



Service & Parts Manual

66-RJ Diesel

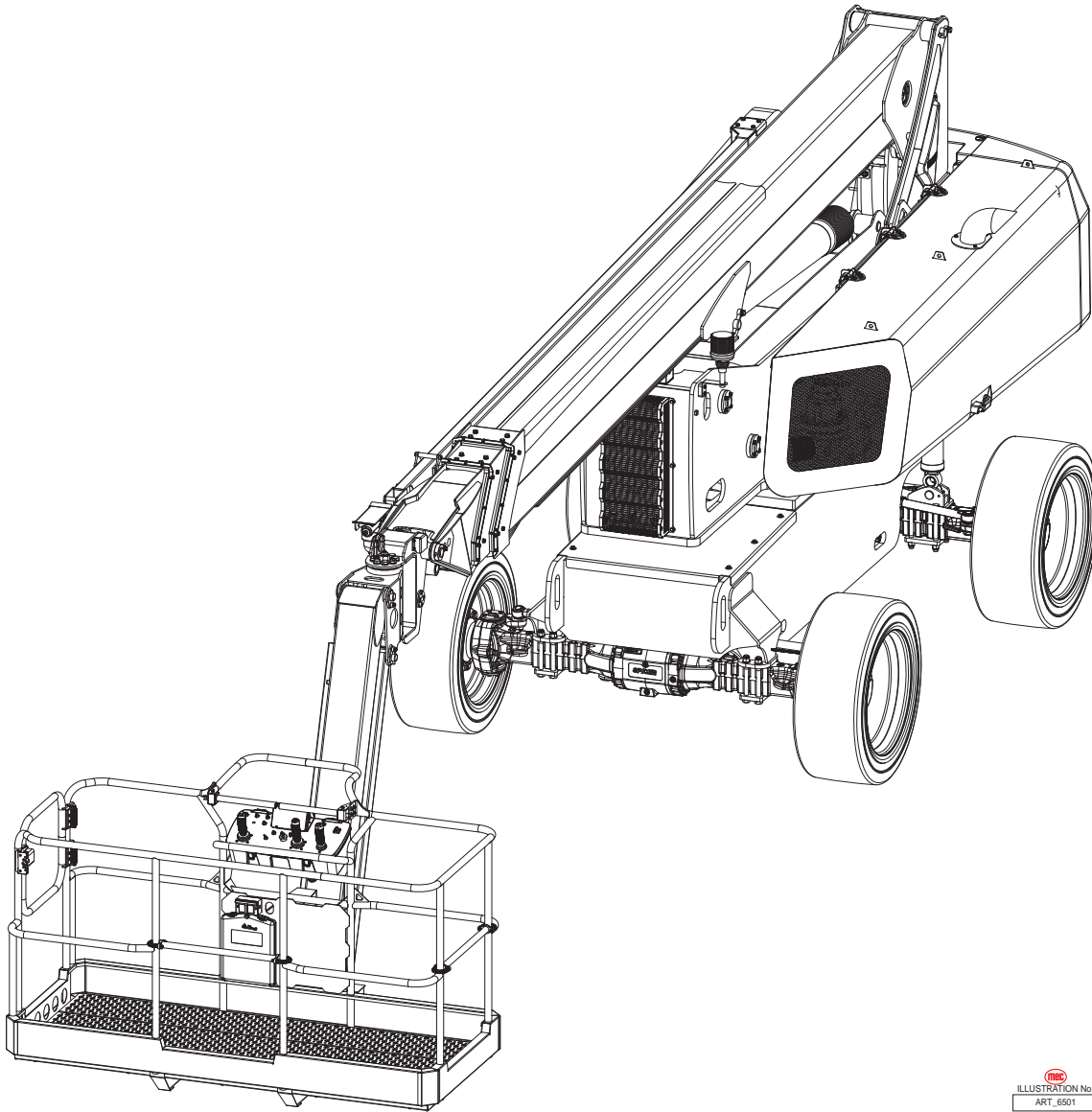



ILLUSTRATION No.
ART_0501

Meets requirements of ANSI A92.20-2020 and CSA B354.6-2019.
Serial Number Range 24400025 - Up

Part # 96966
May 2026

Revision History

Date	Reason for Update
June 2025	New Release
September 2025	Correction to "Semi-annual Maintenance" on page 29.
October 2025	Added 49091 for page 102. Added 49644 for page 118. Added serial number range to Items #1-4 for page 158. Added serial number break for 49507 and 49508 for page 196. Added 47981 and 47985 with serial number range for page 196. Added serial number break to early style Electrical Harness for page 242 and page 244. Added new style Electrical Harness for page 246 and page 248. Added serial number break to early style Power Distribution Module for page 250. Added new style Power Distribution Module for page 252.



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Service Introduction

This Service section is designed to provide you, the customer, with the instructions needed to properly maintain the MEC self-propelled aerial work platform. When used in conjunction with the illustrated Parts section in this manual and the Operator's Manual (provided separately), this manual will assist you in making necessary adjustments and repairs, and identifying and ordering the correct replacement parts.

All parts represented here are manufactured and supplied in accordance with MEC quality standards. We recommend that you use genuine MEC parts to ensure proper operation and reliable performance.

To obtain maximum benefits from your MEC Aerial Work Platforms, always follow the proper operating and maintenance procedures. Only trained authorized personnel should be allowed to operate or service this machine. Service personnel should read and study the Operator's, and the Service and Parts Manuals in order to gain a thorough understanding of the unit prior to making any repairs.

MEC Operator Policy

Note: *The best method to protect yourself and others from injury or death is to use common sense. If you are unsure of any operation, **don't start** until you are satisfied that it is safe to proceed and have discussed the situation with your supervisor.*

Service personnel and machine operators must understand and comply with all warnings and instructional decals on the body of the machine, at the ground controls, and platform control console.



MODIFICATIONS OF THIS MACHINE FROM THE ORIGINAL DESIGN AND SPECIFICATIONS WITHOUT WRITTEN PERMISSION FROM MEC ARE STRICTLY FORBIDDEN. A MODIFICATION MAY COMPROMISE THE SAFETY OF THE MACHINE, SUBJECTING OPERATOR(S) TO SERIOUS INJURY OR DEATH.

MEC's policies and procedures demonstrate our commitment to Quality and our relentless ongoing efforts towards Continuous Improvement, due to which product specifications are subject to change without notice.

Any procedures not found within this manual must be evaluated by the individual to assure oneself that they are "proper and safe."

Your MEC Aerial Work Platform has been designed, built, and tested to provide many years of safe, dependable service. Only trained, authorized personnel should be allowed to operate or service the machine.

MEC, as manufacturer, has no direct control over machine application and operation. Proper safety practices are the responsibility of the user and all operating personnel.

If there is a question on application and/or operation, contact MEC Aerial Work Platforms:



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Safety Symbols & General Safety Tips

MEC manuals and decals use symbols, colors and signal words to help you recognize important safety, operation and maintenance information.



RED and the word **DANGER** – Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



ORANGE and the word **WARNING** – Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



YELLOW with alert symbol and the word **CAUTION** – Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



YELLOW without alert symbol and the word **CAUTION** – Indicates a potentially hazardous situation which, if not avoided, may result in property damage.



GREEN and the word **NOTICE** – Indicates operation or maintenance information.

Regular inspection and constant maintenance is the key to efficient economical operation of your aerial work platform. It will help to assure that your equipment will perform satisfactorily with a minimum of service and repair.



The actual operating environment of the machine governs the inspection schedule. Correct lubrication is an essential part of the preventative maintenance to minimize wear on working parts and ensure against premature failure. By maintaining correct lubrication, the possibility of mechanical failure and resulting downtime is reduced to a minimum.

- Never leave hydraulic components or hoses open. They must be protected from contamination (including rain) at all times.
- Never open a hydraulic system when there are contaminants in the air.
- Always clean the surrounding area before opening hydraulic systems.
- Use only recommended lubricants. Improper lubricants or incompatible lubricants may be as harmful as no lubrication.
- Watch for makeshift “fixes” which can jeopardize safety as well as lead to more costly repair.

Bolt Torque Specification - American Standard

Fasteners

Use the following values to apply torque unless a specific torque value is called out for the part being used.

American Standard Cap Screws								
SAE Grade	5				8			
Cap Screw Size (Inches)								
	Torque				Torque			
	Ft-lbs		Nm		Ft-lbs		Nm	
	Min	Max	Min	Max	Min	Max	Min	Max
1/4 - 20	6.25	7.25	8.5	10	8.25	9.5	11	13
1/4 - 28	8	9	11	12	10.5	12	14	16
5/16 - 18	14	15	19	20	18.5	20	25	27
5/16 - 24	17.5	19	12	26	23	25	31	34
3/8 - 16	26	28	35	38	35	37	47.5	50
3/8 - 24	31	34	42	46	41	45	55.5	61
7/16 - 14	41	45	55.5	61	55	60	74.5	81
7/16 - 20	51	55	69	74.5	68	75	92	102
1/2 - 13	65	72	88	97.5	86	96	116	130
1/2 - 20	76	84	103	114	102	112	138	152
9/16 - 12	95	105	129	142	127	140	172	190
9/16 - 18	111	123	150	167	148	164	200	222
5/8 - 11	126	139	171	188	168	185	228	251
5/8 - 18	152	168	206	228	203	224	275	304
3/4 - 10	238	262	322	255	318	350	431	474
3/4 - 16	274	302	371	409	365	402	495	544
7/8 - 9	350	386	474	523	466	515	631	698
7/8 - 14	407	448	551	607	543	597	736	809
1 - 8	537	592	728	802	716	790	970	1070
1 - 14	670	740	908	1003	894	987	1211	1137





Torque values apply to fasteners as received from the supplier, dry or when lubricated with normal engine oil.

If special graphite grease, molydisulphide grease, or other extreme pressure lubricants are used, these torque values do not apply.

Bolt Torque Specification - Metric Standard

Fasteners

Use the following values to apply torque unless a specific torque value is called out for the part being used.

Metric Cap Screws								
Metric Grade	8.8				10.9			
Cap Screw Size (Millimeters)								
	Torque				Torque			
	Ft-lbs		Nm		Ft-lbs		Nm	
	Min	Max	Min	Max	Min	Max	Min	Max
M6 × 1.00	6	8	8	11	9	11	12	15
M8 × 1.25	16	20	21.5	27	23	27	31	36.5
M10 × 1.50	29	35	39	47	42	52	57	70
M12 × 1.75	52	62	70	84	75	91	102	123
M14 × 2.00	85	103	115	139	120	146	163	198
M16 × 2.50	130	158	176	214	176	216	238	293
M18 × 2.50	172	210	233	284	240	294	325	398
M20 × 2.50	247	301	335	408	343	426	465	577
M22 × 2.50	332	404	450	547	472	576	639	780
M24 × 3.00	423	517	573	700	599	732	812	992
M27 × 3.00	637	779	863	1055	898	1098	1217	1488
M30 × 3.00	872	1066	1181	1444	1224	1496	1658	2027

Torque values apply to fasteners as received from the supplier, dry or when lubricated with normal engine oil.

If special graphite grease, molydisulphide grease, or other extreme pressure lubricants are used, these torque values do not apply.

Hydraulic Components Torque Table

Note: Always lubricate threads with clean hydraulic fluid prior to installation.

Use the following values to torque hydraulic components when a specific value is not available. Always check for torque values in the following places before relying on the Hydraulic Components Torque Table.

- Parts drawings and service instructions in this manual.
- Packaging and instruction sheets provided with new parts.
- Instruction manuals provided by the manufacturer of the component being serviced.

SAE Port Series	Cartridge Poppet		Fittings		Hoses	
	Ft-lbs	Nm	Ft-lbs	Nm	In-lbs	Nm
#4	N/A	N/A	N/A	N/A	135 - 145	15 - 16
#6	N/A	N/A	10 - 20	14 - 27	215 - 245	24 - 28
#8	25 - 30	31 - 41	25 - 30	34 - 41	430 - 470	49 - 53
#10	35 - 40	47 - 54	35 - 40	47 - 54	680 - 750	77 - 85
#12	85 - 90	115 - 122	85 - 90	115 - 122	950 - 1050	107 - 119
#16	130 - 140	176 - 190	130 - 140	176 - 190	1300 - 1368	147 - 155

Specifications

Maximum Working Height ¹		72.8 feet	22.2 meters
Maximum Platform Height		66 feet	20.2 meters
Maximum Drive Height		Full Height	
Maximum Outreach	Unrestricted	56 feet	17.0 meters
	Restricted	50 feet	15.2 meters
Overall Height, Stowed		9 feet	2.79 meters
Overall Length, Stowed		33 feet	10.1 meters
Overall Width, Stowed		8 feet 2 inches	2.5 meters
Machine Weight ² (Unloaded)		28,528 pounds	12,940 kilograms
Tail Swing		4.6 feet	1.4 meters
Turning Radius, Inside		5.4 feet	1.65 meters
Wheel Base		8 feet 2 inches	2.5 meters
Ground Clearance		1 foot	0.31 meters
Turntable Rotation		360° Continuous	
Platform Lift Capacity	Unrestricted	600 pounds	272 kilograms
	Restricted	900 pounds	408 kilograms
Maximum Occupants		2 Person	
Platform Details	Width	7.5 feet	2.3 meters
	Depth	3.2 feet	1 meter
	Entry	1 End Swing Gate, 2 Slide Bar Entries	
Platform Rotation		180° (90° Each Side)	
Jib Horizontal Range	Unrestricted	120°	
	Restricted	60°	
Jib Vertical Range		136°	
Boom Speed	Raising	55-60 seconds	
	Lowering	50-55 seconds	
Telescopic Extend/Retract Speed		40-45 seconds	
Jib Lift/Lower Speed		20-25 seconds	
Max Drive Speed (Proportional)	Stowed	3.7 mph	6.0 km/h
	Raised/Extended	0.7 mph	1.1 km/h
Gradeability, Stowed	Downhill	45% (24.2°)	
	Uphill	45% (24.2°)	
Axle Oscillation		10° (5° Each Side)	
Maximum Wind Speed		28 mph	12.5 m/sec (45 km/h)
Engine		Kubota D1803 Engine	
Fuel Type		Diesel	
Fuel Capacity		33 gallons	125 liters
Hydraulic Fluid Capacity		29 gallons	110 liters
<p>Meets requirements of ANSI A92.20-2020 and CSA B354.6-2019. Allowable ambient temperature range: -20°F to 120°F (-29°C to 49°C). Consult with MEC for operation outside of this range. 1 Working Height adds 6 feet (2 meters) to platform height. 2 Weight may increase with certain options.</p>			

Machine Systems

Hydraulic System

Persons in regular contact with mineral-based hydraulic fluid need to be aware of the importance of thorough hygiene and the proper methods for handling mineral oils, in order to avoid potential hazards to health.

If mineral-based hydraulic fluid is splashed into the eyes, it must be washed out thoroughly using abundant quantities of water. Seek medical attention if irritation persists.



Hydraulic fluid under pressure can penetrate and burn skin, damage eyes, and may cause serious injury or blindness.

Beware of hot fluid. Contact with hot fluid may cause severe burns.

Hydraulic fluid leaks under pressure may not always be visible. Check for pin hole leaks with a piece of cardboard, not your hand. Correct leaks immediately.

Clean all fittings before disconnecting hoses.

Tag all hoses and wiring for proper reassembly.



Plug all openings immediately to prevent contamination.

Replace any O-rings and inspect all hoses for crack and damage before reassembly.

Always wear protective eye-wear when working with fuel and oil.

Electrical System

Batteries under charge create explosive hydrogen gas. Keep sparks, flames and smoking materials away from batteries.

Always wear safety glasses when working with batteries.



Battery fluid is corrosive. Thoroughly rinse spilled fluid with clean water.

Replace only with manufacturer-approved batteries.

Turn off the battery disconnect switch before removing any battery from the machine.



Before disconnecting the battery negative (–) lead, make sure that all switches are off. If on, a spark will occur at the ground terminal that could ignite hydrogen gas or fuel vapors.

Discharged batteries can freeze, causing damage to the battery and/or battery case. A broken battery case will allow electrolyte to leak out.



Prevent damage to battery and/or electrical system;

- **Always disconnect the negative battery cable first.**
- **Always connect the positive battery cable first.**

When the negative cable is installed, a spark will occur if contact is made between the positive side of the battery and a metal surface on the machine. This can cause damage to the electrical system, battery explosion, and personal injury.

Total System

Engine coolant level must be checked only after engine has cooled. If radiator cap is removed while the coolant is at normal operating temperature, pressure within the coolant system will force hot liquid out through the filler opening and may cause severe scalding.

Failure to perform preventive maintenance at recommended intervals may result in the unit being operated with a defect that could result in injury or death of the operator.



Immediately report to your supervisor any defect or malfunction. Any defect shall be repaired prior to continued use of the aerial work platform.

Inspection and maintenance should be performed by qualified personnel familiar with the equipment.

Always wear protective eye-wear when working with fuel and oil.

Engine should be OFF when replacing filter elements.

Do not run the engine with the air filter element removed.

Component Locations

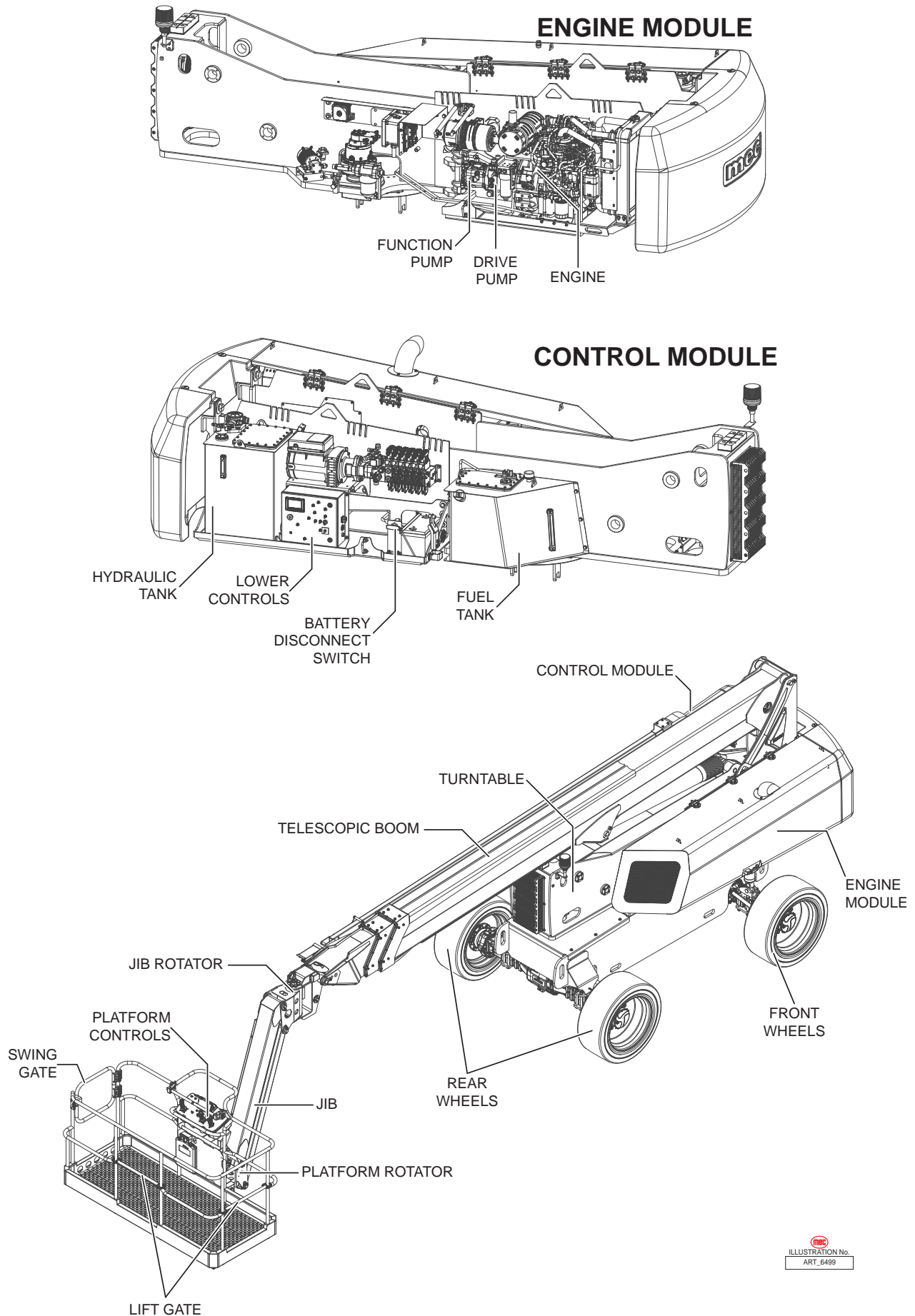



ILLUSTRATION No.
ART_6499

Emergency Systems and Procedures



IF THE CONTROL SYSTEM FAILS WHILE THE PLATFORM IS ELEVATED, HAVE AN EXPERIENCED OPERATOR USE THE EMERGENCY LOWERING PROCEDURE TO SAFELY LOWER THE PLATFORM.

DO NOT ATTEMPT TO CLIMB DOWN ELEVATING ASSEMBLY.

Emergency Stop

The machine is equipped with an Emergency Stop switch on both control panels.

- Press the Emergency Stop switch at any time to stop all machine functions.
- Pull the button to reset it.

Selector Switch set to Platform

- Either switch will stop all machine functions.
- Both switches must be reset or machine will not operate.

Selector Switch is set to Base

- The upper controls are locked out.
- The lower controls switch must be reset or the machine will not operate.
- The machine will operate from the lower controls if the upper controls switch is tripped.



ART_3353

Auxiliary Power System & Test

If primary power fails while the platform is elevated, use the Auxiliary Power System to safely lower the platform.

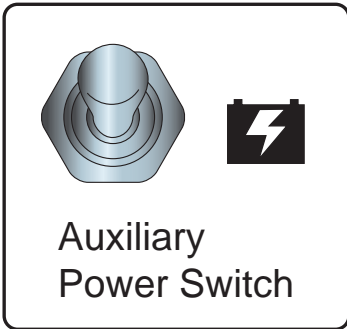


Do not climb down the boom assembly or exit the platform while elevated.

ALWAYS check over, under and around the machine for personnel, structures and obstructions before activating any control function and continue to watch for hazards while operating the machine.

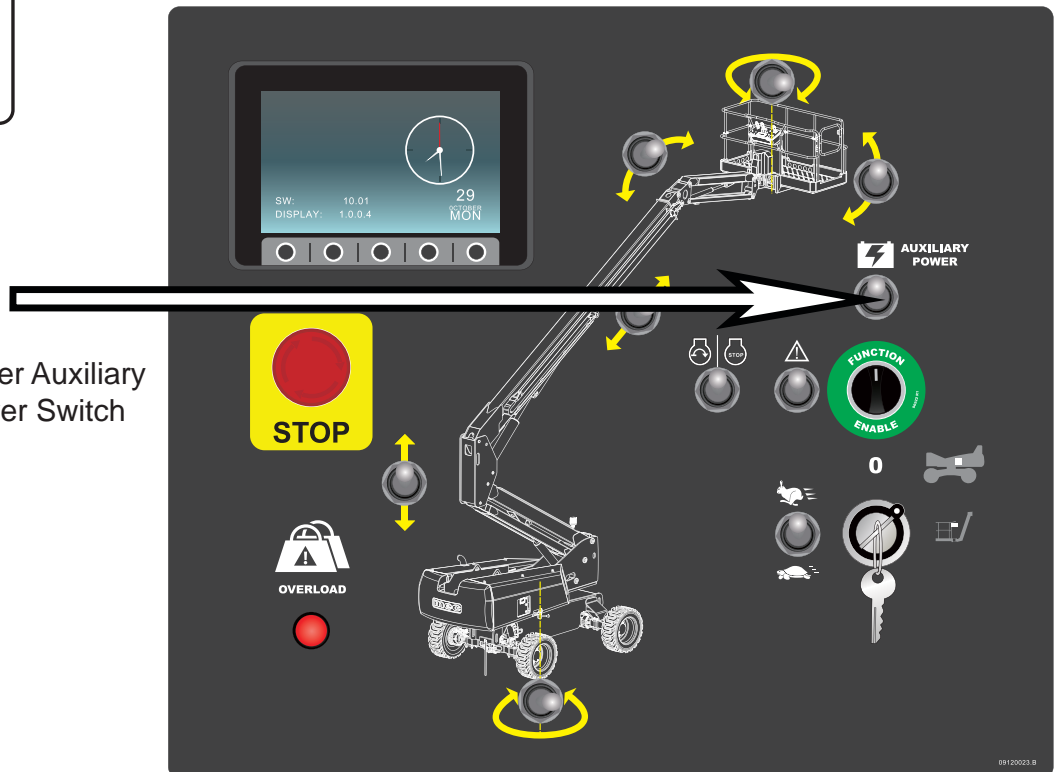
Platform Controls

Upper Auxiliary Power Switch



Base Controls

Lower Auxiliary Power Switch



The Auxiliary Power System is used to lower the platform in case of primary power failure. To lower the platform, activate the Auxiliary Power Switch to run the auxiliary hydraulic pump.

This function uses battery power from the auxiliary battery to lower the platform.

- Push and hold the Auxiliary Power Switch, then use the Boom Extend/Retract function to retract the boom.
- Continue to hold the Auxiliary Power Switch, then use the Boom Lift/Lower function to lower the boom.

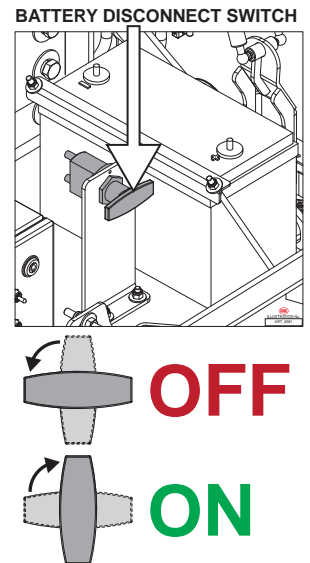
Note: The Auxiliary Power System is disabled when the engine is running.

Note: The Auxiliary Power Switch serves as an enable switch. It is not necessary to use the primary function enable switch.

Battery Disconnect Switch

The Battery Disconnect switch is located next to the battery, which is located inside the Control module and is next to the lower Controls.

1. When the Battery Disconnect switch is vertical (ON), the battery is connected to the machine systems. This means that the machine can be powered on and that machine functions can be operated.
 - Turn the Battery Disconnect switch left to disconnect the battery from the machine systems.
2. When the Battery Disconnect switch is horizontal (OFF), the battery is disconnected to the machine systems. This means that the machine can not be powered on and that machine functions can not be operated.
 - Turn the Battery Disconnect switch right to reconnect the battery to the machine systems.



Transport and Lifting Instructions

Safety Information

This section is provided for reference and does not supersede any government or company policy regarding the loading, transport or lifting of MEC machinery.

Truck drivers are responsible for loading and securing machines, and should be properly trained and authorized to operate MEC machinery. Drivers are also responsible for selecting the correct and appropriate trailer according to government regulations and company policy. Drivers must ensure that the vehicle and chains are strong enough to hold the weight of the machine (see the serial number plate for machine weight).



ONLY properly trained and qualified operators shall load and unload this machine. While loading and unloading, the transport vehicle must be parked on a level surface and secured to prevent rolling.

Free-wheel configuration for Winching or Towing

RUNAWAY HAZARD!



After releasing the brakes there is nothing to stop machine travel. Machine will roll freely on slopes.

ALWAYS chock the wheels before manually releasing the brakes.

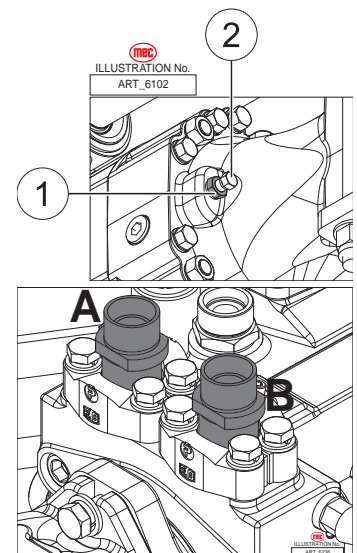
Before towing or winching the machine, it is necessary to release the brakes. Reset the brakes after towing or winching. The machine can be winched or towed short distances at speeds not to exceed 6.2mph (10km/h).

Brake Release Procedure

Unscrew lock nut 1 of power screw 2. Tighten the power screw to fit flush to disengage the brake. Repeat the operation for the other three screws on the same axle, two screws are on the front and back of the axle. And then repeat the operation for front axle.

Remove the hoses from the port A and B of the Drive Pump and then connect two ends of the hoses removed together after completing the brake release procedure.

Make sure to reapply the brakes before performing any operation! To reapply the brakes, follow the instructions in reverse!



Driving or Winching onto or off of a Transport Vehicle

Before loading the machine, orient the turntable so that the platform is over the non-steering wheels so that the Rotation Lock may be engaged later in the loading process.

ONLY properly trained and qualified operators shall load and unload this machine.

Read and understand all safety, control, and operating information found on the machine and in this manual before operating the machine.



Whether winching or driving the machine on to a truck or trailer, always check the area for dangerous situations before moving the machine.

If driving the machine, always use a second person acting as a spotter to make sure the person loading the machine avoids dangerous situations.

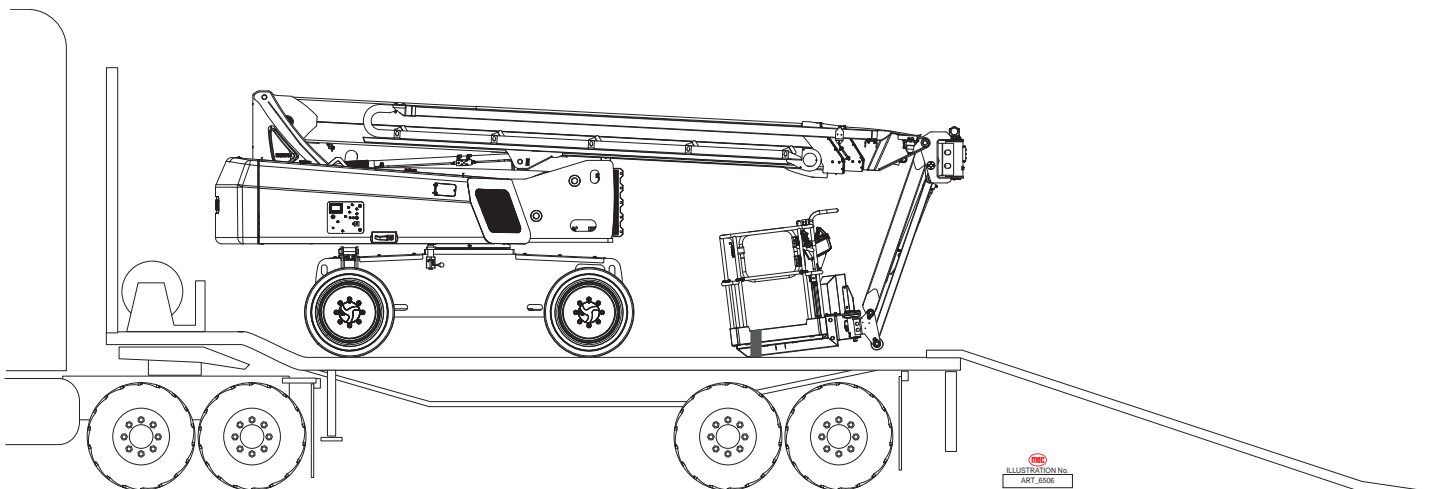
Driving

- Turn the Base Key Switch to PLATFORM. Check that the Emergency Stop Switch is reset by pulling it.
- Enter the platform and reset the Platform Emergency Stop Switch.
- Test platform control functions.
- Raise the jib slightly for platform ground clearance.
- Carefully drive the machine off or on to the transport vehicle.
- Make sure you can see the second person giving guidance.

Note: The brakes are automatically released for driving and will automatically apply when the control handle is returned to neutral which causes the machine to stop.

Winching

- Chock the wheels, then disengage brakes (see Brake Release Procedure on page 14).
- Carefully operate the winch to lower the machine down the ramp or pull the machine up the ramp.
- Chock the wheels and engage the brakes before disengaging the winch.



Securing to Truck or Trailer for Transport

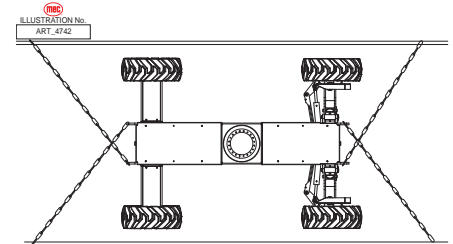
- Turn the key Selector Key Switch to OFF and remove the key before transport.
- Turn the Battery Disconnect Switch to OFF before transport.
- Inspect the entire machine for loose or unsecured items.
- Secure the chassis.
- Engage the Rotation Lock.
- Secure the platform.

Securing the Chassis

Make sure each of your chains is rated to hold the machine's weight (see serial number plate or Specifications). Use at least 4 chains.

Do not attach chain hooks directly to the machine. Loop the chain through the tie-down point and connect the chain hook to the chain.

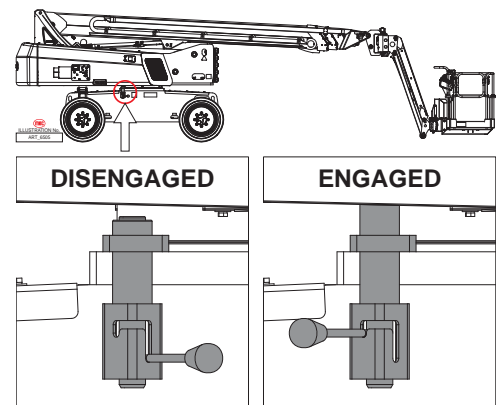
Be sure chains are arranged so that they do not damage the machine.



Engaging the Rotation Lock

Before transport, rotate the turntable so that the locking hole aligns with the Rotation Lock located on the chassis. The lock holes are located on the bottom of the Controls Module. The Rotation Lock is located on the chassis behind the left front wheel.

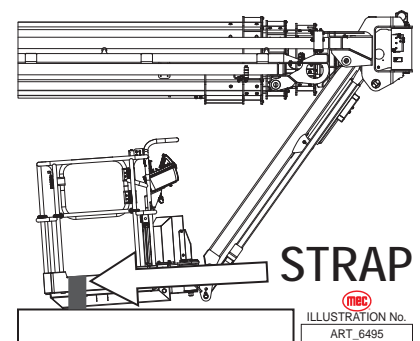
Lift the Rotation Lock using the attached pin, then rotate the lock into position to engage it. (See illustration.) Disengage the Rotation Lock before operation.



Securing the Platform

With the boom completely stowed and the jib rotated to be tucked under the main boom. Raise the jib slightly, then use the Platform Level function to lower the platform until the front of the platform touches the trailer surface.

Route the tie-down strap as shown through the width of the platform, over the toe boards of both side entry points. Tighten securely but do not over-tighten.



Lifting Instructions

Only qualified riggers should rig and lift this machine.

Ensure that the crane capacity, loading surfaces, chains, straps and slings are sufficient to withstand the machine weight. Check the serial plate for the machine weight!



Ensure that the platform is unloaded, that the Rotation Lock is engaged, and that all material and tools have been removed.



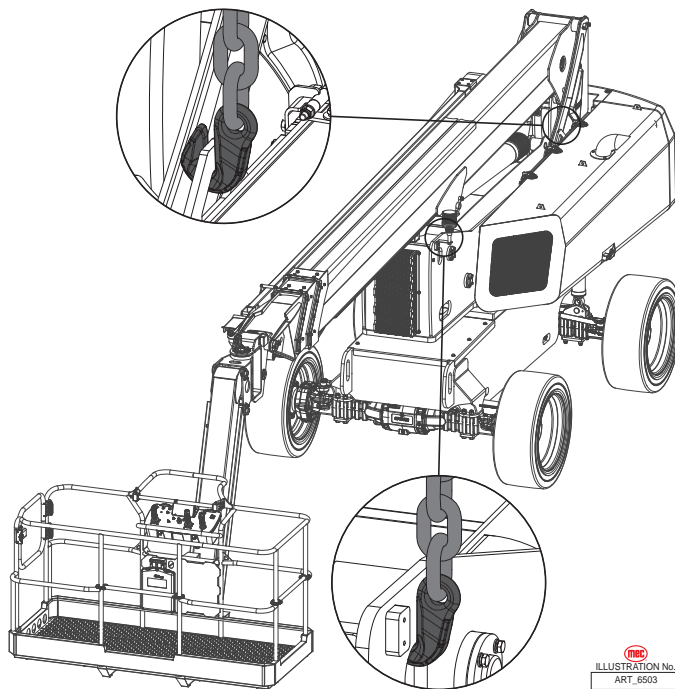
Be careful to avoid pinching or damaging any electrical harnesses or hydraulic lines with lifting hardware.

Attach lifting hooks as shown in the diagram. 2 hooks towards the platform end of the turntable and 2 hooks above the hoods towards the counterweight end of the turntable.

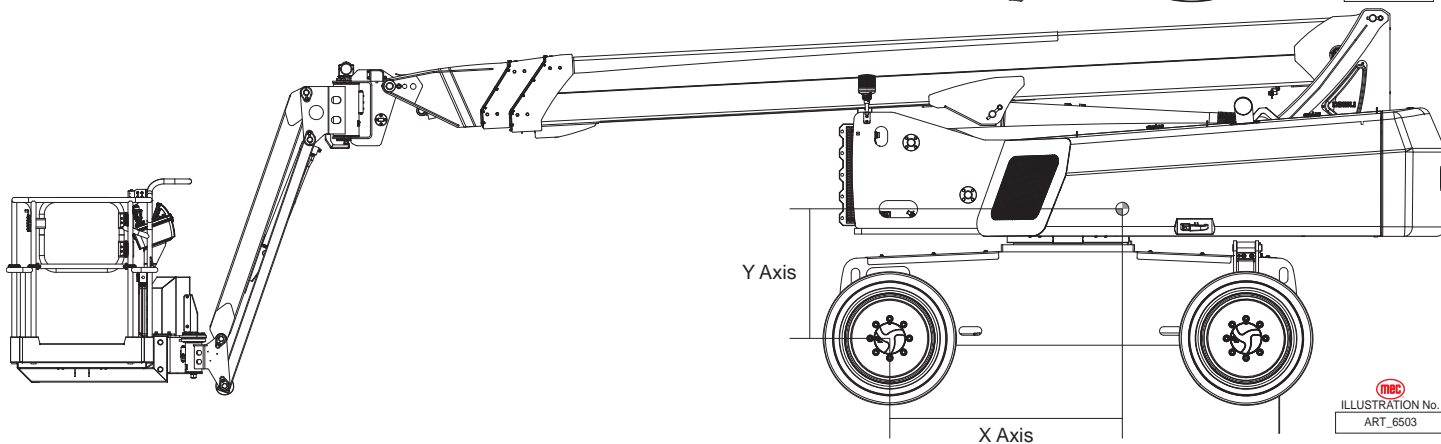
Adjust the lifting devices in such a way as to keep the machine level and without causing damage to it.

Center of gravity measurements are taken from the center of the non-steering wheel as shown in the image.

X-Axis	Y-Axis
67.3 inches (1710 millimeters)	28.3 inches (720 millimeters)



mec
ILLUSTRATION No.
ART_6503



mec
ILLUSTRATION No.
ART_6503

Maintenance

Tag and remove a damaged, malfunctioning or modified machine from service. DO NOT use a damaged, malfunctioning or modified machine.

IMPORTANT: Scheduled maintenance inspection checklists are included in this manual for use only by qualified service technicians. Only qualified service technicians may perform repairs to the machine. After repairs are completed, the operator must perform a Pre-Start Inspection before proceeding to the Functions Test.

Hydraulic fluid under pressure can penetrate and burn skin, damage eyes, and may cause serious injury, blindness, and death. Repair leaks immediately. Fluid leaks under pressure may not always be visible. Check for pin hole leaks with a piece of cardboard, not your hand.

NEVER perform work under the boom assembly with the platform elevated without first supporting the boom assembly.

**WARNING**

Failure to perform scheduled maintenance at recommended intervals may result in injury or death. Keep maintenance records current and accurate.

Immediately report any damage, defect, unauthorized modification or malfunction to your supervisor. Any defect must be repaired prior to continued use. DO NOT use a damaged, modified or malfunctioning machine.

DO NOT hang anything over any control handle at any time.

Never leave hydraulic components or hoses open. Plug all hoses and fitting immediately after disassembly to protect the system from outside contamination (including rain).

Never open a hydraulic system when there are contaminants in the air.

Always clean the surrounding area before opening hydraulic systems.

**CAUTION**

Use only recommended lubricants. Improper lubricants or incompatible lubricants may cause as much damage as no lubrication.

Watch for makeshift “fixes” which can jeopardize safety as well as lead to more costly repair.

Inspection and maintenance should be performed by qualified personnel familiar with the equipment.

Maintenance Inspection Report

Booms (34J, 45J, 45AJ, 60J, 65J, 66-RJ, 85J, 135RJ)

Fleet Equipment Number _____ Date _____
 Inspector Name _____ Inspector Co. _____
 Model Number _____ Address _____
 Serial Number _____
 Hour Meter _____ Signature _____
 Machine Owner & address _____

Maintain all service records in accordance with ANSI A92.24-2019

- * If an inspection receives an "N", remove from service. Once repaired, place an "R" in the box.
- * Refer to the proper service manual for specific information, settings and torque specifications.

Key Y = Yes, Acceptable N = No, Remove from Service R = Repaired O = Not Applicable

QUARTERLY - Inspect only those marked "Q" **ANNUAL** - Inspect all items

	Q/A	Y/N/O	R		Q/A	Y/N/O	R
DECALS:				BASE:			
Legible - undamaged/readable	A			Fasteners tight	Q		
Capacity decal correct for model	A			Cover panels secure, no damage	Q		
PLATFORM:				Welds, no signs of failure or damage	A		
No damage, all parts present	Q			Hydraulic hoses secure, no leaks	A		
Platform mounting fasteners secure	Q			Check Slew Ring bolt torque	A		
Entry gates secure, close properly	Q			Steering king pins, no excessive free play	A		
Manual box secure, Manuals inside	Q			COMPONENT AREA:			
Operation of secondary guarding	Q			Hydraulic; no leaks	Q		
PPSS System operational (if equipped)	Q			Hydraulic tank: correct level, breather clean	Q		
ELEVATING ASSEMBLY:				Hoses not damaged, fittings tight	Q		
Lift Hyd Cylinders: no leaks,	Q			Batteries properly filled and cables clean	Q		
Booms do not bleed down with rated cap	Q			Hydraulic tank: Oil changed per listed intervals	A		
Hyd Hoses secure, no visible damage	Q			Replace Hydraulic Filters	A		
Beam structures: Straight, no cracks	A			Pressure relief valves, set correctly	A		
Welds: secure, no cracks	A			OPERATIONAL INSPECTION:			
Pin Retainers in place, secure	A			All function speeds correct (see Specifications)	Q		
Transport Lock: operational, lubed	A			Upper control box, operations correct, smooth	Q		
Boom section shimming correct	A			Upper controls operate proportionally	Q		
ELECTRICAL:				Emergency Down operates correctly	Q		
GFCI operates correctly	Q			Limit switches slows drive when elevated, operational	Q		
No blown fuses	Q			Emergency stop switches, stop everything	Q		
Comm cable: no damage, secure	Q			Parking Brakes operational	A		
Wire harnesses: good cond, secure	A			Test Platform Overload System operation	Q		
Harness connections: no corrosion	A			ENGINE:			
WHEELS:				Engine serviced per recommendations	Q		
Tires: No damage	Q			Oil and Coolant Levels correct	Q		
Lug nuts all present, torqued properly	Q			Fuel lines secure, no leaks	Q		
King Pins lubed	A			All shields, guards in place, secure	Q		
Tires are not leaning in leaning in or out	A			Mounting secure	Q		
Drive motors tight, no leaks	A						



Daily Maintenance

The following maintenance should be done daily or every 10 hours of operation, whichever comes first.

1) Inspect the Machine

To ensure the maximum operating life of the machine, thoroughly inspect the machine before starting the machine.

1. Look around and under the machine, checking to make sure that there are none of the following:
 - Loose, rusty, missing or damaged hardware
 - No accumulated dirt or debris
 - Leaking oil, fuel, and other liquids
 - Broken or worn parts
2. Check the state of the machine and hydraulic components.
3. Check the condition of the tires and replace them if necessary.
4. Check the oil, coolant, and other fluid levels and refill them if necessary.
5. Remove all accumulated dirt and debris. Carry out all the repairs needed before starting up the machine.
6. Check the state of the battery for corrosion and cleaning. The current battery charge capacity is shown on the diagnostic panel.

2) Check the Engine oil level

Beware of hot fluid. Contact with hot fluid may cause severe burns.



Always wear protective eye-wear when working with fuel and oil.

Do not perform task with the engine running!

Do not have sparks, open flames, or lighted tobacco nearby!

When working on the oil system, make sure to keep the oil system and all nearby areas clean. Make sure to keep the areas thoroughly clean from time to time. Dry any damp areas with air jets. When handling engine oil, make sure to follow all rules and regulations.

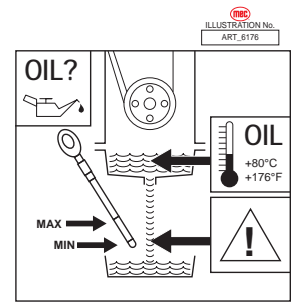
Make sure to properly dispose of any used engine oil and used filter elements. Do not let the used engine oil spread on the ground.

Run a test cycle after replacing the engine oil. Make sure that the sealing and pressure of the engine oil is correct and at the correct level.

An insufficient or excessive amount of engine oil can damage the engine. Make sure that the machine is parked on a flat, level surface and is turned off before checking the engine oil level. Check the engine oil level only while it is warm, 5 minutes after the engine is turned off.

Do not remove the engine oil level rod with the engine running! Danger of burns!

1. Remove the engine oil level rod and wipe it clean with a clean cloth that doesn't leave any lint or fibers. Insert the engine oil rod up to the stop, remove it and read the engine oil level.
2. The oil level must be between the MIN and MAX level. If necessary, add additional engine oil to reach the MAX level. **Do not overfill!**



3) Check the Coolant oil level

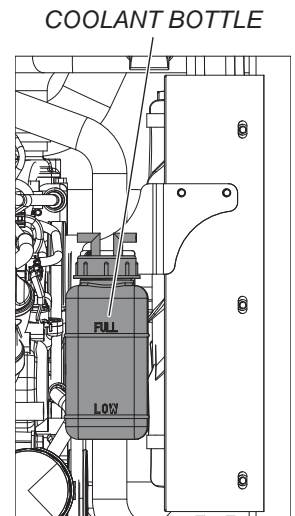
Make sure the engine is cold before working on the cooling system.



The coolant is pressurized and at a high temperature when the engine is turned on.

When the tank cap is removed, the coolant liquid may flow out violently and cause serious burns.

1. Make sure that the machine is parked on a flat, level surface and is turned off.
2. Open the engine hood and the coolant bottle will be easily visible next to the radiator.
3. Check the level in the coolant bottle. The fluid level is correct when it is between the "FULL" and "LOW" lines marked on the bottle.
4. Open the bottle and check the coolant additive concentration ratio using the necessary instrument (e.g. hydrometer, refractometer).
5. If necessary, add more coolant of the correct type until the fluid level is between the "FULL" and "LOW" lines marked on the bottle.
6. Put the cap back on and make sure it is tightened properly. Run the engine to bring the coolant up to the required temperature. Turn off the engine and check for any leaks in the hoses.
7. Fluid leaks under pressure may not always be visible. Check for pin hole leaks with a piece of cardboard, not your hand. Repair any leaks found.



4) Check the Telescopic Boom sliding blocks

1. Extend the telescopic boom completely.
2. Check to make sure that the boom movement is smooth and that there are no abnormal vibrations, unusual noises, and no part of the boom gets heated due to friction during the movement.
3. Remove the dust guard gaskets located at the head of the extensions and make sure that there is a sufficient layer of grease on the sliding surfaces and on the sliding blocks. For instructions on lubricating the Telescopic Boom sliding blocks, see page 24.

5) Auxiliary Power Test

If the machine engine is running, press the red Emergency Stop Switch to stop the engine, and then pull the red Emergency Stop Switch out to reset it.

Press up and hold the Auxiliary Power Switch while testing the controls of the boom and platform. After making sure that all the functions work properly, release the switch to stop using auxiliary power.

Note: To avoid draining the batteries, limit the test duration time.

6) Check the Overload Sensor

It's important to make sure that the overload sensor is in good condition before using the machine. The overload sensor in the platform will show how much weight is in the platform on the diagnostic panel. If the weight in the platform does not exceed the rated load, the machine is safe to operate and will function properly.

If the weight exceeds the rated load, the machine will stop operating and the alarm will beep. The diagnostic panel will state that the weight in the platform is over the rated amount and to remove excess weight. Once the excess weight has been removed, the machine will operate normally.

Check to make sure that none of the bolts are missing, rusty, damaged, or loose and that the overload sensor is undamaged. If the platform is damaged in any way, stop working and make sure to check that the overload sensor is undamaged using the following procedure:

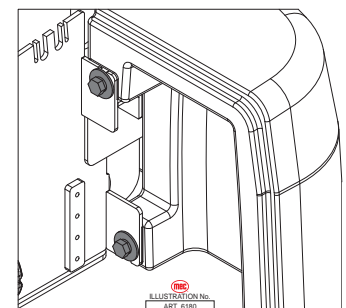
1. Information on the machine's current operating status can be found by pressing the black button under the Data icon shown on the diagnostic panel.
2. Depending on the amount of information shown, you may have to press the black button under the Down Arrow icon to locate the Platform Load parameter.
3. The Platform Load parameter shows the current load in the platform.
4. The Platform Load parameter will show 0lbs (0kg) when the load in the platform is removed completely.
5. The Platform Load parameter will show 900lbs (408kg) at the moment of 900lbs (408kg) being added in the platform.
6. Continue to add weight in the platform, and then the alarm will activate when the weight is up to 1,036lbs (470kg). If the alarm does not activate, the machine must be repaired.
7. The accuracy of weighting is $\pm 10\%$. If the data exceeds it, stop to calibrate it, referring to the page 36.

Hydraulic Oil Temperature	100.0 f
Platform Load	100.0 lb
Load Chart	600.0 lb
Engine	↑/+
↓/-	Esc
Menu	

7) Check the Counterweight bolts

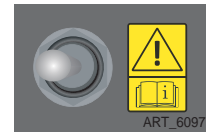
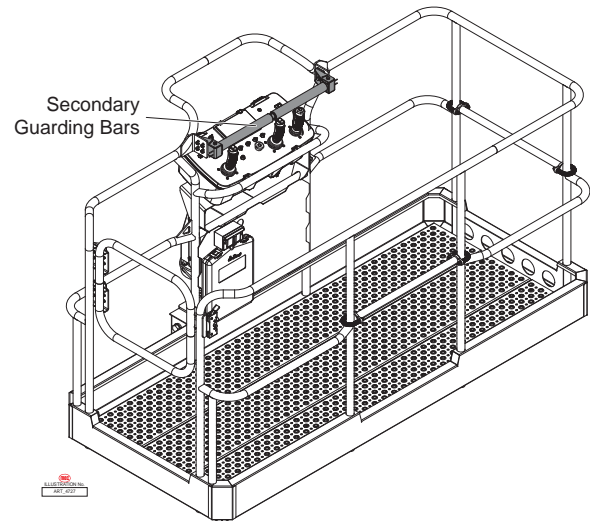
The counterweight bolts holding the counterweight to the boom turret are vital to balancing the machine.

Check to make sure that the hardware is not missing, damaged, rusty or loose. Replace any defective hardware.



8) Check the Secondary Guarding

1. As a safety feature, there are 2 yellow colored swinging bars positioned above the Platform controls. If one or both bars are pushed forward, all machine functions will stop immediately sounding an alarm.
2. If at any time one or both bars are depressed, evaluate the instance that caused the actuation and proceed accordingly with choice 3 or 4.
3. To reset the system, allow the bars to return to the natural centered position, return all control handles to neutral position and release all enable trigger switches. Normal operation may be resumed.
4. To enable limited operation while one or both bars are depressed, push up and hold the Emergency Platform Bypass switch (see illustration to right). While holding the Bypass switch, select the desired function and operate it in the normal procedure. Certain lift functions such as Riser Boom Up, Main Boom Up, and Telescope out are not available in this bypass mode.
5. If normal operation doesn't resume, please contact Product Support for assistance.



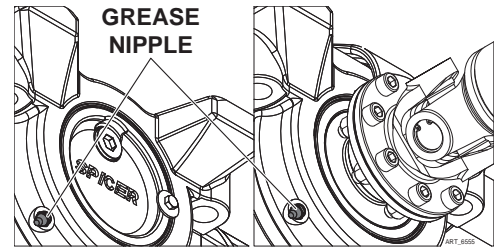
Emergency Platform Bypass Switch

Biweekly Maintenance

The following maintenance should be done every 2 weeks or every 50 hours of operation, whichever comes first.

1) Lubricate the Axles

1. Make sure that the machine is parked on a flat, level surface. Keep the work area clear of any debris and unauthorized personnel.
2. Stand near the front axle oscillation bushes. Inject grease in the grease nipples present on both sides of the axle (front and back side).

