))

Grease Drive Shaft

- 1. Locate the grease fittings on the drive shaft and pump grease. ([Refer to the Table below](#))

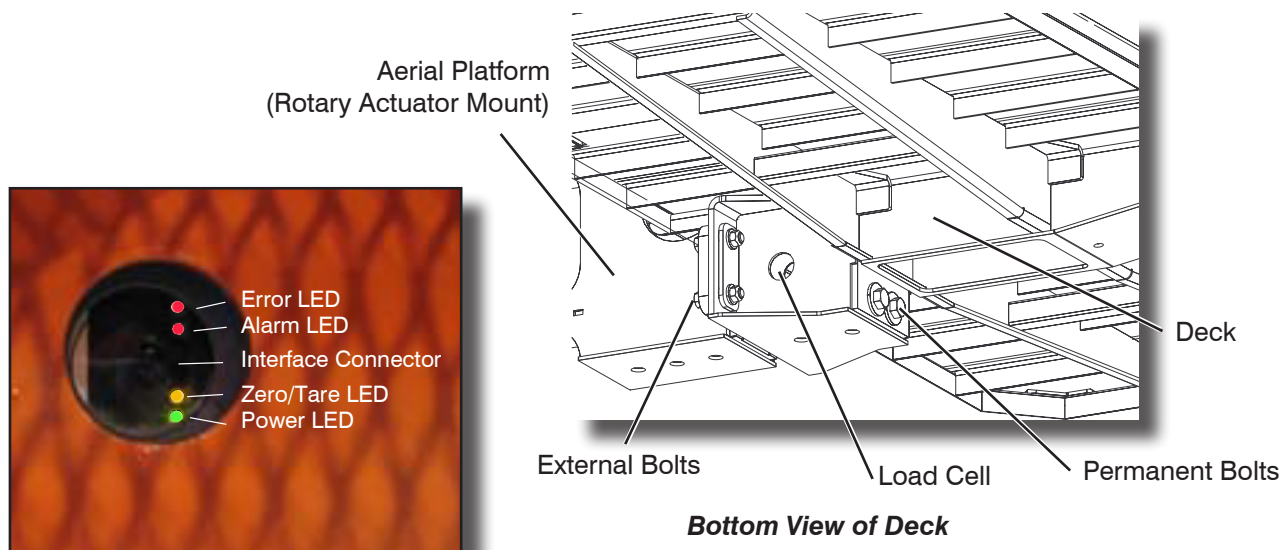
*GREASE	
Model	Recommended Grease Type
SJ40T / 45T SJ61T / 66T	Mobil Mobilux EP2
	Texaco Multifax EP2
	Sun Prestige 742 EP
	Shell Alvania EP2
	Exxon Ronex WB



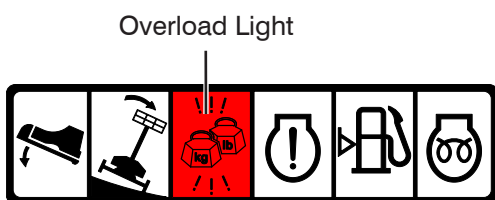
Options

5.10-1 Load Sensing System - CE

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



**Load Cell
LED Display**



**Platform Control Console
Indicator Module**



**"Teach in" Handset
(Service only)**

Error LED - Continuously on when system error

Alarm LED - Continuously on when platform is overload or has base contact

Interface Connector - Storage of limit valve ("Teach in" handset connects here)

Orange LED - Continuously on when tare value is zero ± 15 kg




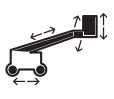







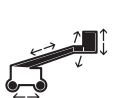
Green LED - Flashes slowly on when system powered and calibrated






NOTE

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

Verify Proper Operation of the Load Sensing System

Overload Status Chart

Weight	Indicator Light	Load Cell LED Display	Audible Alarm	Aerial Platform Functions
 (Zero)	 OFF	● Error - OFF ● Alarm - OFF ● Zero/Tare - ON (orange) ● Power - FLASHING (green)	 OFF	 ENABLED
 (Work Mode @ 244+)	 FLASHING	● Error - OFF ● Alarm - FLASHING (red) ● Zero/Tare - OFF ● Power - FLASHING (green)	 PULSING	 DISABLED
 (Travel Mode @ 244+)	 FLASHING	● Error - OFF ● Alarm - FLASHING (red) ● Zero/Tare - OFF ● Power - FLASHING (green)	 PULSING	 ENABLED






1. Ensure aerial platform is on firm level ground.
2. Fully “” retract and “” lower boom.
3. Turn engine “” off.
4. Ensure both “” emergency stops are pulled out and platform engine enable switch is in “” on position.
Result: Overload indicator light and audible alarm will pulse two times.
5. Ensure platform is unloaded and is free from any surface contact.
Result: Green power LED is flashing, orange LED is ON, red alarm LED is OFF and red error LED is OFF.
6. Place a 244kg load on platform.
Result: Platform indicator light is flashing, load cell red alarm LED is ON, and audible alarm is pulsing.
7. On base control console, start engine and extend boom by > 300mm.
Result: All drive and boom function are disabled.
8. Remove load from platform.
Result: All drive and boom function are enabled and all warning indicators are OFF.

NOTE

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

Calibration of Load Sensing System (with “Teach In” Handset)**WARNING**

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

1. Ensure aerial platform is on firm level ground.
2. Fully “” retract and “” lower boom.
3. Turn engine “” off.
4. Ensure both “” emergency stops are pulled out and platform engine enable switch is in “” on position.

Result: Overload indicator light and audible alarm pulse two times.

5. Ensure platform is unloaded and is free from any surface contact.
6. Remove cap from load cell interface connector.
7. Connect “Teach in” handset to interface connector.

Result: The “T” label on handset will flash at a high frequency of 5Hz. If not, recheck that power is on and handset is properly connected.

**WARNING**

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

8. On “Teach in” handset, depress “4” button for four seconds.
Result: The “T” label on handset will light on constantly and then flash at a lower frequency of 1.25Hz.
9. Add a test load of 244kg onto the center of platform.
10. Depress “4” button for four seconds.
Result: The “T” label on handset will go from flashing to constantly on.
11. Disconnect “Teach in” handset from interface connector.
12. Wait for four seconds and then add a test load exceeding 244kg to test load sensing system.
Result: On platform control console, the overload light will flash and an audible alarm will pulse.
13. Remove test load from platform.
Result: Green power LED is flashing, orange LED is ON, red alarm LED is OFF, audible alarm is OFF and red error LED is OFF.
14. Re-cap interface connector and place provided “calibrated” label over interface connector.



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