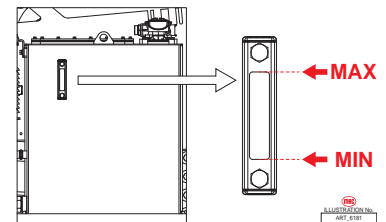


Note: Lubricate during service cycles.

2) Check the Hydraulic oil level

To make sure that the machine works properly, make sure that the level of hydraulic oil in the hydraulic tank is sufficient. An incorrect level of oil in the hydraulic system can damage the components.

Daily inspections will make it possible to detect any changes in the oil level which could indicate the presence of faults in the hydraulic system.



1. Make sure that the machine is parked on a flat, level surface.
2. Make sure the main boom is fully retracted and stowed.
3. Check the oil level indicator on the side of the hydraulic tank.
4. If necessary, add additional hydraulic oil but do not exceed the maximum level!

Note: The hydraulic oil should be filtered with a 20-micron filter.

Result: The hydraulic oil level in the hydraulic system must be between the maximum level and minimum level.

3) Lubricate the Telescopic Boom sliding blocks

1. Make sure that the machine is parked on a flat, level surface with an area with sufficient clearance around it for boom functions.
 - Center the turret and fully lower the main boom, then fully extend the telescopic boom completely.
2. Remove the dust guard gaskets at the head of the boom extensions and clean all the sliding surfaces thoroughly.
3. Using a brush, apply a thin layer of grease on the sliding surfaces on all four sides of the boom. Repeat the operation for each stage of the extension.
4. Retract and extend the telescopic boom a number of times to distribute the grease uniformly.
5. Remove any excess grease to prevent dirt build-up and put the dust guard gaskets back on.

4) Drain water from Water-Fuel Separator

Fuel is flammable and can cause severe burns and/or death.

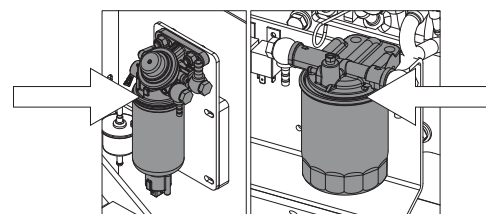
Do not have sparks, open flames, or lighted tobacco nearby while working on the fuel line.



Clean the engine parts and engine compartment to remove all traces of fuel to prevent risk of fire.

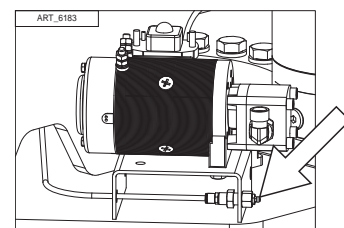
Always wear protective eye-wear when working with fuel and oil.

1. Make sure that the machine is parked on a flat, level surface and that the machine is turned off.
2. Place a suitable container underneath the Water-Fuel separator.
3. Disconnect the cables.
4. Loosen the drainage screw.
5. Drain the liquid until the pure diesel fuel starts flowing out.
6. Put the drainage cap back on and apply a tightening torque of $1.18 \pm 0.22 \text{ft-lb}$ ($1.6 \pm 0.3 \text{Nm}$).
7. Reconnect the cables.



5) Lubricate the Turret Rotation Slew Ring

1. Apply grease manually to the outer teeth of the Slew Ring with a brush evenly and any remove excess grease to prevent dirt build-up.
2. After raising the boom and opening the engine hood, rotate the turret and apply a moderate amount of grease into the raceway through the grease fitting as shown in the illustration with a greasing gun.



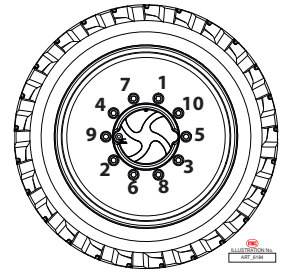
Grease Brand	For Raceway	For Gear Teeth
Shell	Gadus S2 V220 2	MALLEUS OGH
Mobil	Mobilux EP 2S	MOBILTAC 81
Castrol	SPHEEROL EPL 2	MOLLUB-ALLOY 970/2500-1
TotalEnergies	MULTIS EP 2	CERAN AD PLUS
FUCHS	LAGERMEISTER EP 2	CEPLATTYN KG 10 HMF

6) Check the Wheels nut torque

It is extremely important to apply and keep proper torque on the lug nuts. Ensuring that the lug nuts are properly torqued will prevent the lug nuts from coming loose.

Wheel nuts should be torqued after the first 50 hours of operation and after each wheel removal. Use a torque wrench to tighten the nuts. If you do not have a torque wrench, tighten the fasteners with a lug wrench, then immediately have a service garage tighten the lug nuts to the proper torque.

Over-tightening result in breaking the studs or permanently deforming mounting stud holes in the wheels. The proper procedure attaching wheels is as follows:



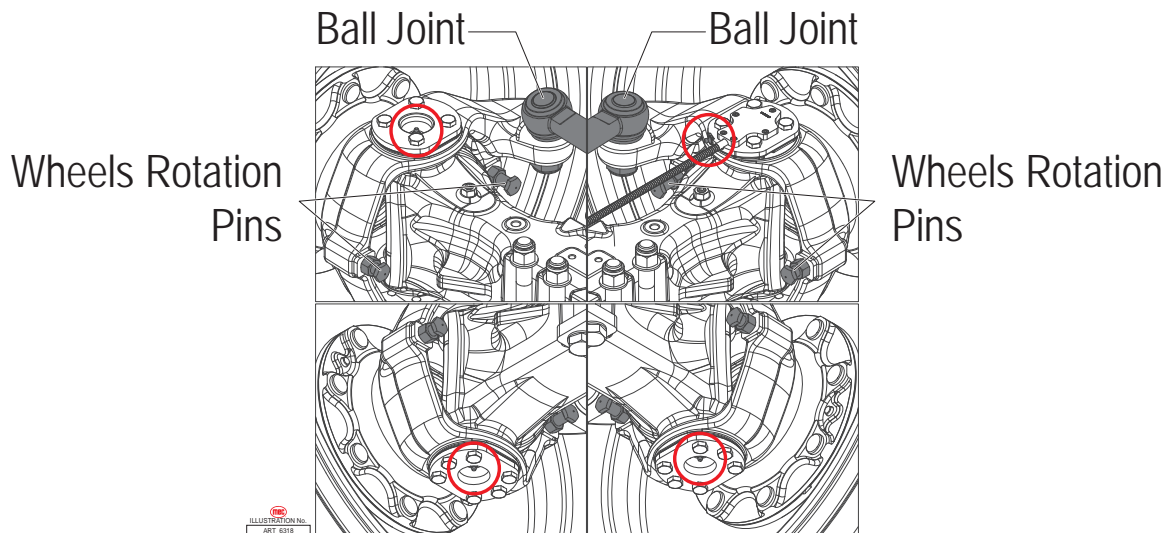
1. Set the torque wrench to 331.9ft-lb (450Nm).
2. Tighten nuts in the correct sequence as the image shows.

7) Lubricate the Steering elements

1. Lubricate both the wheels rotation pins and the ball joint by injecting grease in the grease nipples provided for the purpose.
2. Remove the excess grease to prevent dirt build-up.
 - The illustration has the grease nipples circled in red for visual reference and the grease nipples may be covered with plastic coverings.

Note: Lubricate during service cycles.

AXLE TOP VIEW



AXLE BOTTOM VIEW

Quarterly Maintenance

The following maintenance should be done every 3 months or every 250 hours of operation, whichever comes first.

1) Check the Alternator Belt

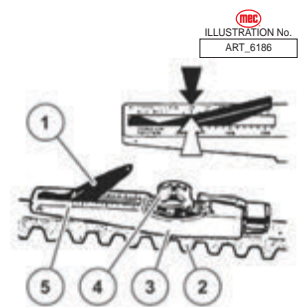
Work on the alternator belt only when the engine has been turned off!



After repairs, make sure all the protection devices have been fitted on and that no tool has been left on the engine.

Checking the Alternator Belt tension

1. To check the tension of the belts, lower the arm of indicator (1) in the tester.
2. Place the guide (3) between two pulleys on the V-belt (2). At this point, the stop must be on the side.
3. Press button (4) in the right hand corner with respect to V-belt (2) uniformly until the spring clicks audibly.
4. Lift the tester gently, without modifying the position of the indicator arm (1).
5. Read the value measured on the intersection point (arrow), scale (5) and indicator arm (1).

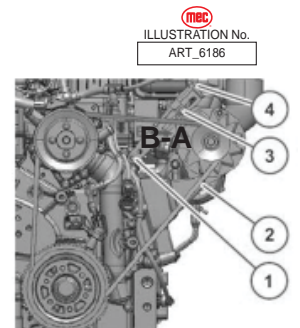


Correct the tension if necessary and repeat the measurement.

Replacing the Alternator Belt

To replace the transmission belt:

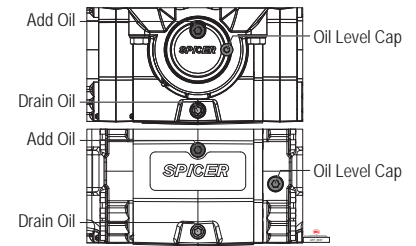
1. Loosen the screw and lock nut.
2. Move the generator above the adjuster wrench in direction (B) until the belt slackens.
3. Remove the belts and fit the new ones.
4. Reposition the generator above the adjuster wrench in direction (A) until the belt tension is correct.
5. Check the belt tension:
 - Before tensioning: 479.4±36.8ft-lb (650±50 Nm)
 - Correct tension: 295±36.8ft-lb (400 ± 50 Nm)
6. Tighten the screw and lock nut using the following torque:
 - Screw (1): 22.1ft-lb (30 Nm)
 - Screw (2): 30.9ft-lb (42 Nm)
 - Screw (3): 22.1ft-lb (30 Nm)



- (1) Screw
- (2) Screw
- (3) Screw
- (4) Adjuster Wrench

2) Check the Axle Differential oil

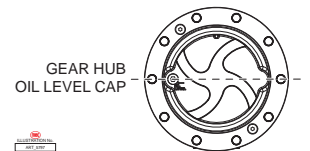
1. Make sure that the machine is parked on a flat, level surface. Keep the work area clear of any debris and unauthorized personnel.
2. Remove the oil level cap. The oil must flow out through the opening.
3. If necessary to speed up the process, remove the cap used to add oil. Once the oil has finished draining, tightly plug back in the oil drainage cap. Add oil to the correct level and then plug in the oil level cap. Clean the axle surfaces.
4. Repeat the operation for the front and rear axles.



Note: Lubricate during service cycles.

3) Check the Wheel Reduction Gears oil

1. Make sure that the machine is parked on a flat, level surface. Keep the work area clear of any debris and unauthorized personnel.
2. Make sure that the gear hub is turned horizontally as the illustration shows.
3. Remove the gear hub oil level cap. The oil level is correct when the oil flows out through the filler hole.
4. If necessary, add additional oil until it reaches the correct level.
5. Put the cap back on and ensure it fits snugly.
6. Repeat this operation for each wheel.



Note: Lubricate during service cycles.

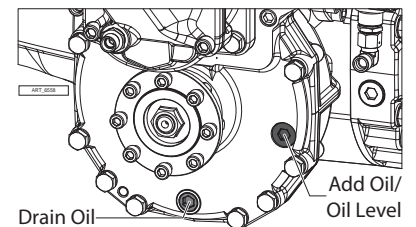
4) Check the Turret Rotation Slew Ring gear oil level

1. Open the control hood and if needed, rotate the turret for better access to the reduction gear.
2. Check the hydraulic fluid level through the inspection window. The level is correct when it overflows.
3. If necessary, add additional oil of the correct type up through the port used to add oil.

When checking the oil level, also check the hardware holding the reduction gear to the chassis for any signs of slack, rust, damaged or missing hardware.

5) Check the Gearbox oil

1. Make sure that the machine is parked on a flat, level surface and the machine is turned off. Keep the work area clear of any debris and unauthorized personnel.
2. Remove the oil level cap. The oil must flow out through the opening.
3. If necessary, add additional oil until it reaches the correct level. Plug the opening with the axle oil level cap. Clean the axle surfaces and any oil that spilled.



Note: Lubricate during service cycles.

Semi-annual Maintenance

The following maintenance should be done every 6 months or every 500 hours of operation, whichever comes first.

1) Replace the Hydraulic Oil filters

Beware of hot fluid. Contact with hot fluid may cause severe burns.



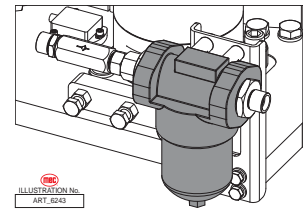
Do not perform task with the engine running!

Always wear protective eye-wear when working with fuel and oil.

The machines use six filters for hydraulic fluid: Three lifetime WU filters for suction circuit are installed in the hydraulic tank, for driven pump, function pump and emergency pump. Two are PLFA series filters used in the pressure line of the hydraulic system. One is located behind the ground console, the other is located on the end of the third boom. The last filter is a return oil filter located on the hydraulic tank.

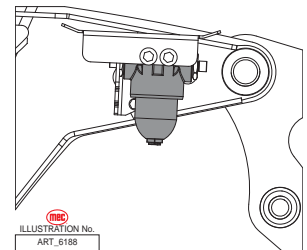
PLFA Filter (Outlet of Function Pump)

1. Clean the area around the oil filter.
2. Remove the filter housing.
3. Pull out the filter element from the filter assembly chamber.
4. Install a new filter element to the filter assembly chamber.
5. Refit the filter housing and tighten it. Clean up any oil that may have spilled during the replacement procedure.



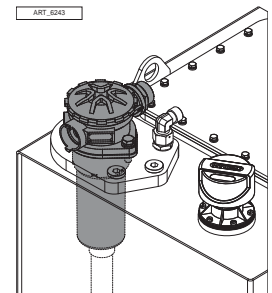
PLFA Filter (Inlet of Upper Control Valve)

1. Clean the area around the oil filter, and then remove the cap components.
2. Pull out the filter element from the filter assembly chamber.
3. Install the new filter element to the filter assembly chamber.
4. Reapply the cap components and tighten it. Clean up any oil that may have spilled during the replacement procedure.



Return Oil Filter

1. Clean the area around the oil filter, and then remove the cap component.
2. Pull out the filter element from the filter assembly chamber.
3. Install the new filter element to the filter assembly chamber.
4. Reapply the cap components and tighten it. Clean up any oil that may have spilled during the replacement procedure.



2) Replace the Engine Oil and Engine Oil filter

Do not perform task with the engine running!



Do not have sparks, open flames, or lighted tobacco nearby!

Always wear protective eye-wear when working with fuel and oil.

When working on the oil system, make sure to keep the oil system and nearby areas clean and to keep them thoroughly clean from time to time. Dry any damp areas with air jets. When handling engine oil, make sure to follow all rules and regulations.

Make sure to properly dispose of any used engine oil and filter elements. Do not let the used engine oil spread on the ground. Run a test cycle after replacing. Also make sure that the sealing and pressure of the engine oil is correct and at the correct level.

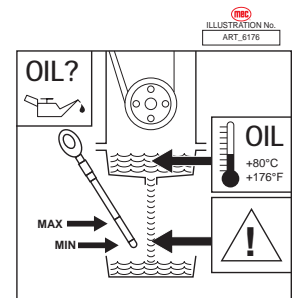
An insufficient or excessive amount of engine oil level can damage the engine. Make sure that the machine is parked on a flat, level surface and is turned off before checking the engine oil level. Check the engine oil level only while it is warm, 5 minutes after the engine is turned off.



Do not remove the engine oil level rod with the engine running! Danger of burns!

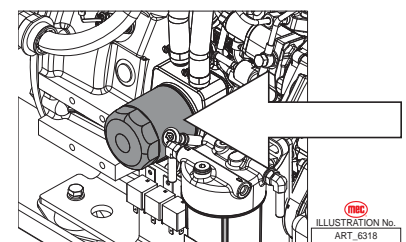
Changing the engine oil

1. Run the engine until the oil temperature reaches more than 176°F (80°C).
2. Make sure that the machine is parked on a flat, level surface and turn the machine off. Keep the work area clear of any debris and unauthorized personnel.
3. Place a suitable container under the drain screw, unscrew the latter and drain out the lubricant oil.
4. After draining, reposition the screw with a new sealing ring and tighten by applying a torque of 40.5ft-lbs (55Nm).
5. Fill with engine oil then operate the engine until the oil temperature reaches more than 176°F (80°C) and check the engine oil level.
6. If necessary, add additional engine oil of the correct type.



Replacing the engine oil cartridge

1. Make sure that the machine is parked on a flat, level surface and turn the machine off. Keep the work area clear of any debris and unauthorized personnel.
2. Place a suitable container underneath to catch any liquid that flows out.
3. Loosen the filter by hand, or if necessary then use a tool, and unscrew it.
4. Wipe the surface of the filter-holder with a clean cloth that does not leave any lint or fibers.



5. Oil the original filter cartridge seal slightly.
6. Screw the engine oil filter by hand until it is tight.

3) Replace Water-Fuel Separator Filter Element

Fuel is flammable and can cause severe burns and/or death.

Do not have sparks, open flames, or lighted tobacco nearby while working on the fuel line.

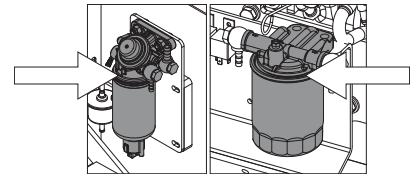


Clean the engine parts and engine compartment to remove all traces of fuel to prevent risk of fire.

Always wear protective eye-wear when working with fuel and oil.

Engine should be OFF when replacing filter elements.

1. Make sure that the machine is parked on a flat, level surface and turn the machine off. Keep the work area clear of any debris and unauthorized personnel.
2. Block the fuel intake to the engine (if the tank is positioned at the top).
3. Place a suitable container underneath the cartridge to catch any liquid that flows out.
4. Disconnect the cables connected to the Water-Fuel Separator.
5. Loosen the drainage screw and drain out the liquid.
6. Remove the filter element inside.
7. Wipe the surface of the new filter element and the opposite side of the filter head to remove dirt.
8. Slightly dampen the surfaces of the filter cartridge with fuel and screw back on the filter head clockwise with a torque of 12.5-13.2ft-lbs (17-18Nm).
9. Screw the drainage cap back on by applying torque of 1.18±0.2ft-lbs (1.6±0.3Nm).
10. Reconnect the cables.
11. Open the fuel line and bleed the system.



4) Clean the Engine Radiator

To remove dust and debris from the engine radiator, use either compressed air, pressurized water or steam. However, it is recommended to use compressed air.

When using pressurized water, keep the high pressure jet cleaning nozzles at a distance of at least 19.6 inches (50 centimeters) from the engine radiator. Bringing the nozzle too close to the radiator can lead to risk of damaging the radiator.

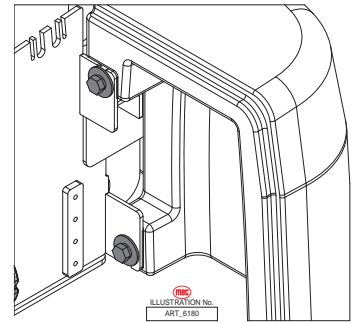
5) Check the Turret Rotation Slew Ring Gear Oil bolt torque

Check the bolts on the turret holding the slewing ring gear to see if any are damaged, missing, loose or rusty. Before checking the torque of the bolts, lift up the main boom. To check the torque for the bolts, use a wrench and apply a torque of 216 ft-lbs (293 Nm).

6) Check the Counterweight bolts

The counterweight bolts holding the counterweight to the boom turret are vital to balancing the machine. It is vital to check the torque of the bolts holding the counterweight.

Tighten one by one of the bolts fixing the balance weight with the torsion wrench, set point of 442.5ft-lbs (600Nm).



Yearly Maintenance

The following maintenance should be done every year or every 1,000 hours of operation, whichever comes first.

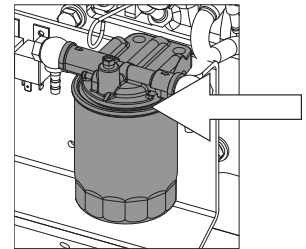


WARNING

Do not perform task with the engine running!

1) Replace the Fuel Filter

1. Make sure that the machine is parked on a flat, level surface and turn the machine off. Keep the work area clear of any debris and unauthorized personnel.
2. Place a suitable container underneath the cartridge to catch any liquid that flows out.
3. Loosen the filter by hand, or if necessary then use a tool, and unscrew it.
4. Collect the fuel that flows out.
5. Wipe the surface of the filter-holder with a clean cloth that does not leave behind lint or fibers.
6. Oil the original fuel filter cartridge seal slightly.
7. Screw the filter by hand until it is tight.
8. Bleed the fuel supply system.



2) Replace the Air Filter element



WARNING

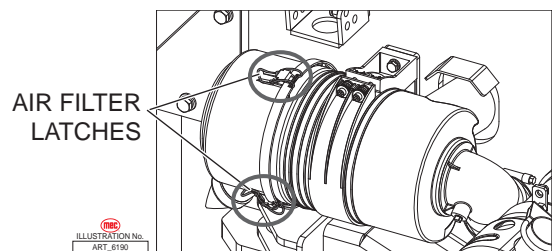
Do not perform task with the engine running!

Do not run the engine with the air filter element removed.

The efficiency and life of the engine depend greatly on the quality of air taken in. A dirty or damaged air filter can seriously affect the correct working of the engine and increase the possibility of a fault. Replace the air filter element strictly according to the stated schedule. Do not try to wash dirty filters!

If the machine is expected to be used in environments with a lot of dust or high concentrations of contaminating or polluting agents in the air, halve the time interval between one filter replacement and the next.

1. To access the Air Filter, open the engine hood.
2. Release the latches and remove the cover on the front of the filter.
3. Grip the air filter element and remove it from its housing.
4. Thoroughly wipe inside the filter housing with a damp cloth that doesn't leave any fibers. Avoid the use of aggressive solvents or products as these can damage the safety filter or the filter housing.
5. Install a new air filter element. Make sure the filter element is inserted properly in its seat. If installation is difficult, grease the rubber gasket slightly with silicone grease.

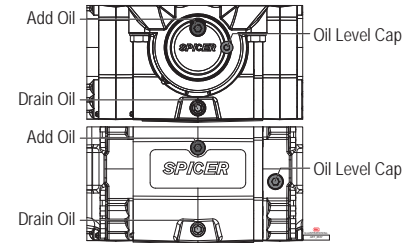


3) Change the Axle Differentials oil



Always wear protective eye-wear when working with fuel and oil.

1. Make sure that the machine is parked on a flat, level surface. Keep the work area clear of any debris and unauthorized personnel.
2. Place suitable sized containers under the axle. Remove the drainage cap located near the bottom the axle and wait for the oil to drain out completely. If you want to speed up the operation, remove the cap used to add oil.
3. Plug back in the oil drainage cap and make sure they fit tightly. Remove the oil level cap.
4. If you haven't, remove the cap used to add oil and pour fresh oil of the correct type through the opening. Slowly pour in the oil while checking the flow of the oil through the oil level opening.
5. When the correct level has been reached, plug the oil level cap back in place tightly as well as the opening used to add oil.



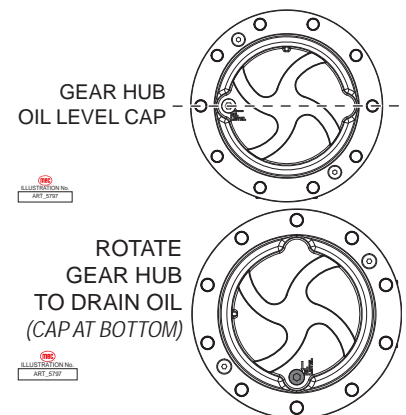
Note: Change the axle differential oil every 100-250 hours.

4) Change the Wheel Reduction Gear oil



Always wear protective eye-wear when working with fuel and oil.

1. Make sure that the machine is parked on a flat, level surface. Keep the work area clear of any debris and unauthorized personnel.
2. Place a suitable sized container under the reduction gear. Rotate the reduction gear cap so that the oil level cap is at the very bottom.
3. Remove the cap and wait for the oil to drain out completely.
4. Make sure that the gear hub is turned horizontally as the illustration to the right shows. Pour oil through the opening to the correct level.
5. Plug the cap back in place tightly. Repeat this operation for each wheel.



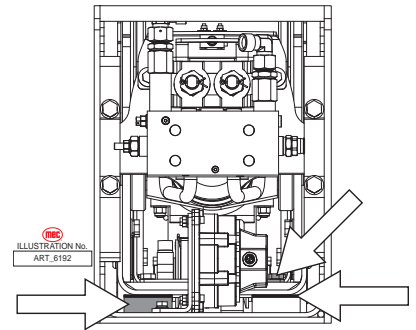
Note: Change the wheel reduction gears oil every 100-250 hours.

5) Adjust the Telescopic Boom sliding blocks

Make sure that the machine is parked on a flat, level surface with an area with sufficient clearance around it for boom functions. Keep the work area clear of any debris and unauthorized personnel.

1. Remove the accessory from the quick-fit coupling. Center the turret and have the boom fully stowed and lowered.
2. Remove the cover on the rear part of the boom.

3. Loosen all the bolts on the upper and lower sliding blocks of the first extension stage. If the space between the sliding surface of the block and the sliding surface of the first boom exceeds 0.5mm, some pads will need to be added. Tightens the bolts about with a torque of 73.7ft-lbs (100Nm).
4. Repeat the adjustment operations for the lateral sliding blocks.
5. Move to the front of the boom, and identify the sliding blocks of the first extension stage.
6. Loosen all the bolt of the upper and lower sliding blocks of the first extension stage. If the space between the sliding surface of the block and the sliding surface of the first boom exceeds 0.5mm, some pads will be need to be added. Tightens the bolts about with a torque of 73.7ft-lbs (100Nm).
7. Repeat the adjustment operations for the lateral sliding blocks.
8. After completing the operations try to extend and retract the boom to check the boom movement is smooth. If the movement of the boom is not smooth, repeat the adjustments.



6) Change the Turret Rotation Slew Ring Gear Oil level

Changing the rotation reduction gear oil



Always wear protective eye-wear when working with fuel and oil.

1. Open the control hood and if needed, rotate the turret for better access to the reduction gear.
2. Place a suitable sized container under the drain cap. Remove the cap and wait for the oil to drain.
3. Plug the drainage opening and make sure the cap fits tightly. Add oil through the opening for adding oil until it reaches the level through the indicator.
4. Lubricate the reduction gear shaft bushes.

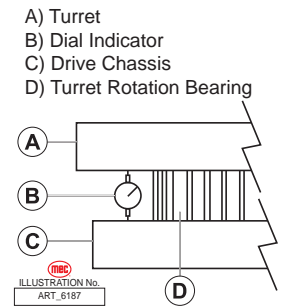
Check the slewing ring gear bearings for wear

The factory setting of the play of the bearings is between 0.05 and 0.25 millimeters.

The slewing ring gear must be replaced if the wear limit value exceeds 2.2 millimeters; to check the bearings for wear, proceed as described below.

1. Make sure that the machine is parked on a flat, level surface. Keep the work area clear of any debris and unauthorized personnel. Make sure that the platform is empty of both personnel and equipment and align the turret to the chassis axis.
2. Lubricate both the turret axial bearing tracks by means of the two grease nipples provided inside, and apply grease manually to the outer teeth of the slewing ring gear using a brush. Refer to page 25 for the grease brands.

3. Check the tightening of the bolts holding the turret rotation slewing ring gear, referring to page 31 for bolt torque.
4. Start the machine from the ground controls and fully elevate, but do not extend, the primary boom and jib. The riser should remain in its stowed position.
5. Place a dial indicator with accuracy of 0.01, between the drive chassis and the turntable at a point that is directly under, or in line with, the boom and no more than 1 inch (2.5 centimeters) from the bearing.
6. Adjust the dial indicator need to the “zero” position.
7. Elevate the riser, but do not extend it. Move the primary boom and jib to horizontal and fully extend.
8. Note the reading on the dial indicator. If the measurement is less than 2.2 millimeters, the bearing is good. Otherwise, the bearing is worn and needs to be replaced.
9. Remove the dial indicator and rotate the turntable 90°.
10. Repeat steps 5 through 9 until the rotation bearing has been checked in at least four equally spaced areas 90° apart.
11. Lower the boom to the stowed position and turn the machine off.
12. Remove the dial indicator from the machine.



7) Calibrate the Overload sensor

The overload sensor in the platform will show how much weight is in the platform on the diagnostic panel. If the weight in the platform does not exceed the rated load, the machine is safe to operate and will function properly.

If the weight exceeds the rated load, the machine will stop operating and the alarm will beep. The diagnostic panel will state that the weight in the platform is over the rated amount and to remove excess weight. Once the excess weight has been removed, the machine will operate normally.

The weighting system must be calibrated termly. The interval is 1,000 hours for running or every year. If the weight shown on the diagnostic panel is incorrect, then the sensor must be recalibrated. Refer to page 62 for calibrating the Overload sensor.

1,500 Hour Maintenance

The following maintenance should be done every 1,500 hours of operation.

1) Clean the Fuel Filter mesh element



Beware of hot fluid. Contact with hot fluid may cause severe burns.

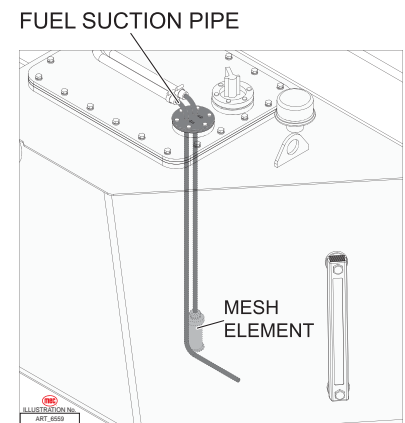
Always wear protective eye-wear when working with fuel and oil.

It is important for operating life of the machine to have a clean fuel suction mesh element. The pressure of fuel suction will be higher when the mesh element is dirty, which will damage the engine and shorten the operating life of the vehicle.

The procedures of cleaning the mesh element as follows:

1. Open the engine hood covering the fuel tank.
2. Slacken the bolts of fastening the fuel suction pipe and pull out the fuel suction pipe.
3. Remove the mesh element.
4. Clean the mesh carefully. Corrosive chemical solvent are forbidden to use!
5. Refit the mesh after completely cleaning and blowing the mesh with pressured air.

Replacing the mesh should be performed when the mesh is too dirty to clean or damaged.



Two Year Maintenance

The following maintenance should be done every 2 years or every 2,000 hours of operation, whichever comes first.

1) Change the Hydraulic fluid



Beware of hot fluid. Contact with hot fluid may cause severe burns.

Always wear protective eye-wear when working with fuel and oil.

Clean all fittings before disconnecting hoses.

Tag all hoses and wiring for proper reassembly.

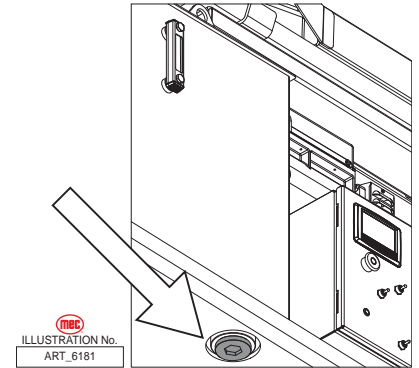


Plug all openings immediately to prevent contamination.

Replace any O-rings and inspect all hoses for crack and damage before reassembly.

Make sure that the machine is parked on a flat, level surface with an area with sufficient clearance around it for boom functions and the machine is turned off.

1. Go under the machine to access the hydraulic tank's drainage caps.
2. Place a suitable sized container under the drainage cap. Unscrew the cap and drain out the oil. To speed up the operation, also unscrew the filler cap.
3. Install the plug on the drain port. Fill the tank with hydraulic oil filtered with a 20-micron filter. **Do not overfill!**
4. Look around for enough space for extending and lifting completely.
5. Place a suitable sized container under the function manifold.
6. Disconnect the lifting down hose from B port of function manifold and block the B port with plug.
7. Start the engine, and lift up the main boom completely to move the oil from the cylinder rod chamber into the container.
8. Reconnect the hose.
9. Repeat the step 4-8 for moving the hydraulic oil out from the other cylinder rod chamber.



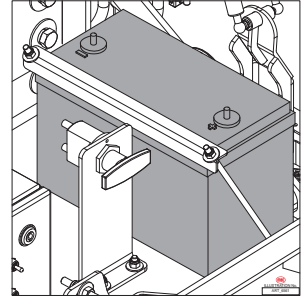
Park the machine and check the hydraulic oil level. If the oil level is low, add additional hydraulic fluid. Refer to page 24 for details on checking the hydraulic oil level.

Power Supply System

Battery

A single, 12 Volt 110Ah battery is used to power the control systems and some emergency operations.

Refer to page 12 for Auxiliary Power System and Test.
Refer to page 13 for information about the Battery Disconnect Switch.



Contactor, Relay & Fuse

Fuse 14

- 200 Amps and connects to the emergency Auxiliary Power pump.

Fuse 15

- 80 Amps and connects to the Relay & Fuse Box

Fuse 23

- 50 Amps and connects to engine generator & preheating device.

KA7

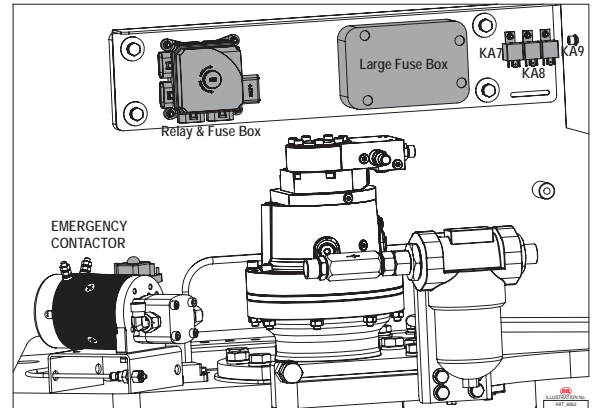
- ECU power relay

KA8

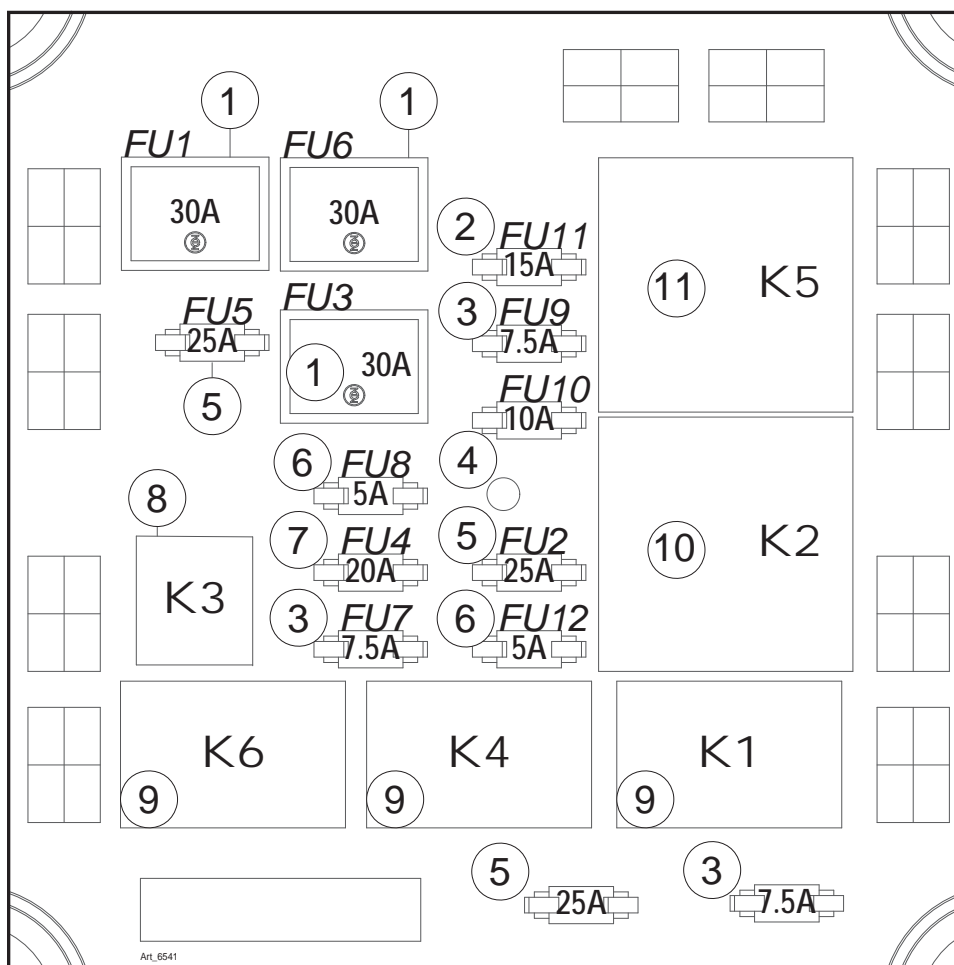
- Starter relay

KA9

- Preheat relay



Relay & Fuse Box



Relay Description	
K1	Hydraulic Fan Relay
K2	Power Supply Fuel (Main Controller)
K3	N/A
K4	Horn Relay
K5	Total Power Relay (Fuel Pump)
K6	N/A

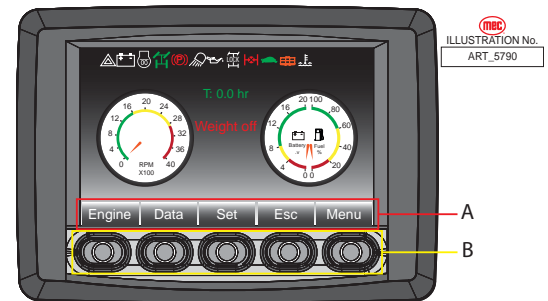
Fuse Description			
FU1	30 Amps	Engine ECU	
FU2	30 Amps	2 Cooling fans of hydraulic oil	
FU3	30 Amps	Main Controller	
FU4	20 Amps	N/A	
FU5	25 Amps	FU7+FU8	
FU6	30 Amps	1C, FU12 5 Amps: Fuel Pump FU9 7.5 Amps: Chassis Power FU10 10 Amps: PVG Power FU11 15 Amps: Platform Power	
FU7	7.5 Amps	Horn	
FU8	5 Amps	Main Circuit	
FU9	7.5 Amps	1E: Chassis Power K3: Action relay	
FU10	10 Amps	PVG Power	
FU11	15 Amps	Power Supply to Platform	
FU12	5 Amps	Fuel Pump	

Diagnostics Menu Interface

Diagnostics Panel

This panel contains the basic information for monitoring operation of the boom.

Row “A” displays the pages and options available in the lower part of the screen and is controlled by the corresponding buttons on row “B”.



The upper band shows:

- Alarm indicator light
- Steering mode selection indicator light
- Differential lock active indicator light
- Front axle lock active indicator light
- Movement speed selection indicator light: slow/fast
- Controls position indicator light: ground/platform
- Overload indicator light

The central band shows:

- The engine rev counter to the left hand side
- The number of working hours in the center, the batteries voltage, the fuel level and the engine fault code
- The engine oil pressure indicator and the engine water temperature indicator on the right hand side.

The bottom band shows the information shown on the pages that can be accessed:

- Engine data (RPM, drive torque percentage measured, coolant temperature, oil pressure, fuel consumption, operating hours, quantity of fuel used)
- Operational data (angular inclination of main boom, angular inclination of riser boom, inclination of the platform, inclination of the chassis on the horizontal plane, load measured on platform);
- Options settings (hydraulic preheat enable; Auto center steer; main boom retract confirmed; range extender auto start sw; engine hood open sw; main boom angle <30° confirmed)

The setting interface could be entered by pressing the setting button and holding for one second. The optional function can be turned on or off without a password, after entering the setting interface. The procedures are as follows:

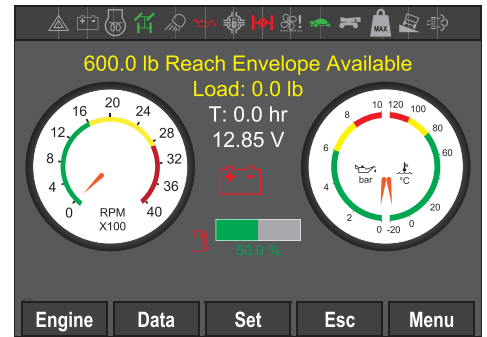
1. You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to select the item you want. The chosen item would be shown in yellow background.
2. Pressing “On/Off” and holding on is used to turn on or off the corresponding function.
3. It returns back to main interface, when the button “Esc” is pressed.

Function Parameter	
Hydraulic Preheat Enable	OFF
Auto Center Steer	OFF
Main Boom Retract Confirmed	OFF
Range Extender Auto Starts SW	OFF
Engine Hood Open SW	OFF
Main Boom Angle <30° Confirmed	OFF
↑/+	↓/-
On/Off	Esc
Home	

Diagnose Menu Interface Symbols

After entering boot interface, the display will automatically switch to the main interface after a few seconds.

The top row of icons are listed in the chart below.



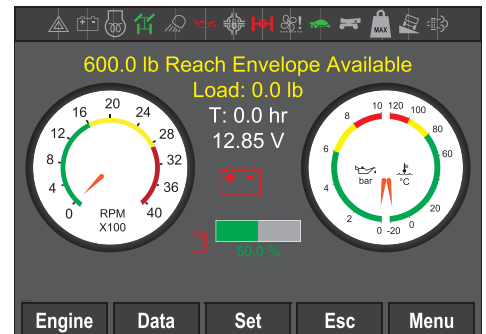
	System: No Alarm		System: Alarm	
	Power Supply: Engine Generator		Power Supply: 12V-Battery	
	Engine Preheat: Off		Engine Preheat: On	
	Mode Selected: 4-Wheel		Mode Selected: Crab	Mode Selected: 2-Wheel
	Work Lights: Off		Work Lights: On	
	Engine Oil Pressure: Normal		Engine Oil Pressure: Low	
	Differential-Lock: Off		Differential-Lock: On	
	Oscillating system: Off		Oscillating system: On	
	Hydraulic Cooling Fan: Off		Hydraulic Cooling Fan: On	
	Slow Speed		High Torque Mode	Fast Speed
	Platform Controls		Ground Control	
	Platform not Overloaded		Platform Overloaded	
	Tilt Angel <5°		Tilt Angel >5°	
	Engine Regeneration: Off		Engine Regeneration: On	

Machine Details Interface

Engine Interface Menu

The “Engine” and “Data” interface will display read signals from the engine ECU through the CAN bus.

1. From the “Home Screen”, press the black button under the “Engine” icon shown on the diagnostic panel.
2. The “Engine” interface will display engine relevant information.
3. If you want to return back to the “Home Screen”, press the black button under the Escape icon (Esc).



Engine Action Speed	0 rpm
Actual Percent Torque	0.0 %
Coolant Temperature	0.0 f
Oil Pressure	0.0 psi
Engine Fuel Rate	0.0 gal/h
Engine Hours	0.0 hr
Total Fuel Used	0.0 gal
Fuel Delivery Pressure	0.0 psi
Request Speed	0 rpm

Engine Data Set Esc Menu

Tele/Art Mode	No Mode
Boom Angle	0.0 deg
Boom to Turret Angle	0.0 deg
Platform Level Angle	0.0 deg
Boom Length	- 0.0 in
Chassis Tilt Angle X	0.0 deg
Chassis Tilt Angle Y	0.0 deg
Turret Y Angle	0.0 deg
JIB Swing Angle	0.0 deg

Engine ↑/+ ↓/- Esc Menu

Hydraulic Oil Temperature	0.0 f
Platform Load	0.0 lb
Load Chart	600.0 lb

Engine ↑/+ ↓/- Esc Menu

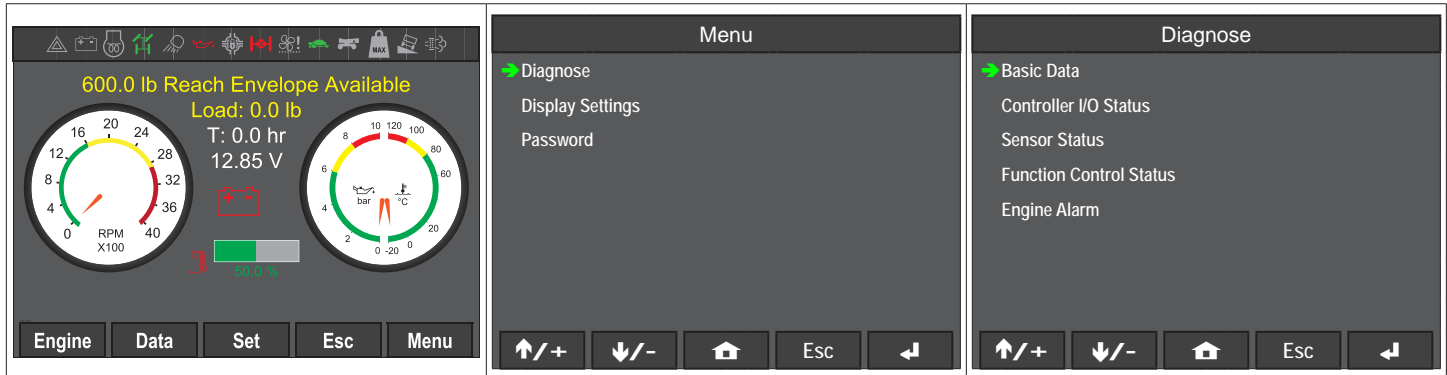
Data Interface Menu

1. In the “Engine” interface, press the black button under the “Data” icon shown on the diagnostic panel.
 - You can also access the “Data” interface by press the black button under the “Data” icon shown on the “Home Screen”.
2. In the “Data” interface, sensor data will be displayed.
3. You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to switch between the different pages to display different information about the machine.
4. If you want to return back to the “Home Screen”, press the black button under the Escape icon (Esc).

Diagnostic Menu Interface

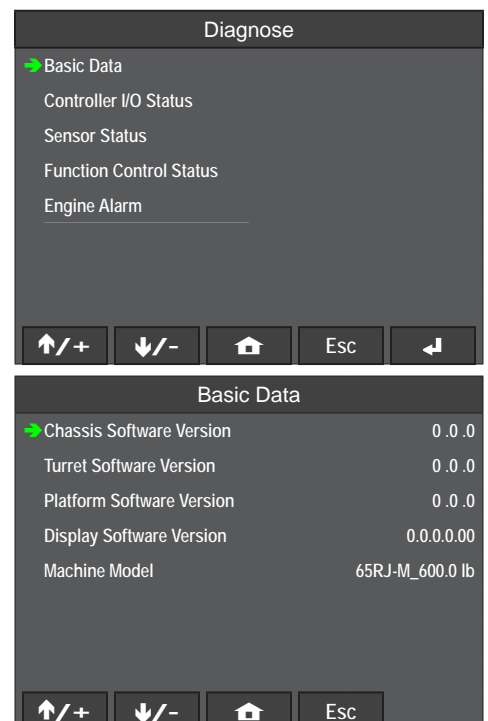
Diagnose Menu

1. From the “Home Screen”, press the black button under the “Menu” icon shown on the diagnostic panel.
2. In the “Menu” interface, make sure that the “Diagnose” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Diagnose” option is selected.
3. Press the black button under the Enter icon (↵) shown on the diagnostic panel.
4. In the “Diagnose” interface, you can view options that will display the following information:
 - Machine Software Versions
 - Input/Output signals
 - Sensors information
 - Parameters of each action
 - Engine Alarm information
5. To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



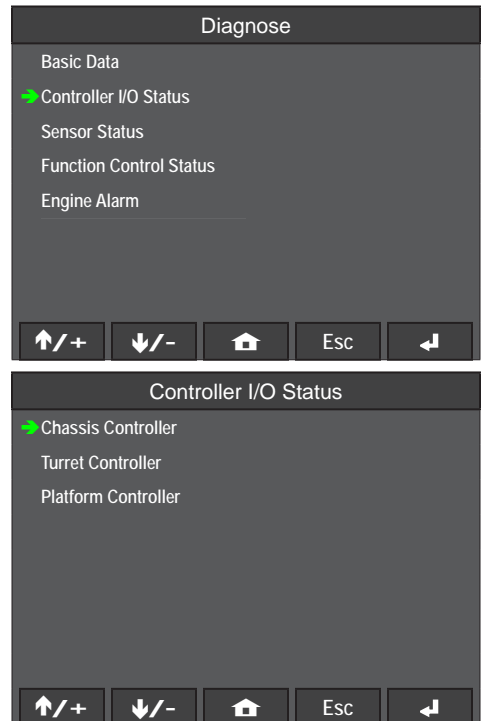
Basic Data

1. In the “Diagnose” interface, make sure that the “Basic Data” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Basic Data ” option is selected.
2. Press the black button under the Enter icon (↵) shown on the diagnostic panel.
3. The current machine software versions and machine model will be displayed.
4. To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



Controller I/O Status

This read shows read CAN signals from the controller to get I/O status.



1. In the “Diagnose” interface, make sure that the “Controller I/O Status” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Controller I/O ” option is selected.
2. Press the black button under the Enter icon (↵) shown on the diagnostic panel.
3. In the “Controller I/O Status” interface, controllers whose input/output signals you can view will be shown.
4. Select a controller by pressing the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to select the controller information you want to view.
5. Press the black button under the Enter icon (↵) shown on the diagnostic panel to view the selected controller information.
 - For Chassis Controller values, refer to page 45.
 - For Turret Controller values, refer to page 46.
 - For Platform Controller values, refer to page 47.
6. When you are in the Controller you have selected, press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to scroll through the list of signals.
7. When you are done looking through the Controller I/O values, press the black button under the Escape icon (Esc) to return back to the “Controller I/O Status” interface.
8. To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).

True or False in this interface is only a signal received or sent in the controller, it does not mean that the actuator has received the relevant signal! When necessary, it is still necessary to measure the signal at the corresponding component!

Chassis Controller		
Pin	Definition	Value
C1: 14, 39, 55	Chassis leveling valve	0 mA
C1: 15, 40	Brake release valve	0 mA
C1: 16, 41	Rear axle lock valve, Output A (Left)	0 mA
C1: 30, 42	Rear axle lock valve, Output B (Left)	0 mA
C1: 31, 43	Rear axle lock valve, Output A (Right)	0 mA
C1: 32, 44	Rear axle lock valve, Output B (Right)	0 mA
C1: 37	Oscillate pressure sensor A	4 mA
C1: 53	Oscillate pressure sensor B	20 mA
C2: 13, 29, 47	U-turn and Crab-turn steer mode valve	0 mA
C2: 14, 48	Differential lock valve	0 mA
C2: 15, 67	Chassis level proportional valve	0 mA
C2: 16, 32, 68	Steer directional valve	0 mA

Chassis Controller		
Pin	Definition	Value
C2: 34	Oscillate cylinder feedback signal 3 left NO	FALSE
C2: 35	Oscillate cylinder feedback signal 1 left NC	FALSE
C2: 36	Oscillate cylinder feedback signal 4 right NO	FALSE
C2: 37	Oscillate cylinder feedback signal 2 right NC	FALSE
C2: 42	Turret to left proximity	TRUE
C2: 52	High speed valve	FALSE
C2: 55	Turret to right proximity	TRUE
C2: 56	Turret to middle proximity	TRUE
C2: 57	Front steer neutral position signal	2475 mV
C2: 58	Rear steer neutral position signal	2465 mV

Turret Controller		
Pin	Definition	Value
C1: 8	Boom down toggle switch input	FALSE
C2: 62	Boom up toggle switch input	FALSE
C1: 9	Boom out toggle switch input	FALSE
C1: 10	Boom in toggle switch input	FALSE
C1: 11	Air filter restriction input	TRUE
C1: 14, 39, 55	Travel forward, backward valve	0 mA
C1: 26	Chain break switch	TRUE
C1: 27	GPS machine lock low switch	FALSE
C1: 28	Emergency pump toggle switch input	FALSE
C1: 29	Key switch	TRUE = Ground Control
C1: 30, 42	Hydraulic generator coil current	0 mA
C1: 36	Jib up toggle switch input	FALSE
C1: 37	Hydraulic oil temperature sensor	1130Ω
C1: 38	Alternator charging input	TRUE
C1: 45	Hour meter output	FALSE
C1: 46	Motion beacon relay	FALSE
C1: 48	Engine power	TRUE
C1: 52	Jib down toggle switch input	FALSE
C1: 53	Fuel level sensor	252Ω
C1: 54	Engine start/stop button	FALSE
C2: 3	Turtle mode toggle switch input	FALSE
C2: 4	Rabbit mode toggle switch input	FALSE
C2: 5	Platform level up toggle switch input	FALSE
C2: 6	Platform level down toggle switch input	FALSE
C2: 9	Riser up toggle switch input	FALSE
C2: 10	Riser down toggle switch input	FALSE
C2: 11	Ground control deadman	FALSE
C2:19	Chassis left leveling switch input	FALSE
C2: 20	Chassis right leveling switch input	FALSE
C2: 21	Platform right rotation toggle switch input	FALSE
C2: 22	Platform left rotation toggle switch input	FALSE

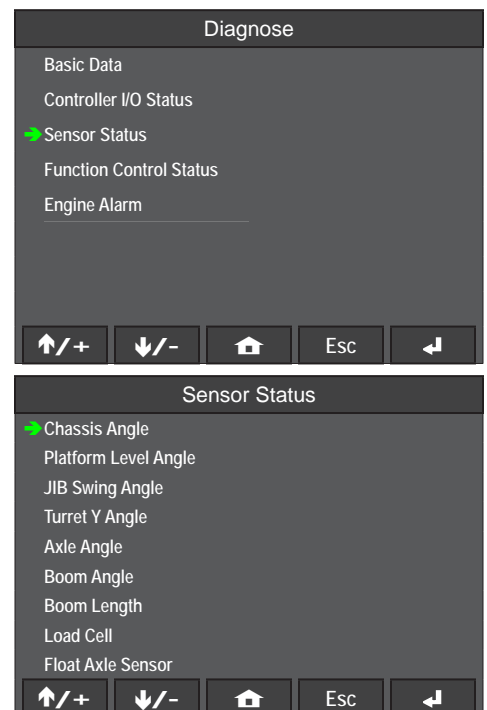
Turret Controller		
Pin	Definition	Value
C2: 26	Turret right rotation toggle switch input	FALSE
C2: 41	Turret left rotation toggle switch input	FALSE
C2: 28	Engine cover proximity input	FALSE
C2: 38	E-stop circuit bypass switch	TRUE
C2: 46	Overload lamp	FALSE
C2: 49	Engine start relay output	FALSE
C2: 50	Hydraulic oil cooling fan output	FALSE
C2: 51	Emergency pump contactor signal	FALSE
C2: 52	Horn relay	FALSE
C2: 54	GPS machine lock high switch	FALSE
C2: 57	Jib right rotation Ccw Cmd switch	FALSE
C2: 58	Jib left rotation Ccw Cmd switch	FALSE
C2: 61	Telescope/Articulate toggle switch input	FALSE
C2: 64	Alarm output	FALSE

Platform Controller		
Pin	Definition	Value
C1: 8	Drive joystick analog input channel 1	0.0%
C1: 9	Drive joystick analog input channel 2	0.0%
C1: 10	Turret rotate analog (1# Joystick X axial)	0.0%
C1: 11	Hydraulic generator start/stop button	FALSE
C1: 13	Turret not neutral, force travel switch	FALSE
C1: 14, 39, 55	Jib up/down valve	0 mA
C1: 15	Upper release current	0 mA
C1: 16	Jib rotation current	0 mA
C1: 24	Jib amplitude analog (1# Joystick Y axial)	0.0%
C1: 25	Platform rotate analog (2# Joystick X axial)	0.0%
C1: 26	Boom amplitude analog (2# Joystick Y axial)	0.0%
C1: 31, 43, 59	Platform swing valve	0 mA
C1: 36	Loadcell sensor A	1314 mV
C1: 52	Loadcell sensor B	1338 mV
C1: 38	PPSS sensor analog input (left)	0 mV
C1: 54	PPSS sensor analog input (right)	0 mV
C2: 3	Drive speed selection - Grade	FALSE
C2: 4	Drive speed selection – High	TRUE
C2: 6	Jib down proximity switch	TRUE
C2: 9	Platform level down switch	FALSE
C2: 10	Platform leveling down instruction switch	FALSE
C2: 11	Boom in switch input	FALSE
C2: 12	Boom out switch input	FALSE
C2: 19	Chassis level left input	FALSE
C2: 20	Chassis level right input	FALSE
C2: 21	Riser up switch input	FALSE
C2: 22	Riser down switch input	FALSE

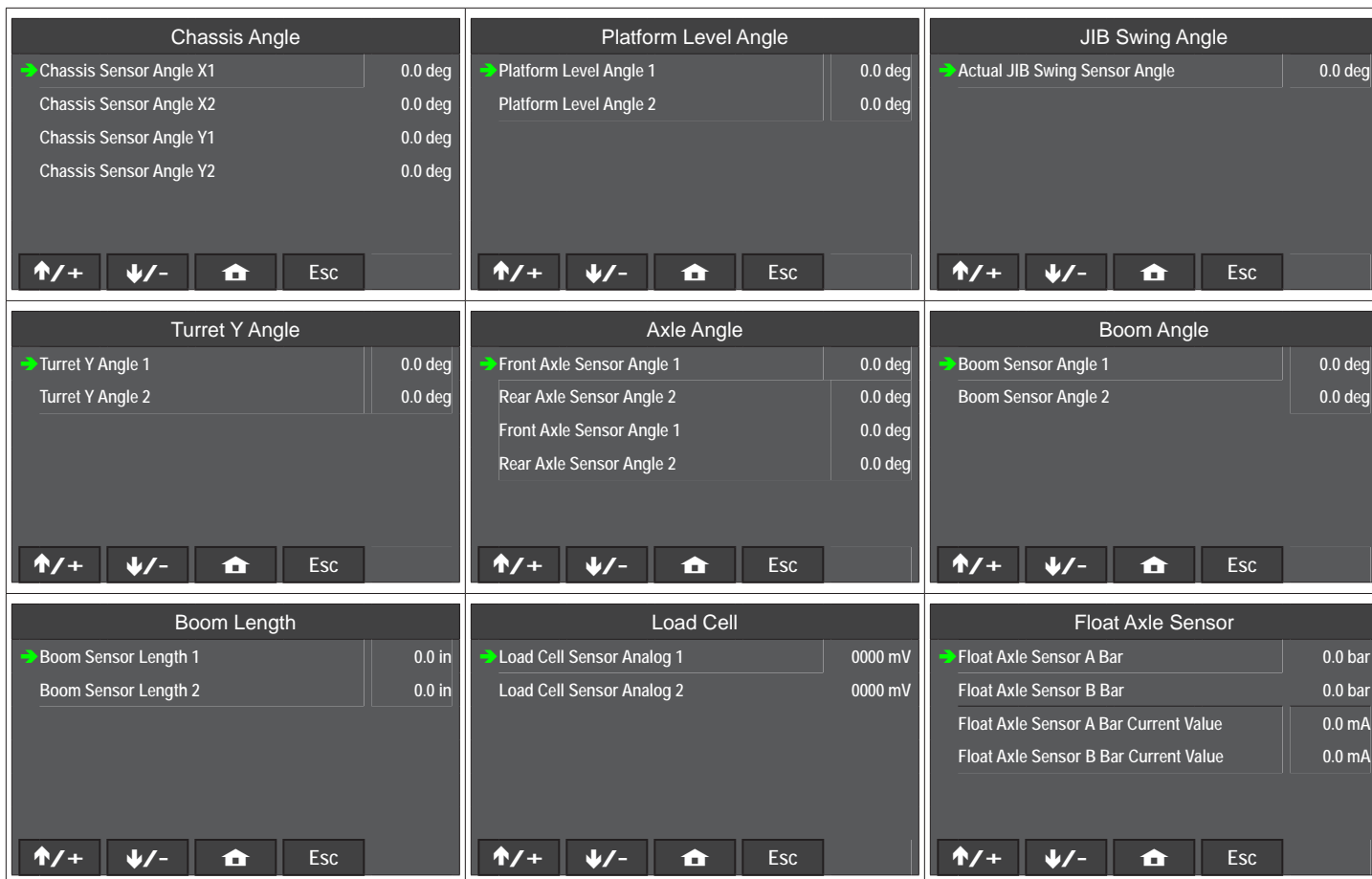
Platform Controller		
Pin	Definition	Value
C2: 25	Collision detection	FALSE
C2: 27	Jib turret joystick enable	FALSE
C2: 28	Steer mode select crab steer	FALSE
C2: 34	Boom joystick enable switch	FALSE
C2: 35	Engine rpm increase switch input	FALSE
C2: 36	Engine rpm decrease switch input	FALSE
C2: 37	Differential lock switch input	FALSE
C2: 41	4w steer switch input	FALSE
C2: 42	Right steer button	FALSE
C2: 43	Buzzer button	FALSE
C2: 46	Overload lamp	FALSE
C2: 54	Emergency pump button	FALSE
C2: 55	Horn input	FALSE
C2: 56	Anti-crush proximity switch input	TRUE
C2: 57	Telescope/Articulate switch	FALSE
C2: 58	Interlock bypass switch	FALSE
C2: 61	Steer left button	FALSE
C2: 62	Drive joystick enable	FALSE
C2: 63	Anti-crush lamp output	FALSE

Sensor Status

- In the “Diagnose” interface, make sure that the “Sensor Status” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Sensor Status” option is selected.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel.
- To select the sensor whose information is being received, press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to select the sensor information you want to view.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel to view the selected sensor information.
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



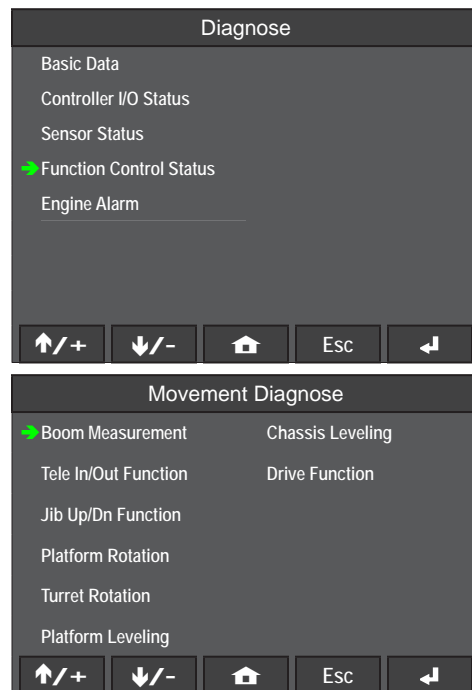
The values shown in the chart are for reference on how the information will be displayed when viewed and may vary from machine to machine.



Movement Diagnose

The “Function Control Status” interface shows machine movement command request and output percentage by movement groups.

- In the “Diagnose” interface, make sure that the “Function Control Status” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Function Control Status” option is selected.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel.
- Use the Up Arrow (↑/+) and/or Down Arrow (↓/-) to select the machine movement information you want to view.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel to view the selected machine movement information.
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



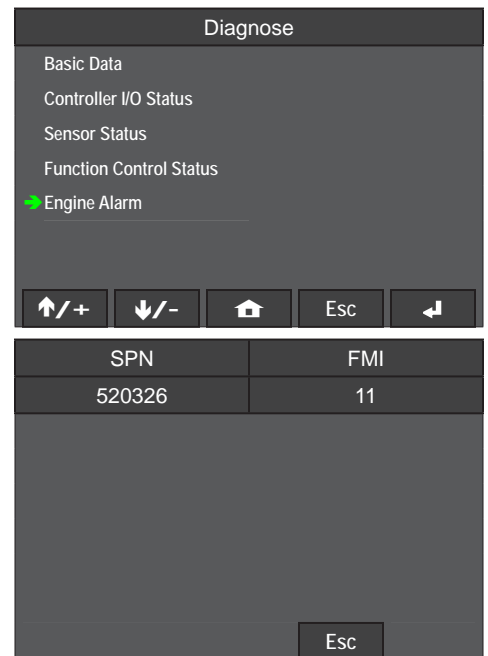
The values shown in the chart are for reference on how the information will be displayed when viewed and may vary from machine to machine.

<p>Boom Measurement</p> <table border="1"> <tr><td>Boom Platform Up/Dn Toggle Switch</td><td>0.0 %</td></tr> <tr><td>Boom Ground Up/Dn Toggle Switch</td><td>FALSE</td></tr> <tr><td>Boom Up PWM Output Request</td><td>0.0 %</td></tr> <tr><td>Boom Dn PWM Output Request</td><td>0.0 %</td></tr> <tr><td>Boom Up/Dn Output Percent A</td><td>0.0 %</td></tr> <tr><td>Boom Up/Dn Output Percent B</td><td>0.0 %</td></tr> </table> <p>↑/+ ↓/- 🏠 Esc</p>	Boom Platform Up/Dn Toggle Switch	0.0 %	Boom Ground Up/Dn Toggle Switch	FALSE	Boom Up PWM Output Request	0.0 %	Boom Dn PWM Output Request	0.0 %	Boom Up/Dn Output Percent A	0.0 %	Boom Up/Dn Output Percent B	0.0 %	<p>Tele In/Out Function</p> <table border="1"> <tr><td>Tele In/Out Joystick Toggle SW</td><td>FALSE</td></tr> <tr><td>Tele In/Out Lower Toggle SW</td><td>FALSE</td></tr> <tr><td>Tele In Output Request</td><td>0.0 %</td></tr> <tr><td>Tele Out Output Request</td><td>0.0 %</td></tr> <tr><td>Tele In/Out Output Percent A</td><td>0.0 %</td></tr> <tr><td>Tele In/Out Output Percent B</td><td>0.0 %</td></tr> </table> <p>↑/+ ↓/- 🏠 Esc</p>	Tele In/Out Joystick Toggle SW	FALSE	Tele In/Out Lower Toggle SW	FALSE	Tele In Output Request	0.0 %	Tele Out Output Request	0.0 %	Tele In/Out Output Percent A	0.0 %	Tele In/Out Output Percent B	0.0 %	<p>Jib Up/Dn Function</p> <table border="1"> <tr><td>Jib Platform Up/Dn Joystick Analog</td><td>0.0 %</td></tr> <tr><td>Jib Ground Up/Dn Toggle SW</td><td>FALSE</td></tr> <tr><td>Jib Up/Dn Solenoid PWM Output A</td><td>0 mA</td></tr> <tr><td>Jib Up/Dn Solenoid PWM Output B</td><td>0 mA</td></tr> <tr><td>Jib Up/Dn PWM Output Percent</td><td>0.0 %</td></tr> </table> <p>↑/+ ↓/- 🏠 Esc</p>	Jib Platform Up/Dn Joystick Analog	0.0 %	Jib Ground Up/Dn Toggle SW	FALSE	Jib Up/Dn Solenoid PWM Output A	0 mA	Jib Up/Dn Solenoid PWM Output B	0 mA	Jib Up/Dn PWM Output Percent	0.0 %
Boom Platform Up/Dn Toggle Switch	0.0 %																																			
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Jib Up/Dn Solenoid PWM Output B	0 mA																																			
Jib Up/Dn PWM Output Percent	0.0 %																																			
<p>Platform Rotation</p> <table border="1"> <tr><td>Platform Rotation Joystick Analog</td><td>0.0 %</td></tr> <tr><td>Ground Rotation Toggle SW</td><td>FALSE</td></tr> <tr><td>Platform Rotation PWM Output A</td><td>0 mA</td></tr> <tr><td>Platform Rotation PWM Output B</td><td>0 mA</td></tr> <tr><td>Platform Rotation Output Percent</td><td>0.0 %</td></tr> </table> <p>↑/+ ↓/- 🏠 Esc</p>	Platform Rotation Joystick Analog	0.0 %	Ground Rotation Toggle SW	FALSE	Platform Rotation PWM Output A	0 mA	Platform Rotation PWM Output B	0 mA	Platform Rotation Output Percent	0.0 %	<p>Turret Rotation</p> <table border="1"> <tr><td>Turret Platform Rotation Joystick Analog</td><td>0.0 %</td></tr> <tr><td>Turret Ground Rotation Toggle Switch</td><td>FALSE</td></tr> <tr><td>Turret Rotation CW Output Request</td><td>0.0 %</td></tr> <tr><td>Turret Rotation CCW Output Request</td><td>0.0 %</td></tr> <tr><td>Turret Rotation Output Percent A</td><td>0.0 %</td></tr> <tr><td>Turret Rotation Output Percent B</td><td>0.0 %</td></tr> </table> <p>↑/+ ↓/- 🏠 Esc</p>	Turret Platform Rotation Joystick Analog	0.0 %	Turret Ground Rotation Toggle Switch	FALSE	Turret Rotation CW Output Request	0.0 %	Turret Rotation CCW Output Request	0.0 %	Turret Rotation Output Percent A	0.0 %	Turret Rotation Output Percent B	0.0 %	<p>Platform Leveling</p> <table border="1"> <tr><td>Upper Platform Level Toggle SW</td><td>FALSE</td></tr> <tr><td>Lower Platform Level Toggle SW</td><td>FALSE</td></tr> <tr><td>Platform Level Up PWM Request</td><td>0.0 %</td></tr> <tr><td>Platform Level Dn PWM Request</td><td>0.0 %</td></tr> <tr><td>Platform Leveling Output Percent A</td><td>0.0 %</td></tr> <tr><td>Platform Leveling Output Percent B</td><td>0.0 %</td></tr> </table> <p>↑/+ ↓/- 🏠 Esc</p>	Upper Platform Level Toggle SW	FALSE	Lower Platform Level Toggle SW	FALSE	Platform Level Up PWM Request	0.0 %	Platform Level Dn PWM Request	0.0 %	Platform Leveling Output Percent A	0.0 %	Platform Leveling Output Percent B	0.0 %
Platform Rotation Joystick Analog	0.0 %																																			
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Platform Rotation PWM Output A	0 mA																																			
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Platform Leveling Output Percent A	0.0 %																																			
Platform Leveling Output Percent B	0.0 %																																			
<p>Chassis Leveling</p> <table border="1"> <tr><td>Chassis Leveling Platform Toggle SW</td><td>FALSE</td></tr> <tr><td>Chassis Leveling Ground Toggle SW</td><td>FALSE</td></tr> <tr><td>Chassis Level Direction Output Measured A</td><td>0 mA</td></tr> <tr><td>Chassis Level Direction Output Measured B</td><td>0 mA</td></tr> <tr><td>Chassis Level Speed Current Output Measured</td><td>0 mA</td></tr> <tr><td>Chassis Level PWM Request</td><td>0.0 %</td></tr> </table> <p>↑/+ ↓/- 🏠 Esc</p>	Chassis Leveling Platform Toggle SW	FALSE	Chassis Leveling Ground Toggle SW	FALSE	Chassis Level Direction Output Measured A	0 mA	Chassis Level Direction Output Measured B	0 mA	Chassis Level Speed Current Output Measured	0 mA	Chassis Level PWM Request	0.0 %	<p>Drive Function</p> <table border="1"> <tr><td>Drive Speed PWM A</td><td>0 mA</td></tr> <tr><td>Drive Speed PWM B</td><td>0 mA</td></tr> <tr><td>Drive Speed Request</td><td>0.0 %</td></tr> </table> <p>↑/+ ↓/- 🏠 Esc</p>	Drive Speed PWM A	0 mA	Drive Speed PWM B	0 mA	Drive Speed Request	0.0 %																	
Chassis Leveling Platform Toggle SW	FALSE																																			
Chassis Leveling Ground Toggle SW	FALSE																																			
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Chassis Level Speed Current Output Measured	0 mA																																			
Chassis Level PWM Request	0.0 %																																			
Drive Speed PWM A	0 mA																																			
Drive Speed PWM B	0 mA																																			
Drive Speed Request	0.0 %																																			

Engine Alarm

The “Engine Alarm” interface displays the engine ECU’s broadcasting DM1 message.

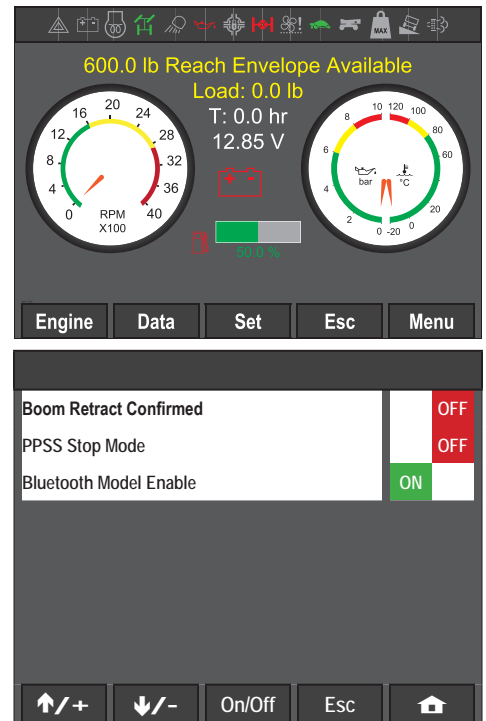
- In the “Diagnose” interface, make sure that the “Engine Alarm” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Engine Alarm” option is selected.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel.
- To return back to the “Diagnose” interface, press the black button under the Escape icon (Esc).
- Back in the “Diagnose” interface, to return to the “Home Screen”, press the black button under the Home icon (🏠).
- Refer to page 74 for Fault Codes.



Settings Interface

Quick Setup Interface Menu

1. From the “Home Screen”, press and hold then release the black button under the “Set” icon shown on the diagnostic panel to enter the “Quick Setup” interface.
2. In the “Quick Setup” interface you can turn on or turn off the certain machine functions.
 - Boom Retract Confirmed
 - PPSS Stop Mode
 - Bluetooth Model Enable
3. Press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) select the function you want.
4. Press the black button under the On/Off (On/Off) to turn on or turn off the selected machine function.
 - If there is a green square with the words “ON”, then the function has been enable.
 - If there is a red square with the words “OFF”, then the function has been disabled.
5. To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



Boom Retract Confirmed

- If the Main Boom Length sensor is faulty and the operator confirms that the main boom is fully retracted, then the operator’s can turn this function on and the machine will be ready to drive.

PPSS Stop Mode

- If the machine is equipped with the optional PPSS system, then turn this function on to enable the PPSS system.

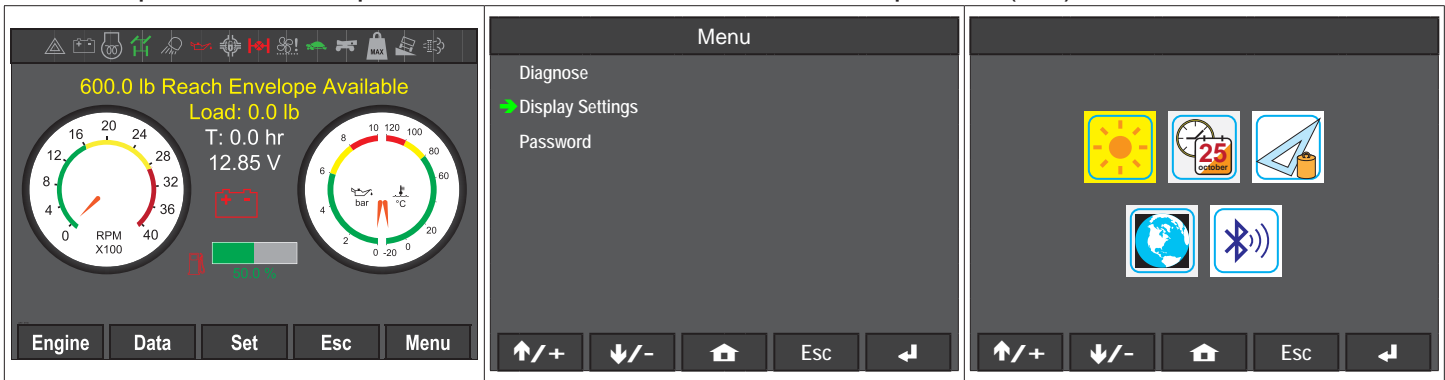
Bluetooth Model Enable

- If the Bluetooth Model is enabled and the Bluetooth feature in the Bluetooth Menu on page 54 is turned on as well, then the machine can be programmed via Bluetooth.

Display Settings Interface

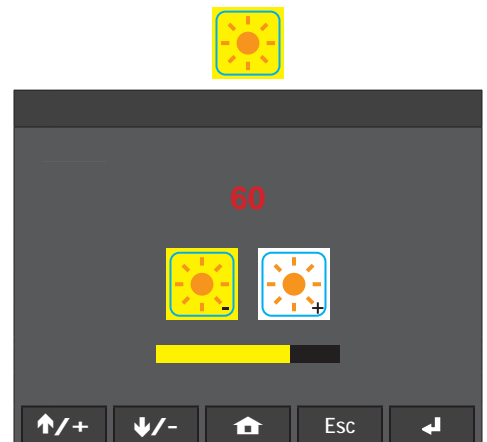
1. From the “Home Screen”, press the black button under the “Menu” icon shown on the diagnostic panel.
2. In the “Menu” interface, make sure that the “Display Settings” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Display Settings” option is selected.
3. Press the black button under the Enter icon (↵) shown on the diagnostic panel.
4. In the “Display Settings” interface, you can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to select the option you want.
 - The current selected menu will be highlighted in yellow.
5. Press the black button under the Enter icon (↵) shown on the diagnostic panel to enter the currently selected option.

6. To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



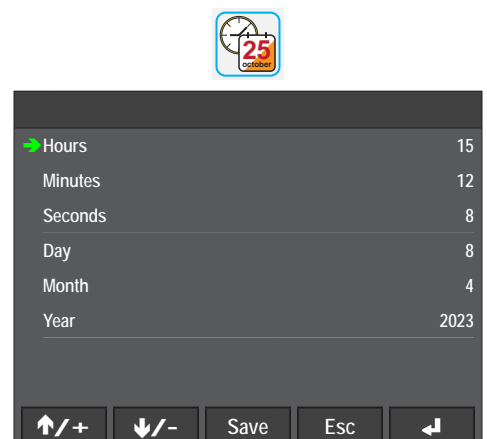
Brightness Menu

- In the “Display Settings” interface, make sure that the “Brightness” icon (sun) is selected then press the black button under the Enter icon (↵) shown on the diagnostic panel to enter the “Brightness” menu
- In the “Brightness” interface, the left icon (–) is used to lower the screen brightness and the right icon (+) is used to increase the screen brightness.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to switch between the left and right icons. The current selected icon will be highlighted in yellow.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel on the current selected icon to either increase or lower the screen brightness.
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



Date & Time Menu

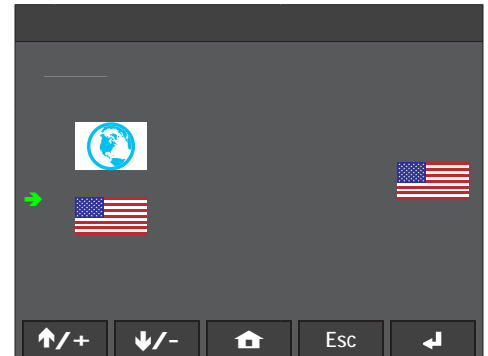
- In the “Display Settings” interface, make sure that the “Date & Time” icon (clock & calendar) is selected then press the black button under the Enter icon (↵) shown on the diagnostic panel to enter the “Date & Time” menu
- In the “Date & Time” interface, you can change the following: hours, minutes, seconds, day, month, and year.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to change the current selection.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel on the current selected icon and the text will change to green.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to change the number of the selected item.
- If you want to save any changes made, then press the black button under the Save (Save) to save the changes made.



- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).

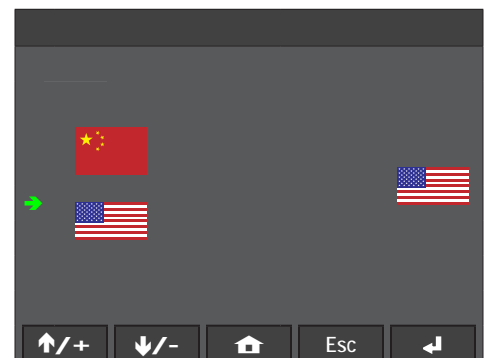
Units of Measurement Menu

- In the “Display Settings” interface, make sure that the “Units of Measurement” icon (Triangle protractor and weight) is selected then press the black button under the Enter icon (↵) shown on the diagnostic panel to enter the “Units of Measurement” menu
- In the “Units of Measurement” interface, you can switch between Metric and Imperial units of measurements to be shown on the display.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to change the current selection.
 - The current units of measurement will be indicated by the flag on the right hand of the screen.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel on the current selected icon and the display will reboot to now display the selected units of measurement.
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



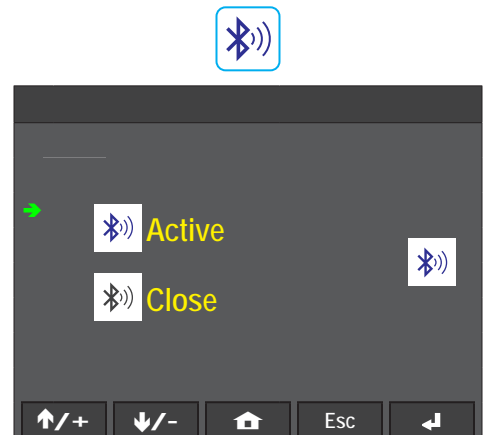
Language Menu

- In the “Display Settings” interface, make sure that the “Language” icon (world) is selected then press the black button under the Enter icon (↵) shown on the diagnostic panel to enter the “Language” interface.
- In the “Language” interface, you can switch between Chinese and English for the display language.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to change the current selection.
 - The current select language will be indicated by the flag on the right hand of the screen.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel on the current selected icon and the text will change to the selected language.
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



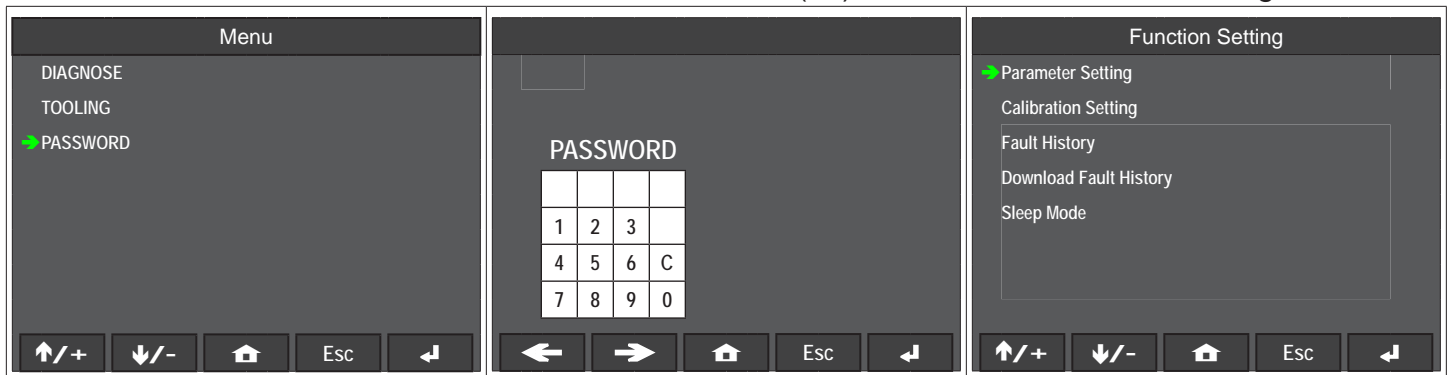
Bluetooth Menu

- In the “Display Settings” interface, make sure that the “Bluetooth” icon (Bluetooth symbol) is selected then press the black button under the Enter icon (↵) shown on the diagnostic panel to enter the “Bluetooth” interface.
- In the “Bluetooth” interface, you can turn on or turn off the Bluetooth feature.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to change the current selection.
 - The current status of the Bluetooth function will be indicated by the right icon.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel on the current selected icon and Bluetooth will now be turned on or off depending on your selection.
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



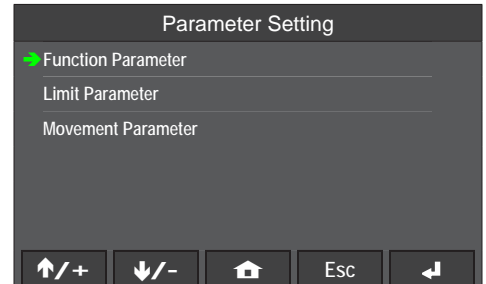
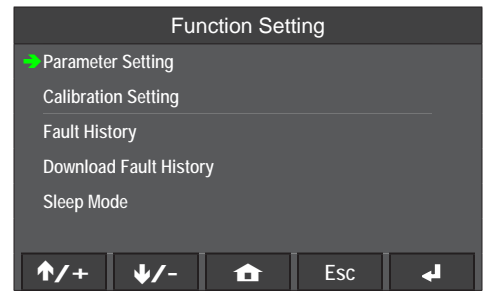
Function Settings Interface

- From the “Home Screen”, press the black button under the “Menu” icon shown on the diagnostic panel.
- In the “Menu” interface, make sure that the “Password” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Password” option is selected.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel.
- In the “Password” menu, press the black button under the Left Arrow (←) and/or Right Arrow (→) to select the correct characters.
- Once you have a character selected, press the black button under the Enter icon (↵) shown on the diagnostic panel to enter the selected key.
- Enter “9735”, then hold and release the Enter icon (↵) to enter the “Function Setting” interface.



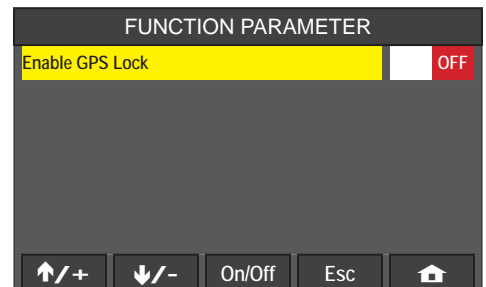
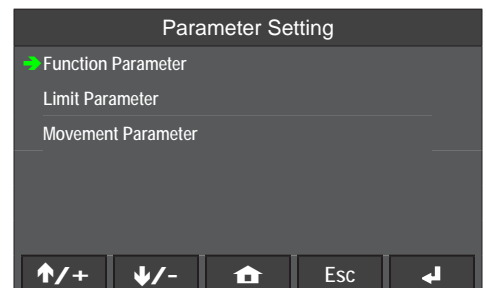
Parameter Settings Interface

- To access the “Function Setting” interface, follow the instructions on page 54.
- In the “Function Setting” interface, make sure that the “Parameter Setting” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Parameter Setting” option is selected.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel.
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



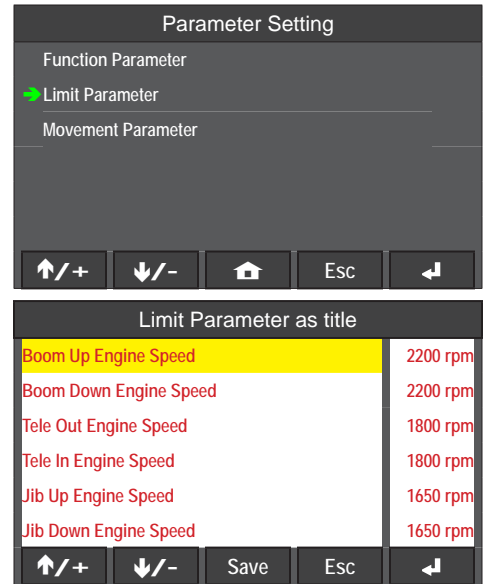
Function Parameter

- In the “Parameter Setting” interface, make sure that the “Function Parameter” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Function Parameter” option is selected.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel.
- In the “Function Parameter” interface, you can press the black button under the On/Off (On/Off) to turn on or turn off the machine GPS Lock.
 - If there is a green square with the words “ON”, then the function has been enable.
 - If there is a red square with the words “OFF”, then the function has been disabled.
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous interface press the black button under the Escape icon (Esc).

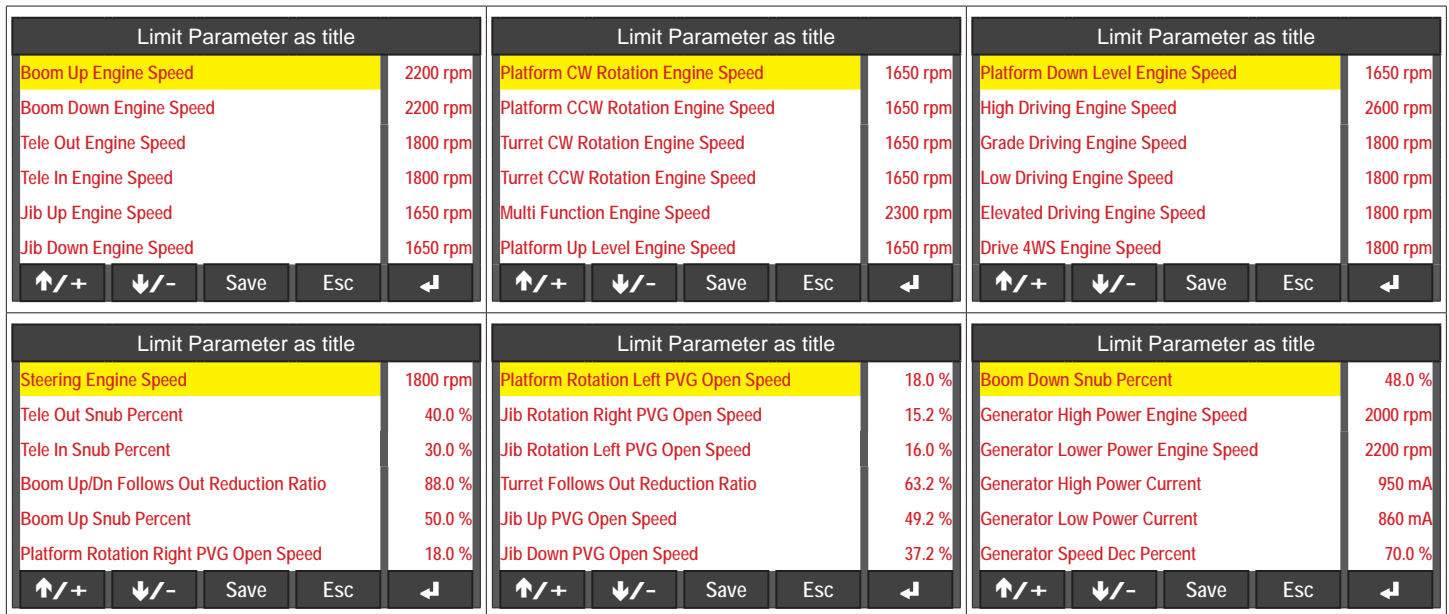


Limit Parameter

- In the “Parameter Setting” interface, make sure that the “Limit Parameter” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Limit Parameter” option is selected.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel.
- In the “Limit Parameter” interface, press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to scroll through the list of parameter values.
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).

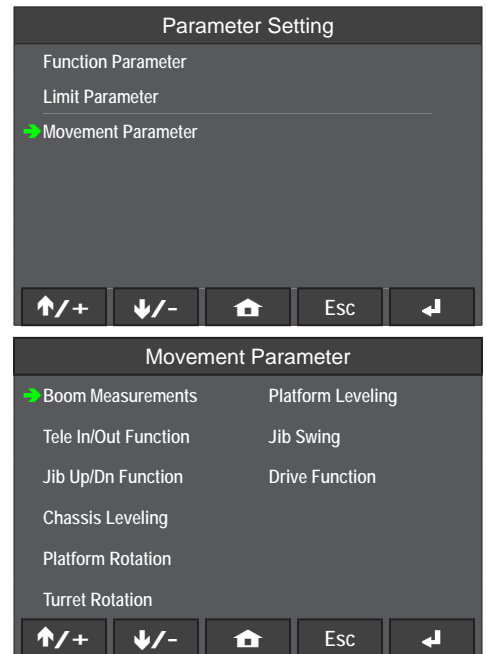


The values shown in the chart are for reference on how the information will be displayed when viewed and may vary from machine to machine.



Movement Parameter

- In the “Parameter Setting” interface, make sure that the “Movement Parameter” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Movement Parameter” option is selected.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel.
- In the “Movement Parameter” interface, you can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to select the parameter you want.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel to enter the currently selected parameter.
- For some of the machine parameters, you will have to press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to scroll through the entire list of parameter values.
- To return back to the “Movement Parameter” interface after entering one of the parameter interfaces, press the black button under the Escape icon (Esc).
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



The values shown in the chart are for reference on how the information will be displayed when viewed and may vary from machine to machine.

Boom Measurements		Tele In/Out Function		Jib Up/Dn Function	
P548 Boom Up Start Ramp	2000 ms	P568 Boom Out Start Ramp	3000 ms	P588 Jib Up Start Ramp	2000 ms
P549 Boom Up Stop Ramp	1500 ms	P569 Boom Out Stop Ramp	2000 ms	P591 Jib Down Stop Ramp	1140 ms
P550 Boom Down Start Ramp	3000 ms	P570 Boom In Start Ramp	3000 ms	P589 Jib Up Stop Ramp	2000 ms
P551 Boom Down Stop Ramp	1500 ms	P571 Boom In Stop Ramp	2000 ms	P590 Jib Down Start Ramp	2000 ms
P811 Boom Up Opening	81.2 %	P816 Boom Out Opening	52.0 %	P821 Jib Up Speed Opening	55.2 %
P812 Boom Down Opening	53.2 %	P817 Boom In Opening	50.0 %	P822 Jib Down Speed Opening	60.0 %
P813 Boom Up Multi Opening	90.0 %	P818 Boom Out Multi Opening	50.0 %	P823 Jib Up Multi Speed Opening	46.0 %
P814 Boom Down Multi Opening	52.0 %	P819 Boom In Multi Opening	35.2 %	P824 Jib Down Multi Speed Opening	40.0 %
				Jib Up Max Open M Wh Jib Rot	80.0 %
				Jib Dn Max Open M Wh Jib Rot	75.2 %

Chassis Leveling		Platform Rotation		Turret Rotation	
Chassis Left Leveling Start Ramp	2500 ms	P628 Platform CW Rotation Start Ramp	2000 ms	P648 Turret CW Rotation Start Ramp	3500 ms
Chassis Left Leveling Stop Ramp	1000 ms	P629 Platform CW Rotation Stop Ramp	1500 ms	P649 Turret CW Rotation Stop Ramp	3500 ms
Chassis Right Leveling Start Ramp	2500 ms	P630 Platform CCW Rotation Start Ramp	2000 ms	P650 Turret CCW Rotation Start Ramp	3500 ms
Chassis Right Leveling Stop Ramp	1000 ms	P631 Platform CCW Rotation Stop Ramp	1500 ms	P651 Turret CCW Rotation Stop Ramp	3500 ms
Chassis Left Leveling Multi Opening	78.0 %	P831 Platform CW Rotation Opening	36.0 %	P836 Turret CW Opening	50.0 %
Chassis Right Leveling Multi Opening	88.0 %	P832 Platform CCW Rotation Opening	30.8 %	P837 Turret CCW Opening	55.2 %
Chassis Left Leveling Opening	64.8 %	Platform CW Max Open Multi Jib Up	29.2 %	P838 Turret CW Multi Opening	40.0 %
Chassis Right Leveling Opening	64.8 %	Platform CCW Max Open Multi Jib Up	24.0 %	P839 Turret CCW Multi Opening	44.8 %
↑/+ ↓/- Save Esc ↵		Platform CW Max Open Multi Jib Dn	35.2 %	↑/+ ↓/- Save Esc ↵	
		Platform CCW Max Open Multi Jib Dn	28.0 %		
		Bkt Rt Max Open Multi Jib Rot	30.0 %		
		Bkt Lf Max Open Multi Jib Rot	30.0 %		
		↑/+ ↓/- Save Esc ↵			
Platform Leveling		Jib Swing		Drive Function	
P707 Platform Level Up Start Ramp	2000 ms	Jib Left Swing CW Start Ramp	1500 ms	P668 Drive Forward Start Ramp	2500 ms
P708 Platform Level Up Stop Ramp	2000 ms	Jib Left Swing CCW Stop Ramp	1500 ms	P669 Drive Forward Stop Ramp	1500 ms
P709 Platform Level Down Start Ramp	2000 ms	Jib Right Swing CW Start Ramp	1500 ms	P670 Drive Backward Start Ramp	2500 ms
P710 Platform Level Down Stop Ramp	2000 ms	Jib Right Swing CCW Stop Ramp	1500 ms	P671 Drive Backward Stop Ramp	1500 ms
P851 Platform Level Up Opening	45.2 %	Jib Left Swing CW Speed Percent	33.2 %	P861 Drive Forward Elevated Slow Opening	14.0 %
P852 Platform Level Down Opening	47.2 %	Jib Right Swing CCW Speed Percent	33.2 %	P862 Drive Backward Elevated Slow Opening	22.0 %
P853 Platform Level Up Multi Opening	44.8 %	Jib Left Swing CW Multi Action Speed	36.8 %	P863 Drive Forward Fast Opening	75.2 %
P854 Platform Level Down Multi Opening	50.0 %	Jib Right Swing CCW Multi Action Speed	30.0 %	P864 Drive Backward Fast Opening	75.2 %
↑/+ ↓/- Save Esc ↵		Jib Rt Max Open M Wh Plat Rot	35.2 %	P865 Drive Forward Grade Opening	30.0 %
		Jib Lf Max Open M Wh Plat Rot	40.0 %	P866 Drive Backward Grade Opening	30.0 %
		↑/+ ↓/- Save Esc ↵		P867 Drive Forward 4W Steer/ Slow Opening	48.0 %
				P868 Drive Backward 4W Steer/ Slow Opening	52.0 %
				P869 Drive Forward 4W Steer Opening	33.2 %
				P870 Drive Backward 4W Steer Opening	33.2 %
				P415 Steer Speed Opening	100.0 %
				↑/+ ↓/- Save Esc ↵	

Calibration Settings

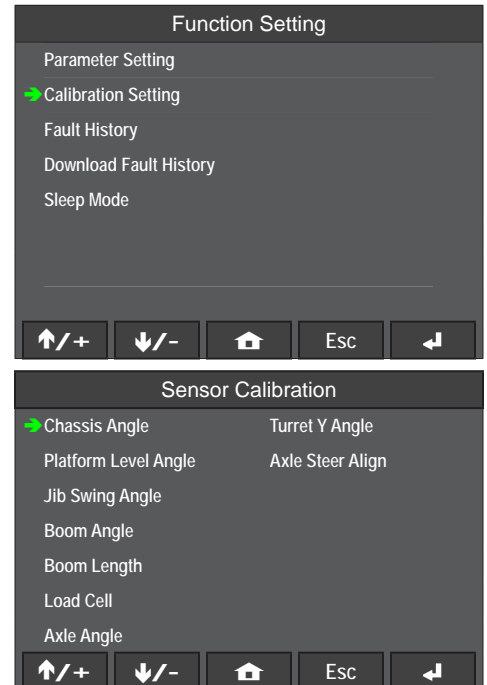
If the sensor or MC43FS (controller) fails, the corresponding sensor needs to be re calibrated.



Improper calibration can result in machine instability leading to death or serious personal injury. The following operations must be performed in its entirety as described herein to prevent improper machine operation. Read all instructions closely before attempting each step of the calibration procedure.

Calibration Setting Interface

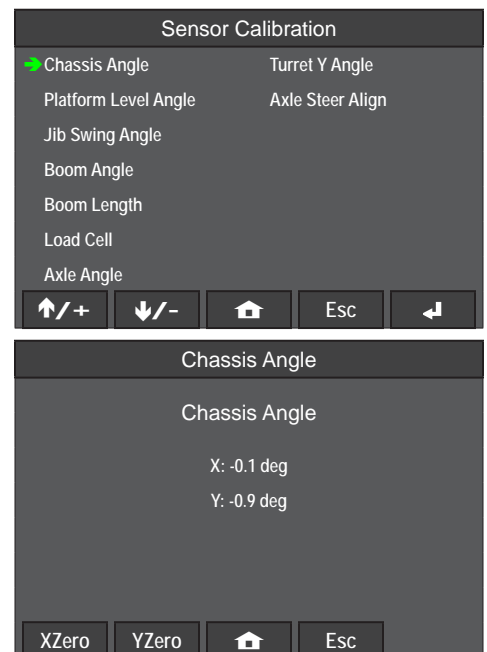
- To access the “Function Setting” interface, follow the instructions on page 54.
- In the “Function Setting” interface, make sure that the “Calibration Setting” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Calibration Setting” option is selected.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel.
- In the “Sensor Calibration” interface, you will see the various sensors that you will be able to calibrate. Press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to select the machine sensor you want to calibrate.
- Once you have the sensor that you want to calibrate, press the black button under the Enter icon (↵) shown on the diagnostic panel to enter the selected sensor calibration interface.



Chassis Angle Calibration

For basic information about the Chassis Tilt Sensor, refer to page 66.

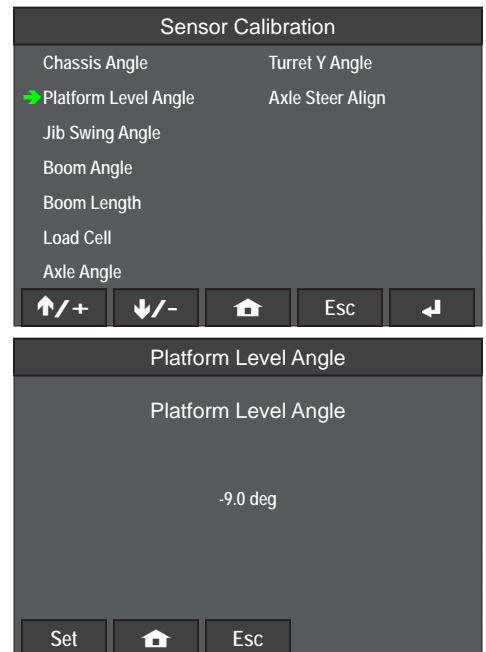
- Make sure that the machine is parked on a flat, level surface.
- Make sure that both the X-Axis and Y-Axis sensor data is 0 degrees.
- In the “Chassis Angle” interface, press and hold the black button under XZero (XZero) for several seconds to calibrate the Chassis X-Axis.
- In the “Chassis Angle” interface, press and hold the black button under YZero (YZero) for several seconds to calibrate the Chassis Y-Axis.
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



Platform Level Angle Calibration

For basic information about the Platform Level Angle Sensor, refer to page 67.

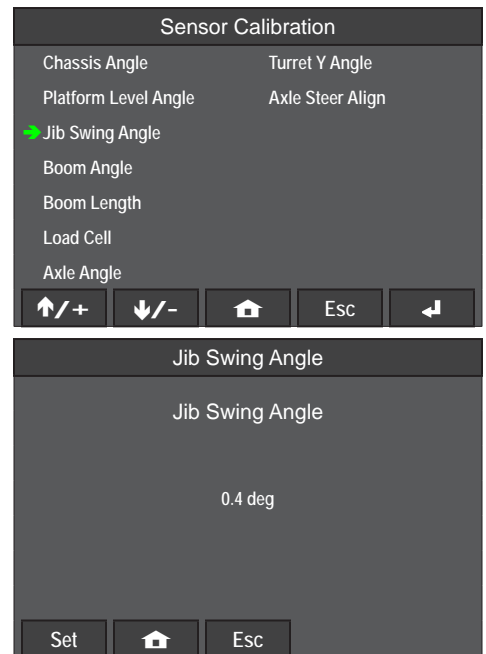
1. Make sure that the machine is parked on a flat, level surface and that the main boom is fully retracted and stowed.
2. Make sure that the Platform Level Angle sensor data is 0 degrees.
3. In the “Platform Level Angle” interface, press and hold the black button under Set (Set) for several seconds to calibrate the platform level angle.
4. To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



Jib Swing Angle Calibration

For basic information about the Jib Swing Angle Sensor, refer to page 67.

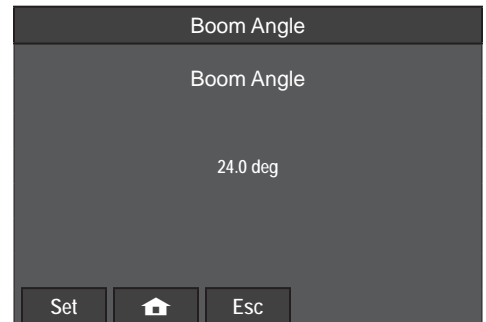
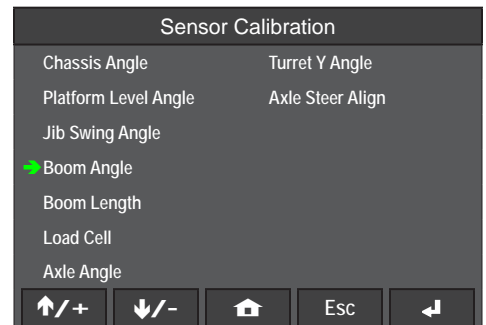
1. Make sure that the machine is parked on a flat, level surface and that the main boom is fully retracted and stowed.
2. Make sure that the Jib Swing Angle sensor data is 0 degrees.
3. In the “Jib Swing Angle” interface, press and hold the black button under Set (Set) for several seconds to calibrate the jib swing angle.
4. To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



Boom Angle Calibration

For basic information about the Boom Angle sensor, refer to page 66.

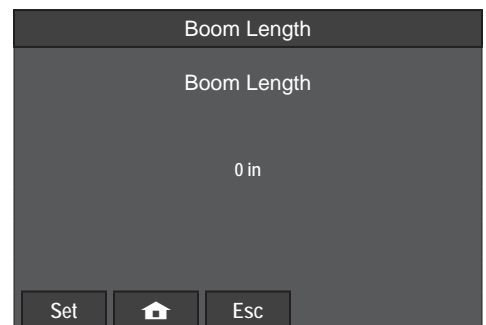
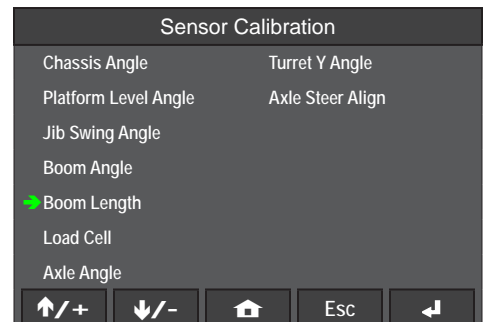
1. Make sure that the machine is parked on a flat, level surface and that the main boom is fully retracted and stowed.
2. Make sure that the Boom Angle sensor data is 0 degrees.
3. In the “Boom Angle” interface, press and hold the black button under Set (Set) for several seconds to calibrate the main boom angle.
4. To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



Boom Length Calibration

For basic information about the Boom Length sensor, refer to page 66.

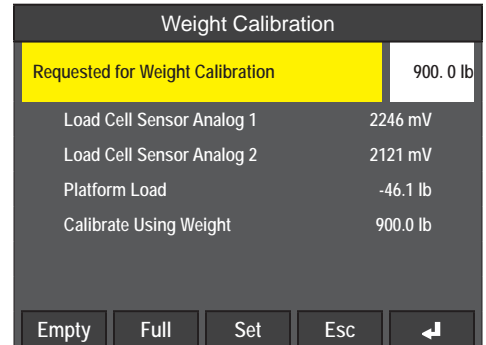
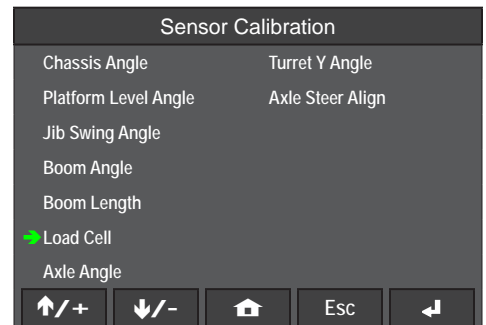
1. Make sure that the machine is parked on a flat, level surface and that the main boom is fully retracted and stowed.
2. Make sure that the Boom Length sensor data is 0 inches.
3. In the “Boom Length” interface, press and hold the black button under Set (Set) for several seconds to calibrate the main boom length.
4. To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



Load Cell Calibration

For basic information about the Load Cell sensor, refer to page 68.

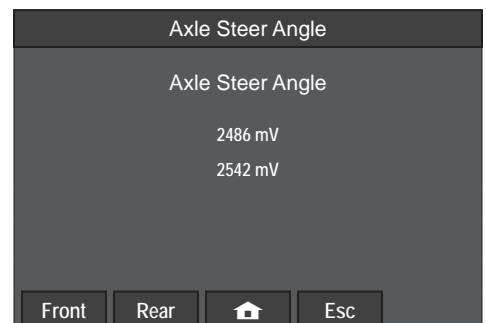
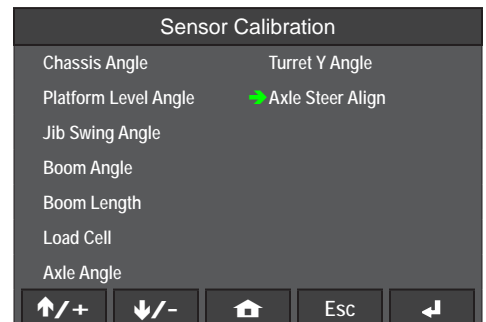
1. Make sure that the machine is parked on a flat, level surface and that the main boom is fully retracted and stowed with the platform empty.
2. In the “Weight Calibration” interface, press and hold the black button under Empty (Empty) for several seconds to calibrate the empty platform load.
3. Put the maximum rated load on the platform then press and hold the black button under Full (Full) for several seconds to calibrate the full platform load.
4. To go back to a previous menu press the black button under the Escape icon (Esc).



Axle Steer Align Calibration

For basic information about the Axle Steer sensors, refer to page 69.

1. Make sure that the machine is parked on a flat, level surface and that both tires are pointing straight parallel with the chassis.
2. In the “Axle Steer Angle” interface, press and hold the black button under Front (Front) for several seconds to calibrate the front axle angle sensor.
3. In the “Axle Steer Angle” interface, press and hold the black button under Rear (Rear) for several seconds to calibrate the front axle angle sensor.
4. To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



Fault Code Interface

The machine will keep a history of previous fault codes.

Fault History Interface

1. To access the “Function Setting” interface, follow the instructions on page 54.
2. In the “Function Setting” interface, make sure that the “Fault History” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Fault History” option is selected.
3. Press the black button under the Enter icon (↵) shown on the diagnostic panel.
4. In the “Fault History” interface, press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to scroll through the machine history of previous faults with each fault code entry displaying: the SPN, FMI, the date and time, fault code description, and the state of the fault.
5. If you press the black button under the Enter icon (↵) shown on the diagnostic panel on the currently select fault code, you will see the machine sensor data at the time of the fault code.
6. If you are inside the machine fault code data interface, press the black button under the Escape icon (Esc) to go back to the “DATALOGGER” interface.
7. To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).

<p style="text-align: center;">Function Setting</p> <p>Parameter Setting</p> <p>Calibration Setting</p> <p style="color: green;">➔ Fault History</p> <p>Download Fault History</p> <p>Sleep Mode</p>	<p style="text-align: center;">DATALOGGER</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: yellow;">SPN: 520202 FMI:5+SA:42</td> <td style="background-color: yellow;">2025-05-08-02:04:18</td> <td style="background-color: yellow;">State: clear</td> </tr> <tr> <td>Front Left Axle Lock Valve B Open Circuit</td> <td></td> <td></td> </tr> <tr> <td>SPN: 520202 FMI:5+SA:42</td> <td>2025-05-08-02:01:59</td> <td>State: occur</td> </tr> <tr> <td>Front Left Axle Lock Valve B Open Circuit</td> <td></td> <td></td> </tr> <tr> <td>SPN: 520457 FMI:0+SA:39</td> <td>2025-05-08-00:38:06</td> <td>State: clear</td> </tr> <tr> <td>Jib Level Tilt Limit</td> <td></td> <td></td> </tr> <tr> <td>SPN: 520457 FMI:0+SA:39</td> <td>2025-05-08-00:37:57</td> <td>State: occur</td> </tr> <tr> <td>Jib Level Tilt Limit</td> <td></td> <td></td> </tr> <tr> <td>SPN: 520404 FMI:0+SA:39</td> <td>2025-05-08-00:36:32</td> <td>State: occur</td> </tr> <tr> <td>Jib level angle exceed limit</td> <td></td> <td></td> </tr> <tr> <td>SPN: 520457 FMI:0+SA:39</td> <td>2025-05-07-23:38:25</td> <td>State: clear</td> </tr> <tr> <td>Jib Level Tilt Limit</td> <td></td> <td></td> </tr> </table>	SPN: 520202 FMI:5+SA:42	2025-05-08-02:04:18	State: clear	Front Left Axle Lock Valve B Open Circuit			SPN: 520202 FMI:5+SA:42	2025-05-08-02:01:59	State: occur	Front Left Axle Lock Valve B Open Circuit			SPN: 520457 FMI:0+SA:39	2025-05-08-00:38:06	State: clear	Jib Level Tilt Limit			SPN: 520457 FMI:0+SA:39	2025-05-08-00:37:57	State: occur	Jib Level Tilt Limit			SPN: 520404 FMI:0+SA:39	2025-05-08-00:36:32	State: occur	Jib level angle exceed limit			SPN: 520457 FMI:0+SA:39	2025-05-07-23:38:25	State: clear	Jib Level Tilt Limit			<p>SPN: 520202 FMI:5+SA:42 State: clear</p> <p>Front Left Axle Lock Valve B Open Circuit</p> <p>Time: 2025-05-08-02:04:18</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>BoomAngle</td> <td>-4.0 deg</td> <td>LowBoomAngle</td> <td>0.0 deg</td> </tr> <tr> <td>BoomAngleRotaryApp</td> <td>-3.0 deg</td> <td>LowBoomAngleRotaryApp</td> <td>0.0 deg</td> </tr> <tr> <td>JibAngle</td> <td>1.0 deg</td> <td>BoomLength</td> <td>-1 in</td> </tr> <tr> <td>ChassiAngleX</td> <td>0.3 deg</td> <td>ChassiAngleY</td> <td>-0.5 deg</td> </tr> <tr> <td>RearAxleAngleApp</td> <td>0.0 deg</td> <td>FrontAxleAngleApp</td> <td>0.0 deg</td> </tr> <tr> <td>Turntable Y Angle</td> <td>0.0 deg</td> <td>HydOilTemp</td> <td>80.6 f</td> </tr> <tr> <td>Jib Swing</td> <td>-1.5 deg</td> <td>Float Pressure A</td> <td>58.0 bar</td> </tr> <tr> <td>Float Pressure B</td> <td>57.0 bar</td> <td>LoadWeight</td> <td>120.2 lb</td> </tr> </table>	BoomAngle	-4.0 deg	LowBoomAngle	0.0 deg	BoomAngleRotaryApp	-3.0 deg	LowBoomAngleRotaryApp	0.0 deg	JibAngle	1.0 deg	BoomLength	-1 in	ChassiAngleX	0.3 deg	ChassiAngleY	-0.5 deg	RearAxleAngleApp	0.0 deg	FrontAxleAngleApp	0.0 deg	Turntable Y Angle	0.0 deg	HydOilTemp	80.6 f	Jib Swing	-1.5 deg	Float Pressure A	58.0 bar	Float Pressure B	57.0 bar	LoadWeight	120.2 lb
SPN: 520202 FMI:5+SA:42	2025-05-08-02:04:18	State: clear																																																																				
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Jib Level Tilt Limit																																																																						
SPN: 520457 FMI:0+SA:39	2025-05-08-00:37:57	State: occur																																																																				
Jib Level Tilt Limit																																																																						
SPN: 520404 FMI:0+SA:39	2025-05-08-00:36:32	State: occur																																																																				
Jib level angle exceed limit																																																																						
SPN: 520457 FMI:0+SA:39	2025-05-07-23:38:25	State: clear																																																																				
Jib Level Tilt Limit																																																																						
BoomAngle	-4.0 deg	LowBoomAngle	0.0 deg																																																																			
BoomAngleRotaryApp	-3.0 deg	LowBoomAngleRotaryApp	0.0 deg																																																																			
JibAngle	1.0 deg	BoomLength	-1 in																																																																			
ChassiAngleX	0.3 deg	ChassiAngleY	-0.5 deg																																																																			
RearAxleAngleApp	0.0 deg	FrontAxleAngleApp	0.0 deg																																																																			
Turntable Y Angle	0.0 deg	HydOilTemp	80.6 f																																																																			
Jib Swing	-1.5 deg	Float Pressure A	58.0 bar																																																																			
Float Pressure B	57.0 bar	LoadWeight	120.2 lb																																																																			

Download Fault History

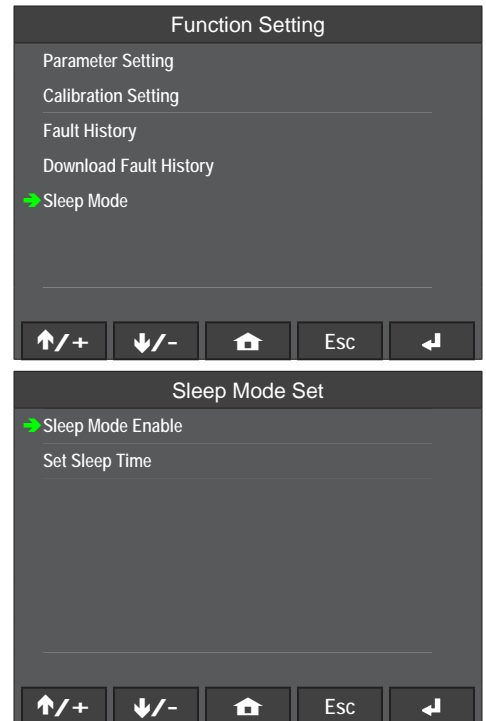
1. In the “Function Setting” interface, make sure that the “Download Fault History” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Download Fault History” option is selected.
2. Press the black button under the Enter icon (↵) shown on the diagnostic panel.
3. In the “Download Fault History” interface,

<p style="text-align: center;">Function Setting</p> <p>Parameter Setting</p> <p>Calibration Setting</p> <p>Fault History</p> <p style="color: green;">➔ Download Fault History</p> <p>Sleep Mode</p>
<p style="text-align: center;">Download Elog File</p> <p style="text-align: center; font-size: 1.2em;">You Must Insert USB Storage</p>
<p style="text-align: center;">MSave ASave Esc</p>

Sleep Mode Interface

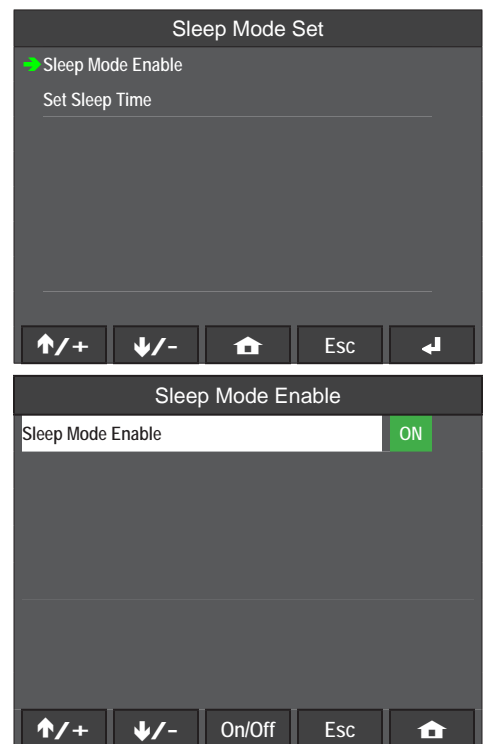
Sleep Mode Set Interface

- To access the “Function Setting” interface, follow the instructions on page 54.
- In the “Function Setting” interface, make sure that the “Sleep Mode” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Sleep Mode” option is selected.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel.
- In the “Sleep Mode” interface, press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to select the interface you want to enter.
- Once you have the interface you want to enter selected, press the black button under the Enter icon (↵) shown to enter the selected interface.



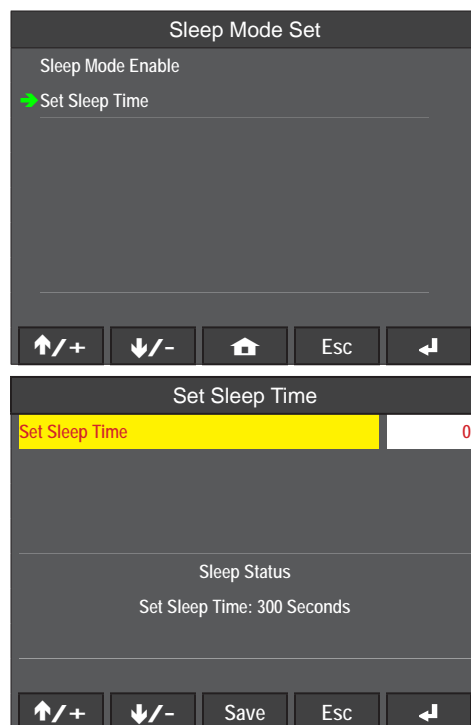
Sleep Mode Enable Interface

- In the “Sleep Mode Set” interface, make sure that the “Sleep Mode Enable” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Sleep Mode Enable” option is selected.
- Press the black button under the Enter icon (↵) shown on the diagnostic panel.
- In the “Sleep Mode Enable” interface, press the black button under the On/Off (On/Off) to turn on or turn off the selected machine function.
 - If there is a green square with the words “ON”, then the function has been enable.
 - If there is a red square with the words “OFF”, then the function has been disabled.
- To return to the “Home Screen”, press the black button under the Home icon (🏠) or to go back to a previous menu press the black button under the Escape icon (Esc).



Set Sleep Time Interface

1. In the “Sleep Mode Set” interface, make sure that the “Set Sleep Time” option is selected.
 - You can press the black button under the Up Arrow (↑/+) and/or Down Arrow (↓/-) to make sure that the “Set Sleep Time” option is selected.
2. Press the black button under the Enter icon (↵) shown on the diagnostic panel.
3. In the “Set Sleep Time” interface, you can set the amount of seconds it takes before the display goes to sleep.



Sensors, Switches, and Manifolds

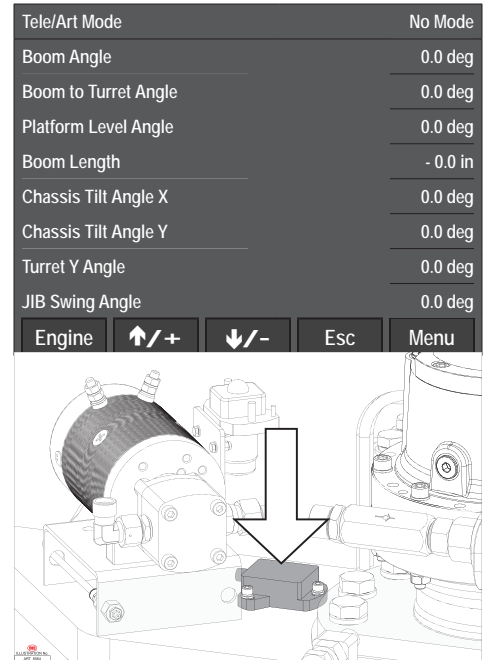
Tilt Sensor

When the machine is raised, the maximum tilt angle allowed by the machine is 5°.

The tilt sensor will monitor the horizontal angle value of the chassis in real time. If the tilt angle of the chassis is too large, the system will give an alarm and prohibit continued work.

In the “Data” interface, you can see the Chassis Tilt Axle data. Refer to page 43 for instructions on how to view the “Data” interface.

For instructions on how to calibration the Chassis Angle sensor, refer to page 59.



Boom Length & Boom Angle Sensor

The sensor can monitor the length and angle of the main-boom in real time. There are 2 kinds of switches that can detect the state of the main boom.

- Down limit switch
- Length Angle Sensor

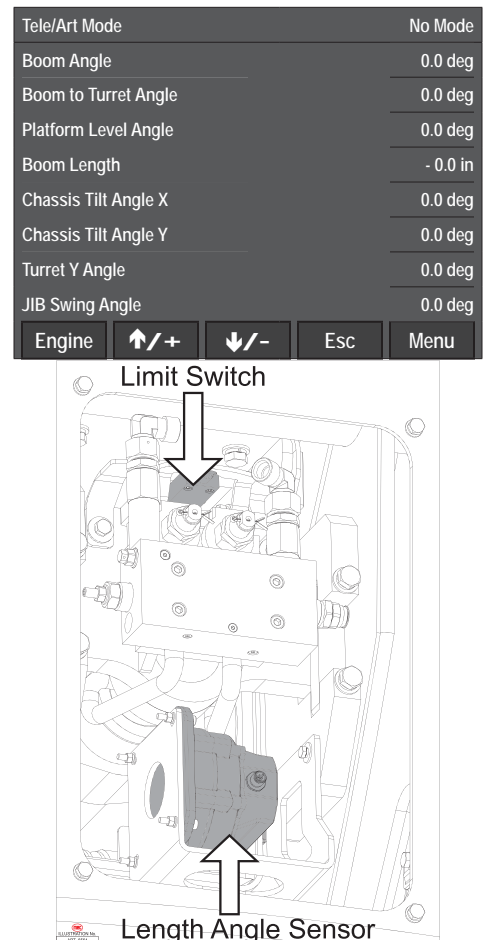
Operators can check whether the limit switch is faulty in the parameters interface of main controller. To check the I/O Status, refer to page 45 for instructions.

The parameter of should read as “TRUE” and if the parameter reads as “FALSE” the limit switch and boom chains should be examined.

Turret Controller		
Pin	Definition	Value
C1: 26	Chain Break Switch	TRUE

In the “Data” interface, you can see the Boom Length and Boom Angle data. Refer to page 43 for instructions on how to view the “Data” interface.

For instructions on how to calibration the Boom Angle sensor refer to page 61 and for the Boom Length sensor refer to page 61.



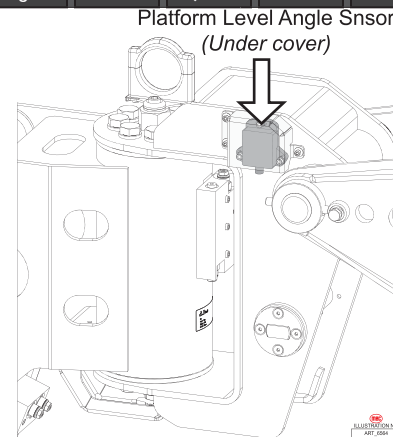
Platform Level Angle Sensor

The sensor can monitor the angle of platform in real time to ensure the safety of the operator.

In the “Data” interface, you can see the Platform Level Angle data. Refer to page 43 for instructions on how to view the “Data” interface.

For instructions on how to calibration the Platform Level Angle sensor, refer to page 60.

Tele/Art Mode	No Mode
Boom Angle	0.0 deg
Boom to Turret Angle	0.0 deg
Platform Level Angle	0.0 deg
Boom Length	- 0.0 in
Chassis Tilt Angle X	0.0 deg
Chassis Tilt Angle Y	0.0 deg
Turret Y Angle	0.0 deg
JIB Swing Angle	0.0 deg
Engine	↑/+ ↓/- Esc Menu



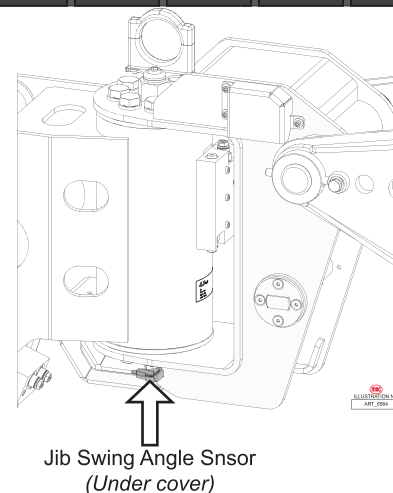
Jib Swing Angle Sensor

The sensor can monitor the angle of the jib in real time to ensure the safety of the operator.

In the “Data” interface, you can see the Jib Swing Angle data. Refer to page 43 for instructions on how to view the “Data” interface.

For instructions on how to calibration the Jib Swing Angle sensor, refer to page 60.

Tele/Art Mode	No Mode
Boom Angle	0.0 deg
Boom to Turret Angle	0.0 deg
Platform Level Angle	0.0 deg
Boom Length	- 0.0 in
Chassis Tilt Angle X	0.0 deg
Chassis Tilt Angle Y	0.0 deg
Turret Y Angle	0.0 deg
JIB Swing Angle	0.0 deg
Engine	↑/+ ↓/- Esc Menu



Platform Load Sensor & Signal Amplifier

The Platform Load Sensor can monitor the angle of the jib in real time to ensure the safety of the operator.

In the “Data” interface, you can see the Platform Load data. Refer to page 43 for instructions on how to view the “Data” interface.

The output signal of the load sensor is very weak (mV level), and the controller cannot directly process the signal. Therefore, a signal amplifier is required to amplify the weakly changed differential signal output by the sensor for the controller to process.

For instructions on how to calibration the Load Cell sensor, refer to page 62.

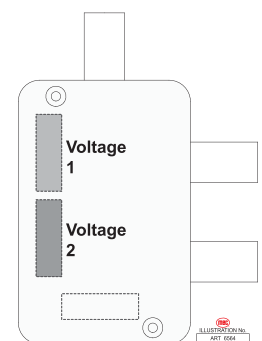
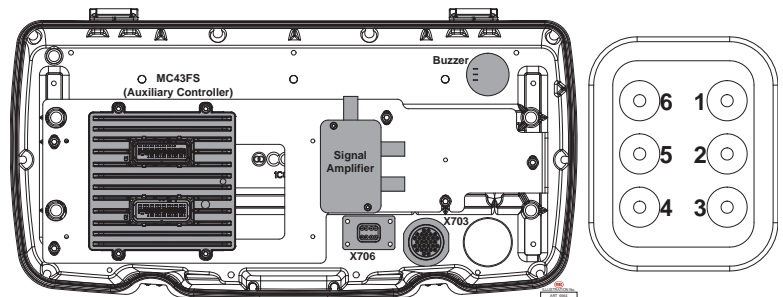
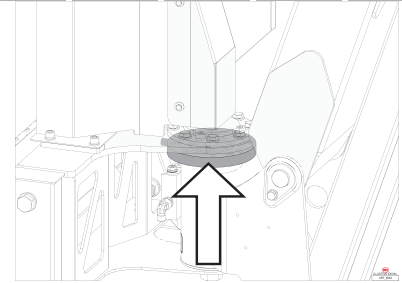
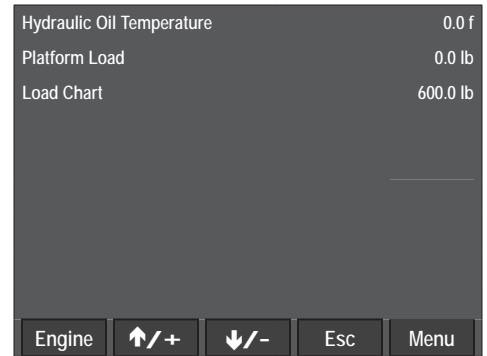
To confirm whether the load sensor is normal, perform the following instructions.

1. In the platform box, find the connector “X706”.
 - Pin 1: Signal 1 +
 - Pin 2: Power +
 - Pin 3: Signal 1
 - Pin 4: Signal 2 +
 - Pin 5: Power
 - Pin 6: Signal 2
2. Turn on the machine, measure the input voltage to load sensor (Between pin 2 & 5: 8V).
3. With the platform being empty, measure the voltage values of signal 1 and signal 2 respectively (about 1.9mV).
 - Signal 1: red pen to Pin 1, black pen to Pin 3.
 - Signal 2: red pen to Pin 4, black pen to Pin 6.
4. With the platform holding the maximum amount of weight, measure the voltage values of signal 1 and signal 2 in the same way (about 3.4mV).

Note: The values measured above are for reference only, and there may be differences between different models.

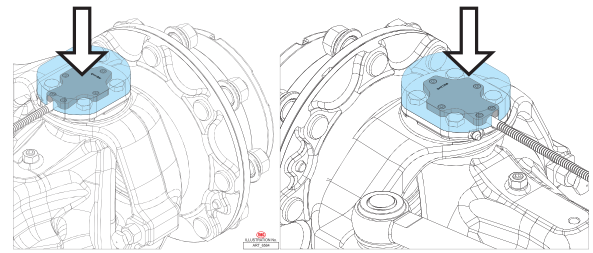
When it is difficult to judge, disconnect the load sensor from signal amplifier to eliminate interference of the amplifier with the signal.

1. Measure Voltage 1 & 2 directly (mV).
2. Remove the white wires & green wires from the amplifier, then measure Voltage 1 & 2 (mV).



Axle Steer Angle Sensors

There is a steer angle sensor on each axle to detect whether the tires are in the neutral position. Each sensor is under a plastic covering to prevent them from being damaged.



For instructions on how to calibration the Axle Steer Angle sensor, refer to page 62.

Operators can check whether the sensor is faulty in the parameters interface of main controller. To check the I/O Status, refer to page 45 for instructions.

Chassis Controller		
Pin	Definition	Value
C2: 57	Front Steer Neutral Position Signal	2500mV
C2: 58	Rear Steer Neutral Position Signal	2500mV

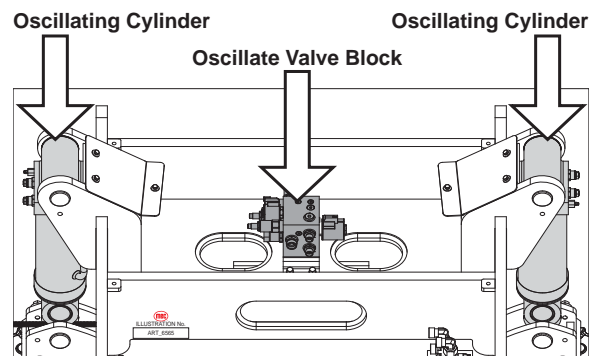
Oscillating Axle

At the front axle, there are 2 oscillating cylinders.

When the machine is driving at stowed state, the spools on these 2 cylinders open the oil circuit, allowing the front axle to oscillate freely according to the terrain and the corresponding icon of the Main Menu display will light up.

In other cases, the oscillating axle of the machine is in a lock state, and the axle cannot oscillate to ensure the safety of the machine.

Operators can also check the I/O Status of the 2 oscillating axles, refer to page 45 for instructions.



	Oscillating Axles Disengaged
	Oscillating Axles Engaged

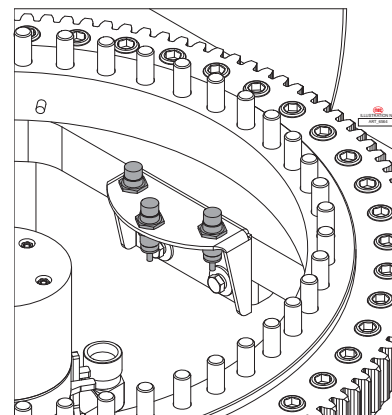
Chassis Controller			
Pin	Definition	Value (Locked State)	Value (Oscillating State)
C2: 34	Oscillate Cylinder Feedback Signal 3 Left NO	FALSE	TRUE
C2: 35	Oscillate Cylinder Feedback Signal 1 Left NC	FALSE	TRUE
C2: 36	Oscillate Cylinder Feedback Signal 4 Right NO	FALSE	TRUE
C2: 37	Oscillate Cylinder Feedback Signal 2 Right NC	FALSE	TRUE

Turret Limit Switches

These 3 sensors are used to detect what state the turret is currently in.

If the turret is not in the neutral position, the system will limit some of the machine’s functions to ensure the safety of operators.

Operators can also check the I/O Status of the 3 turret limit switches, refer to page 45 for instructions.



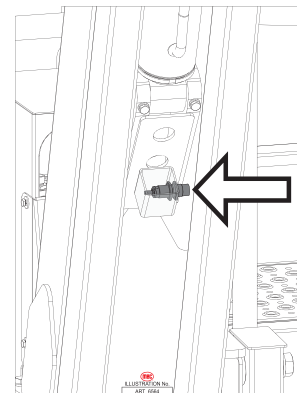
Chassis Controller			
Pin	Definition	Value (Neutral Position)	Value (Out of Neutral Position)
C2: 42	Turret to Left Proximity	TRUE	FALSE
C2: 55	Turret to Right Proximity	TRUE	FALSE
C2: 56	Turret to Middle Proximity	TRUE	FALSE

Jib Limit Switch

The Jib limit switch is used to detect whether the jib reaches the lowest or highest position.

When reaching the lowest or highest position, it will reduce the speed of the jib.

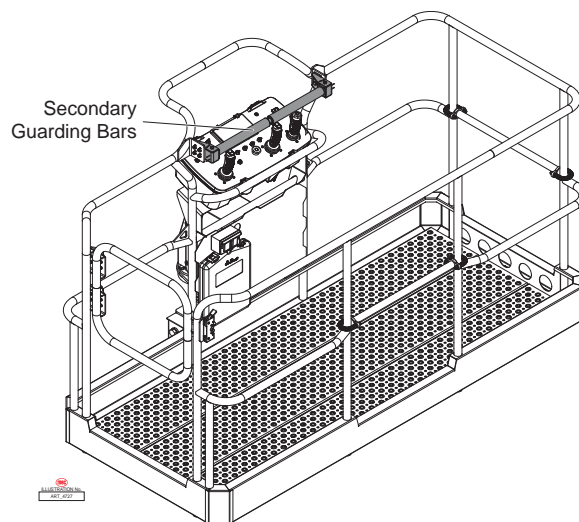
Operators can also check the I/O Status of the jib limit switch, refer to page 45 for instructions. When the value is “TRUE”, then the jib is currently either at its lowest or highest position.



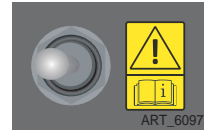
Platform Controller		
Pin	Definition	Value
C2: 6	Jib Down Proximity Switch	TRUE

Secondary Guarding

1. As a safety feature, there are 2 yellow colored swinging bars positioned above the Platform controls. If one or both bars are pushed forward, all machine functions will stop immediately sounding an alarm.
2. If at any time one or both bars are depressed, evaluate the instance that caused the actuation and proceed accordingly with choice 3 or 4.
3. To reset the system, allow the bars to return to the natural centered position, return all control handles to neutral position and release all enable trigger switches. Normal operation may be resumed.



4. To enable limited operation while one or both bars are depressed, push up and hold the Emergency Platform Bypass switch (see illustration to right). While holding the Bypass switch, select the desired function and operate it in the normal procedure. Certain lift functions such as Riser Boom Up, Main Boom Up, and Telescope out are not available in this bypass mode.
5. If normal operation doesn't resume, please contact Product Support for assistance.



Emergency Platform
Bypass Switch

Horn Button

At the Platform Controls, press the Horn Button and the horn will sound to warn other personnel to avoid accidents.



Beacon & Buzzer

When operating the machine, the beacon will flash and the buzzer will sound at a fixed frequency, to acting as a warning to all nearby personnel.

Machine System Components and Functions

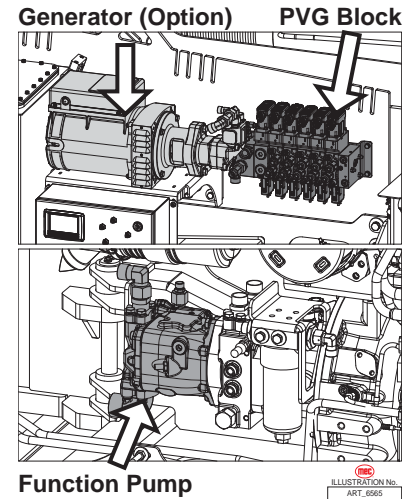
Function System Component

Function Pump

The 35CC Functions Pump delivers hydraulic fluid under pressure to the Functions Manifold and provides pressure to the platform and turntable functions, in addition to controlling the axle cylinders and the brakes. Refer to page 93 for Function Pump ports.

PVG Block

The PVG is located by the lower controls. By controlling the opening and closing of the oil circuits, many functions of boom movement can be activated. In the event of an emergency, the PVG blocks can be operated manually for emergency operation. Refer to page 94 for port specific machine functions.

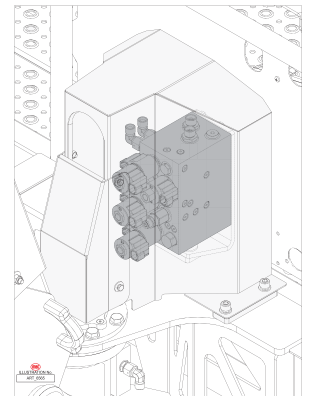


Hydraulic Zone			
Climate	Polar Regions	Temperate Zone	Tropical Zone
ISO Grade	32#	46#	68#
Capacity	29 gal (110L)		
Recommended Oil	Mobil Unavis N 32	Mobil Unavis N 46	Mobil Unavis N 68

Platform Valve Block

When unit #1 & unit #6 of the PVG Block are energized, then the oil will flow into the Platform Valve Block. Various functions are realized by controlling the valves on the platform valve block.

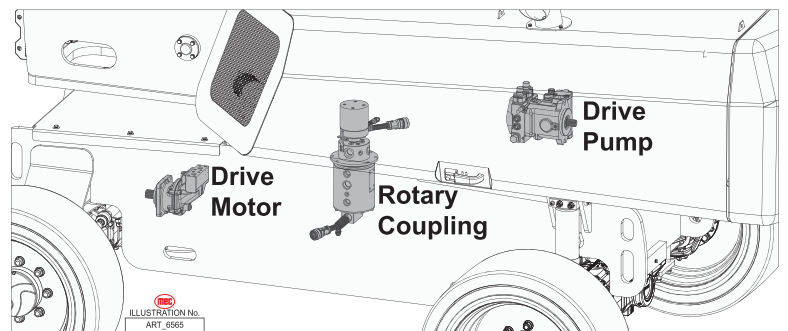
The valve block has 3 functions: platform rotation, jib rotation, and jib lift/lower. Refer to page 95 for port specific machine functions.



Drive System Component

Drive Pump & Drive Motor

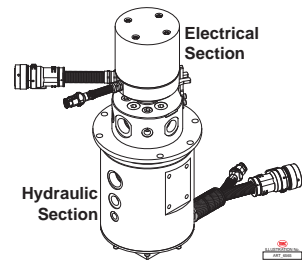
The engine powers the drive pump to run, so that hydraulic oil flows into the drive motor which powers the drive axle.



Rotary Coupling

The Rotary Coupling can be divided into two parts: electrical part and hydraulic part.

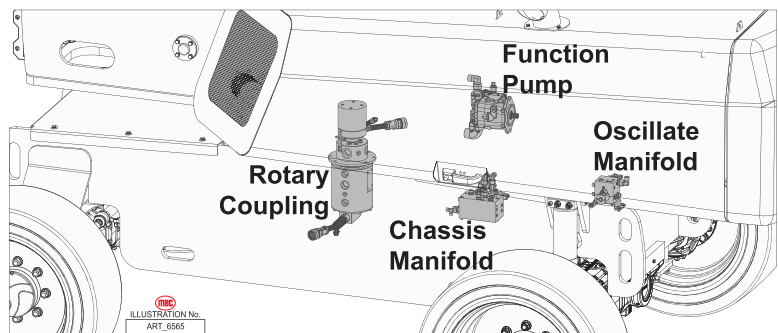
The Rotary Coupling connects electrical wires and hydraulic oil hoses between the chassis and the boom, so that the turret can rotate 360° without interruption.



Chassis & Oscillate Valve Block

Chassis Valve Block

The Chassis Valve Block has several functions such as steering, brake release, differential lock, and even steering mode. Refer to page 96 for port specific machine functions.



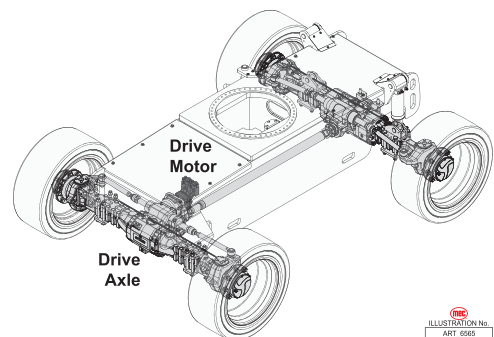
Oscillate Manifold

For information about the Oscillating Axle system then refer to page 69. Refer to page 97 for port specific machine functions.

Drive Axle

The drive motor can provide power to the drive axle, thereby realizing the function of four wheel drive.

In addition to front wheel steering, the machine also has 2-Wheel Steering & Crab Steering.



From the upper controls, the Steering Mode can be selected and the corresponding icon of the Main Menu display will light be displayed.

	<p>4-Wheel Steer The front and rear wheels steer in opposite directions.</p>		<p>2-Wheel Steer Only the front two wheels steer.</p>		<p>Crab Steer All four wheels turn in the same direction.</p>
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Fault Codes

Warning Code		
SPN	FMI	Description
520232	2	Overloaded Light Limit
520232	3	Overloaded Heavy Limit
520347	11	Table Tilt Zero Set Out of Range
520353	15	Boom Angle Sensor Internal Error
520364	1	Chassis Leveled
520400	0	Boom Stowed Position
520401	0	Boom Max Height Limit
520402	0	Boom Length Min Limit
520403	0	Boom Length Max Limit
520404	0	Jib Level Angle Exceed Limit
520406	0	Engine Coolant High Temperature Limit
520409	0	Engine Air Filter Failure
520410	0	Engine Hood Open
520411	0	Low Fuel Level
520412	0	Hydraulic Oil High Temperature
520418	24	Front Axle Tilt Angle Zero Calibration Set
520418	25	Rear Axle Tilt Angle Zero Calibration Set
520418	26	Jib Rotation Center Set
520420	0	Telescope Mode, Riser Angle Too Low
520423	0	Swing Joystick Error
520423	1	Boom Up/Dn Joystick Error
520424	0	Load Cell Sensor Error
520425	0	Platform Swing Joystick error
520426	0	Jib Joystick Error
520427	0	Drive Joystick Error
520428	0	Chain Proximity Switch Error
520430	0	Chassis Extension Prohibits Drive
520431	0	Drive Prohibits Chassis Extension
520432	0	Amplitude & telescope limit early warning
520433	0	Emergency Pump Operation Halted
520433	1	Emergency Pump Operation Timed Out
520435	0	Amplitude & telescope limit
520436	0	Secondary Guarding Switch Open
520438	0	Speed Limited - Generator Enabled
520438	2	Frame leveling prohibit movement
520442	0	Hint for battery working for a long time
520444	0	Tilt Turntable not in center position
520445	0	Tilt Limit Boom Up
520446	0	Tilt Limit Telescope Out
520453	0	Telescope Mode, Riser Angle Too High
520454	0	Travel interlock - Retract Boom

Warning Code		
SPN	FMI	Description
520457	0	Jib Level Tilt Limit
520458	0	PPSS Warning
520458	2	PPSS Detects Obstruction
520460	0	Analog sensor error
520461	0	PVG Valves Type Wrong
520462	0	GPS remote lock vehicle
520463	0	Riser Reach High Limit
520464	0	Riser Reach Low Limit
520467	0	Boom Reaches Max Angle Limit Action
520469	0	Tilt Limit Riser Up
520479	0	Engine Regeneration Limit Action
520480	0	Regeneration Request Limit Extend
520484	0	Drive Prohibit, Use Rotated Switch
520601	2	Engine Start Protect, Pleaser Wait
520656	1	Please Boom Down to Change Articulated/Telescopic
520656	2	Please Riser Down to Change Articulated/Telescopic
520656	3	Please Boom In to Change Articulated/Telescopic
520656	5	Entered Telescopic Mode Successfully
520657	1	Please Boom Dn or Riser Up to Telescopic
520657	2	Please Boom Up or Riser Dn to Telescopic
520657	3	Please Boom Dn to Articulated
520657	4	Please Riser Dn to Articulated
520657	5	Entered Articulated Mode Successfully
520667	2	Boom Down to Change Articulated/Telescopic

Alarm Codes		
SPN	FMI	Description
520193	5	Upper Release Valve Open Circuit
520193	6	Upper Release Valve Short Circuit
520193	5	HydraulicGeneratorConsPresValve Open Circuit
520193	6	HydraulicGeneratorConsPresValve Short Circuit
520200	5	Parking Brake Valve Open Circuit
520200	6	Parking Brake Valve Short Circuit
520201	5	Front Left Axle Lock Valve A Open Circuit
520201	6	Front Left Axle Lock Valve A Short Circuit
520202	5	Front Left Axle Lock Valve B Open Circuit
520202	6	Front Left Axle Lock Valve B Short Circuit
520203	5	Front Right Axle Lock Valve A Open Circuit
520203	6	Front Right Axle Lock Valve A Short Circuit
520204	5	Front Right Axle Lock Valve B Open Circuit
520204	6	Front Right Axle Lock Valve B Short Circuit
520205	5	Steering Left/Right Valve Open Circuit
520205	6	Steering Left/Right Valve Short Circuit
520213	5	Steering UTurn Valve Open Circuit

Alarm Codes		
SPN	FMI	Description
520213	6	Steering UTurn Valve Short Circuit
520226	4	Travel Joystick 2 Open Circuit
520226	3	Travel Joystick 2 Short Circuit
520227	2	Travel Joystick Redundancy Error
520228	1	Axle Tilted
520243	13	Platform Riser Up Input Initial Error
520244	13	Platform Riser Down Input Initial Error
520245	13	Platform HydrGenerator Input Initial Error
520270	4	Jib Angle1 Open Circuit
520270	3	Jib Angle1 Short Circuit
520271	4	Jib Angle2 Open Circuit
520271	3	Jib Angle2 Short Circuit
520272	4	Riser Angle1 Open Circuit
520272	3	Riser Angle1 Short Circuit
520273	4	Riser Angle2 Open Circuit
520273	3	Riser Angle2 Short Circuit
520274	2	Left Floating Axis Switch Redundancy Error
520275	2	Right Floating Axis Switch Redundancy Error
520284	13	Platform Engine RPM Increase Initial Error
520285	13	Platform Engine RPM Decrease Initial Error
520191	5	Jib Swing Valve Open Circuit
520191	6	Jib Swing Valve Short Circuit
520192	5	Jib Lifting/Lowering Valve Open Circuit
520192	6	Jib Lifting/Lowering Valve Short Circuit
520195	5	Platform Rotation Valve Open Circuit
520195	6	Platform Rotation Valve Short Circuit
520197	5	Platform Alarm Buzzer Open Circuit
520197	6	Platform Alarm Buzzer Short Circuit
520198	5	Controller Guard Warning Light Open Circuit
520198	6	Controller Guard Warning Light Over load
520199	5	Drive Forward/Backward Valve Open Circuit
520199	6	Drive Forward/Backward Valve Short Circuit
520206	5	Starter Open Circuit
520206	6	Starter Short Circuit
520207	5	Hydraulic Oil Cooling Fan Output Open Circuit
520207	6	Hydraulic Oil Cooling Fan Output Short Circuit
520208	5	Horn Output Open Circuit
520208	6	Horn Output Short Circuit
520212	5	Emergency Pump Power Output Open Circuit
520212	6	Emergency Pump Power Output Short Circuit
520214	5	Steering Rear Valve Open Load
520214	6	Steering Rear Valve Overload
520215	5	Axle Differential Lock Valve Open Circuit

Alarm Codes		
SPN	FMI	Description
520215	6	Axle Differential Lock Valve Short Circuit
520216	5	Flashing Beacon Open Circuit
520216	6	Flashing Beacon Short Circuit
520218	5	Chassis Alarm Open Circuit
520218	6	Chassis Alarm Short Circuit
520219	5	Hydraulic Generator Output Open Circuit
520219	6	Hydraulic Generator Output Short Circuit
520221	4	Platform Swing Joystick Open Circuit
520221	3	Platform Swing Joystick Short Circuit
520222	4	Boom Up/Dn Joystick Open Circuit
520222	3	Boom Up/Dn Joystick Short Circuit
520223	4	Swing Joystick Open Circuit
520223	3	Swing Joystick Short Circuit
520224	4	Jib Joystick Open Circuit
520224	3	Jib Joystick Short Circuit
520225	4	Drive Joystick Open Circuit
520225	3	Drive Joystick Short Circuit
520228	0	Chassis Tilted
520229	0	Bypass Emergency Switch Input
520230	4	Boom Angle 2 Load Open Circuit
520230	3	Boom Angle 2 Load Short Circuit
520231	1	Jib Swing Status Prohibit Movement
520232	0	Overloaded
520232	1	Overload Function Disabled
520232	4	Weight Below Zero
520233	13	Jib Swing L Initial Error (CH)
520234	13	Jib Swing R Initial Error (CH)
520239	0	Platform Module CAN-BUS Time Out
520240	0	Engine Timed Out
520242	13	Differential Gear (NO) Initial Error
520246	2	Load Cell Redundance Error
520247	4	Load Cell 1 Open Circuit
520247	3	Load Cell 1 Short Circuit
520257	13	Drive Joystick AI Initial Error
520258	2	Boom Angle Redundancy Error
520259	4	Boom Angle 1 Open Circuit
520259	3	Boom Angle 1 Short Circuit
520260	2	Boom Length Redundancy Error
520261	4	Boom Length 1 Open Circuit
520261	3	Boom Length 1 Short Circuit
520262	4	Boom Length 2 Open Circuit
520262	3	Boom Length 1 Short Circuit
520263	2	Chassis Tilt X Redundancy Error

Alarm Codes		
SPN	FMI	Description
520264	4	Chassis Tilt X1 Open Circuit
520264	3	Chassis Tilt X1 Short Circuit
520265	4	Chassis Tilt X2 Open Circuit
520265	3	Chassis Tilt X2 Short Circuit
520266	2	Chassis Tilt Y Redundancy Error
520267	4	Chassis Tilt Y1 Open Circuit
520267	3	Chassis Tilt Y1 Short Circuit
520268	4	Chassis Tilt Y2 Open Circuit
520268	3	Chassis Tilt Y2 Short Circuit
520269	2	Platform Angle Redundancy Error
520276	13	Platform Up Input Initial Error
520277	13	Platform Down Input Initial Error
520278	13	Steer Left Input Initial Error
520279	13	Steer Right Input Initial Error
520280	13	Telescope In Initial Error
520281	13	Telescope Out Initial Error
520283	13	Drive Joystick Enable Input Initial Error
520286	13	Engine Start Input Initial Error
520287	13	Chassis Level Right Input Initial Error (Platform)
520288	13	Chassis Level Left Input Initial Error (Platform)
520289	13	Emergency Pump Input Initial Error
520290	13	Deadman Input Initial Error
520291	13	Boom Up Input Initial Error
520292	13	Boom Down Input Initial Error
520293	13	Telescope Out Input Initial Error
520294	13	Telescope In Input Initial Error
520295	13	Jib Up Input Initial Error
520296	13	Jib Down Input Initial Error
520297	13	Platform Left Input Initial Error
520298	13	Platform Right Input Initial Error
520299	13	Chassis Reduce throttle Input Initial Error
520300	13	Chassis Increase throttle Input Initial Error
520302	13	Emergency Pump Input Initial Error
520303	13	Engine Start Input Initial Error
520304	13	Jib Swing L SW Initial Error (PL)
520305	13	Jib Swing R SW Initial Error (PL)
520306	13	Chassis Level Right Input Initial Error (Ground)
520307	13	Chassis Level Left Input Initial Error (Ground)
520308	13	Turret Swing Left Input Initial Error
520309	13	Turret Swing Right Input Initial Error
520311	13	Platform Lvl Up Input Initial Error
520312	13	Platform Lvl Dn Input Initial Error
520313	13	Chassis Riser Up Input Initial Error

Alarm Codes		
SPN	FMI	Description
520314	13	Chassis Riser Down Input Initial Error
520315	9	PVG1 Timeout
520316	9	PVG2 Timeout
520317	9	PVG3 Timeout
520318	9	PVG4 Timeout
520319	9	PVG5 Timeout
520320	9	PVG6 Timeout
520321	9	PVG7 Timeout
520322	9	PVG8 Timeout
520323	13	Left Axle Lock Power On Feed Back Error
520323	11	Left Axle Lock Power Off Feed Back Error
520323	0	Float Axis Current Sensor Error
520324	13	Right Axle Lock Power On Feed Back Error
520324	11	Right Axle Lock Power Off Feed Back Error
520325	11	Turntable Proximity Switch Error
520326	11	Turret Module System Alarm
520327	0	Bypass On
520328	11	Platform Module System Alarm
520329	0	Select Correct Machine Model
520330	0	Engine Cover Open
520331	4	Load Cell 2 Open Circuit
520331	3	Load Cell 2 Short Circuit
520332	13	Platform Horn Switch Initial Error
520334	13	PVG CANopen Valve Internal Error
520335	13	PVG CANopen Valve Internal Error
520336	13	PVG CANopen Valve Internal Error
520337	9	PVG1 CANopen Timeout
520338	9	PVG2 CANopen Timeout
520339	9	PVG3 CANopen Timeout
520340	9	PVG4 CANopen Timeout
520341	9	PVG5 CANopen Timeout
520342	9	PVG6 CANopen Timeout
520343	9	PVG7 CANopen Timeout
520344	9	PVG8 CANopen Timeout
520347	2	Turntable Tilt Angle Redundancy Error
520347	9	Turntable Angle Sensor Y1 Timeout
520347	10	Turntable Angle Sensor Y2 Timeout
520348	3	Turntable tilt angle Y1 Short Circuit
520348	4	Turntable tilt angle Y1 Open Circuit
520348	5	Turntable tilt angle Y2 Short Circuit
520348	6	Turntable tilt angle Y2 Open Circuit
520349	13	Ground Control Enable Switch Error
520350	9	LoadCell1 Timeout

Alarm Codes		
SPN	FMI	Description
520351	9	LoadCell2 Timeout
520352	9	Riser Angle2 Timeout
520352	16	RaiseBoom Angle Dynamic Check Error
520352	17	RaiseBoom Angle Zero Set Out Range
520352	18	RaiseBoom Angle Static Check Error
520353	9	Boom Angle Timeout
520353	10	Boom Angle Dynamic Check Error
520353	11	Boom Angle Zero Set Range Error
520353	12	Boom Angle Static Check
520354	9	Boom Length Timeout
520354	11	Boom Length Zero Set Out of Range
520354	10	Boom Length Dynamic Check Error
520356	9	Jib Angle1 Timeout
520357	9	Jib Angle2 Timeout
520358	9	Riser Angle1 Timeout
520358	2	Riser Angle Redundancy Error
520358	17	Riser Angle Zero Set Out of Range
520359	9	Chassis Tilt X1 Timeout
520359	11	Chassis Tilt Angle X Zero Set Out of Range
520360	9	Chassis Tilt X2 Timeout
520361	11	Chassis Tilt Angle Y Zero Set Out of Range
520366	0	Jib Swing Sensor Timeout
520367	5	Jib Swing Angle Open Circuit
520367	6	Jib Swing Angle Short Circuit
520450	0	Override Functions
520450	1	Override Function Active
520450	2	Override Function Not Allowed
520451	13	PVG CANopen Valve Internal Error
520452	13	PVG CANopen Valve Internal Error
520453	13	PVG CANopen Valve Internal Error
520460	13	Basket Rotation Joystick Initial Error
520461	13	Boom Up/Dn Joystick Initial Error
520462	13	Swing Joystick Initial Error
520463	13	Jib Up/Dn Joystick Initial Error
520482	0	
520483	13	Platform Turntable Force Travel Button Initial Error
520485	13	Boom Joystick Enable Button Initial Error
520486	13	Jib Joystick Enable Button Initial Error
520487	1	Alternator Error
520489	1	Engine Module Alarm
520491	1	PPSS Sensor Left Error
520491	2	PPSS Sensor Right Error
520528	5	Drive High-Speed Valve Open Circuit

Alarm Codes		
SPN	FMI	Description
520528	6	Drive High-Speed Valve Short Circuit
520529	5	Chassis Level Prop Valve Open Circuit
520529	6	Chassis Level Prop Valve Short Circuit
520530	5	Chassis Level Direction Valve Open Circuit
520530	6	Chassis Level Direction Valve Short Circuit
520543	11	Turret Module System Alarm
520564	9	Front Wheel Sensor Error
520565	9	Rear Wheel Sensor Error
520570	5	Front Axle Angle Sensor 1 Open Circuit
520570	6	Front Axle Angle Sensor 1 Short Circuit
520570	9	Front Axle Angle Sensor 1 Timeout
520570	2	Front Axle Angle Sensor Redundant Error
520571	5	Front Axle Angle Sensor 2 Open Circuit
520571	6	Front Axle Angle Sensor 2 Short Circuit
520571	9	Front Axle Angle Sensor 2 Timeout
520572	5	Rear Axle Angle Sensor 1 Open Circuit
520572	6	Rear Axle Angle Sensor 1 Short Circuit
520572	9	Rear Axle Angle Sensor 1 Timeout
520572	2	Rear Axle Angle Sensor Redundant Error
520573	5	Rear Axle Angle Sensor 2 Open Circuit
520573	6	Rear Axle Angle Sensor 2 Short Circuit
520573	9	Front Axle Angle Sensor 2 Timeout
520605	20	Display Application Version Wrong
520607	15	Engine Power Control Open Circuit
520607	17	Engine Power Control Short Circuit
520612	4	Fuel Level Sensor Open Circuit
520612	3	Fuel Level Sensor Short Circuit
520613	4	Hydraulic Temperature Sensor Open Circuit
520613	3	Hydraulic Temperature Sensor Short Circuit
520638	5	Overload Light Open Circuit
520638	6	Overload Light Short Circuit
520667	1	Telescopic to Articulated Limit Action
520668	1	Articulate/Telescope Selection Limit Action
521296	0	Chassis Module CAN-Bus Time Out
520821	1	PVG Error, Back to Neutral Position No1
520821	2	PVG Error, Back to Neutral Position No2
520821	3	PVG Error, Back to Neutral Position No3
520821	4	PVG Error, Back to Neutral Position No4
520821	5	PVG Error, Back to Neutral Position No5
520821	6	PVG Error, Back to Neutral Position No6
520821	7	PVG Error, Back to Neutral Position No7
520821	8	PVG Error, Back to Neutral Position No8

Engine Code		
SPN	FMI	Description
172	4	Intake air temp. error: Low Ground short circuit of sensor or harness - Battery voltage is normal Voltage of intake air temperature sensor is 0.2 V or less
172	3	Intake air temp. error: High Open circuit or +B short circuit of sensor or harness - Battery voltage is normal Voltage of intake air temperature sensor is 4.95 V or above
102	4	Boost pressure sensor: Low Ground short circuit of sensor or harness Failure of sensor - Battery voltage is normal - Sensor supply voltage VCC# is normal Voltage of boost pressure sensor is 0.2 V or below
102	3	Boost pressure sensor: High Open circuit or +B short circuit of sensor or harness Failure of sensor - Battery voltage is normal - Sensor supply voltage VCC# is normal Voltage of boost pressure sensor is 4.9 V or above
723	8	No input of G sensor (Camshaft position sensor) pulse Open circuit or short circuit of sensor or harness Failure of sensor - Battery voltage is normal - Sensor supply voltage VCC# is normal - Engine is not stalled No recognition of G sensor pulse
723	2	G-sensor (Camshaft position sensor) pulse number error Open circuit or short circuit of sensor or harness Failure of sensor - Battery voltage is normal - Sensor supply voltage VCC# is normal - Engine is not stalled - Engine speed is 350 rpm or higher Pulse count per rotation is not 3 teeth
676	5	Open circuit of glow relay driving circuit Open circuit of air glow relay - Battery voltage is normal - Glow relay is being energized Open circuit of harness or Open circuit of relay coil
523544	4	Ground short of glow relay driving circuit - Battery voltage is normal - Glow relay is being energized Ground short circuit of harness
523538	2	QR data read error - Key switch is ON QR data read error from EEPROM
523538	7	QR data is unwritten - Key switch is ON Area of QR data on EEPROM is vacant
676	0	Glow heater relay driving circuit overheat Overheat of glow plug driving circuit - Battery voltage is normal - Glow relay is being energized Glow relay coil resistance or load is too high that the specified value of ECU

Engine Code		
SPN	FMI	Description
1485	2	Failure of main relay - Key switch turn OFF - Engine stops Main relay stays active longer than 1 sec without command
677	4	Ground short of Starter relay driving circuit - Battery voltage is normal Ground short circuit of harness
108	4	Barometric pressure sensor error (Low side) Sensor or ECU internal circuit short to ground - Battery voltage is normal Barometric pressure sensor voltage: 0.2 V or less
108	3	Barometric pressure sensor error (High side) Sensor or ECU internal circuit short to +B - Battery voltage is normal Barometric pressure sensor voltage: 4.850 V or more
171	4	Intake air temp. built-in MAF sensor: Low Ground short circuit of sensor or harness - Battery voltage is normal Intake air temp. built-in MAF sensor voltage: 0.2 V or less
171	3	Intake air temp. built-in MAF sensor: High Open circuit or +B short circuit of sensor or harness - Battery voltage is normal Intake air temp. built-in MAF sensor voltage: 4.850 V or more
523700	13	KBT-EEPROM check sum error - Battery voltage is normal
523589	17	Low coolant temp. in parked regeneration During regeneration mode, Engine warm-up condition is not satisfied (coolant temp. is low) - During parked active regeneration mode Engine coolant temp. stays below 50 degC (122 degF) for 1500 seconds or more under parked regeneration process
523590	16	Parked regeneration time out Time out error: regeneration incomplete due to low temperature of DPF - During parked active regeneration mode - Coolant temp. is 50 degC (122 degF) or more Regeneration process is not completed within 2700 sec
523603	15	Over heat pre-caution Coolant temp. - Coolant temp. sensor is normal Engine coolant temperature >= 110 degC (230 degF)
523591	2	CAN CCVS (Parking SW and Vehicle speed) frame error CAN_CCVS communication stopping - Battery voltage is normal - Starter switch signal is not activated CAN CCVS frame time out error
523592	2	CAN_CM1 communication stopping - Battery voltage is normal - Starter switch signal is not activated CAN CM1 frame time out error
523593	2	CAN_DDC1 communication stopping - Battery voltage is normal - Starter switch signal is not activated CAN DDC1 frame time out error
523594	2	CAN_ETC2 communication stopping - Battery voltage is normal - Starter switch signal is not activated CAN ETC2 frame time out error
523595	2	CAN_ETC5 communication stopping - Battery voltage is normal - Starter switch signal is not activated CAN ETC5 frame time out error

Engine Code		
SPN	FMI	Description
523596	2	CAN_TSC1 communication stopping - Battery voltage is normal - Starter switch signal is not activated No request to "TSC1 buffer" continues 3 times after over-ride control request (other than 0x00)
523598	2	CAN_EBC1 communication stopping - Battery voltage is normal - Starter switch signal is not activated CAN EBC1 frame time out error
636	7	Large phase shift between NE pulse and G pulse - Battery voltage is normal - Sensor supply voltage VCC# is normal - NE signal is normal - G signal is normal - Engine speed is 350 rpm or higher - Coolant temperature is 10 degC (50 degF) or higher (Approximately) Phase difference between NE pulse and G pulse is within +30 and - 20 degree
157	0	Actual pressure exceeds the command pressure - Rail pressure sensor is normal - Sensor supply voltage VCC# is normal Actual pressure > 179 MPa (1830 kgf/cm ² , 26000 psi)
110	4	Ground short circuit of sensor or harness - Battery voltage is normal Voltage of coolant temperature sensor is 0.176 V or less
110	3	Open circuit or +B short circuit of sensor or harness - Battery voltage is normal Voltage of coolant temperature sensor is 4.870 V or above
636	8	Open circuit or short circuit of sensor or harness Failure of sensor - Battery voltage is normal - Sensor supply voltage VCC# is normal - Engine is not stalled No recognition of Ne sensor pulse
636	2	Open circuit or short circuit of sensor or harness Failure of sensor - Battery voltage is normal - Sensor supply voltage VCC# is normal - Engine is not stalled Pulse count per rotation is not 58 teeth
523544	3	+B short of glow relay driving circuit - Battery voltage is normal - Glow relay is being energized +B short circuit of harness
168	4	Open circuit, short circuit or damage of harness Failure of battery - Key switch is ON - Starter switch signal is not activated ECU recognition of battery voltage is below 8 V Not monitored during cranking
168	3	Open circuit, short circuit or damage of harness Failure of battery - Key switch is ON - Starter Switch signal is not activated ECU recognition of battery voltage is above 16 V

Engine Code		
SPN	FMI	Description
1347	3	+B short circuit of SCV (MPROP) - Battery voltage is normal - Key switch is ON - Starter switch signal is not activated +B short circuit of SCV
3510	4	Sensor supply voltage 2 error or recognition error - Battery voltage is normal - Key switch turn ON - Starter switch signal is not activated Voltage to sensor is below 4.75 V
3510	3	Sensor supply voltage 2 error or recognition error - Battery voltage is normal - Key switch turn ON Voltage to sensor is more than 5.25 V
3511	4	Sensor supply voltage 3 error or recognition error - Battery voltage is normal - Key switch turn ON - Starter switch signal is not activated Voltage to sensor is below 4.75 V
3511	3	Sensor supply voltage 3 error or recognition error - Battery voltage is normal - Key switch turn ON Voltage to sensor is more than 5.25 V
91	4	Ground short circuit or open circuit of sensor or harness - Battery voltage is normal - Sensor supply voltage VCC1 is normal Voltage of accelerator position sensor 1 is 0.3 V or less
91	3	Battery short circuit out of sensor or harness - Battery voltage is normal - Sensor supply voltage VCC1 is normal Voltage of accelerator position sensor 1 is 4.8 V or less
29	4	Ground short circuit or open circuit of sensor or harness - Battery voltage is normal - Sensor supply voltage VCC1 is normal Voltage of accelerator position sensor 2 is 0.3 V or less
29	3	Battery short circuit out of sensor or harness - Battery voltage is normal - Sensor supply voltage VCC1 is normal Voltage of accelerator position sensor 2 is 4.8 V or less
523543	2	Accelerator position sensor signal error (sensor or harness open circuit, ground short circuit etc.) - Battery voltage is normal - Key switch turn ON - Starter switch signal is not activated Accelerator position sensor error signal received by CAN
132	1	Engine inlet air mass flow rate lacking (Disconnect turbo blower intake hose) - Engine is operating 1000 rpm or higher - Coolant temp. is 15 degC (59 degF) or higher (Coolant temp. sensor is normal) - MAF sensor is normal - EGR valve is normal - Intake throttle valve is normal - Battery voltage is normal Engine Inlet Air Mass Flow Rate: less than half of target value

Engine Code		
SPN	FMI	Description
523574	3	EGR actuator open circuit - Battery voltage is normal EGR actuator open error signal received via CAN
523574	4	EGR actuator coil short - Battery voltage is normal EGR actuator coil short error signal received via CAN
523572	4	EGR position sensor failure - Battery voltage is normal EGR position sensor error signal received via CAN
3242	4	Ground short circuit of sensor or harness - Battery voltage is normal DPF inlet temp. sensor (T1) voltage: 0.08 V or less
3242	3	Open circuit or +B short circuit of sensor or harness - Battery voltage is normal - Coolant temp. is 50 degC (122 degF) or more continues longer than 10 min after engine starting - 100 degC (212 degF) ≤ T0 ≤ 800 degC (1472 degF): continues longer than 10 sec or 100 degC (212 degF) ≤ T2 ≤ 800 degC (1472 degF): continues longer than 10 sec DPF inlet temp. sensor (T1) voltage: 4.92 V or more
4765	4	Ground short circuit of sensor or harness - Battery voltage is normal DOC inlet temp. sensor (T0) voltage: 0.08 V or less
4765	3	Open circuit or +B short circuit of sensor or harness - Battery voltage is normal - Coolant temp. is 50 degC (122 degF) or more continues longer than 5 min after engine starting - 100 degC (212 degF) ≤ T1 ≤ 800 degC (1472 degF): continues longer than 10 sec or 100 deg C (212 degF) ≤ T2 ≤ 800 degC (1472 degF): continues longer than 10 sec DOC inlet temp. sensor (T0) voltage: 4.92 V or more
523580	2	Intake throttle feedback error - Battery voltage is normal (Approximate parameter) Deviation of throttle position is not corrected in 20 times of duty error recovery action
91	2	Deviation from designed correlation in two sensors - Battery voltage is normal - Accelerator position sensor 1 is normal - Accelerator position sensor 2 is normal Deviation from designed correlation in two sensors
523575	7	EGR actuator valve stuck - Battery voltage is normal EGR actuator valve stuck error signal received via CAN
523576	2	EGR (DC motor) overheat - Battery voltage is normal EGR (DC motor) temp. error signal (thermistor: 125 degC or more)
523577	2	EGR (DC motor) temp. sensor failure - Battery voltage is normal EGR (DC motor) temp. sensor error signal received via CAN
3246	4	Ground short circuit of sensor or harness - Battery voltage is normal DPF outlet temp. sensor (T2) voltage: 0.08 V or less

Engine Code		
SPN	FMI	Description
3246	3	Open circuit or +B short circuit of sensor or harness - Battery voltage is normal - Coolant temp. is 50 degC (122 degF) or more: continues longer than 10 min after engine starting - 100 degC (212 degF) ≤ T0 ≤ 800 degC (1472 degF): continues longer than 10 sec or 100 degC (212 degF) ≤ T1 ≤ 800 degC (1472 degF): continues longer than 10 sec DPF outlet temp. sensor (T2) voltage: 4.92 V or more
3251	4	Ground short circuit of sensor or harness - Battery voltage is normal - Sensor supply voltage VCC# is normal - Starter Switch signal is not activated DPF differential pressure sensor voltage: 0.2 V or less
3251	3	Open circuit or +B short circuit of sensor or harness - Battery voltage is normal - Sensor supply voltage VCC# is normal - Starter switch signal is not activated DPF differential pressure sensor voltage: 4.800 V or more
523582	4	Intake throttle lift sensor: Low - Battery voltage is normal - Sensor supply voltage VCC# is normal Intake throttle lift sensor voltage: 0.151 V or less
523582	3	Intake throttle lift sensor: High - Battery voltage is normal - Sensor supply voltage VCC# is normal Intake throttle lift sensor voltage: 4.848 V or more
3701	15	PM accumulation level 3 - Battery voltage is normal PM accumulation more than trigger level Regeneration level = 3
3701	16	PM accumulation level 4 - Battery voltage is normal PM accumulation more than trigger level Regeneration level = 4
132	15	Disconnect the hose between the turbo blower out and intake flange Boost pressure sensor error - Other than during regeneration mode - Engine speed is 1600 rpm or more - MAF sensor is normal - EGR valve is normal - Intake throttle valve is normal - Boost pressure sensor is normal - Barometric pressure sensor is normal - Coolant temp. sensor is normal Boost pressure sensor output is below target level in high air flow operating condition
523599	0	All exhaust temp. sensor failure simultaneously - Engine speed is 1400 rpm or more - Quantity of injection is 15mm ³ /st or more - Coolant temp. is 50 degC (122 degF) or more: continues longer than 300 sec - Passed 100 sec after cranking All exhaust temp. sensor failure (sensor low) simultaneously
523602	0	Time interval from the end time to the start time of the regeneration - Battery voltage is normal - Key switch is ON Regeneration time interval within 30 min. occurs three times continuously

Engine Code		
SPN	FMI	Description
523578	2	No communication with EGR - Battery voltage is normal - Starter switch signal is not activated Interruption of CAN
633	7	Pressure limiter emergency open - Sensor supply voltage VCC# is normal Pressure limiter emergency open Engine speed is more than 10 rpm
1347	7	SCV stuck at open position (Actual rail pressure continuously exceeds the command rail pressure) - Engine is operating (Q: 3 mm ³ /st or higher) - Injector is normal - Battery voltage is normal - Sensor supply voltage VCC# is normal - Rail pressure sensor is normal Discharge request of supply pump goes below -1800 mm ³ /st and the actual rail pressure is 20 MPa (200 kgf/cm ² , 2900 psi) higher than command pressure
1239	1	Fuel leak from high pressured fuel system (Fuel consumption is calculated from the difference of fuel pressure of before and after the injection, and the error will be detected when excess fuel consumption is found) - Battery voltage is normal - Sensor supply voltage VCC# is normal - Rail pressure sensor is normal - Supply pump (SCV) is normal - Injector and injector drive circuit are normal - NE signal is active [Engine is operating (700 rpm or higher)] - No DTC of P0087, 0088, 0089 Pump supplies fuel fully The deviation between actual rail pressure and desired one is more than 20 MPa (200 kgf/cm ² , 2900 psi)
157	4	Ground short circuit of sensor or harness Failure of sensor - Battery voltage is normal - Sensor supply voltage VCC# is normal Voltage of rail pressure sensor is 0.065 V or less
157	3	Open circuit or +B short circuit of sensor or harness Failure of sensor - Battery voltage is normal - Sensor supply voltage VCC# is normal Voltage of rail pressure sensor is 3.235 V or above
523535	0	Injector charge voltage: High - Battery voltage is normal - CPU is normal Injector charge voltage: High
651	3	Open circuit of harness Open circuit of injector coil - Engine is operating - Battery voltage is normal - During injection - CPU is normal
653	3	Open circuit of harness Open circuit of injector coil - Engine is operating - Battery voltage is normal - During injection - CPU is normal

Engine Code		
SPN	FMI	Description
654	3	Open circuit of harness Open circuit of injector coil - Engine is operating - Battery voltage is normal - During injection - CPU is normal
652	3	Open circuit of harness Open circuit of injector coil - Engine is operating - Battery voltage is normal - During injection - CPU is normal
110	0	Overheat of engine coolant temperature - Coolant temperature sensor is normal Engine coolant temperature >= 120 degC (248 degF)
190	0	Engine speed exceeds threshold speed - Key switch is ON Engine speed >= 3500 rpm
100	1	Oil pressure switch - Battery voltage is normal - Key switch turn ON - Starter switch signal is not activated - 10 sec or more after engine start [700 rpm or higher] Oil pressure switch ON: continues 1 sec or more
628	2	FLASH ROM error - Key switch is ON Check-sum error
1077	2	Failure of CPU and/or IC - Key switch is ON - Battery voltage is 10 V or more - Starter switch signal is not activated CPU and/or IC fatal error
523527	2	Failure of monitoring IC of CPU - Key switch is ON - Battery voltage is 10 V or more - Starter switch signal is not activated Failure of monitoring IC of CPU
523525	1	Injector charge voltage: Low Failure of charge circuit of ECU - Battery voltage is normal - CPU is normal Injector charge voltage: Low Failure of charge circuit of ECU
1347	5	Open circuit of SCV (MPROP) - Battery voltage is normal - Key switch is ON - Starter Switch signal is not activated
1347	4	Ground short circuit of SCV(MPROP) - Battery voltage is normal - Key switch is ON - Starter Switch signal is not activated
1077	12	Injector drive IC error or Open circuit of No.1 & 4 cylinder injector or Open circuit of No.2 & 3 cylinder injector - Key switch is ON - Battery voltage is 10 V or more - Starter switch signal is not activated

Engine Code		
SPN	FMI	Description
523605	6	Short circuit in Injector driver IC - Battery voltage is normal - Key switch is ON Injector IC report the error
3509	4	Sensor supply voltage 1 error or recognition error - Battery voltage is normal - Key switch turn ON - Starter switch signal is not activated Voltage to sensor is below 4.75 V
3509	3	Sensor supply voltage 1 error or recognition error - Battery voltage is normal - Key switch turn ON Voltage to sensor is more than 5.25 V
523523	3	Wiring harness short to +B or Wiring harness short to ground - Engine is operating - Battery voltage is normal
523524	3	Wiring harness short to +B or Wiring harness short to ground - Engine is operating - Battery voltage is normal
679	7	Rail pressure value is sticking or too low engine power not to open PL valve forcibility - Battery voltage is normal - Key switch is ON - after DTC0088, P0089 After fault opening PLV, rail pressure is above 160 MPa (1630 kg/cm ² , 23200 psi)
679	16	Rail pressure value is too high or low despite the existence of response that the pressure limiter opened - Battery voltage is normal - Key switch is ON Pressure limiter open (the opening response is detected) Rail pressure value is not within 50 MPa (510 kg/cm ² , 7250 psi) and 120 Mpa (1230 kg/cm ² , 17400 psi)
523547	2	CAN2 +B or GND short circuit or high traffic error - Battery voltage is normal - Key switch is ON
523604	2	CAN1 +B or GND short circuit or high traffic error - Battery voltage is normal - Key switch is ON
523548	2	CAN-KBT original frame open circuit error - Battery voltage is normal - Key switch turn OFF to ON - Starter switch signal is not activated
132	4	Open circuit or ground short circuit of sensor or harness - Battery voltage is normal - Starter switch signal is not activated - Sensor supply voltage is normal Mass air flow sensor voltage: 0.1 V or less
132	3	+B short circuit of sensor or harness - Battery voltage is normal - 800 rpm ≤ engine speed ≤ 3000 rpm - Target intake mass air flow is 350 or less and it continues for 3 sec - Sensor supply voltage is normal Mass air flow sensor voltage: 4.9 V or more at normal operation condition

Engine Code		
SPN	FMI	Description
3252	0	DOC is heated up due to unburned fuel - Other than during regeneration mode - Coolant temp. is 50 degC (122 degF) or more continues longer than 5 min after engine starting T1 - T0 ≥ 250 degC (482 degF)
4765	0	DOC inlet temp. (T0): High - Exhaust gas temp. sensor T0, T1 and T2 are normal - Battery voltage is normal DOC inlet temp. (T0) : 700 degC (1292 degF) or more (In Non-Turbo Engine's case, 730 degC (1346 degF) or more)
3242	0	DPF inlet temp. (T1): High - Exhaust gas temp. sensor T0, T1 and T2 are normal - Battery voltage is normal DPF inlet temp. (T1): 715 degC (1319 degF) or more
3246	0	DPF outlet temp. (T2): High - Exhaust gas temp. sensor T0, T1 and T2 are normal - Battery voltage is normal DPF outlet temp. (T2): 820 degC (1508 degF) or more
3701	0	PM accumulation level 5 - Battery voltage is normal PM accumulation more than trigger level Regeneration level = 5
523601	0	Exhaust gas temperature sensor 0, 1, 2 output - Battery voltage is normal All exhaust temp. (T0,T1,T2) reduces down to 300 degC (572 degF)

Hydraulic Schematic

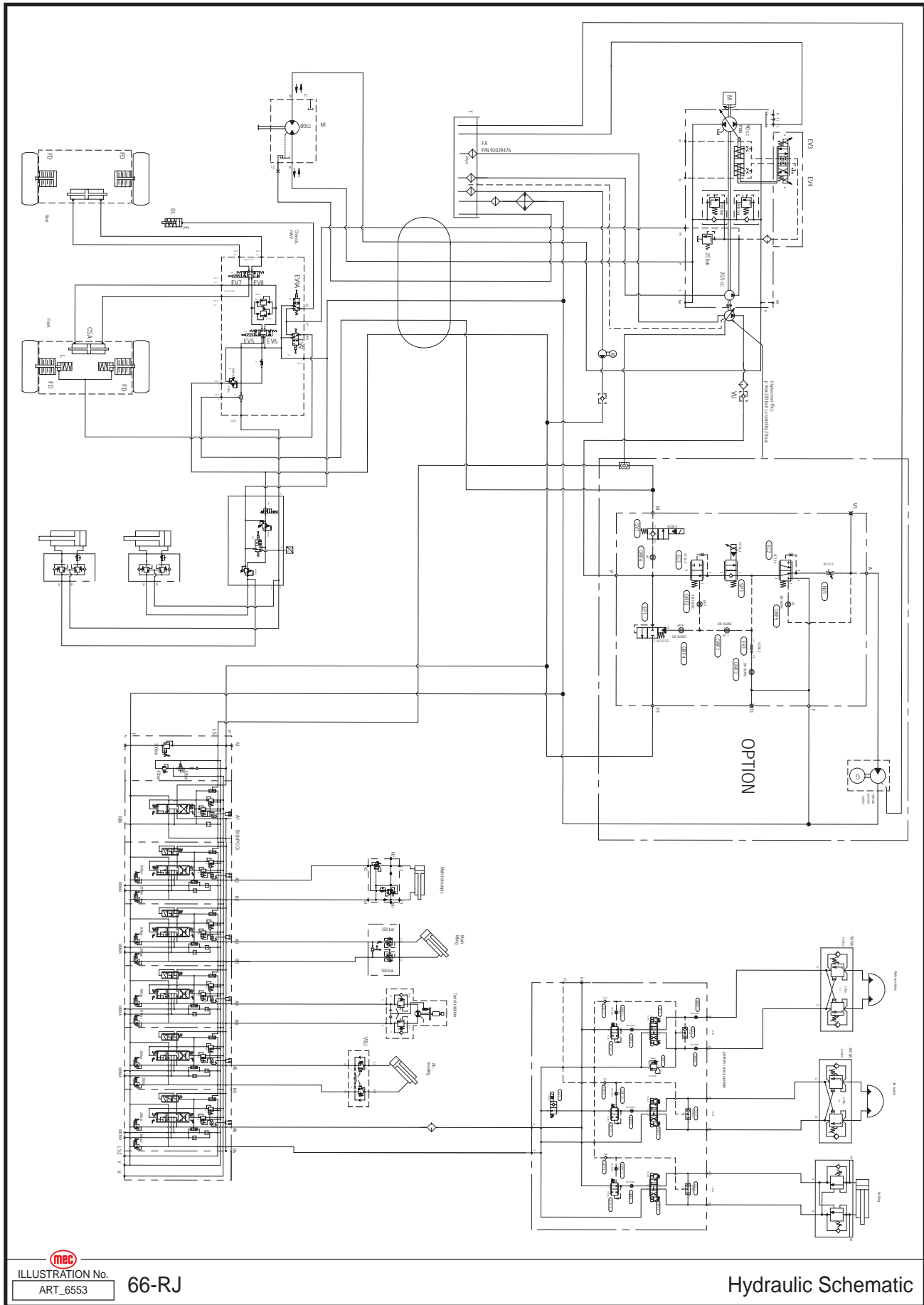
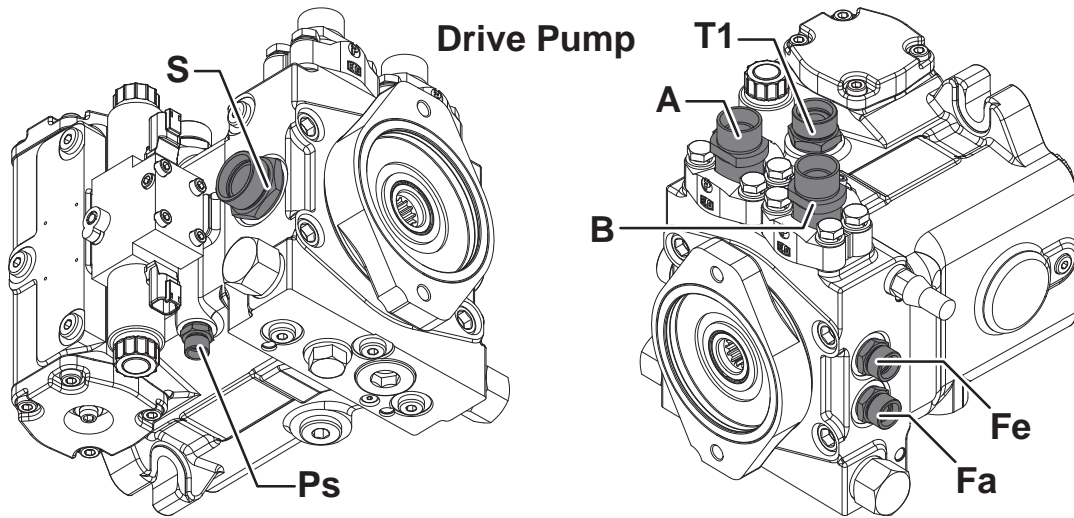


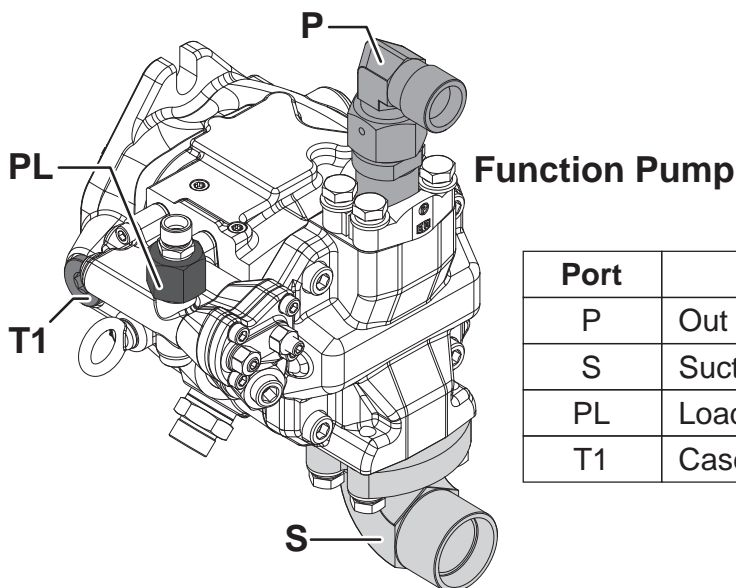

ILLUSTRATION No. 66-RJ
ART_6553

Hydraulic Schematic

Pump Ports

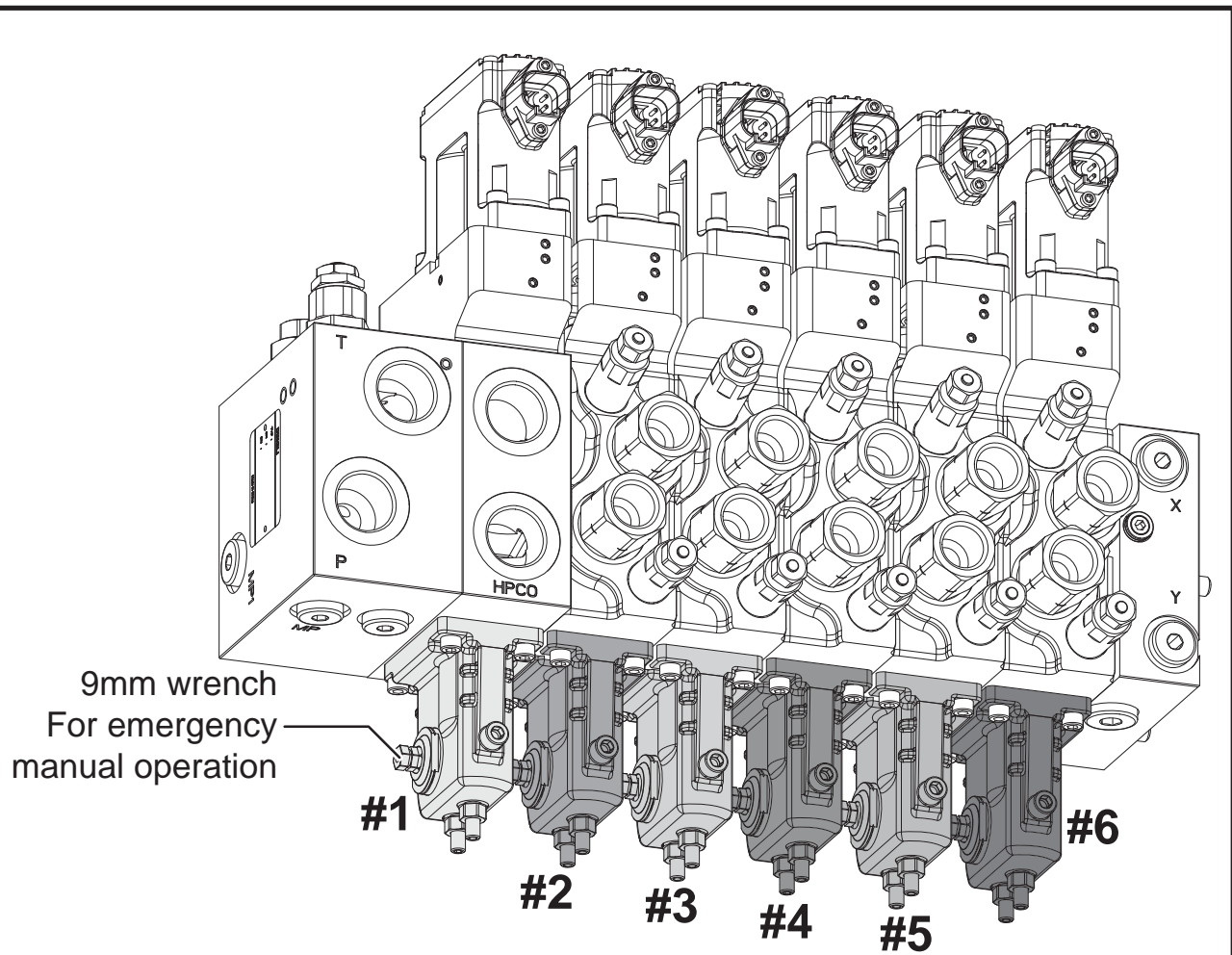


Port	Description
A	Port A
B	Port B
T1	Case Drain
Fa	From High Pressure Charge Filter Outlet
Fe	To High Pressure Charge Filter Inlet
S	Suction Port
Ps	Load Sense



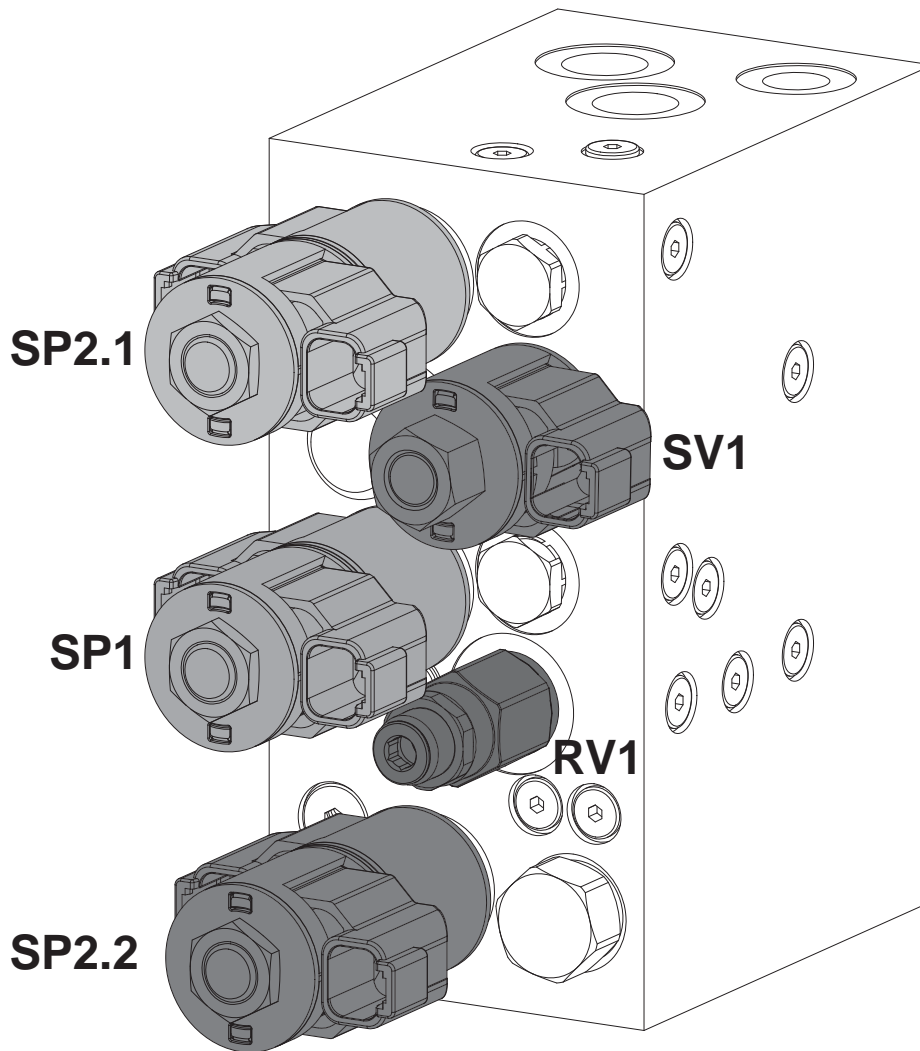
Port	Description
P	Out to High Pressure Hydraulic Filter
S	Suction from Hydraulic Tank
PL	Load Sense Control
T1	Case Drain

PVG Block Ports



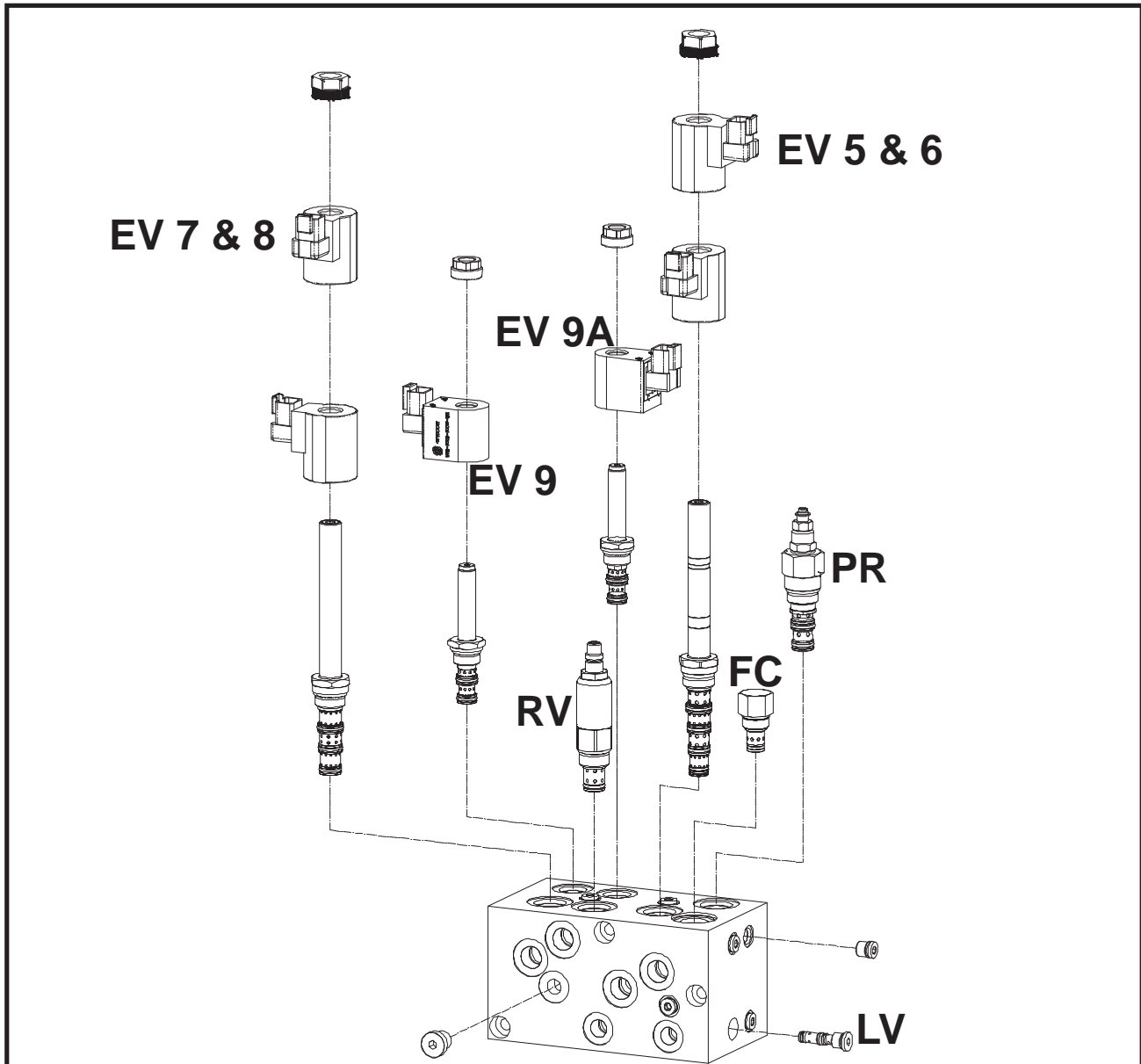
Number	Function
#1	Function Enable Valve
#2	Main Boom Extend/Retract
#3	Main Boom Lift/Lower
#4	Turret Rotation
#5	Jib Leveling
#6	To Platform Valve Block

Platform Valve Block Ports



Number	Function
SP1	Platform Rotation
RV1	Relief Valve, 140bar
SP2.1	Jib Rotation
SP2.2	Jib Lift/Lower
SV1	Unload valve

Chassis Manifold Ports



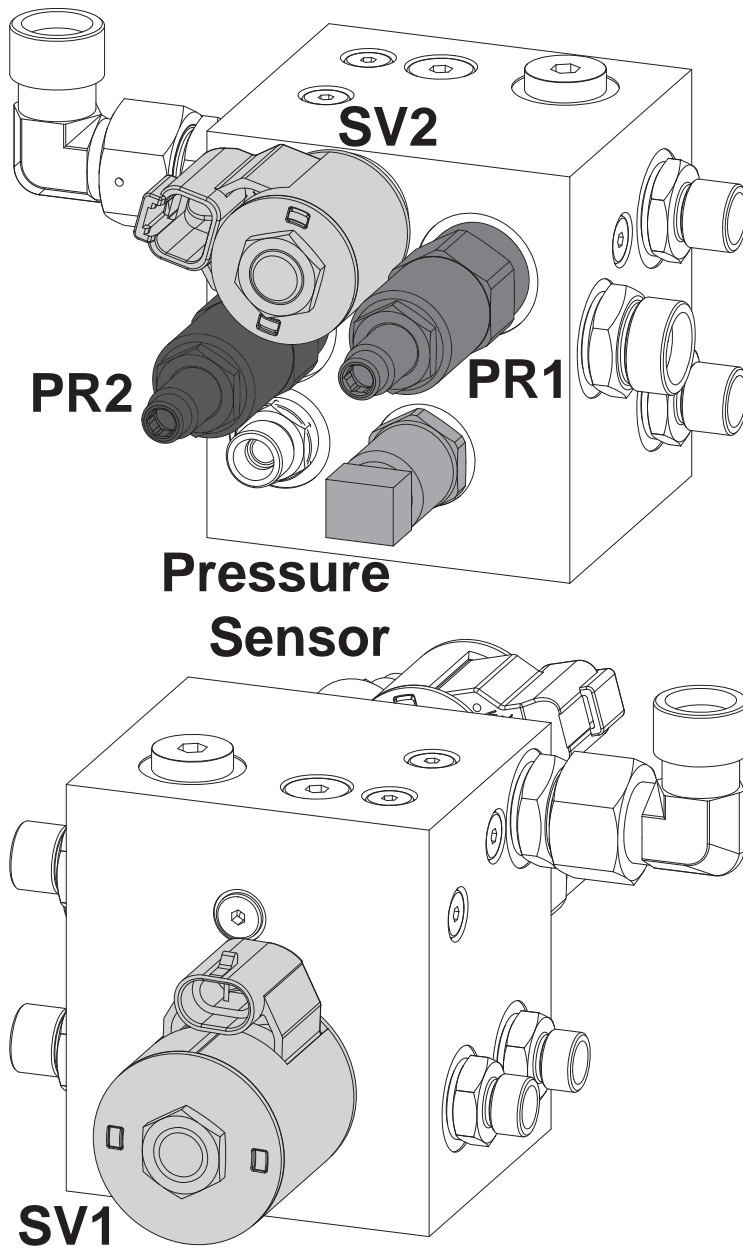
Number	Function
EV 5 & 6	Left/Right Steering
EV 7 & 8	4-Wheel Steer / Crab Steer
EV 9	Brake Release
EV 9A	Differential Lock
PR	Pressure Reducing Valve
FC	Flow Control Valve
RV	Relief Valve, 180 Bar
LV	Shuttle Valve

ILLUSTRATION No. **66-RJ**
 ART_6568

Chassis Manifold



Oscillate Valve Block Ports



Number	Function
SV1	Oscillate Valve 1
SV2	Oscillate Valve 2
PR1	Pressure Reducing Valve 1
PR2	Pressure Reducing Valve 2

Electrical Schematic, Lower Controls

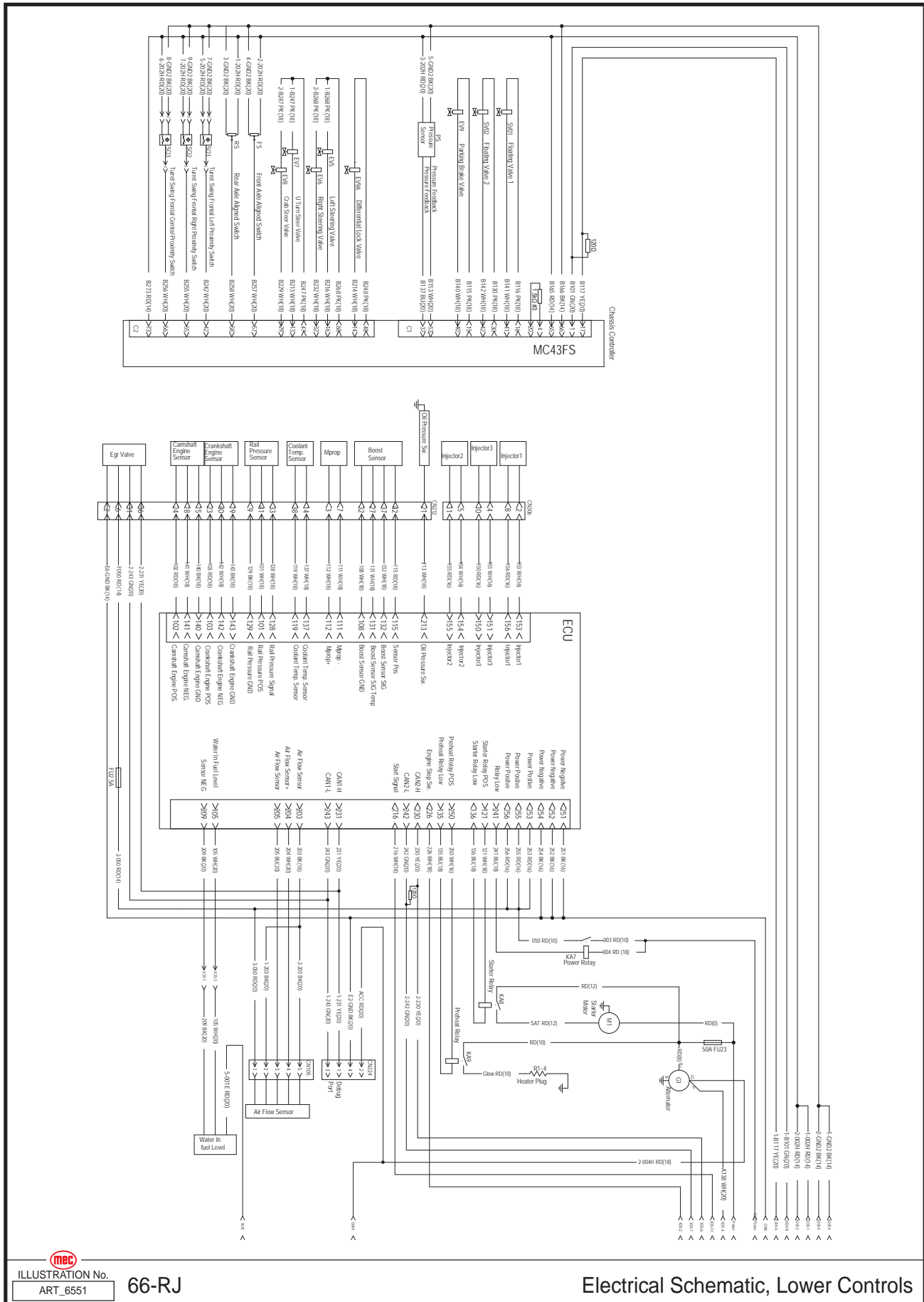


ILLUSTRATION No. **66-RJ**
ART_6551

Electrical Schematic, Lower Controls



Electrical Schematic, Chassis

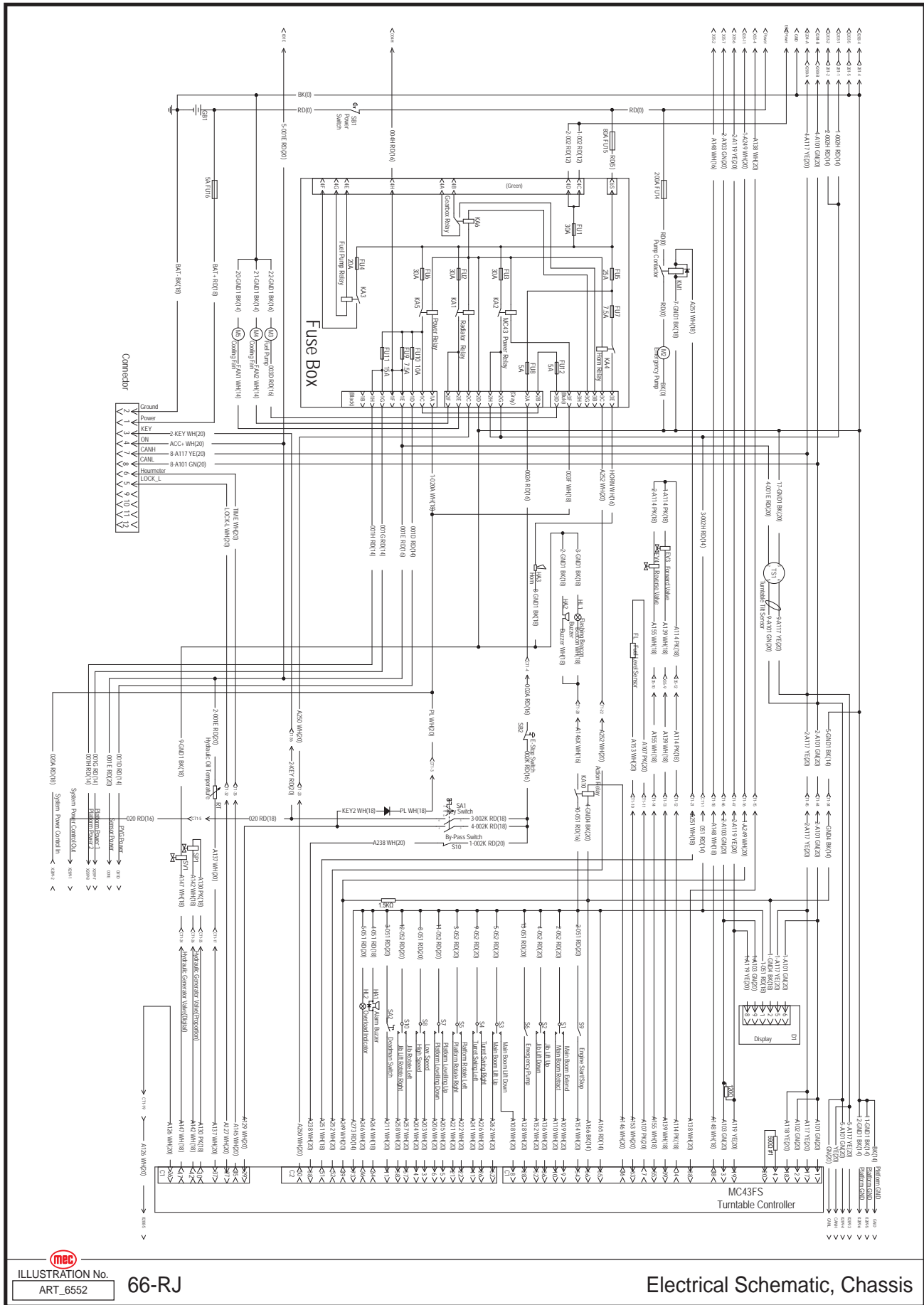


ILLUSTRATION No. **66-RJ**
ART_6552

Electrical Schematic, Chassis



Electrical Schematic, Upper Controls

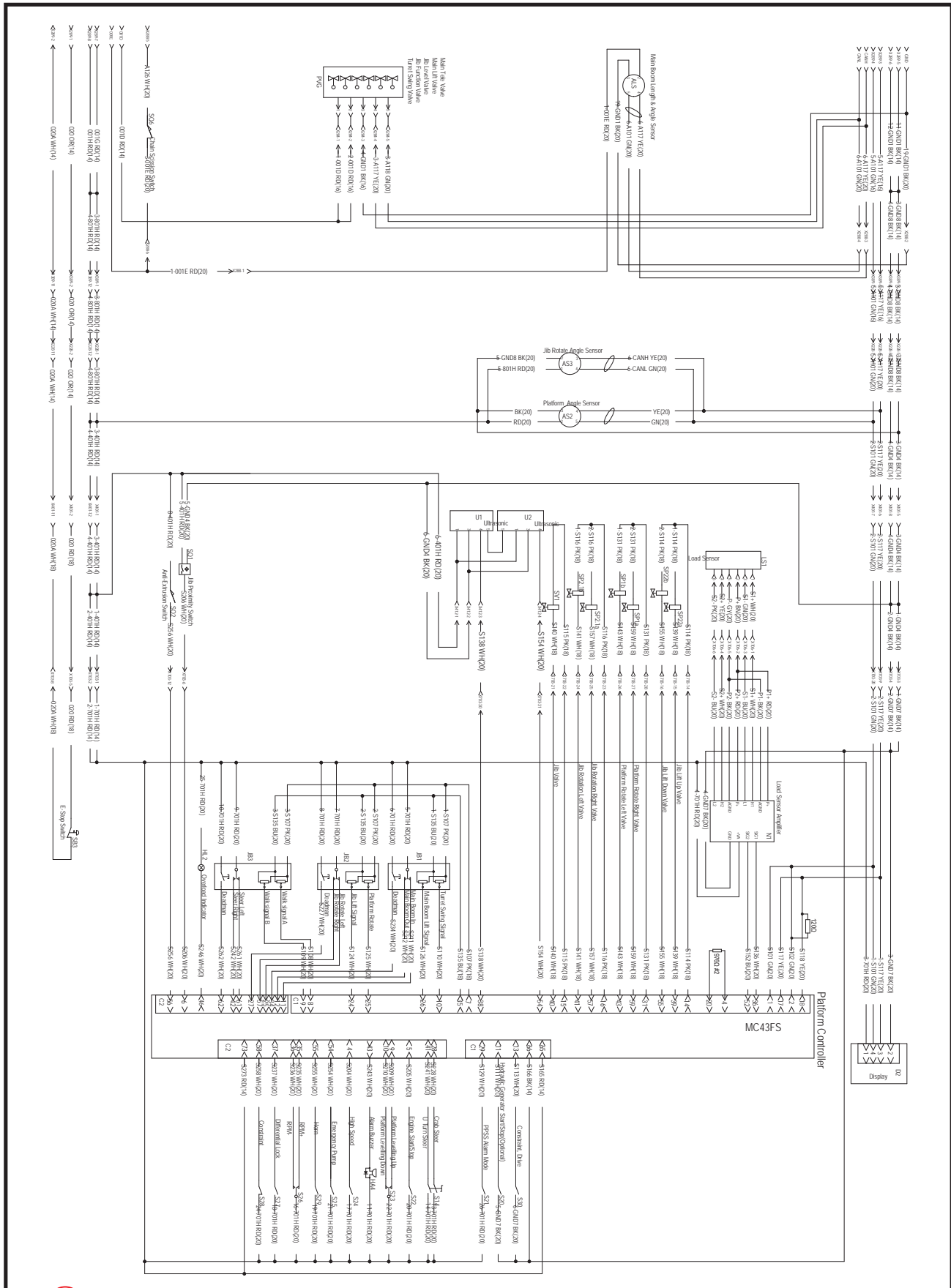


ILLUSTRATION No. ART_6553

66-RJ

Electrical Schematic, Upper Controls



Parts Introduction

This Parts sections consists of illustrated parts sections and is designed to provide you, the customer, with illustrations and the list of associated parts needed to properly maintain the MEC self-propelled aerial work platform. When used in conjunction with the Service section in this manual and the Operator's Manual (provided separately), this manual will assist you in making necessary adjustments and repairs, and identifying and ordering the correct replacement parts.

All parts represented here are manufactured and supplied in accordance with MEC quality standards.

We recommend that you use genuine MEC parts to ensure proper operation and reliable performance.

To obtain maximum benefits from your MEC Aerial Work Platforms, always follow the proper operating and maintenance procedures. Only trained authorized personnel should be allowed to operate or service this machine. Service personnel should read and study the Operator's, and the Service and Parts Manuals in order to gain a thorough understanding of the unit prior to making any repairs.

Item	Part Number	Description	Qty.
1	49442	Rear Axle Assembly	1
--	49091	Axle Steering Sensor W/ Harness	1
2	53554	Nut NNYL M22-2.50 ZP	16
3	53258	WSHR M22 Standard Flat Washer ZP	32
4	47561	O-Ring	1
5	48576	Drive Motor Assembly	1
6	53247	Screw HHCS M12-1.75 x 40 ZP	4
7	50003	WSHR M12 Standard Flat Washer ZP	4
8	49443	Propeller Shaft	1
9	49444	Front Axle Assembly	1
--	49091	Axle Steering Sensor W/ Harness	1
10	53634	Screw HHCS M22-2.50 x 230 ZP	16
11	47565	Seat, Axle Lockout Cylinder Assembly	2
12	47566	Bracket, Link	2
13	53373	Nut NHEX M10-1.50 ZP	16
14	53075	Screw HHCS M20-2.50 x 130 ZP	4
15	50005	WSHR M20 Standard Flat Washer ZP	4
16	50127	Screw SHCS M10-1.50 x 30 ZP	16
17	47567	Bracket, Link	2

Axle Lockout Cylinder Installation

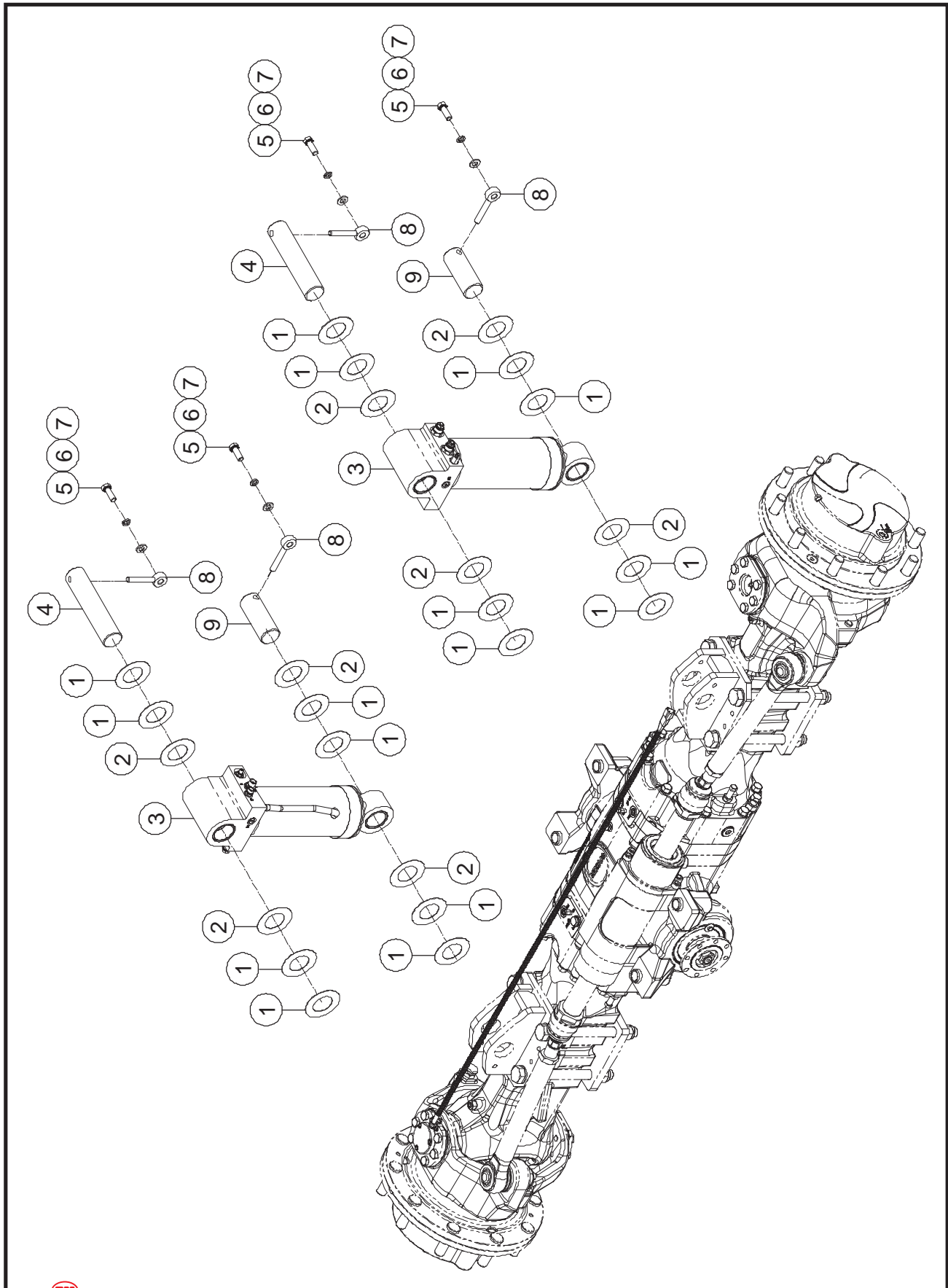



ILLUSTRATION No.
ART_6104

66-RJ, 85-J Diesel (From serial #14900400), 85-J Hybrid

Axle Lockout Cylinder Installation

Item	Part Number	Description	Qty.
1	47568	Shim	16
2	47569	Shim	8
3	REF	Axle Lockout Cylinder Assembly (Refer to page 222)	2
4	49025	Pin, Pivot	2
5	50040	Screw HHCS M12-1.75 x 35 ZP	4
6	53148	WSHR M12 Spring Washer ZP	4
7	50003	WSHR M12 Standard Flat Washer ZP	4
8	47571	Pin, Lock	4
9	47572	Pin, Pivot	2

REF - Reference

Tire and Wheel Installation

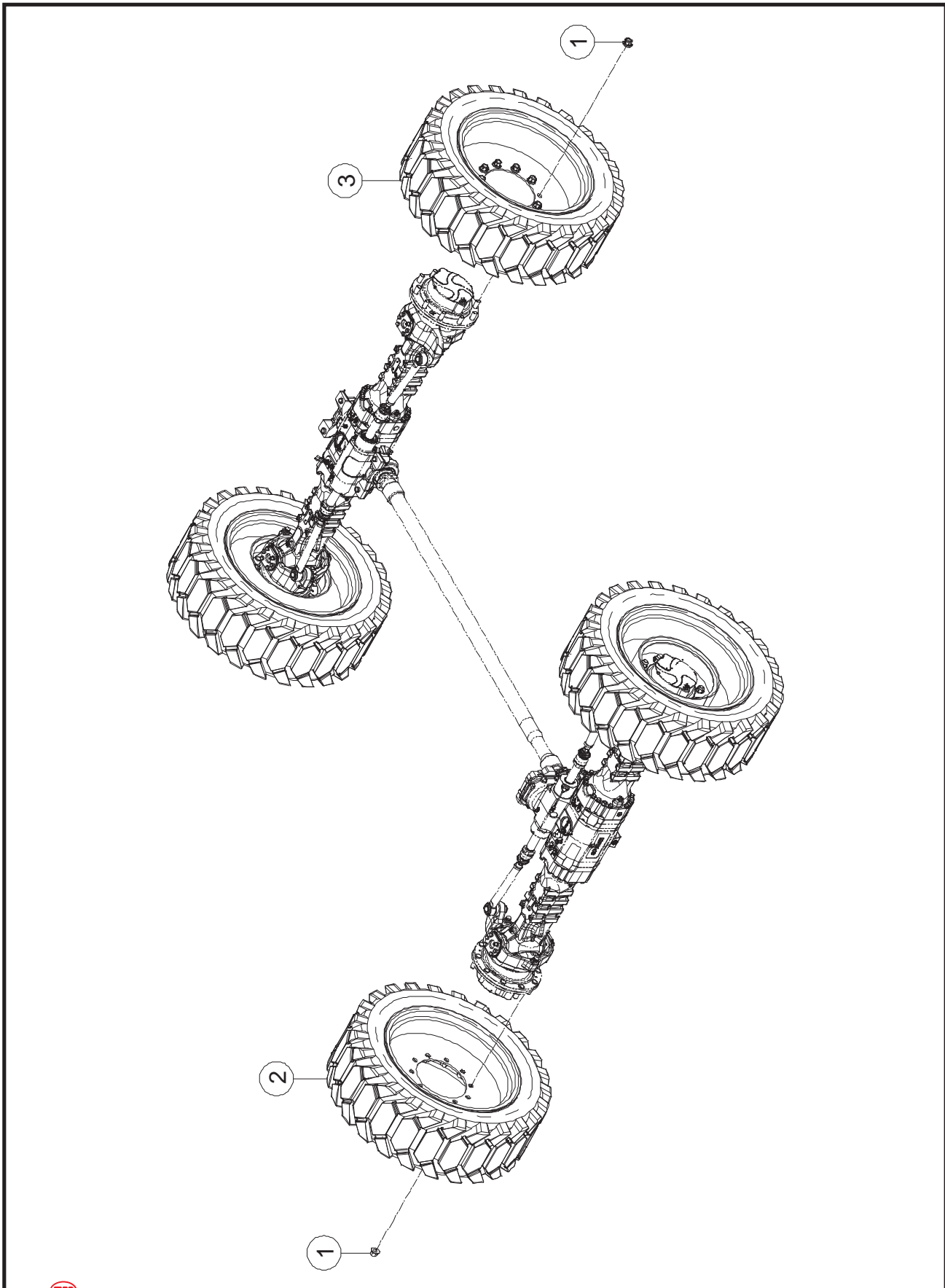



ILLUSTRATION No.
ART_6105

66-RJ, 85-J Diesel

Tire and Wheel Installation

Item	Part Number	Description	Qty.
1	53556	Nut NNYL M22-1.50 Flange ZP	32
2	49445	Tire and Wheel Assembly (Left Side)	2
3	49446	Tire and Wheel Assembly (Right Side)	2

Slew Ring and Chassis Covers Installation

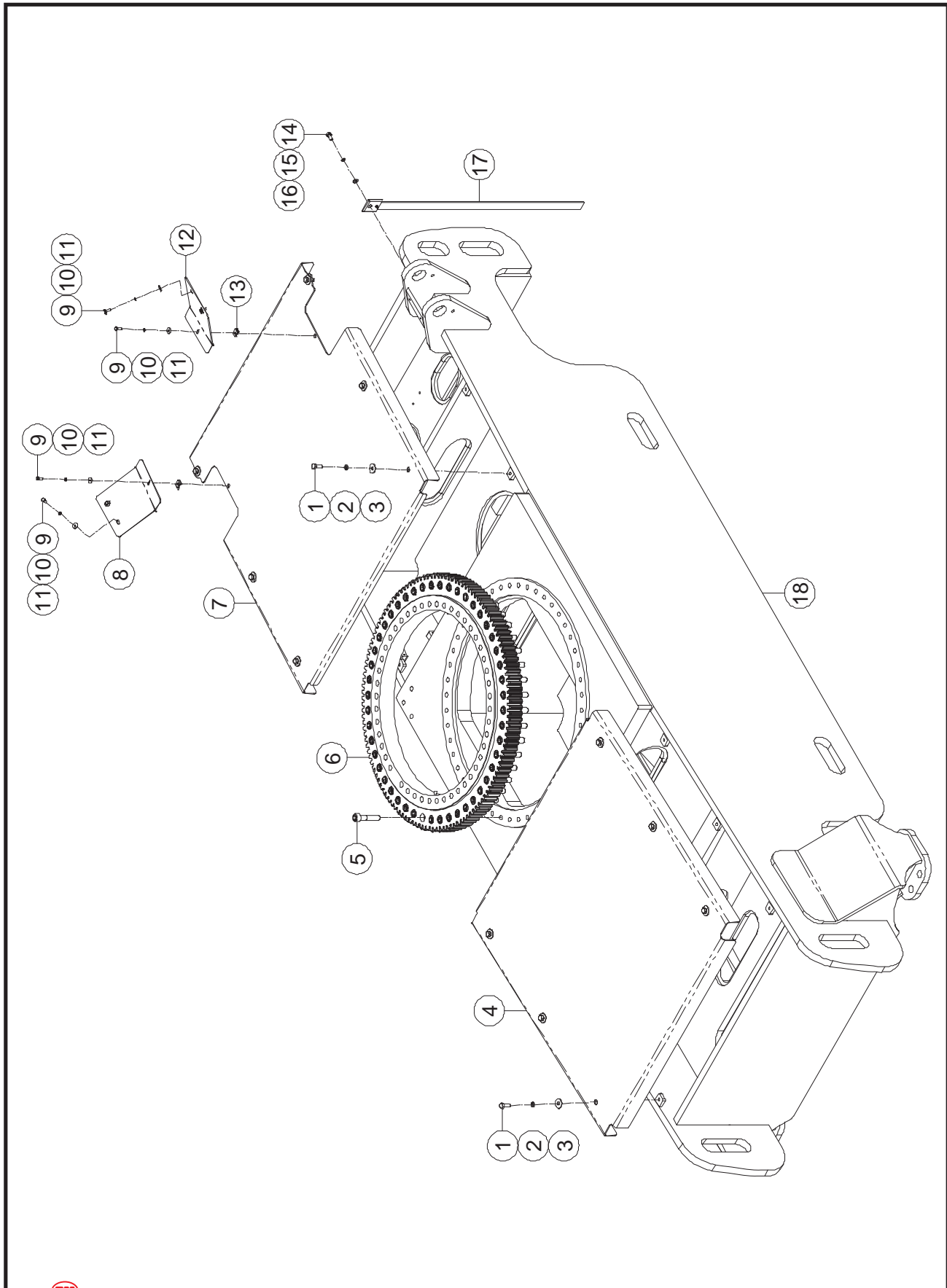


 ILLUSTRATION No. 66-RJ
ART_6571

Slew Ring and Chassis Covers Installation

Item	Part Number	Description	Qty.
1	50033	Screw HHCS M10-1.50 x 25 ZP	12
2	53054	WSHR M10 Spring Washer ZP	12
3	53375	WSHR M10 Flat Fender Washer ZP	12
4	49447	Cover, Rear Chassis	1
5	50503	Screw SHCS M16-2.00 x 75 ZP	48
6	47576	Slewing Ring	1
7	49448	Cover, Front Chassis	1
8	49449	Cover, Front Left Cylinder	1
9	50445	Screw HHCS M06-1.00 x 16 ZP	6
10	53046	WSHR M06 Spring Washer ZP	6
11	50068	WSHR M06 Flat Fender Washer ZP	6
12	49451	Cover, Front Right Cylinder	1
13	53481	No-Slip Clip-On Barrel Nut M06-1.00 ZP	2
14	50030	Screw HHCS M08-1.25 x 20 ZP	1
15	53055	WSHR M08 Spring Washer ZP	1
16	50001	WSHR M08 Standard Flat Washer ZP	1
17	47578	Ground Strap	1
18	49452	Chassis	1

Rotary Coupling Installation

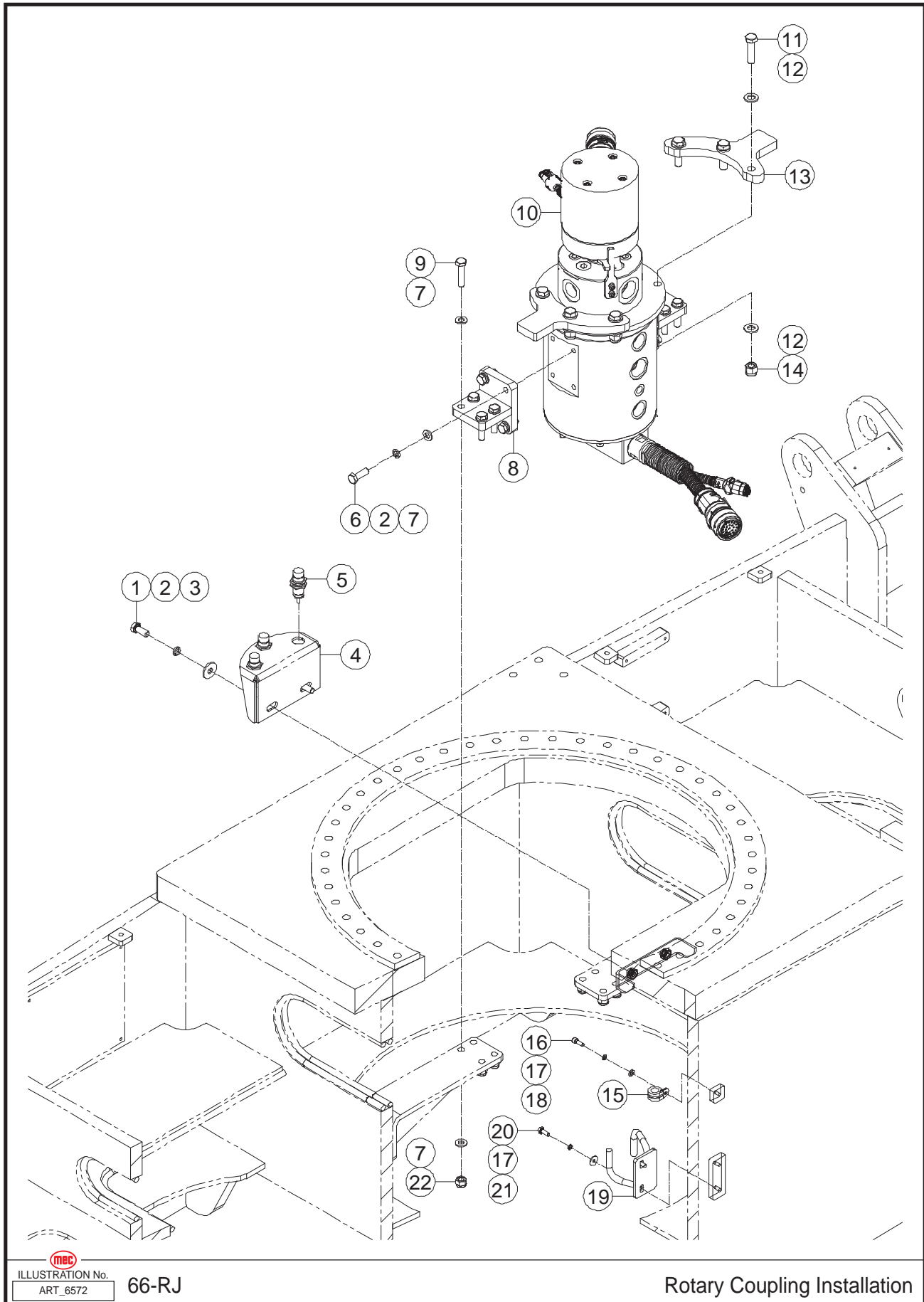
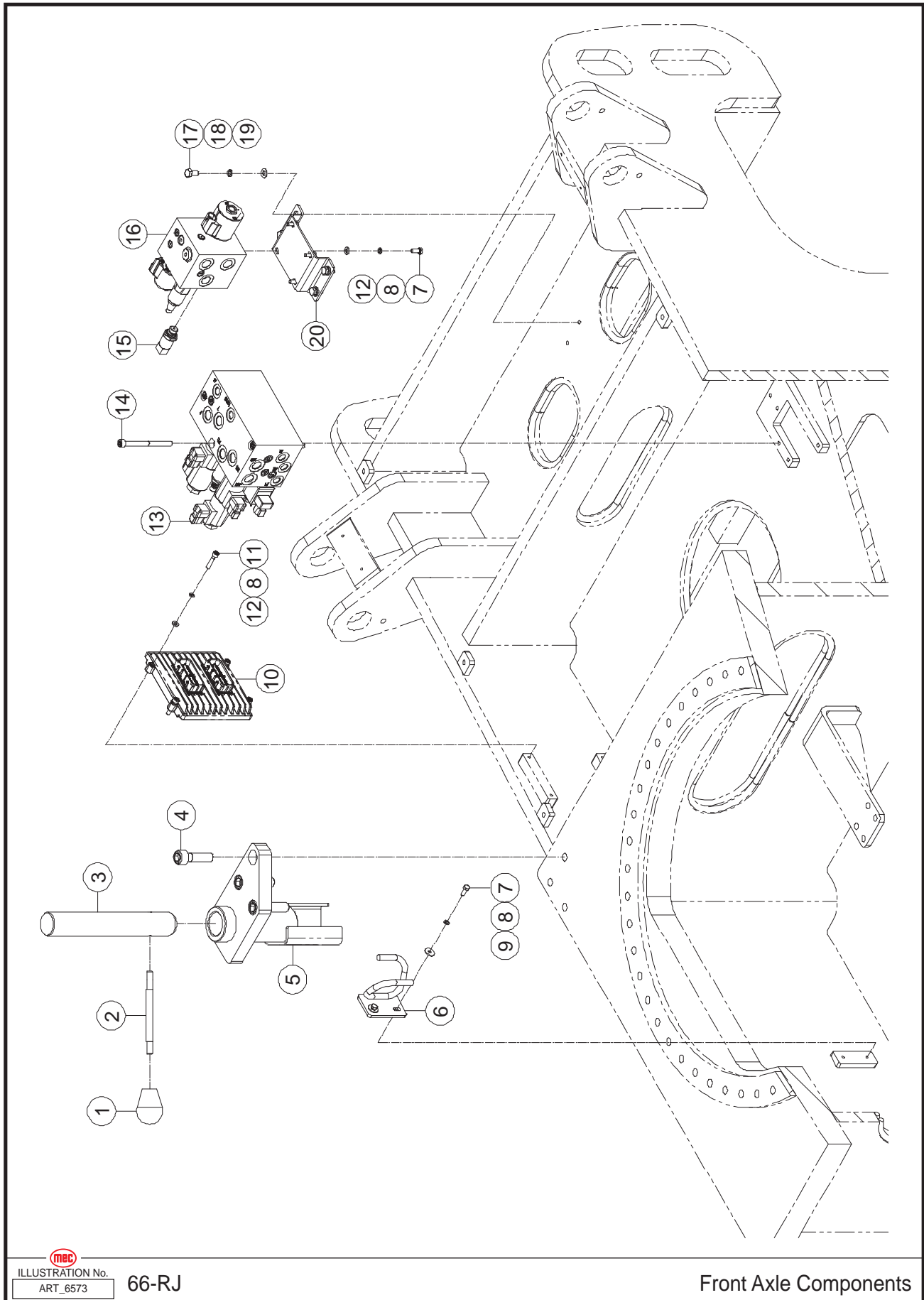



 ILLUSTRATION No. **66-RJ**
ART_6572

Rotary Coupling Installation

Item	Part Number	Description	Qty.
1	50033	Screw HHCS M10-1.50 x 25 ZP	2
2	53054	WSHR M10 Spring Washer ZP	10
3	53375	WSHR M10 Flat Fender Washer ZP	2
4	47585	Bracket, Switch	1
5	47584	Proximity Switch	3
6	50034	Screw HHCS M10-1.50 x 30 ZP	8
7	50002	WSHR M10 Standard Flat Washer ZP	24
8	47586	Support	2
9	50430	Screw HHCS M10-1.50 x 45 ZP	8
10	47580	Rotary Coupling Assembly	1
11	53103	Screw HHCS M12-1.75 x 45 ZP	6
12	50003	WSHR M12 Standard Flat Washer ZP	12
13	47581	Plate	2
14	50050	Nut NNYL M12-1.75 ZP	6
15	47583	Clamp	1
16	53138	Screw SHCS M06-1.00 x 16 ZP	1
17	53046	WSHR M06 Spring Washer ZP	3
18	50000	WSHR M06 Standard Flat Washer ZP	1
19	47582	Support Tubes	1
20	50445	Screw HHCS M06-1.00 x 16 ZP	2
21	50068	WSHR M06 Flat Fender Washer ZP	2
22	50049	Nut NNYL M10-1.50 ZP	8

Front Axle Components



 ILLUSTRATION No. **66-RJ**
ART_6573

Front Axle Components

Item	Part Number	Description	Qty.
1	47590	Handle	1
2	47589	Rod	1
3	47587	Pin, Pivot	1
4	50492	Screw SHCS M16-2.00 x 55	3
5	47588	Bracket	1
6	47582	Support Tubes	1
7	50445	Screw HHCS M06-1.00 x 16 ZP	6
8	53046	WSHR M06 Spring Washer ZP	10
9	50068	WSHR M06 Flat Fender Washer ZP	2
10	46913	Controller	1
11	53207	Screw SHCS M06-1.00 x 30 ZP	4
12	50000	WSHR M06 Standard Flat Washer ZP	8
13	REF	Chassis Manifold Assembly (Refer to page 114)	1
14	50270	Screw SHCS M08-1.25 x 100 ZP	3
15	44448	Pressure Sensor	1
16	REF	Oscillate Manifold Assembly (Refer to page 116)	1
17	53154	Screw HHCS M08-1.25 x 16 ZP	4
18	53055	WSHR M08 Spring Washer ZP	4
19	50001	WSHR M08 Standard Flat Washer ZP	4
20	49030	Bracket	1

REF - Reference

Chassis Manifold Assembly

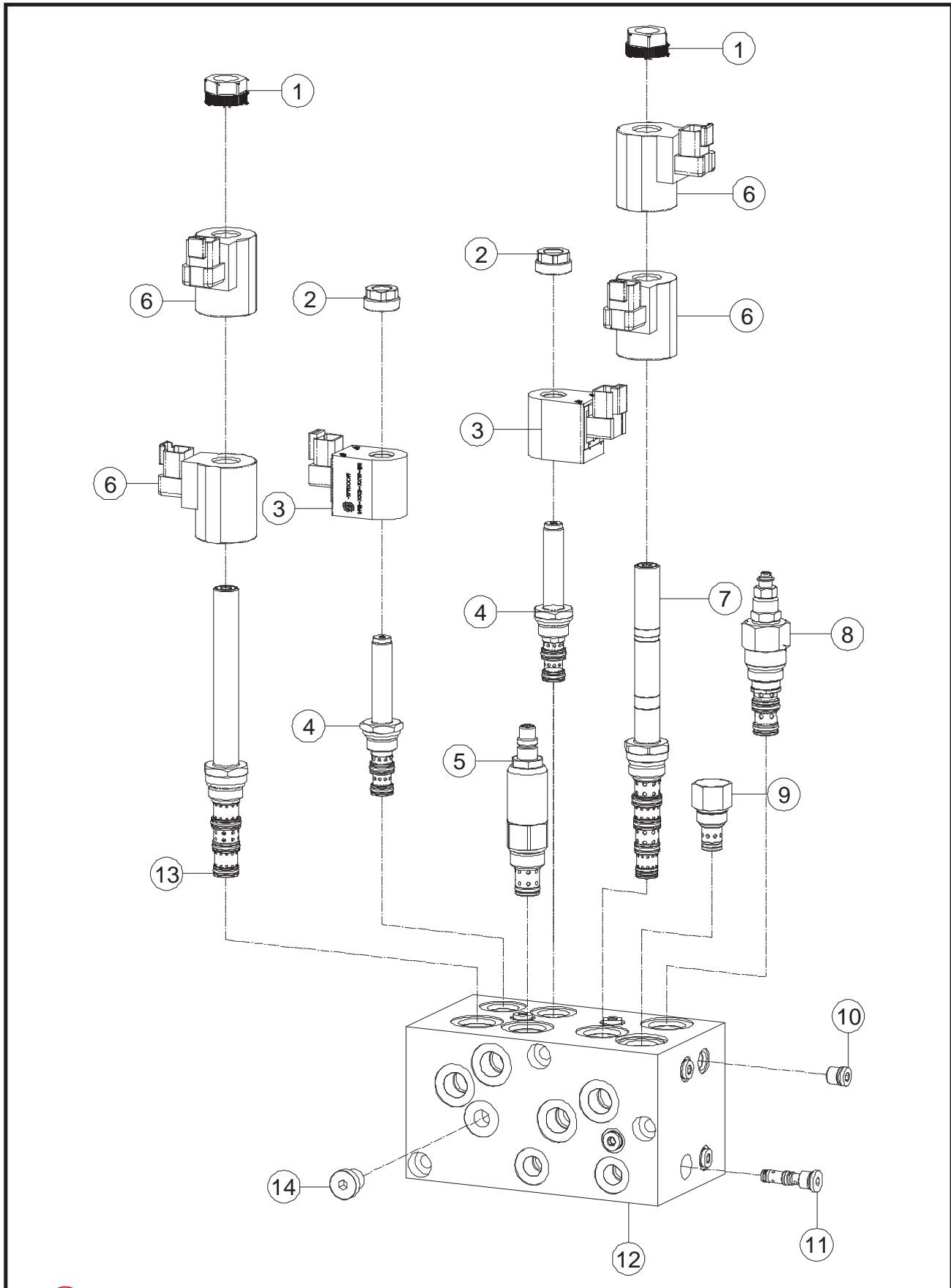
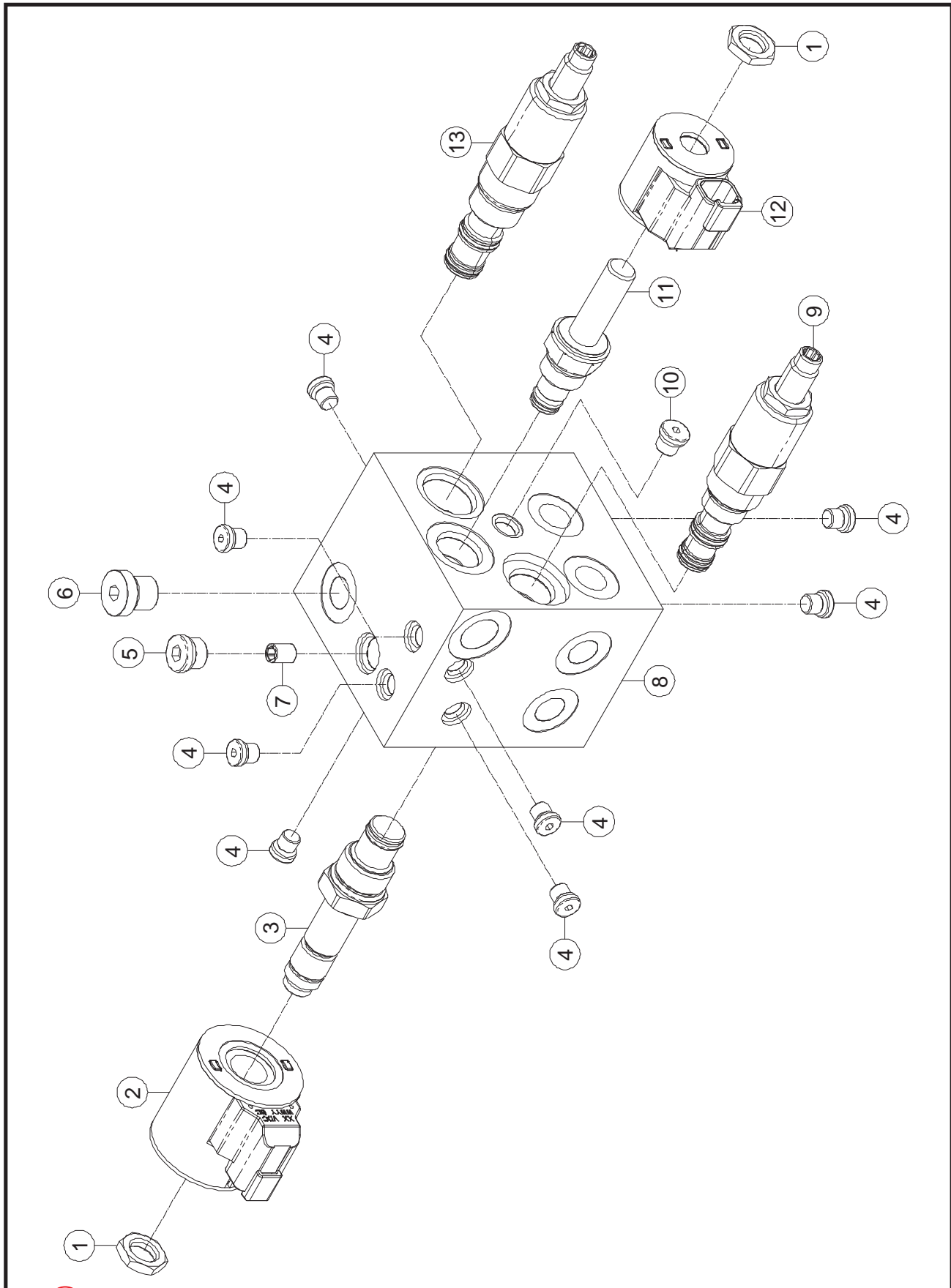



 ILLUSTRATION No. **60-J, 65-J, 66-RJ, 85-J Diesel, 85-J Hybrid** Chassis Manifold Assembly
ART_6109

Item	Part Number	Description	Qty.
--	47592	Chassis Manifold Assembly	--
1	43414	Nut, Coil	2
2	43405	Nut, Coil	2
3	43406	Coil	2
4	43407	Cartridge, Solenoid Valve	2
5	47593	Cartridge, Relief Valve	1
6	43413	Coil	4
7	47594	Cartridge, Solenoid Valve	1
8	47595	Cartridge, Pressure Reducing Valve	1
9	47596	Cartridge, Flow Control Valve	1
10	47597	Plug	10
11	43419	Cartridge, Shuttle Valve	1
12	47598	Body	1
13	47599	Cartridge, Solenoid Valve	1
14	46869	Plug	1

Oscillate Manifold Assembly



 ILLUSTRATION No. 60-J, 65-J, 66-RJ, 85-J Diesel (From serial #14900400), 85-J Hybrid Oscillate Manifold Assembly
ART_6253

Item	Part Number	Description	Qty.
--	48597	Oscillate Manifold Assembly	--
1	42795	Nut	2
2	48561	Coil	1
3	48655	Cartridge, Solenoid Valve	1
4	43465	Plug	8
5	42802	Plug	1
6	46869	Plug	1
7	43645	Orifice	1
8	48656	Body	1
9	48657	Cartridge, Pressure Reducing Valve	1
10	43643	Plug	1
11	43372	Cartridge, Solenoid Valve	1
12	48568	Coil	1
13	48658	Cartridge, Pressure Reducing Valve	1

Gearmotor and Components Installation

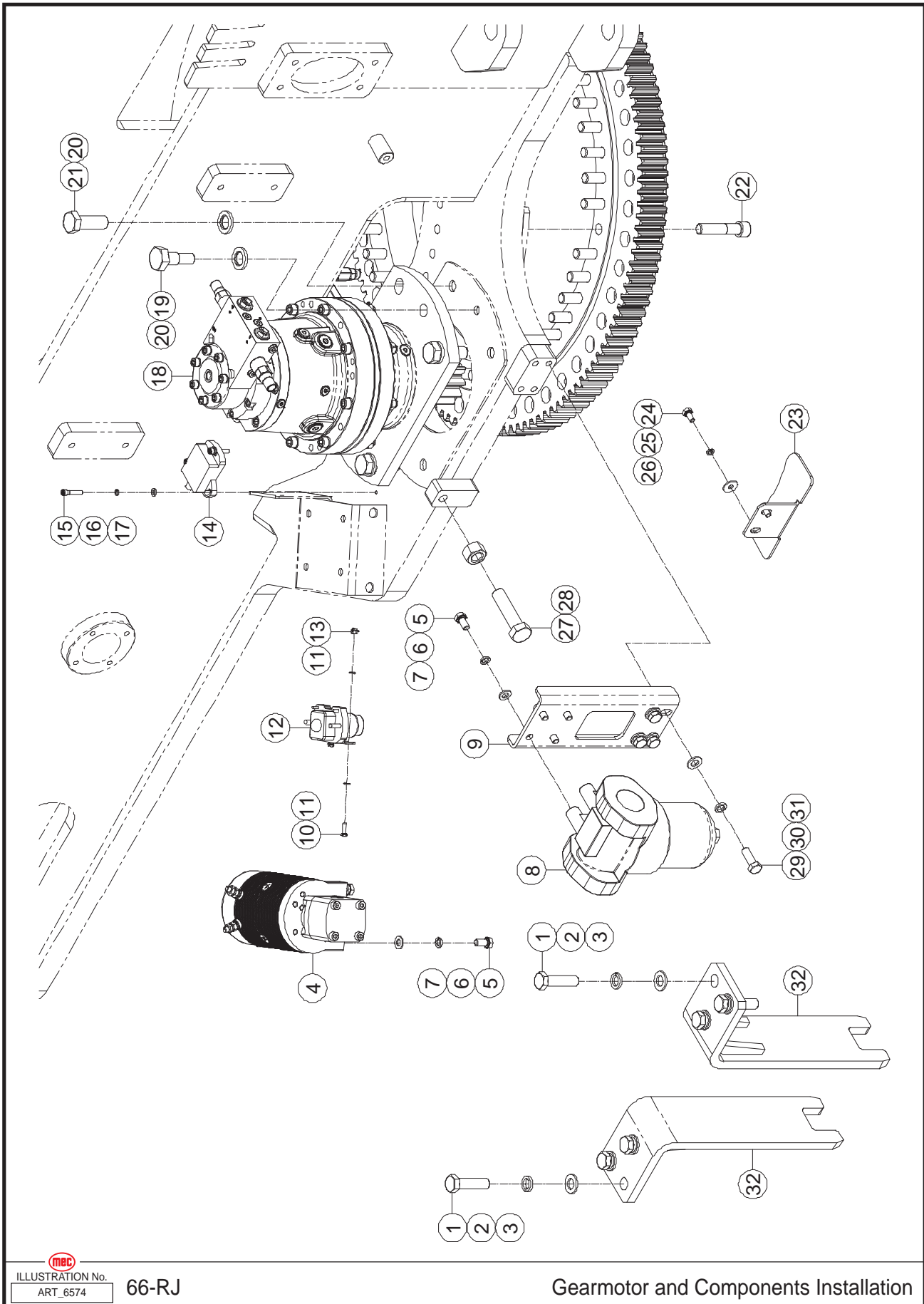
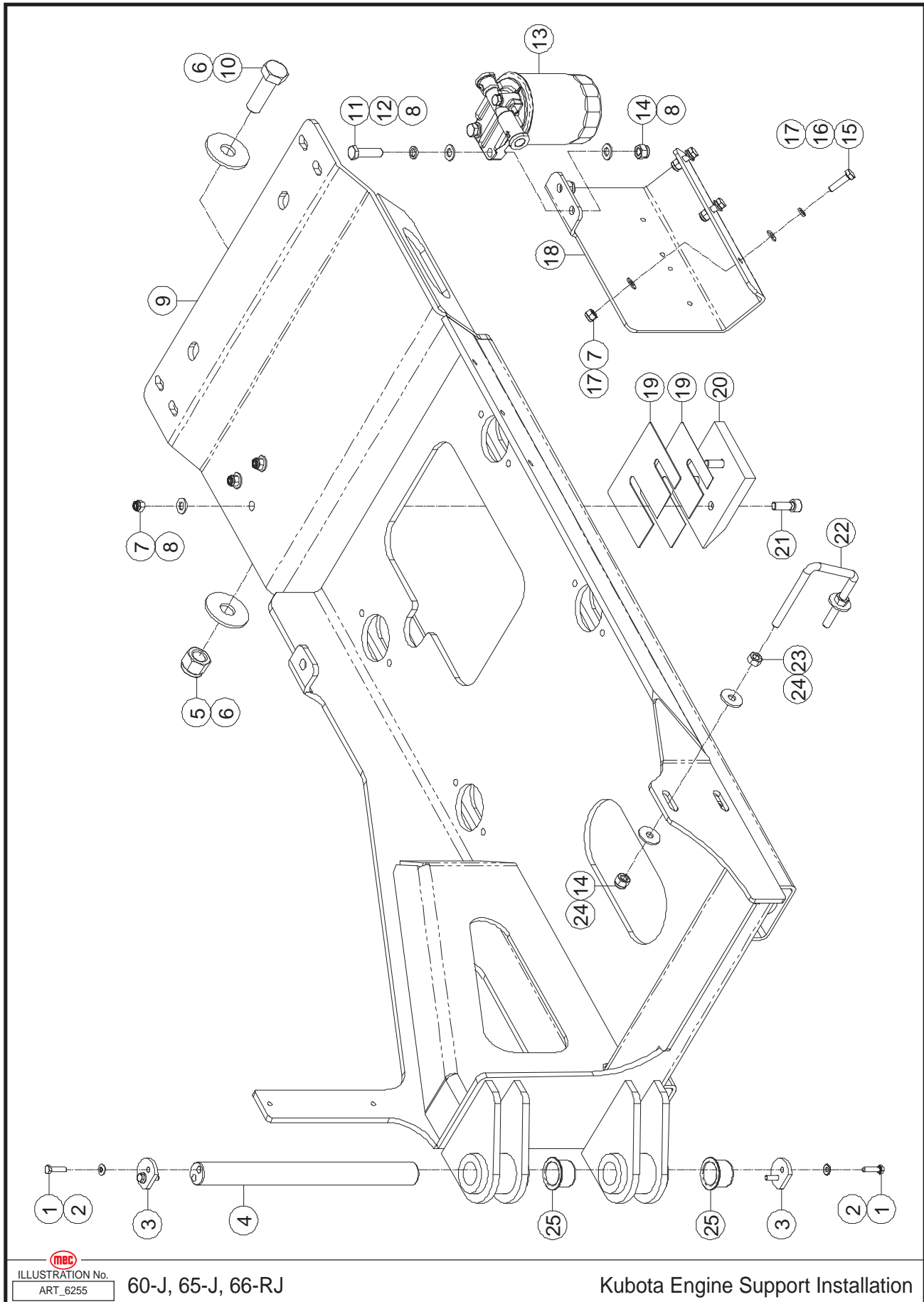



 ILLUSTRATION No. 66-RJ
ART_6574

Gearmotor and Components Installation

Item	Part Number	Description	Qty.
1	50044	Screw HHCS M16-2.00 x 60 ZP	6
2	53149	WSHR M16 Spring Washer ZP	6
3	50004	WSHR M16 Standard Flat Washer ZP	6
4	47753	Emergency Pump Assembly	1
--	47754	Motor	1
--	47755	Pump	1
5	50215	Screw HHCS M10-1.50 x 20 ZP	6
6	53054	WSHR M10 Spring Washer ZP	6
7	50002	WSHR M10 Standard Flat Washer ZP	6
8	47730	High Pressure Hydraulic Filter	1
--	47731	High Pressure Hydraulic Filter Element	1
9	48182	Bracket	1
10	53418	Screw HHCS M05-0.80 x 16 ZP	2
11	53038	WSHR M05 Standard Flat Washer ZP	4
12	43800	DC Contactor	1
13	50524	Nut NNYL M05-0.80 ZP	2
14	47591	Tilt Sensor	1
15	53207	Screw SHCS M06-1.00 x 30 ZP	3
16	53046	WSHR M06 Spring Washer ZP	3
17	50000	WSHR M06 Standard Flat Washer ZP	3
18	47603	Gearmotor with drainage cap	1
	49644	Gearmotor with drainage pipe	1
--	47604	Motor Assembly	1
--	47605	Valve Block	1
19	47602	Bolt M16	1
20	47601	Flat Washer	6
21	53557	Screw HHCS M20-2.50 x 55 ZP	5
22	50503	Screw SHCS M16-2.00 x 75 ZP	47
23	47608	Support	1
24	53154	Screw HHCS M08-1.25 x 16 ZP	2
25	53055	WSHR M08 Spring Washer ZP	2
26	50218	WSHR M08 Flat Fender Washer ZP	2
27	53518	Screw HHCS M20-2.50 x 80 ZP	1
28	53526	Nut NHEX M20-2.50 ZP	1
29	50040	Screw HHCS M12-1.75 x 35 ZP	4
30	53148	WSHR M12 Spring Washer ZP	4
31	50003	WSHR M12 Standard Flat Washer ZP	4
32	47600	Stirrup	2

Kubota Engine Support Installation

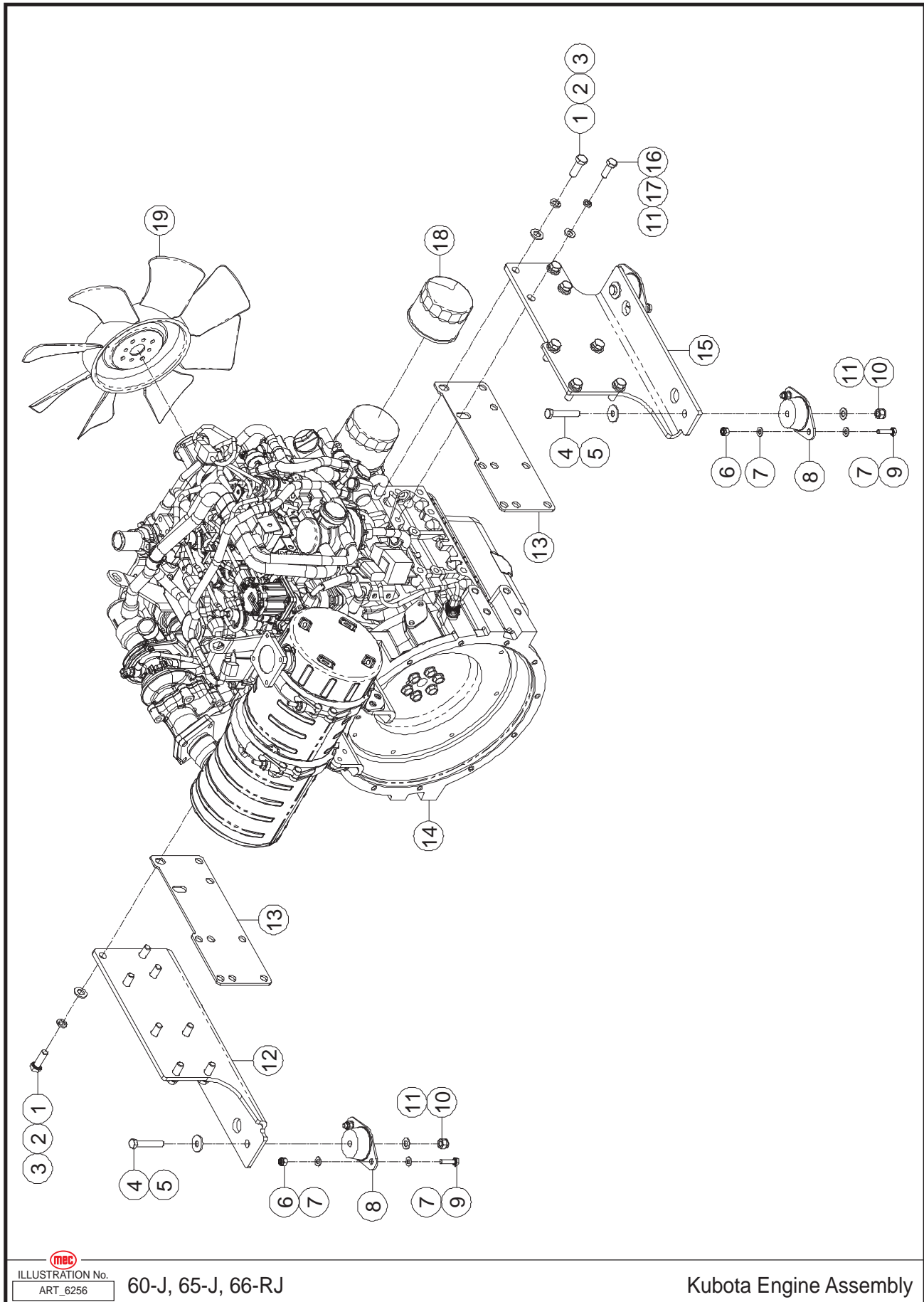



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6255

Kubota Engine Support Installation

Item	Part Number	Description	Qty.
1	50117	Screw HHCS M06-1.00 x 25 ZP	4
2	48186	Spring Washer	4
3	48187	Cover	2
4	49453	Pin	1
5	50052	Nut NNYL M20-2.50 ZP	1
6	53598	WSHR M20 Flat Fender Washer ZP	2
7	50048	Nut NNYL M08-1.25 ZP	6
8	50002	WSHR M10 Standard Flat Washer ZP	7
9	48662	Support	1
10	50045	Screw HHCS M20-2.50 x 60 ZP	1
11	50237	Screw HHCS M10-1.50 x 40 ZP	2
12	53054	WSHR M10 Spring Washer ZP	2
13	95081	Water-Fuel Separator	1
--	95367	Water-Fuel Separator Filter Element	1
14	50049	Nut NNYL M10-1.50 ZP	4
15	50032	Screw HHCS M08-1.25 x 30 ZP	3
16	53055	WSHR M08 Spring Washer ZP	3
17	50001	WSHR M08 Standard Flat Washer ZP	6
18	48664	Bracket	1
19	48184	Shim	2
20	48665	Sliding Block	1
21	50127	Screw SHCS M10-1.50 x 30 ZP	3
22	48666	U-Bolt	1
23	53373	Nut NHEX M10-1.50 ZP	2
24	53375	WSHR M10 Flat Fender Washer ZP	4
25	48667	Sleeve Bearing	2

Kubota Engine Assembly



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6256

Kubota Engine Assembly

Item	Part Number	Description	Qty.
1	50040	Screw HHCS M12-1.75 x 35 ZP	15
2	53148	WSHR M12 Spring Washer ZP	15
3	50003	WSHR M12 Standard Flat Washer ZP	15
4	50421	Screw HHCS M10-1.50 x 60 ZP	4
5	53375	WSHR M10 Flat Fender Washer ZP	4
6	50048	Nut NNYL M08-1.25 ZP	8
7	50001	WSHR M08 Standard Flat Washer ZP	16
8	48674	Rubber Mounting	4
9	50032	Screw HHCS M08-1.25 x 30 ZP	8
10	50049	Nut NNYL M10-1.50 ZP	4
11	50002	WSHR M10 Standard Flat Washer ZP	5
12	48668	Support	1
13	48669	Shim	2
14	48670	Engine	1
15	48671	Support	1
16	50034	Screw HHCS M10-1.50 x 30 ZP	1
17	53054	WSHR M10 Spring Washer ZP	1
18	92180	Oil Filter Cartridge	1
19	48673	Fan	1

Kubota Engine Cooling System Installation 1

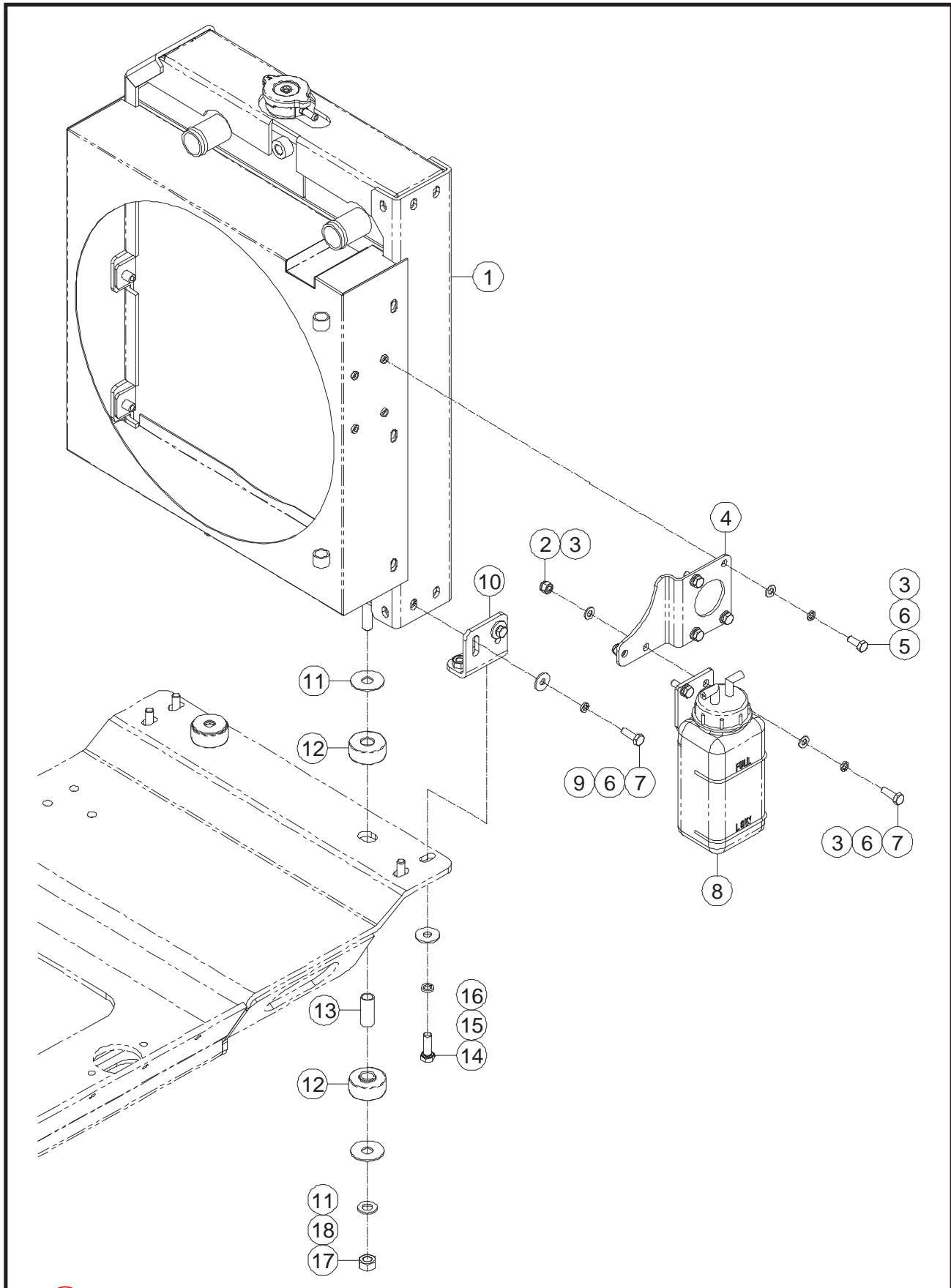
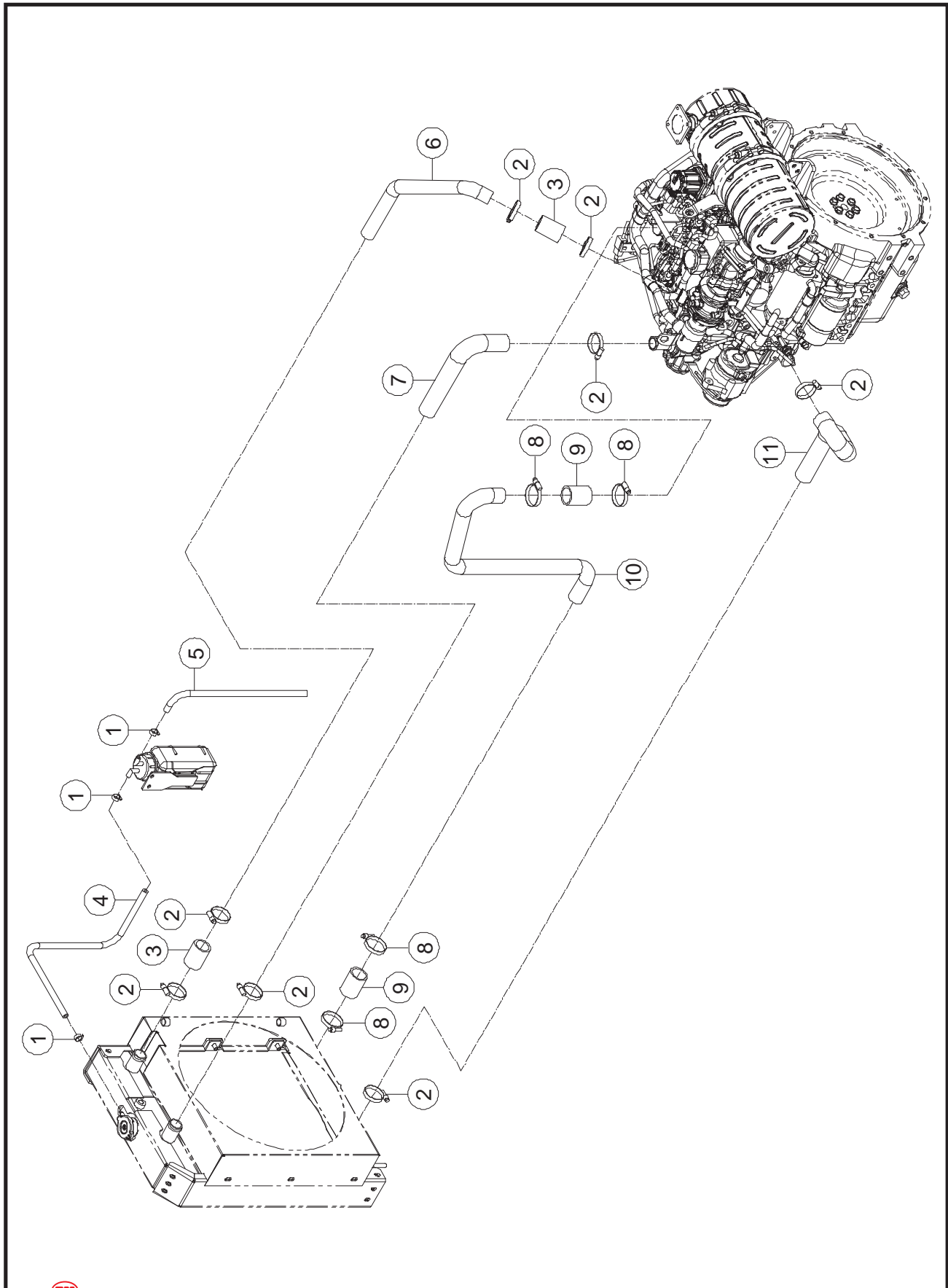



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6257

Kubota Engine Cooling System Installation 1

Item	Part Number	Description	Qty.
1	48675	Radiator	1
2	50048	Nut NNYL M08-1.25 ZP	2
3	50001	WSHR M08 Standard Flat Washer ZP	8
4	48676	Bracket	1
5	50030	Screw HHCS M08-1.25 x 20 ZP	4
6	53055	WSHR M08 Spring Washer ZP	10
7	50031	Screw HHCS M08-1.25 x 25 ZP	6
8	48677	Coolant Bottle	1
9	50218	WSHR M08 Flat Fender Washer ZP	4
10	48678	Bracket	2
11	48679	Washer	4
12	48680	Rubber Ring	4
13	48681	Spacer	2
14	50034	Screw HHCS M10-1.50 x 30 ZP	4
15	53054	WSHR M10 Spring Washer ZP	4
16	53375	WSHR M10 Flat Fender Washer ZP	4
17	53599	Nut NHEX 1/2-13 ZP	2
18	50003	WSHR M12 Standard Flat Washer ZP	2

Kubota Engine Cooling System Installation 2



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6257

Kubota Engine Cooling System Installation 2

Item	Part Number	Description	Qty.
1	47632	Clamp	3
2	47629	Clamp	8
3	48782	Hose, Small Connector	2
4	48783	Hose, Upper Radiator to Coolant Bottle	1
5	48784	Hose, Coolant Bottle Overflow	1
6	48785	Hose, Upper Radiator to Upper Engine	1
7	48786	Hose, Upper Radiator to Upper Engine Elbow	1
8	47630	Clamp	4
9	48787	Hose, Small Connector	2
10	48788	Hose, Lower Radiator to Upper Engine	1
11	48789	Hose, Lower Radiator to Lower Engine	1

Engine and Pumps Installation

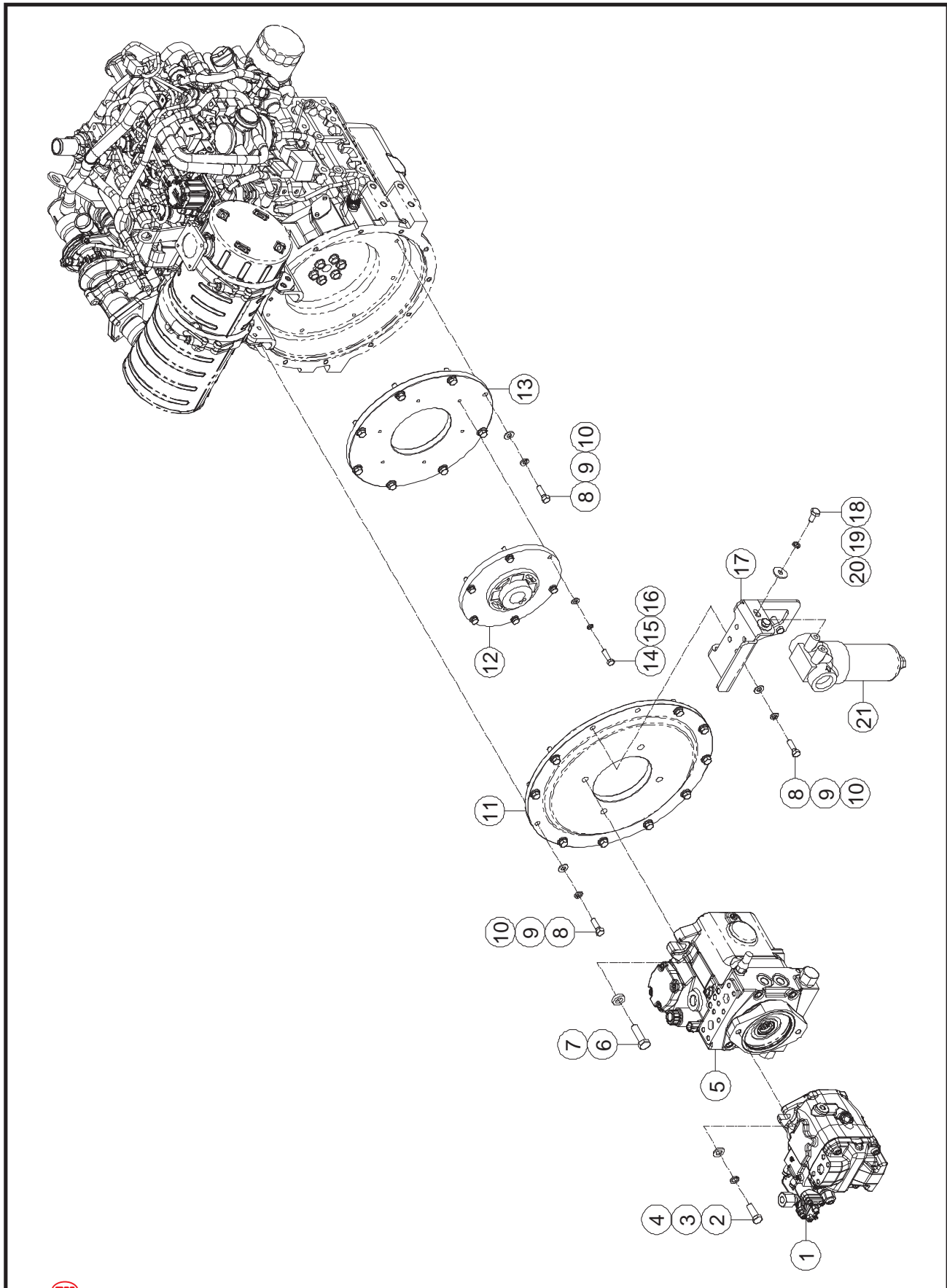
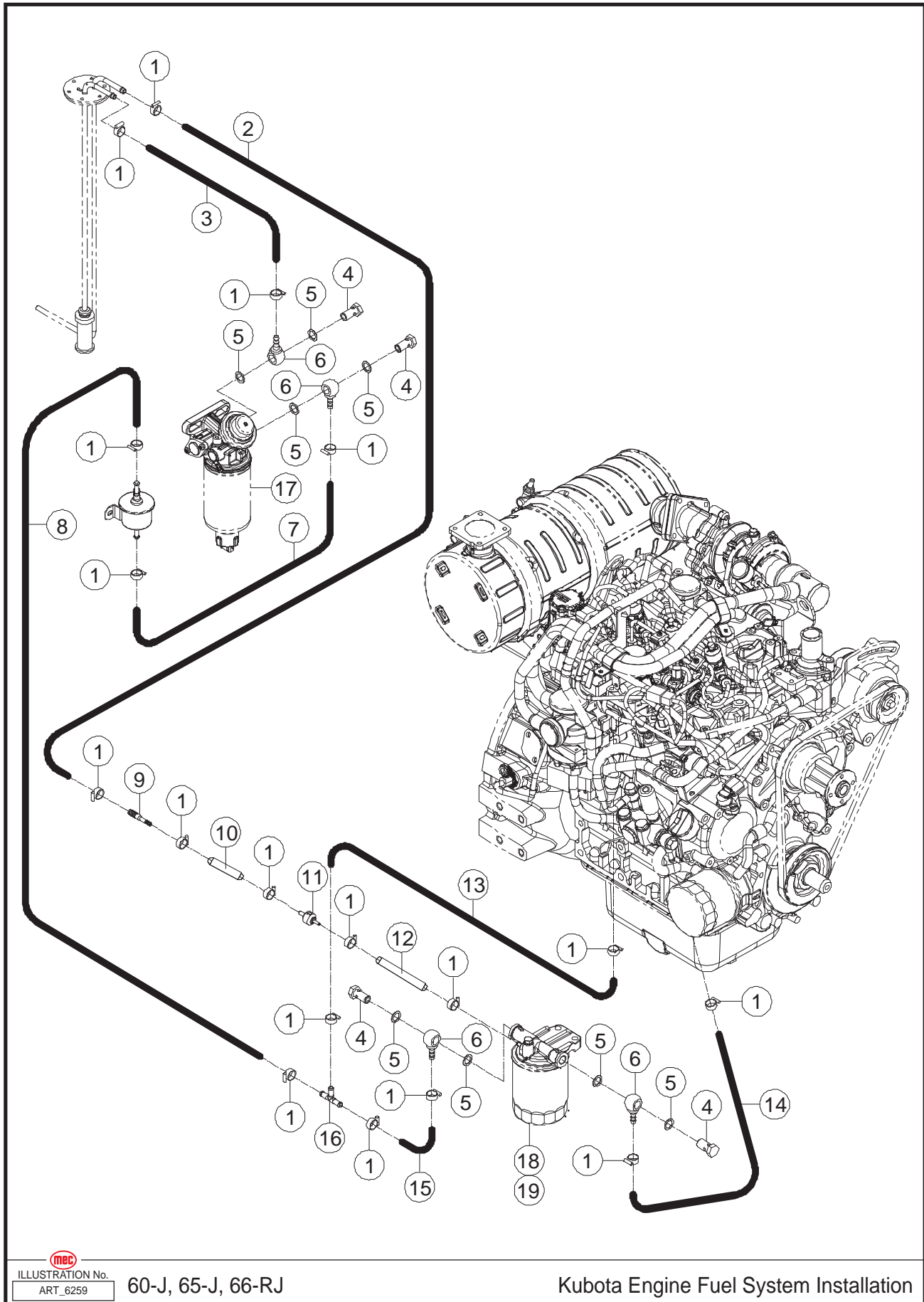




ILLUSTRATION No. 66-RJ
ART_6575

Engine and Pumps Installation

Item	Part Number	Description	Qty.
1	49454	Function Pump Assembly	1
2	50040	Screw HHCS M12-1.75 x 35 ZP	2
3	53148	WSHR M12 Spring Washer ZP	2
4	50003	WSHR M12 Standard Flat Washer ZP	2
5	49455	Drive Pump Assembly	1
6	53635	Screw HHCS M14-2.00 x 45 ZP	2
7	48689	Washer	2
8	50556	Screw HHCS 3/8-16 x 1 1/4 ZP	20
9	53316	WSHR 3/8 Spring Washer ZP	20
10	53317	WSHR 3/8 Standard Flat Narrow Washer ZP	20
11	49456	Protection	1
12	49457	Flange	1
13	48686	Support	1
14	50032	Screw HHCS M08-1.25 x 30 ZP	6
15	53055	WSHR M08 Spring Washer ZP	6
16	50001	WSHR M08 Standard Flat Washer ZP	6
17	48687	Bracket	1
18	50215	Screw HHCS M10-1.50 x 20 ZP	2
19	53054	WSHR M10 Spring Washer ZP	2
20	53375	WSHR M10 Flat Fender Washer ZP	2
21	48688	Charge Filter Assembly	1
--	45999	Charge Filter Element	1

Kubota Engine Fuel System Installation

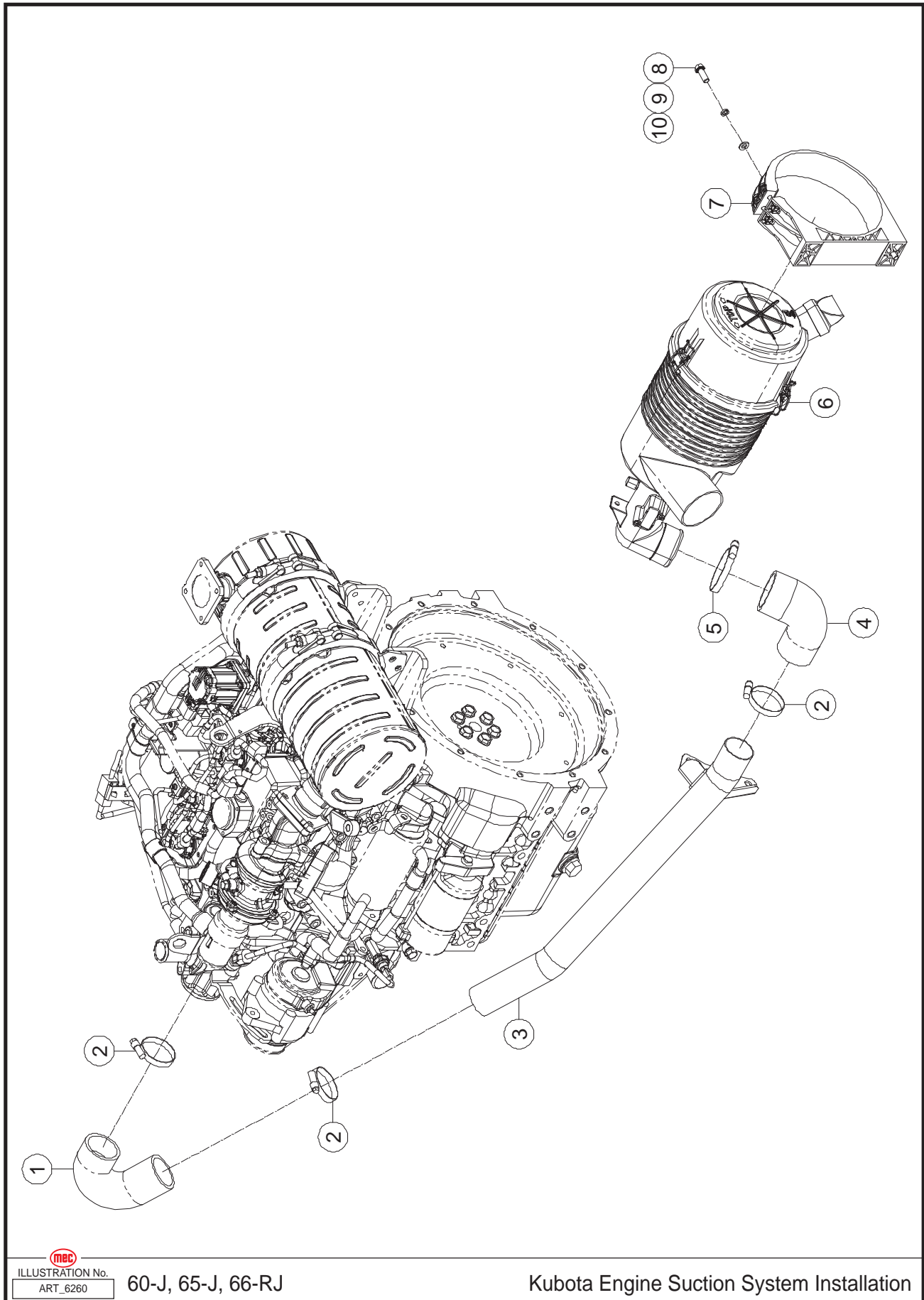



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6259

Kubota Engine Fuel System Installation

Item	Part Number	Description	Qty.
1	47632	Clamp	18
2	48790	Hose, Suction Pipe to Straight Reducer Fitting	1
3	48791	Hose, Suction Pipe to Pipe Fitting	1
4	48792	Drilled Screw	4
5	48793	Washer	8
6	48794	Pipe Fitting	4
7	48795	Hose, Pipe Fitting to Fuel Pump	1
8	48796	Hose, Fuel Pump to Tee Fitting	1
9	48797	Fitting, Straight, Reducer	1
10	48798	Hose, Straight Reducer Fitting to Check Valve	1
11	48799	Check Valve	1
12	48800	Hose, Check Valve to Water-Fuel Separator	1
13	48801	Hose, Engine to Tee Fitting	1
14	48802	Hose, Engine to Water-Fuel Separator	1
15	48803	Hose, Tee Fitting to Pipe Fitting	1
16	48804	Fitting, Tee	1
17	95503	Filter Element, Fuel Separator	1
18	95081	Fuel Filter Assembly With Filter Element	1
19	95367	Fuel Filter Element	1

Kubota Engine Suction System Installation



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6260

Kubota Engine Suction System Installation

Item	Part Number	Description	Qty.
1	48805	Engine Connecting Pipe, C-shape Elbow	1
2	47630	Clamp	3
3	48806	Connecting Pipe, Long	1
4	48807	Air Filter Connecting Pipe, Elbow	1
5	48808	Clamp	1
6	95080	Complete Air Filter Assembly	1
--	95369	Air Filter Element, Inner	1
--	95368	Air Filter Element, Outer	1
7	48810	Support	1
8	50031	Screw HHCS M08-1.25 x 25 ZP	2
9	53055	WSHR M08 Spring Washer ZP	2
10	50001	WSHR M08 Standard Flat Washer ZP	2

Kubota Engine Exhaust System Installation

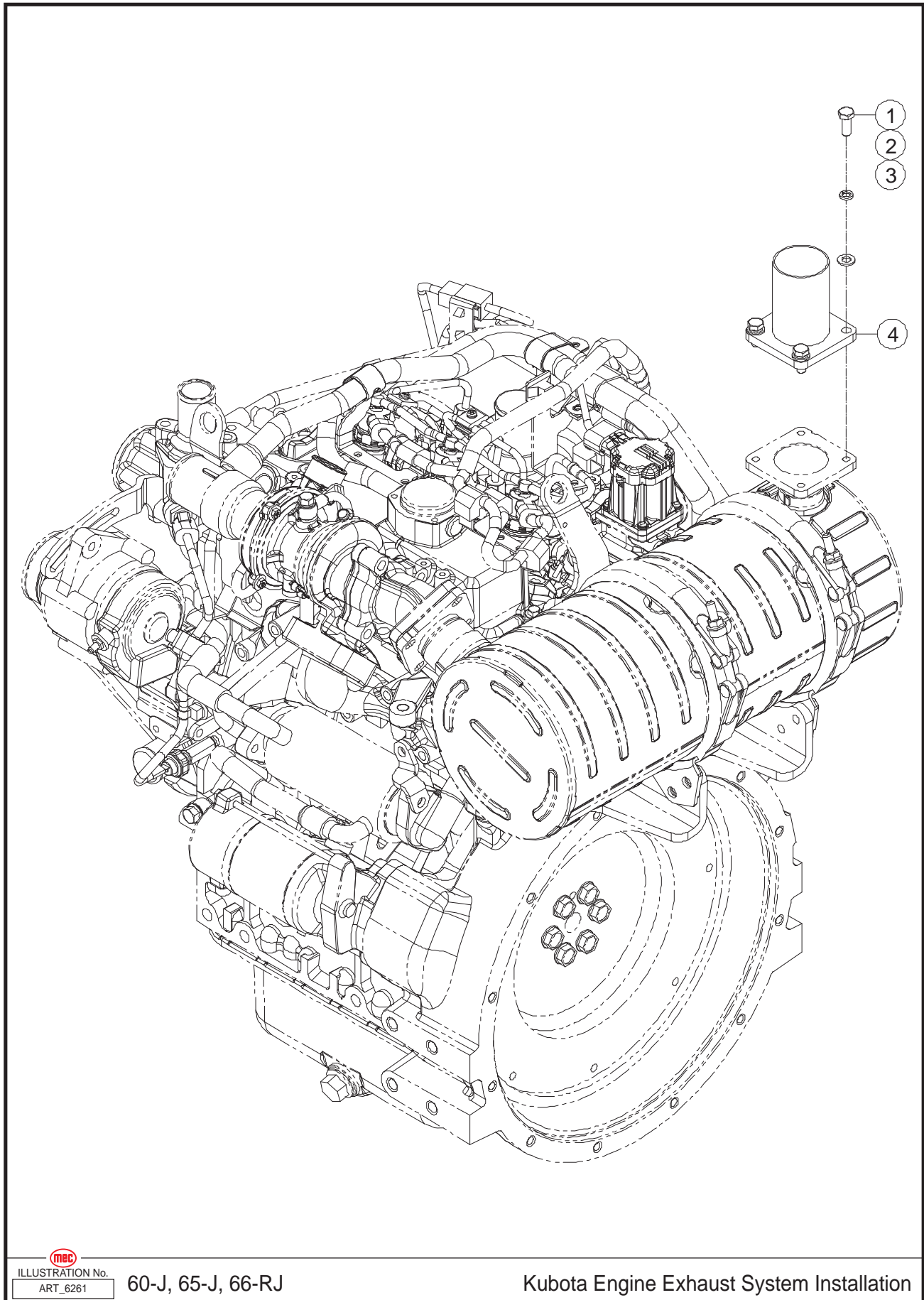


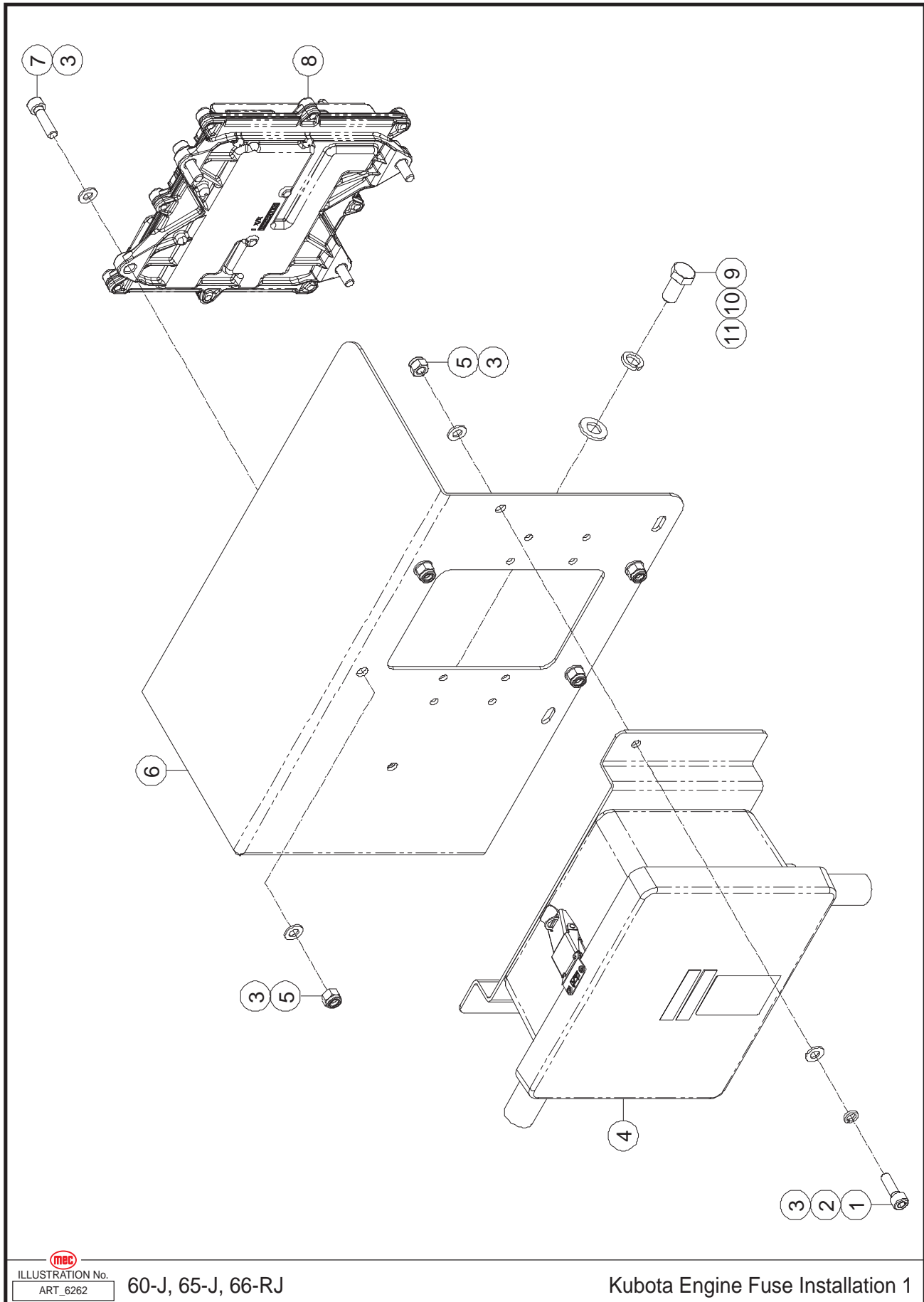

ILLUSTRATION No.
ART_6261


60-J, 65-J, 66-RJ

Kubota Engine Exhaust System Installation

Item	Part Number	Description	Qty.
1	50030	Screw HHCS M08-1.25 x 20 ZP	4
2	53055	WSHR M08 Spring Washer ZP	4
3	50001	WSHR M08 Standard Flat Washer ZP	4
4	48690	Exhaust Tube	1

Kubota Engine Fuse Installation 1

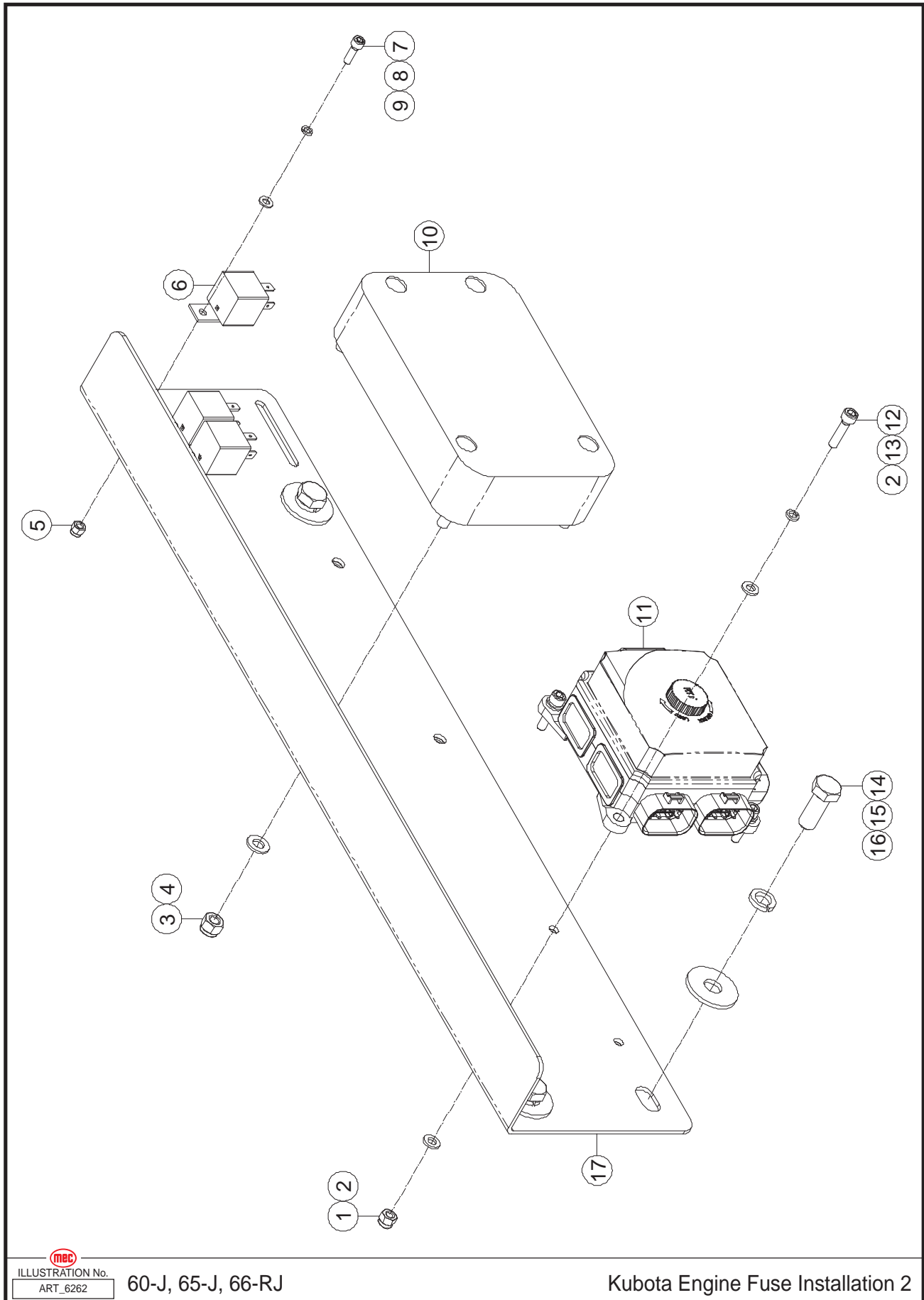



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6262

Kubota Engine Fuse Installation 1

Item	Part Number	Description	Qty.
1	53210	Screw SHCS M08-1.25 x 25 ZP	2
2	53055	WSHR M08 Spring Washer ZP	2
3	50001	WSHR M08 Standard Flat Washer ZP	12
4	48256	Breaker Box	1
5	50048	Nut NNYL M08-1.25 ZP	6
6	48691	Bracket	1
7	53385	Screw SHCS M08-1.25 x 30 ZP	4
8	48692	Engine ECU	1
9	50038	Screw HHCS M12-1.75 x 25 ZP	4
10	53148	WSHR M12 Spring Washer ZP	4
11	50003	WSHR M12 Standard Flat Washer ZP	4

Kubota Engine Fuse Installation 2



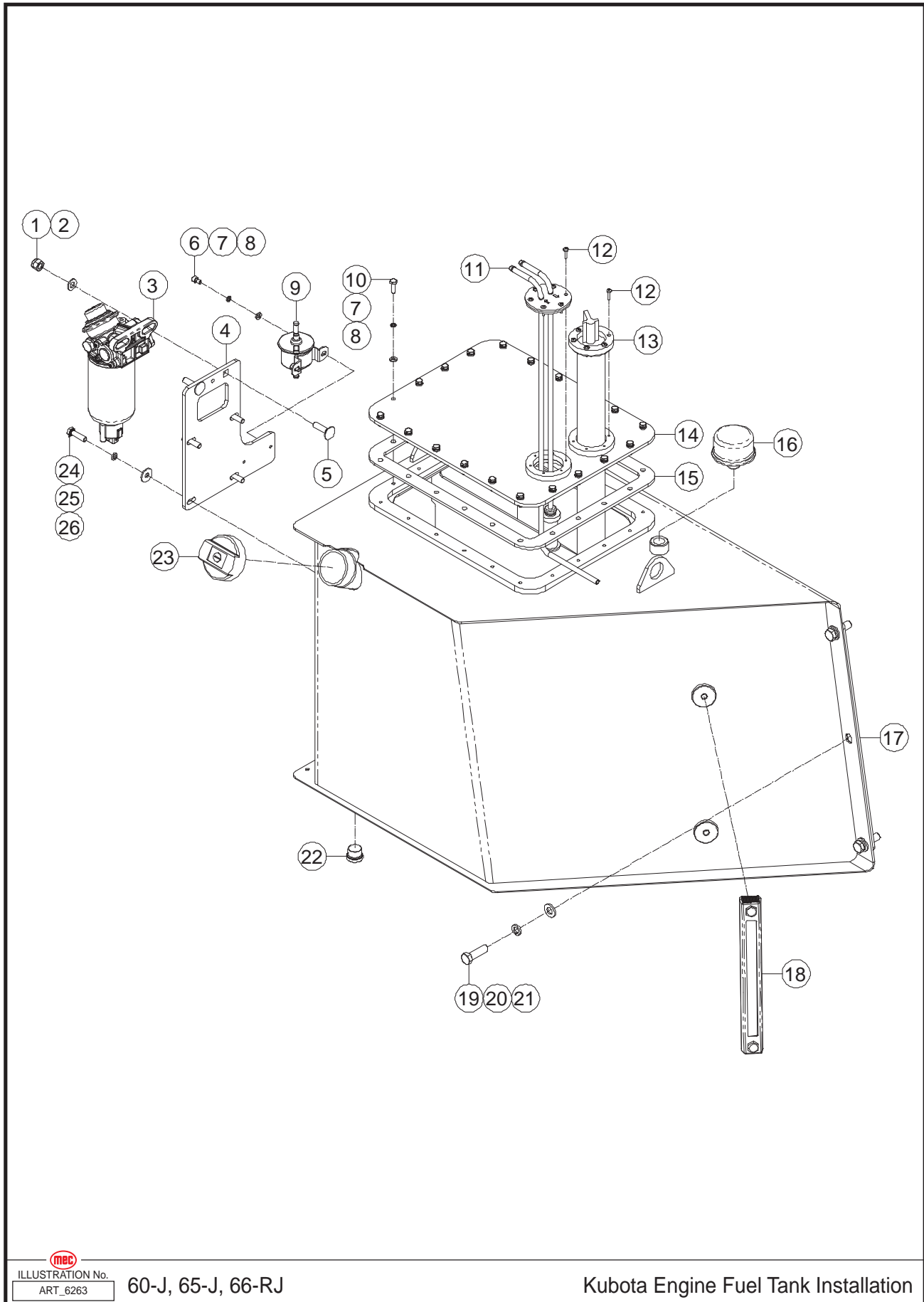
 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6262


Kubota Engine Fuse Installation 2

Item	Part Number	Description	Qty.
1	50047	Nut NNYL M06-1.00 ZP	4
2	50000	WSHR M06 Standard Flat Washer ZP	8
3	50048	Nut NNYL M08-1.25 ZP	4
4	50001	WSHR M08 Standard Flat Washer ZP	4
5	50524	Nut NNYL M05-0.80 ZP	3
6	43089	Relay	3
7	50359	Screw SHCS M05-0.80 x 16 ZP	3
8	53043	WSHR M05 Spring Washer ZP	3
9	53038	WSHR M05 Standard Flat Washer ZP	3
10	48693	Fuse Box	1
--	47700	Fuse Kit	1
11	REF	Power Distribution Module (Refer to page 250)	1
12	53123	Screw SHCS M06-1.00 x 25 ZP	4
13	53046	WSHR M06 Spring Washer ZP	4
14	50039	Screw HHCS M12-1.75 x 30 ZP	4
15	53148	WSHR M12 Spring Washer ZP	4
16	53478	WSHR M12 Flat Fender Washer ZP	4
17	48694	Bracket	1

REF - Reference

Kubota Engine Fuel Tank Installation



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6263

Kubota Engine Fuel Tank Installation

Item	Part Number	Description	Qty.
1	50049	Nut NNYL M10-1.50 ZP	2
2	50002	WSHR M10 Standard Flat Washer ZP	2
3	95087	Fuel-Water Separator	1
--	95503	Fuel-Water Separator Filter Element	1
--	95549	Fuel-Water Separator Switch	1
4	48696	Bracket	1
5	53558	Square Neck Carriage Bolt M10-1.50 x 35 ZP	2
6	53484	Screw SHCS M06-1.00 x 10 ZP	2
7	53046	WSHR M06 Spring Washer ZP	22
8	50000	WSHR M06 Standard Flat Washer ZP	22
9	95088	Fuel Pump	1
10	50028	Screw HHCS M06-1.00 x 20 ZP	20
11	48697	Suction Pipe	1
12	53520	Screw PHMS M04-0.70 x 16 ZP	12
13	47685	Fuel Level Sensor	1
14	47683	Cover	1
15	47684	Seal	1
16	47687	Filter	1
17	48698	Fuel Tank	1
18	47688	Fuel Level Indicator	1
19	53247	Screw HHCS M12-1.75 x 40 ZP	6
20	53148	WSHR M12 Spring Washer ZP	6
21	50003	WSHR M12 Standard Flat Washer ZP	6
22	47693	Tank Plug	1
23	47692	Fuel Tank Cap	1
24	50032	Screw HHCS M08-1.25 x 30 ZP	4
25	53055	WSHR M08 Spring Washer ZP	4
26	50218	WSHR M08 Flat Fender Washer ZP	4

PVG Valve Block Installation

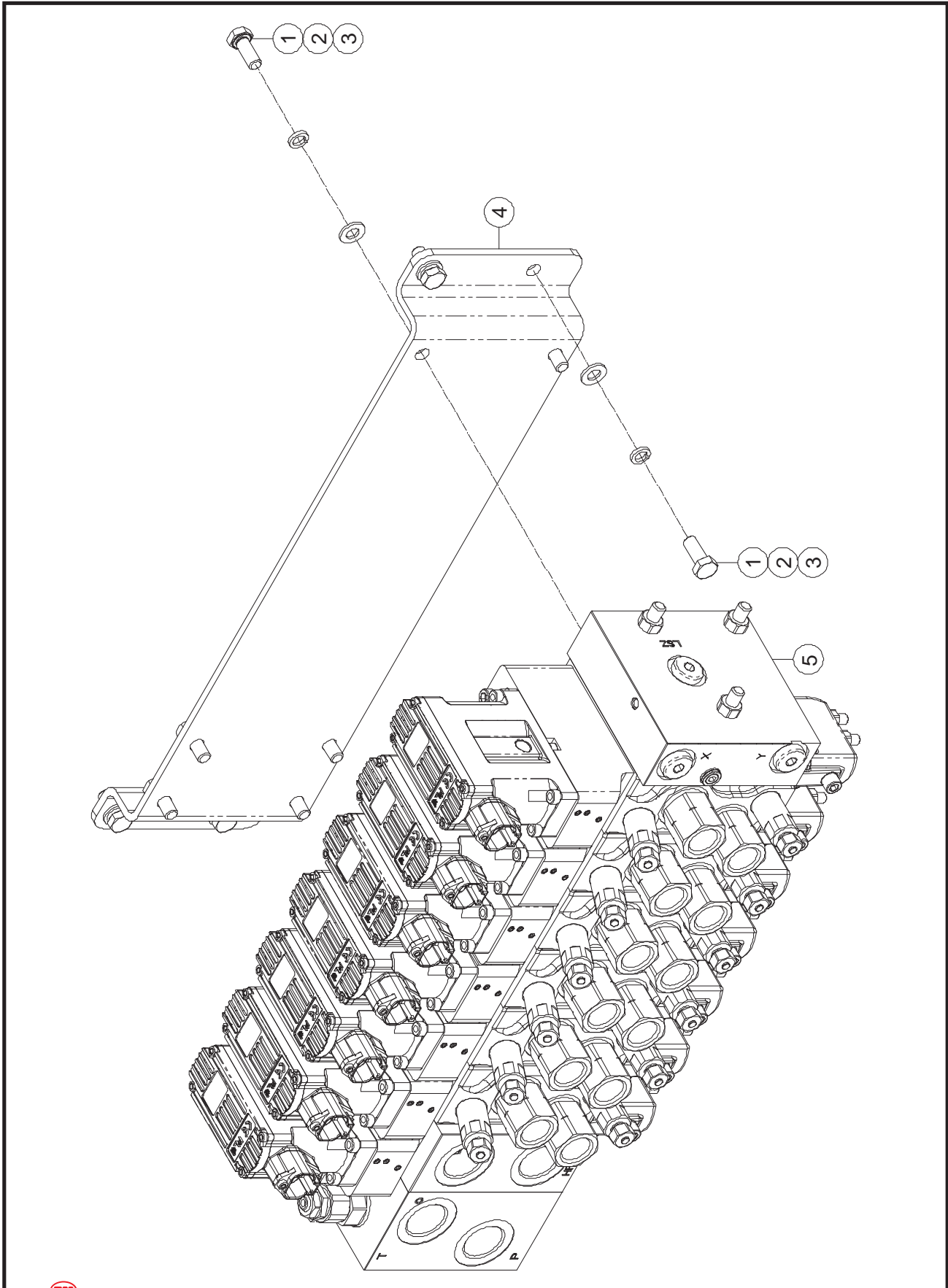



ILLUSTRATION No.
ART_6273

60-J, 65-J, 66-RJ

PVG Valve Block Installation

Item	Part Number	Description	Qty.
1	50030	Screw HHCS M08-1.25 x 20 ZP	10
2	53055	WSHR M08 Spring Washer ZP	10
3	50001	WSHR M08 Standard Flat Washer ZP	10
4	49458	Bracket	1
5	REF	PVG Valve Block Assembly (Refer to page 144)	1

REF - Reference

PVG Valve Block Assembly

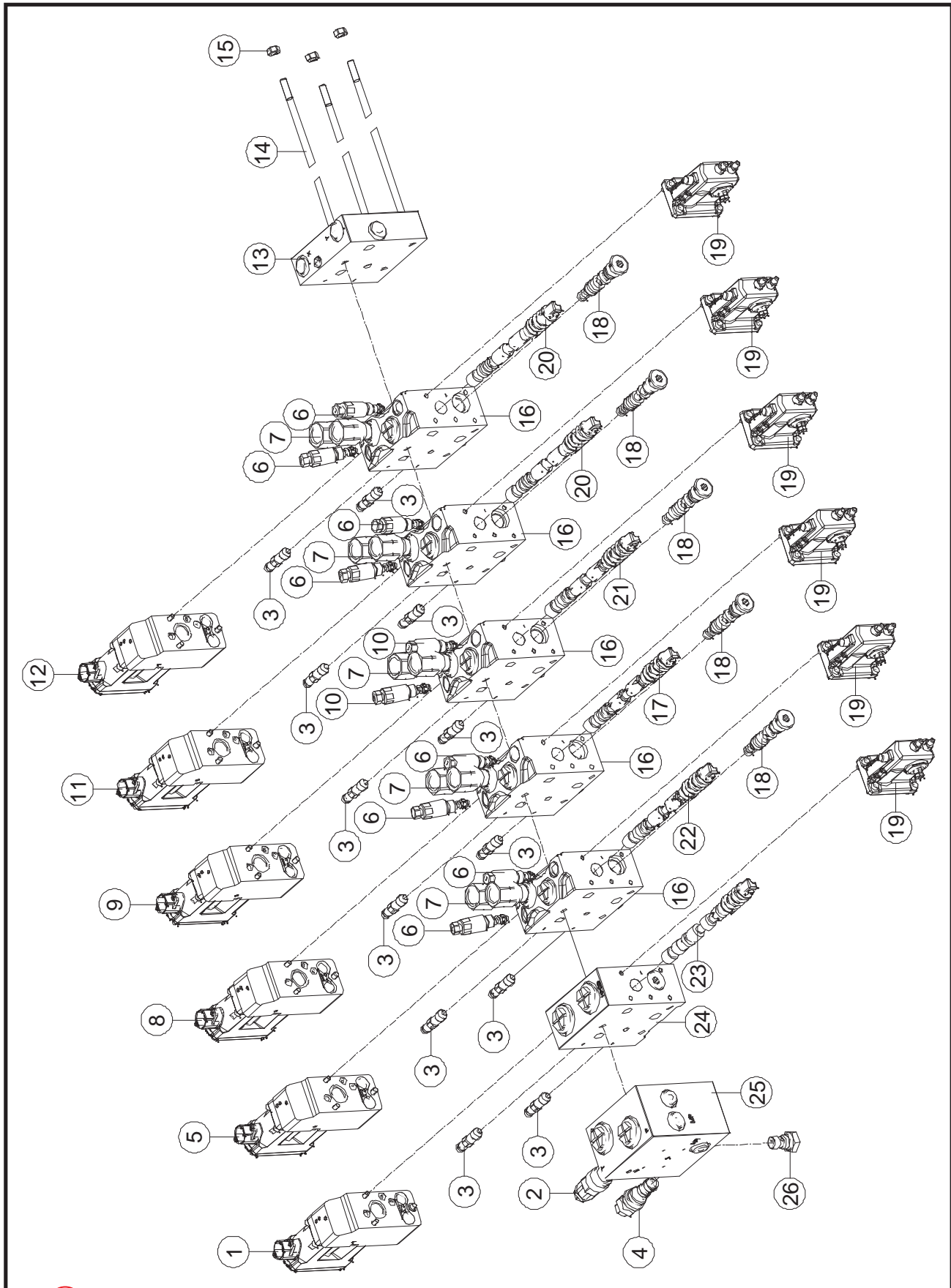
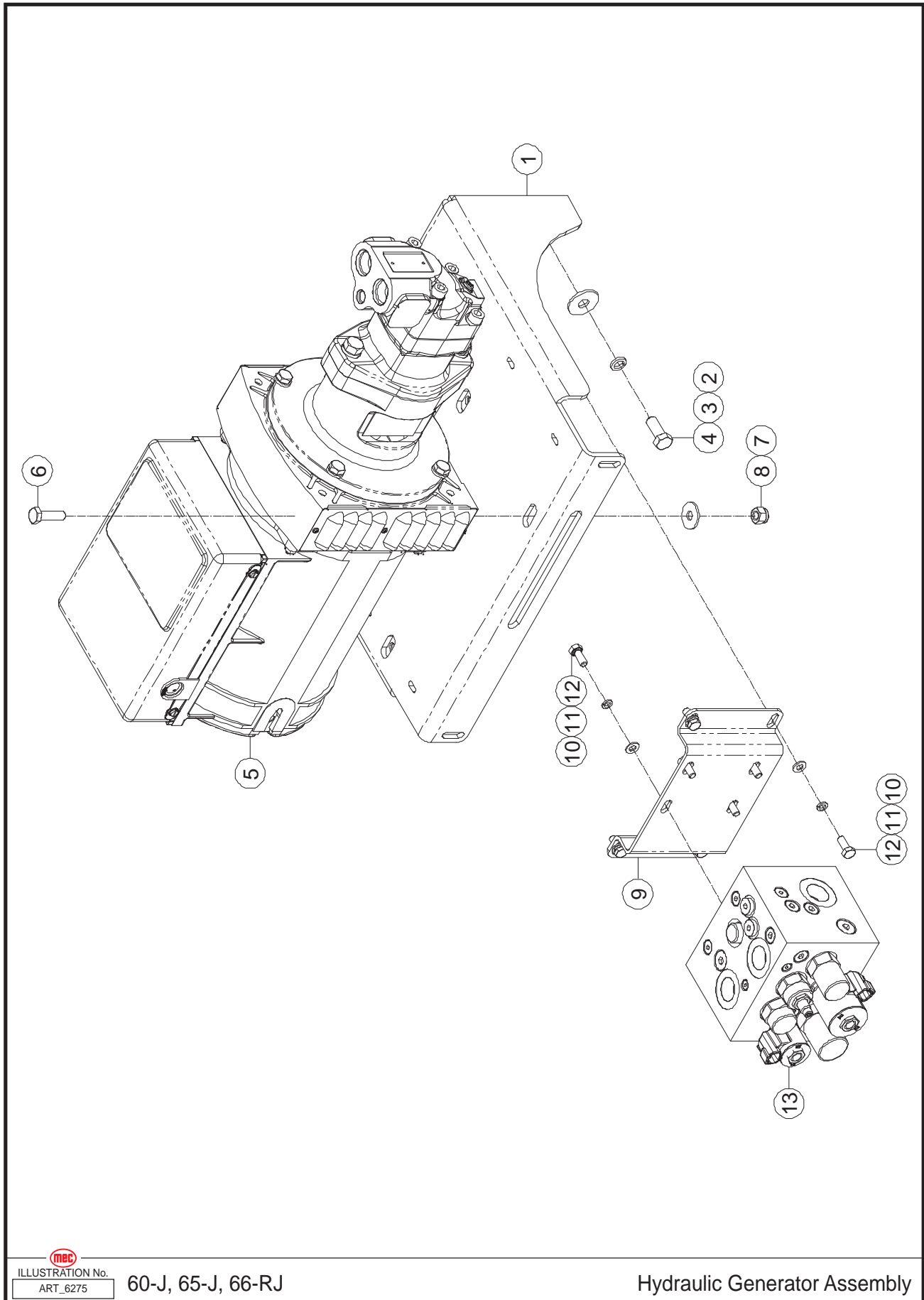



 ILLUSTRATION No. 66-RJ
ART_6576

PVG Valve Block Assembly

Item	Part Number	Description	Qty.
--	49459	PVG Valve Block Assembly	--
1	48717	Electric Control Unit	1
--	48718	Seal Kit	1
2	48719	Cartridge, Safe Valve	1
3	48720	Plug	12
4	48721	Cartridge, Relief Valve	1
5	48722	Electric Control Unit	1
--	48718	Seal Kit	1
6	48723	Cartridge, Relief Valve	8
7	48724	Fittings	10
8	48725	Electric Control Unit	1
--	48718	Seal Kit	1
9	48726	Electric Control Unit	1
--	48718	Seal Kit	1
10	48727	Cartridge, Relief Valve	2
11	48728	Electric Control Unit	1
--	48718	Seal Kit	1
12	48729	Electric Control Unit	1
--	48718	Seal Kit	1
13	48731	Cover	1
--	48732	Seal Kit	1
14	48733	Bolt	3
15	48734	Nut	3
16	48735	Work Unit	5
--	48736	Seal Kit	5
17	48737	Directional Cartridge	1
18	48738	Cartridge, Pressure-Compensated	5
19	48739	Manual Unit	6
--	48740	Seal Kit	6
20	48741	Directional Cartridge	2
21	48742	Directional Cartridge	1
22	48743	Directional Cartridge	1
23	48744	Directional Cartridge	1
24	48745	Work Unit	1
--	48746	Seal Kit	1
25	48747	Inlet Unit	1
--	48748	Seal Kit	1
26	48749	Filter Assembly	1

Hydraulic Generator Assembly



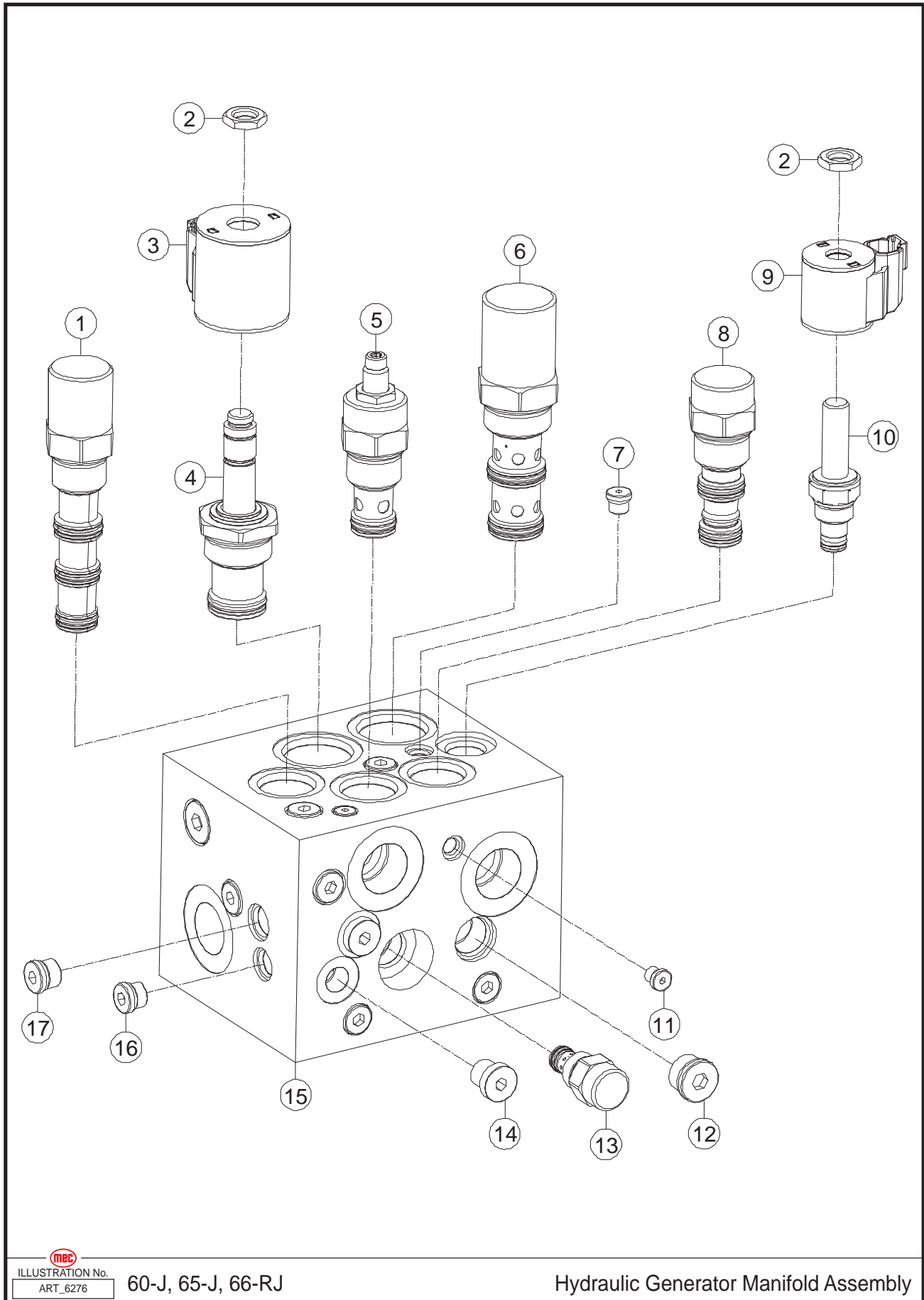
 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6275


Hydraulic Generator Assembly

Item	Part Number	Description	Qty.
1	48750	Bracket	1
2	53478	WSHR M12 Flat Fender Washer ZP	6
3	53148	WSHR M12 Spring Washer ZP	6
4	50039	Screw HHCS M12-1.75 x 30 ZP	6
5	47729	Hydraulic Generator	1
6	50332	Screw HHCS M10-1.50 x 35 ZP	3
7	53375	WSHR M10 Flat Fender Washer ZP	3
8	50049	Nut NNYL M10-1.50 ZP	3
9	47733	Bracket	1
10	50001	WSHR M08 Standard Flat Washer ZP	8
11	53055	WSHR M08 Spring Washer ZP	8
12	50030	Screw HHCS M08-1.25 x 20 ZP	8
13	REF	Hydraulic Generator Manifold Assembly (Refer to page 148)	1

REF - Reference

Hydraulic Generator Manifold Assembly



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6276

Hydraulic Generator Manifold Assembly

Item	Part Number	Description	Qty.
--	47734	Hydraulic Generator Manifold Assembly	--
1	47735	Cartridge, Flow Control Valve	1
2	42795	Nut	2
3	47736	Coil	1
4	47737	Cartridge, Proportional Solenoid Valve	1
5	47738	Cartridge, Flow Control Valve	1
6	47739	Cartridge, Flow Control Valve	1
7	43643	Plug	1
8	47740	Cartridge, Logic Valve	1
9	47741	Coil	1
10	43372	Cartridge, Solenoid Valve	1
11	43465	Plug	5
12	43417	Plug	4
13	47742	Cartridge, Flow Control Valve	1
14	46869	Plug	2
15	47743	Body	1
16	42802	Plug	5
17	43434	Plug	4

Hydraulic Support Installation 1

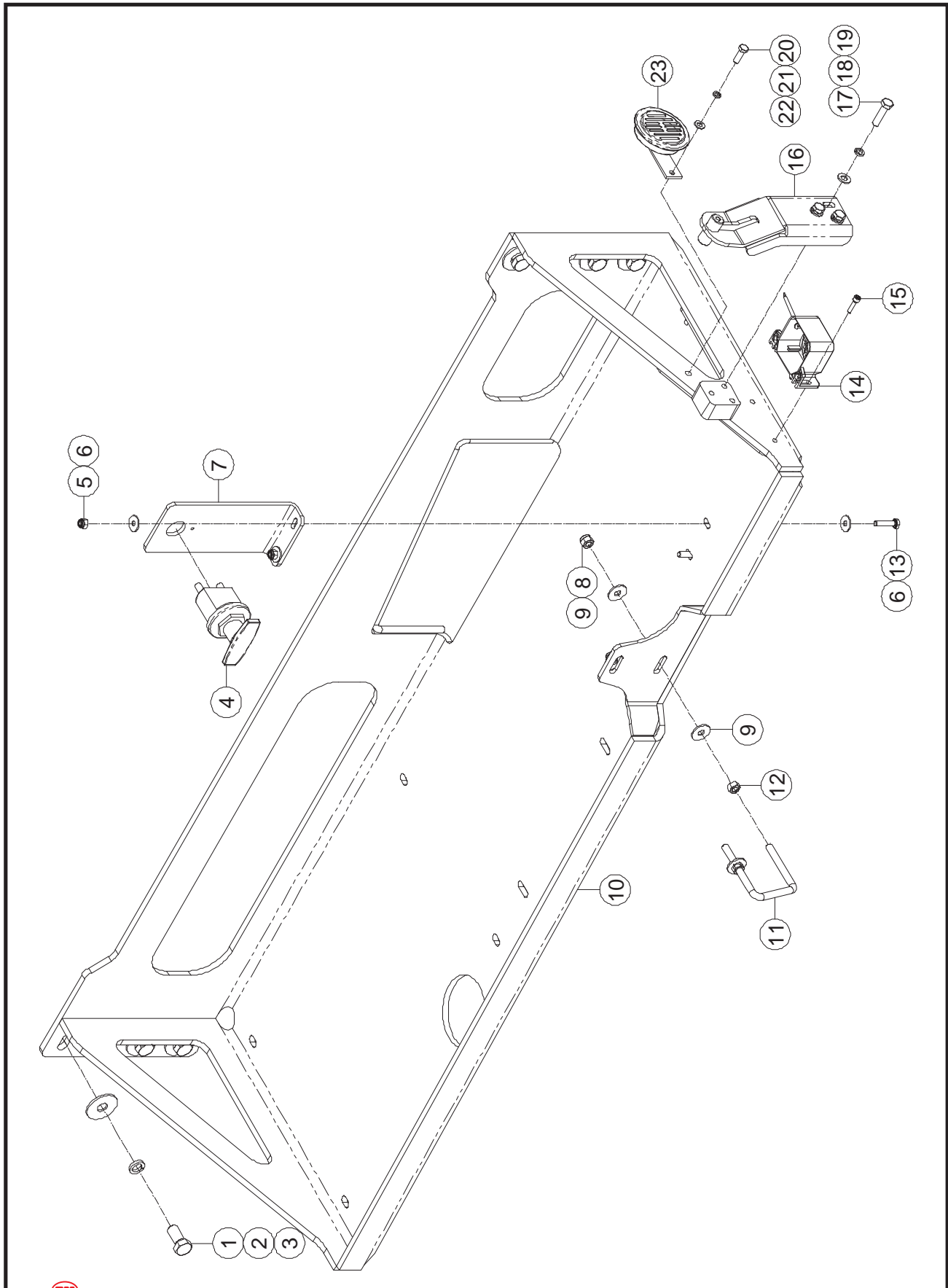


 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6277

Hydraulic Support Installation 1

Item	Part Number	Description	Qty.
1	50374	Screw HHCS M16-2.00 x 35 ZP	8
2	53149	WSHR M16 Spring Washer ZP	8
3	53314	WSHR M16 Flat Fender Washer ZP	8
4	47758	Power Switch	1
5	50048	Nut NNYL M08-1.25 ZP	2
6	50218	WSHR M08 Flat Fender Washer ZP	4
7	48751	Bracket	1
8	50049	Nut NNYL M10-1.50 ZP	2
9	53375	WSHR M10 Flat Fender Washer ZP	4
10	48752	Support	1
11	48666	U-Bolt	1
12	53373	Nut NHEX M10-1.50 ZP	2
13	50282	Screw HHCS M08-1.25 x 35 ZP	2
14	47752	Alarm	1
15	53123	Screw SHCS M06-1.00 x 25 ZP	2
16	48753	Bracket	1
17	50237	Screw HHCS M10-1.50 x 40 ZP	3
18	53054	WSHR M10 Spring Washer ZP	3
19	50002	WSHR M10 Standard Flat Washer ZP	3
20	50031	Screw HHCS M08-1.25 x 25 ZP	1
21	53055	WSHR M08 Spring Washer ZP	1
22	50001	WSHR M08 Standard Flat Washer ZP	1
23	43243	Horn	1

Hydraulic Support Installation 2

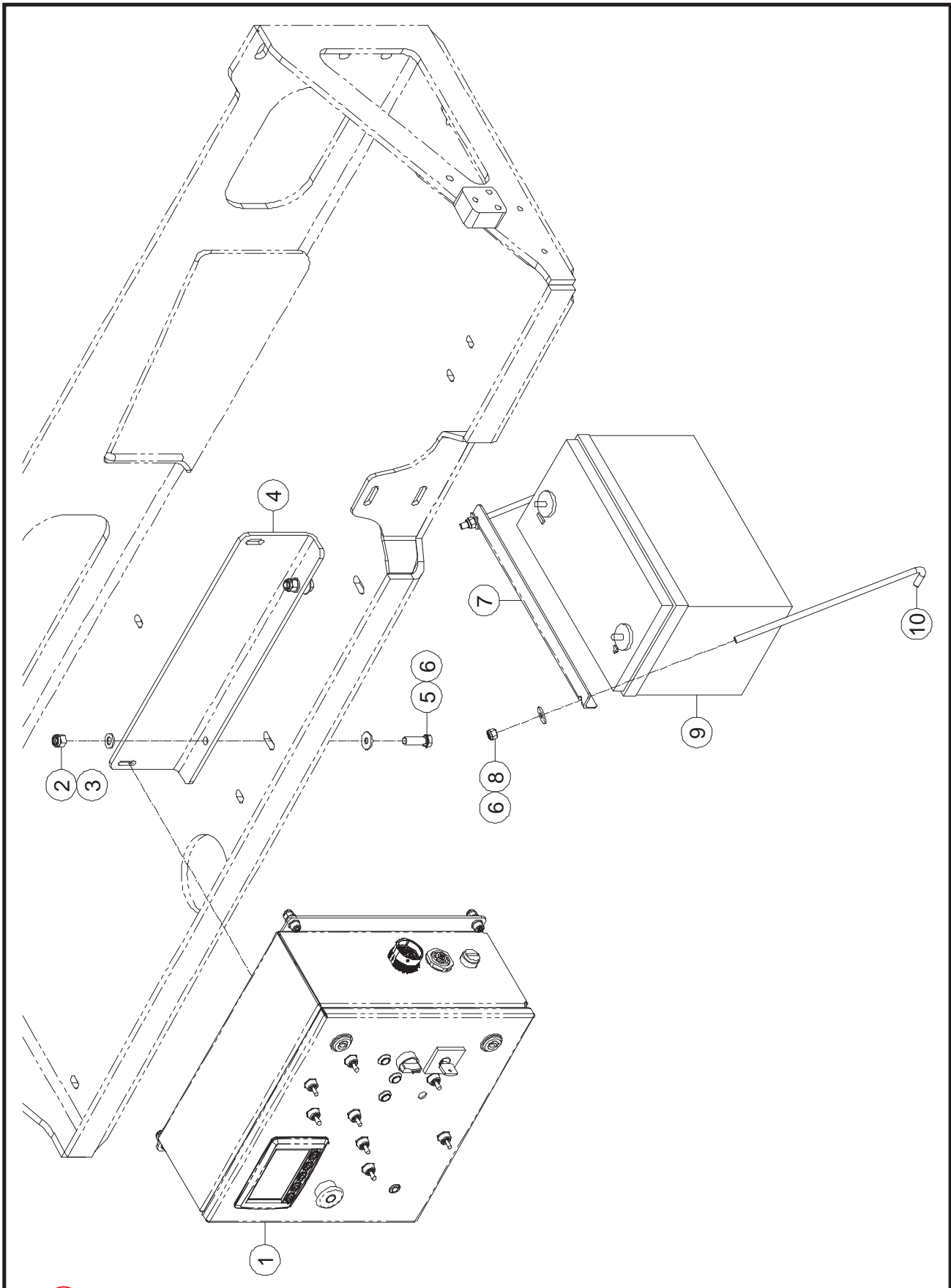


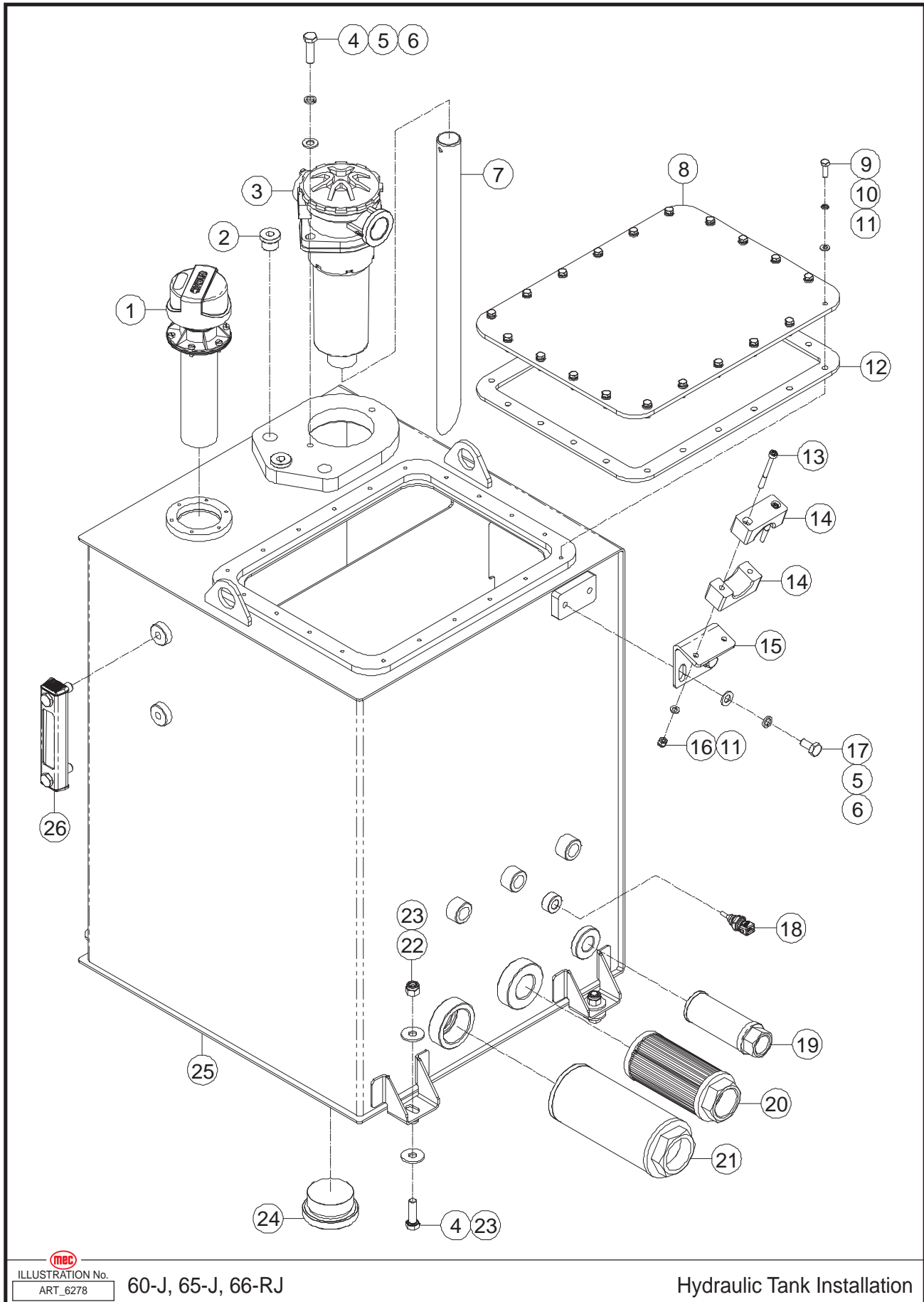
 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6277


Hydraulic Support Installation 2

Item	Part Number	Description	Qty.
1	REF	Ground Control Box Assembly (Refer to page 254)	1
2	50049	Nut NNYL M10-1.50 ZP	2
3	50002	WSHR M10 Standard Flat Washer ZP	2
4	47746	Bracket	1
5	50332	Screw HHCS M10-1.50 x 35 ZP	2
6	50218	WSHR M08 Flat Fender Washer ZP	4
7	47747	Retainer	1
8	50048	Nut NNYL M08-1.25 ZP	2
9	43144	Battery	1
10	48754	Hook, Battery Hold Down	2

REF - Reference

Hydraulic Tank Installation



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6278

Hydraulic Tank Installation

Item	Part Number	Description	Qty.
1	47764	Vent Plug	1
2	47693	Tank Plug, Top	2
3	47762	Hydraulic Oil Return Filter	1
--	48180	Hydraulic Oil Return Filter Element	1
4	50332	Screw HHCS M10-1.50 x 35 ZP	6
5	53054	WSHR M10 Spring Washer ZP	8
6	50002	WSHR M10 Standard Flat Washer ZP	4
7	47763	Pipe	1
8	48755	Cover	1
9	50028	Screw HHCS M06-1.00 x 20 ZP	20
10	53046	WSHR M06 Spring Washer ZP	20
11	50000	WSHR M06 Standard Flat Washer ZP	22
12	47684	Seal	1
13	53142	Screw SHCS M06-1.00 x 65 ZP	2
14	47774	Clamp	2
15	47773	Bracket	1
16	50047	Nut NNYL M06-1.00 ZP	2
17	50215	Screw HHCS M10-1.50 x 20 ZP	2
18	47772	Temperature Sensor	1
19	47768	Filter Cartridge, Small	1
20	43123	Filter Cartridge, Medium	1
21	47767	Filter Cartridge, Large	1
22	50049	Nut NNYL M10-1.50 ZP	4
23	53375	WSHR M10 Flat Fender Washer ZP	8
24	47766	Tank Plug, Bottom	1
25	48756	Hydraulic Tank	1
26	47765	Hydraulic Level Indicator	1

Turntable Components, Part 1

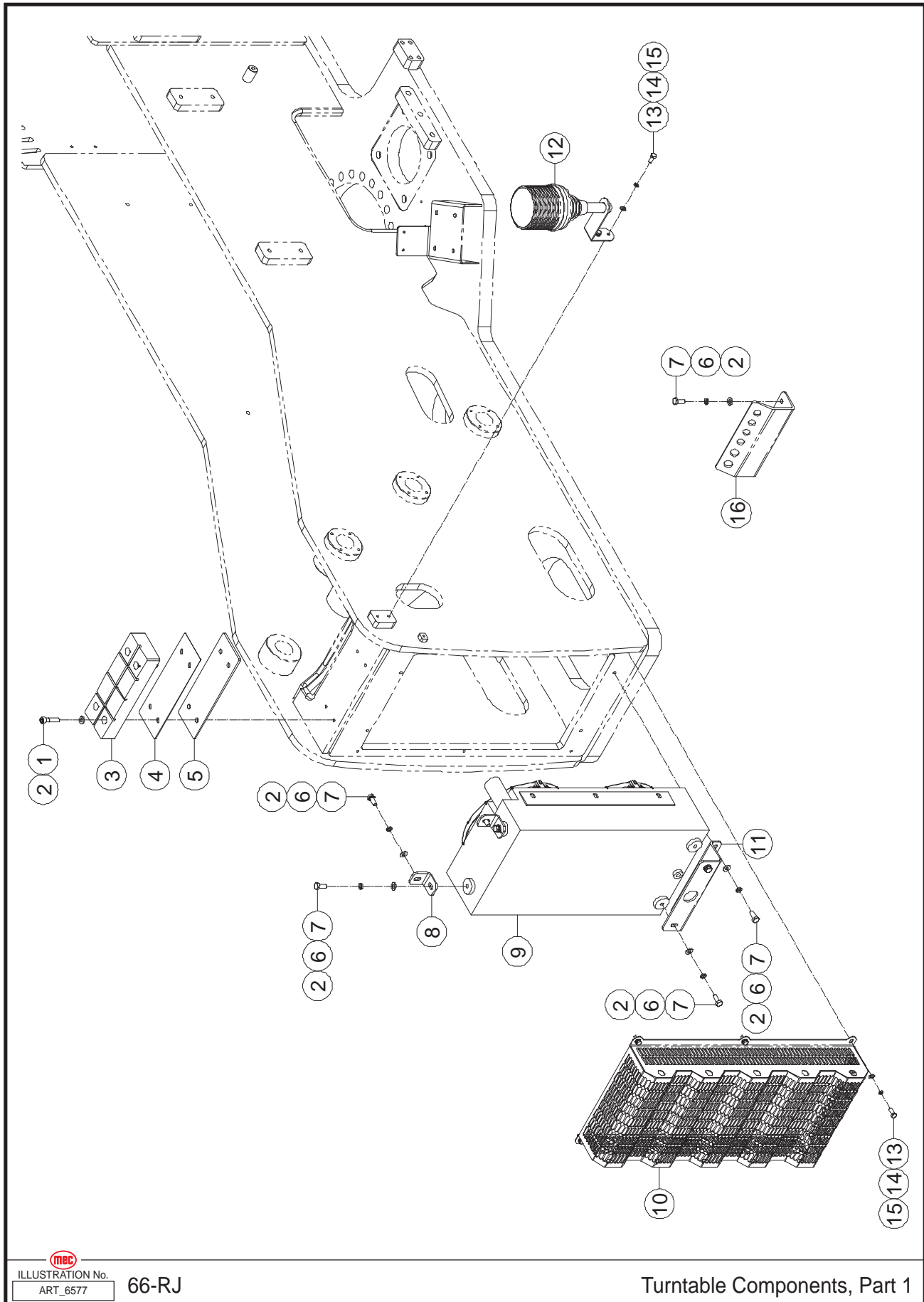


 ILLUSTRATION No. 66-RJ
ART_6577

Turntable Components, Part 1

Item	Part Number	Description	Qty.
1	50515	Screw SHCS M10-1.50 x 45 ZP	4
2	50002	WSHR M10 Standard Flat Washer ZP	15
3	47775	Boom Pad	1
4	47865	Shim	1
5	47866	Shim	1
6	53054	WSHR M10 Spring Washer ZP	11
7	50033	Screw HHCS M10-1.50 x 25 ZP	11
8	47873	Plate	2
9	47872	Radiator	1
10	48758	Housing	1
11	48759	Bracket	1
12	47867	Beacon	1
13	50030	Screw HHCS M08-1.25 x 20 ZP	8
14	53055	WSHR M08 Spring Washer ZP	8
15	50001	WSHR M08 Standard Flat Washer ZP	8
16	49460	Bracket, Hose Support	1

Turntable Components, Part 2

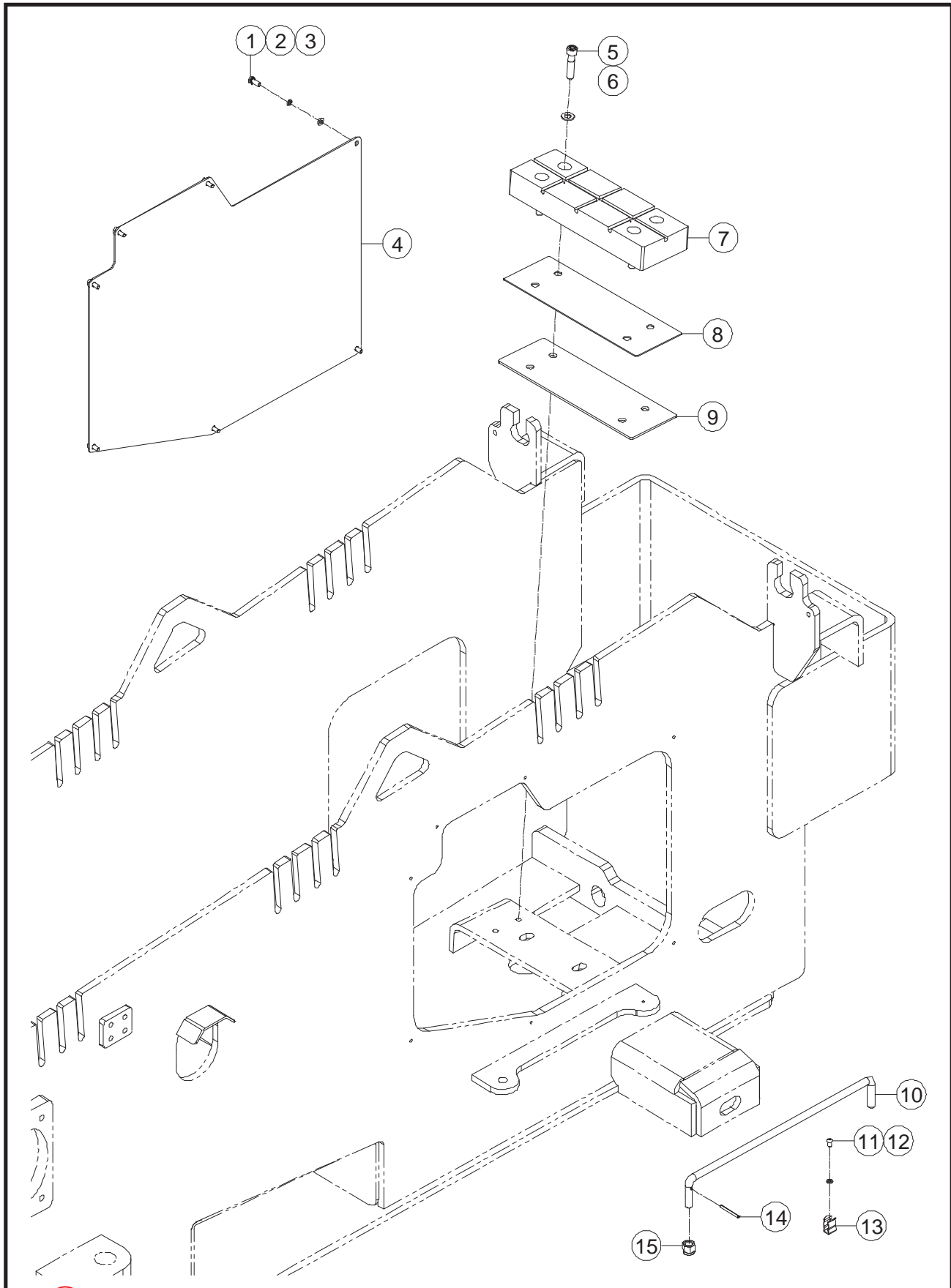
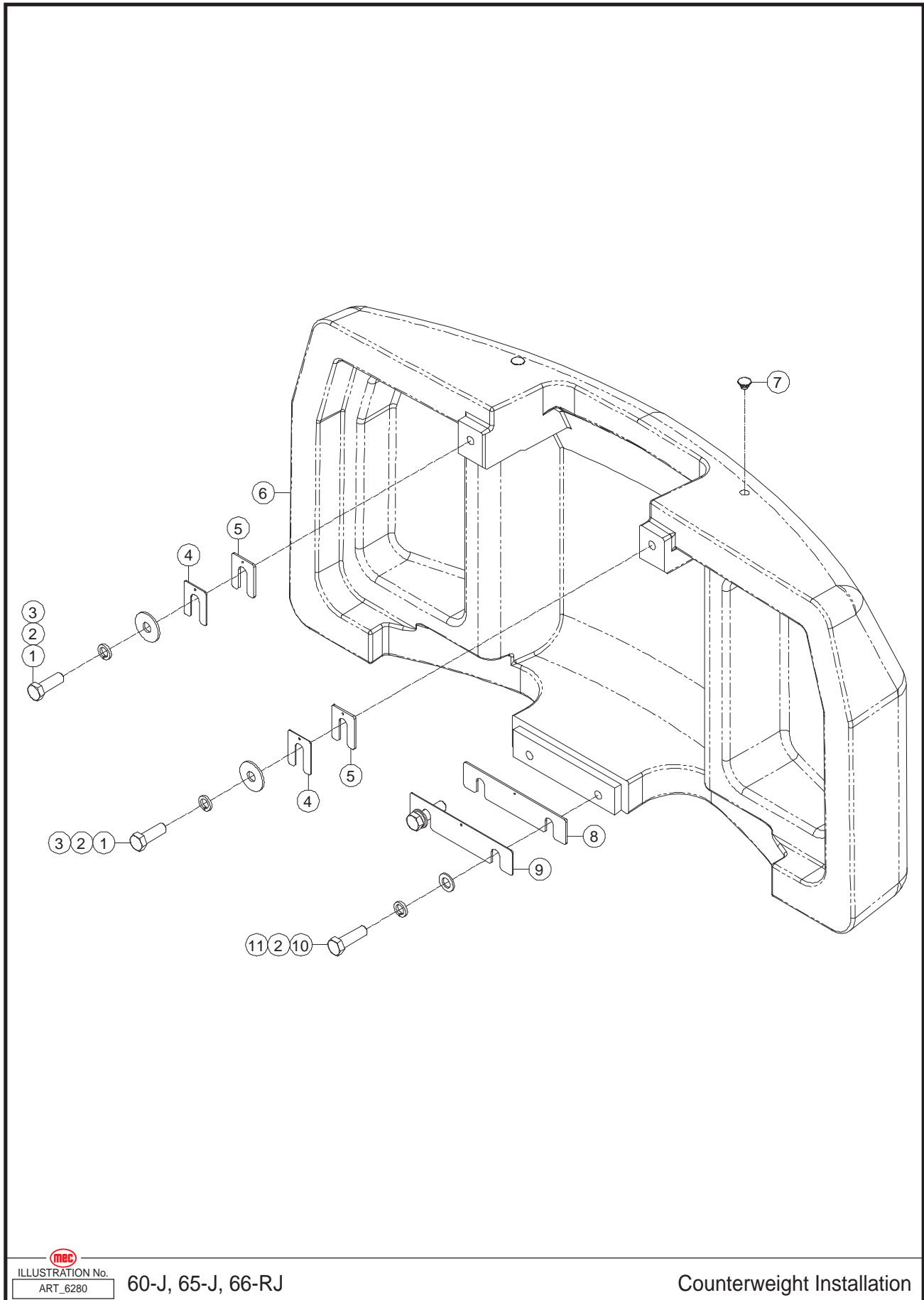



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6279

Turntable Components, Part 2

Item	Part Number	Description	Qty.
Items 1-4 for Early Models Only (Up to serial # 24400139)			
1	50445	Screw HHCS M06-1.00 x 16 ZP	7
2	53046	WSHR M06 Spring Washer ZP	7
3	50000	WSHR M06 Standard Flat Washer ZP	7
4	48761	Cover	1
For All Models			
5	50515	Screw SHCS M10-1.50 x 45 ZP	4
6	50002	WSHR M10 Standard Flat Washer ZP	4
7	47775	Boom Pad	1
8	47865	Shim	1
9	47866	Shim	1
10	48762	Stay Bar	1
11	53175	Screw BHCS M05-0.80 x 10 ZP	1
12	53038	WSHR M05 Standard Flat Washer ZP	1
13	48763	Clamp	1
14	48764	Pin	1
15	50050	Nut NNYL M12-1.75 ZP	1

Counterweight Installation

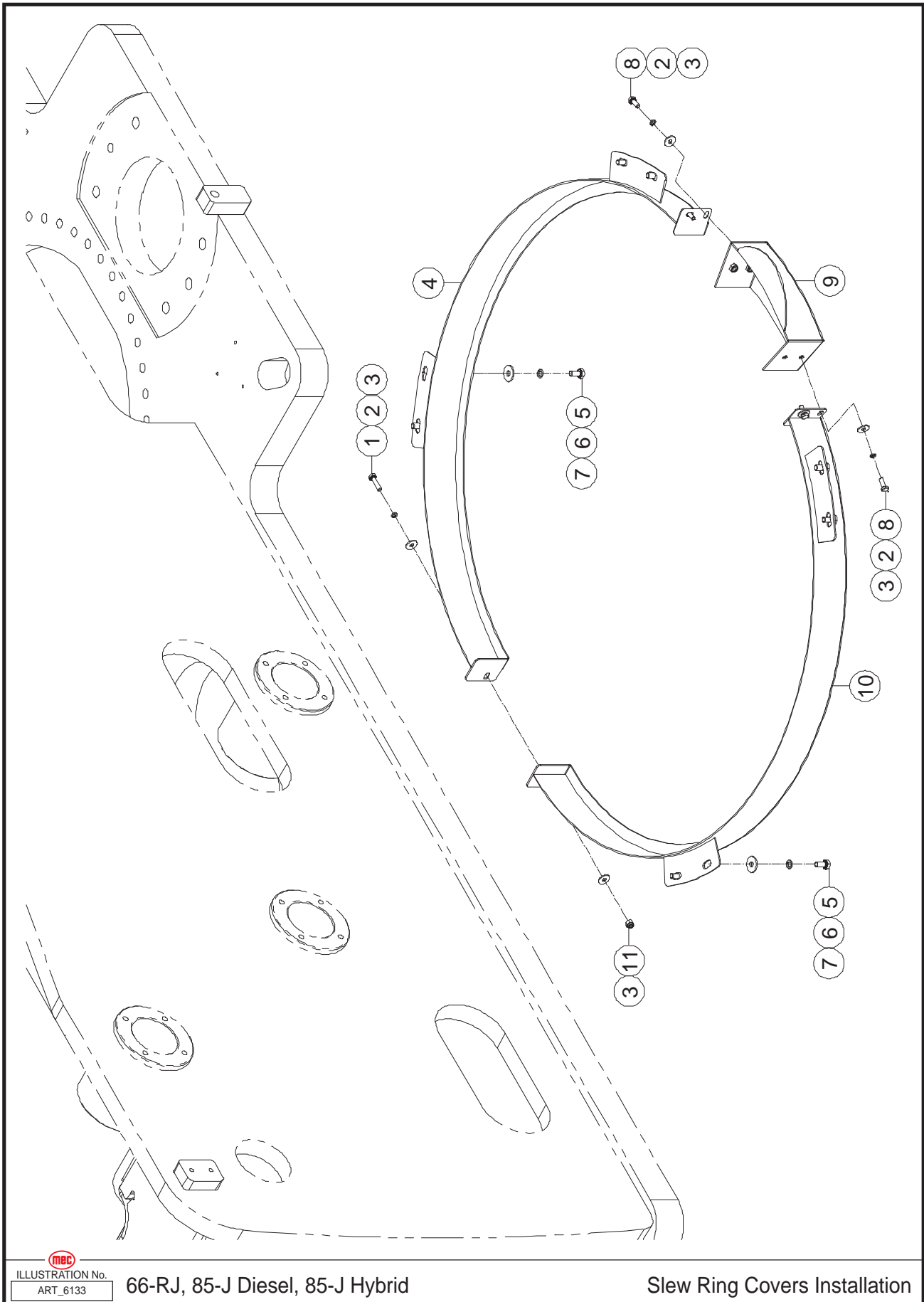



 ILLUSTRATION No. ART_6280 60-J, 65-J, 66-RJ

Counterweight Installation

Item	Part Number	Description	Qty.
1	53395	Screw HHCS M30-3.50 x 80 ZP	4
2	53560	WSHR M30 Spring Washer ZP	4
3	53561	WSHR M30 Standard Flat Washer ZP	4
4	49461	Shim, Inner Small	2
5	49462	Shim, Outer Small	2
6	49463	Counterweight	1
7	46735	Plug	2
8	49464	Shim, Outer Long	1
9	49465	Shim, Inner Long	1

Slew Ring Covers Installation

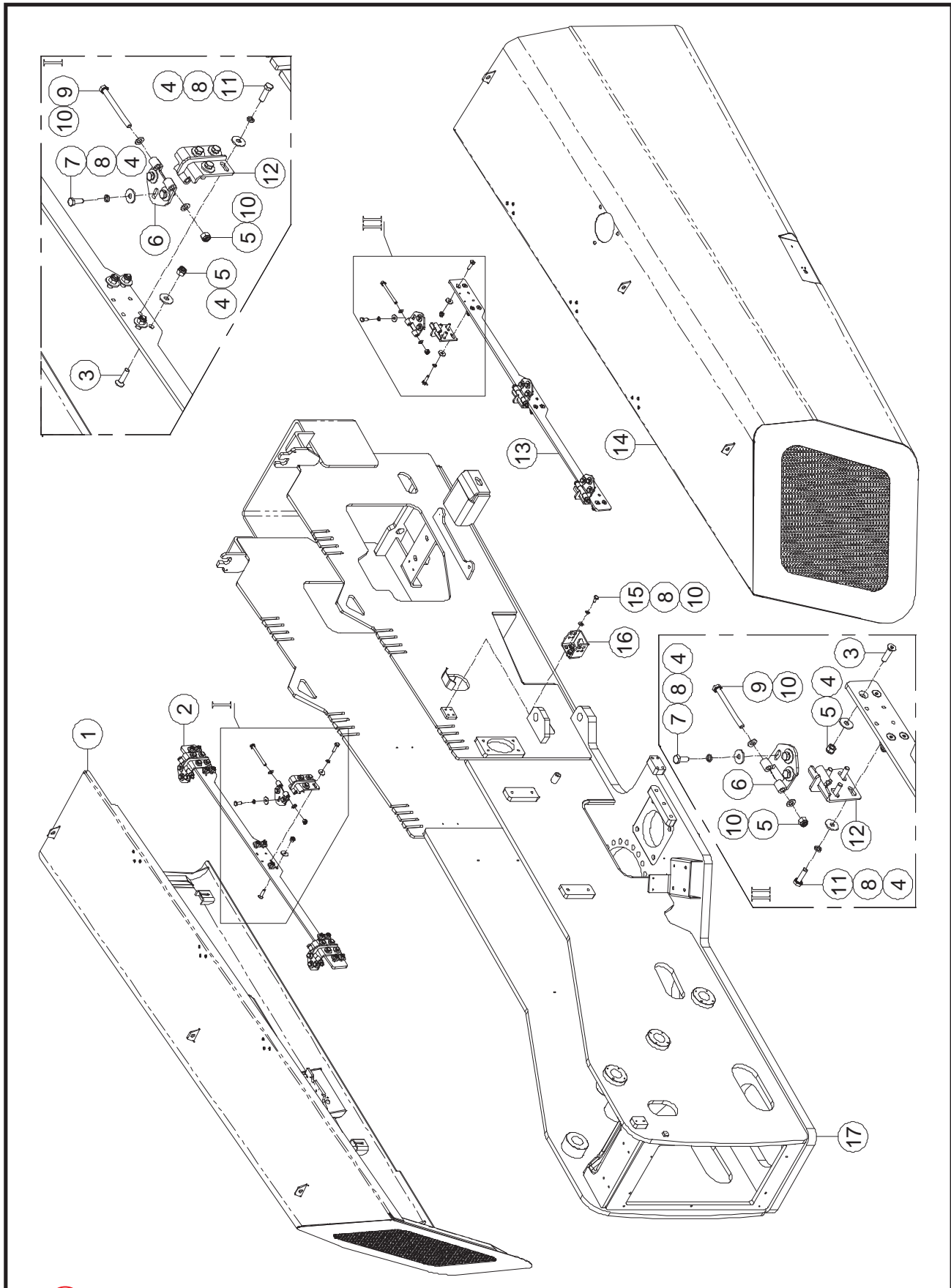



 ILLUSTRATION No. 66-RJ, 85-J Diesel, 85-J Hybrid
ART_6133

Slew Ring Covers Installation

Item	Part Number	Description	Qty.
1	50117	Screw HHCS M06-1.00 x 25 ZP	1
2	53046	WSHR M06 Spring Washer ZP	5
3	50068	WSHR M06 Flat Fender Washer ZP	6
4	47886	Cover, Rear Slew Ring	1
5	53154	Screw HHCS M08-1.25 x 16 ZP	8
6	53055	WSHR M08 Spring Washer ZP	8
7	50218	WSHR M08 Flat Fender Washer ZP	8
8	50445	Screw HHCS M06-1.00 x 16 ZP	4
9	47887	Cover, Slew Ring Connector	1
10	47888	Cover, Front Slew Ring	1
11	50047	Nut NNYL M06-1.00 ZP	1

Turntable Hood Installations



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6281

Turntable Hood Installations

Item	Part Number	Description	Qty.
1	48772	Hood, Control	1
2	48773	Plate	1
3	53230	Screw CSCS M10-1.50 x 40 ZP	24
4	53375	WSHR M10 Flat Fender Washer ZP	66
5	50049	Nut NNYL M10-1.50 ZP	30
6	48774	Top Hinge Hood	6
7	50033	Screw HHCS M10-1.50 x 25 ZP	18
8	53054	WSHR M10 Spring Washer ZP	46
9	50257	Screw HHCS M10-1.50 x 110 ZP	6
10	50002	WSHR M10 Standard Flat Washer ZP	16
11	50332	Screw HHCS M10-1.50 x 35 ZP	24
12	48775	Bottom Hinge Hood	6
13	48776	Plate	1
14	48777	Hood, Engine	1
15	50215	Screw HHCS M10-1.50 x 20 ZP	4
16	48778	Bracket	1
17	49466	Turntable	1

Control Hood Components

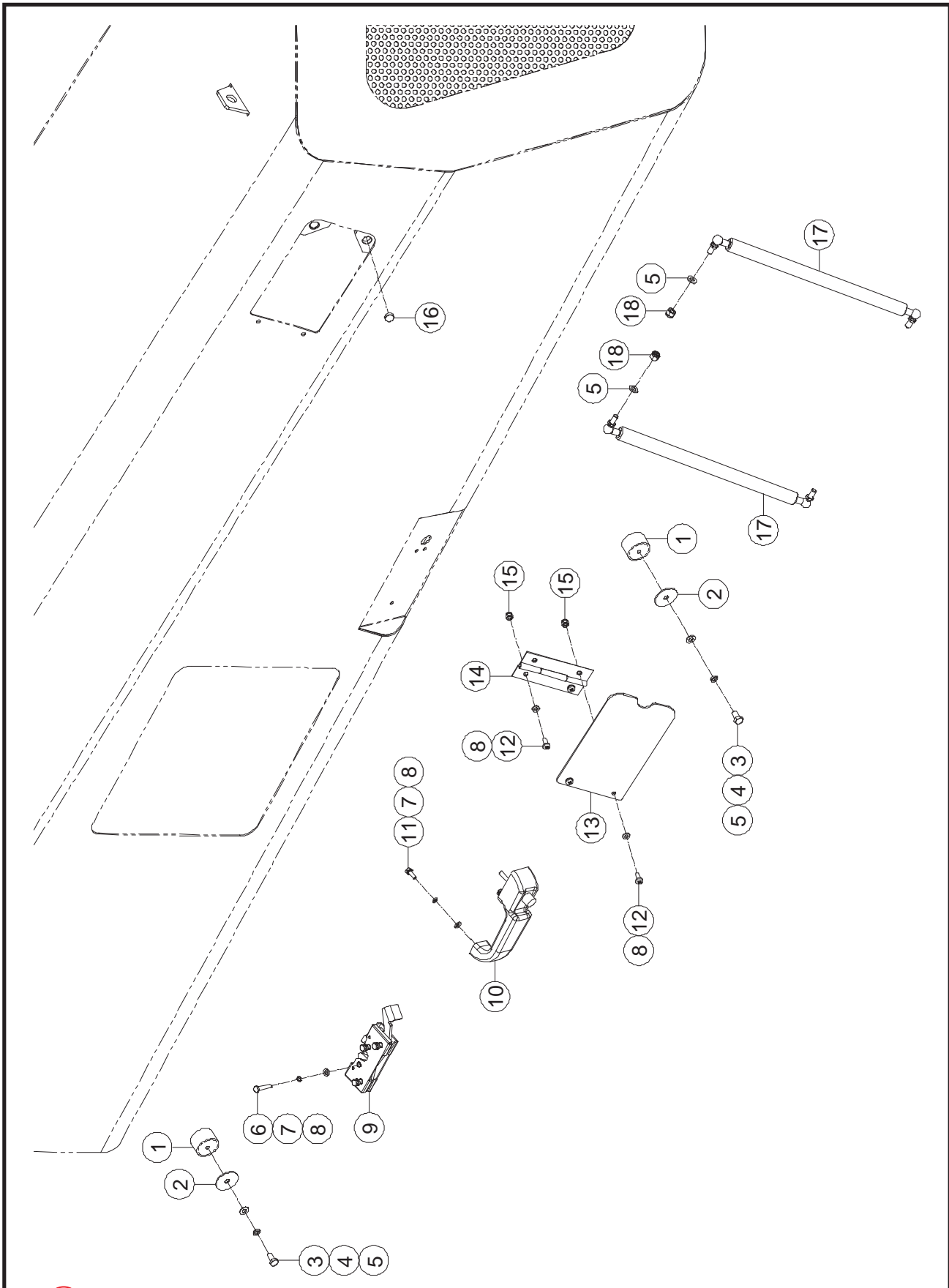
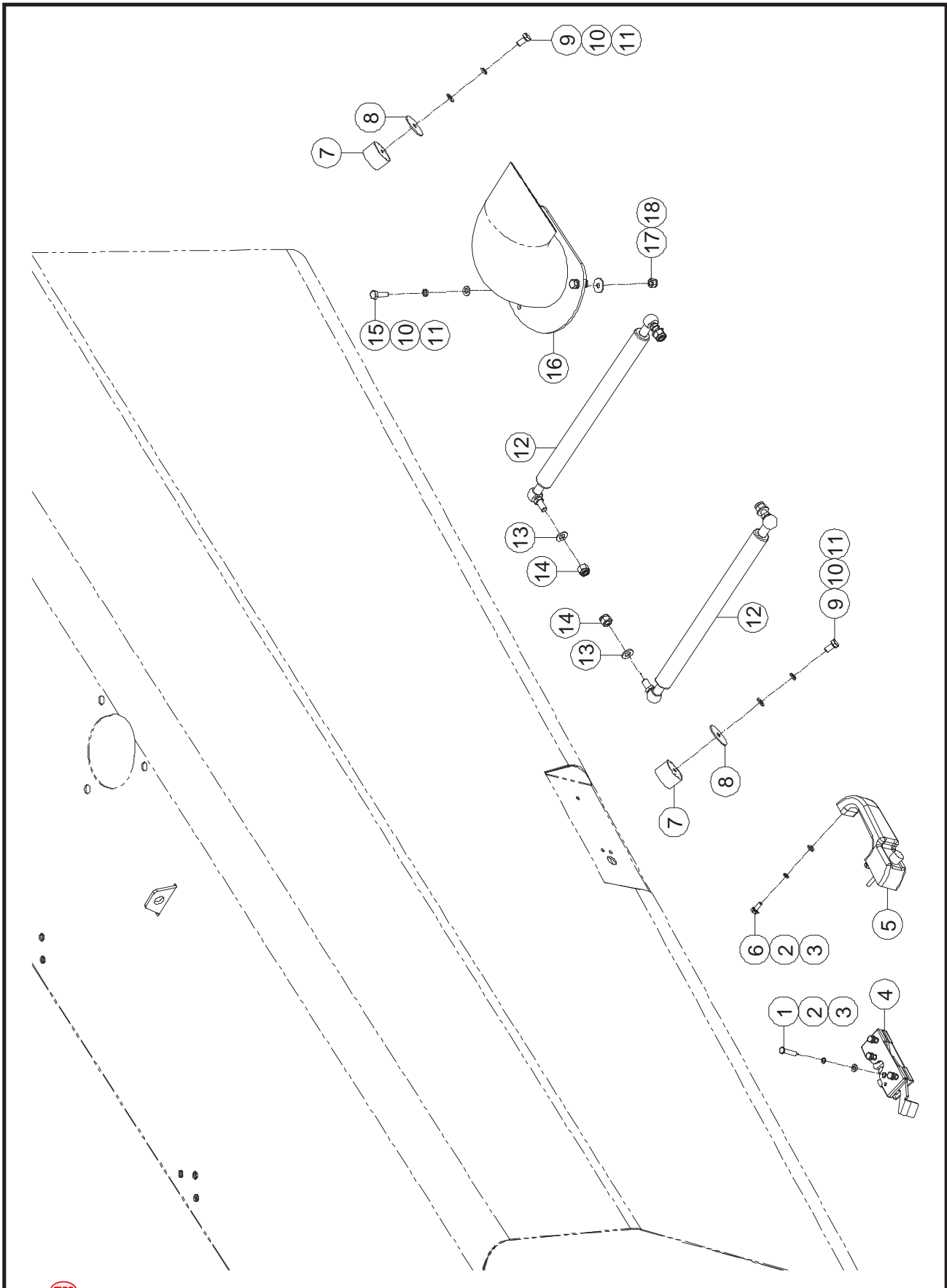



 ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6282

Control Hood Components

Item	Part Number	Description	Qty.
1	47614	Rubber Mounting	2
2	48189	Shim	2
3	53154	Screw HHCS M08-1.25 x 16 ZP	2
4	53055	WSHR M08 Spring Washer ZP	2
5	50001	WSHR M08 Standard Flat Washer ZP	4
6	50214	Screw HHCS M06-1.00 x 30 ZP	4
7	53046	WSHR M06 Spring Washer ZP	7
8	50000	WSHR M06 Standard Flat Washer ZP	11
9	41067	Lock	1
10	42353	Doorknob	1
11	50445	Screw HHCS M06-1.00 x 16 ZP	3
12	53231	Screw PHMS M06-1.00 x 16 ZP	4
13	47901	Door	1
14	47899	Hinge	1
15	50047	Nut NNYL M06-1.00 ZP	4
16	43053	Magnet	2
17	48780	Control Turntable Hood Gas Spring	2
18	50048	Nut NNYL M08-1.25 ZP	2

Engine Hood Components




ILLUSTRATION No. 60-J, 65-J, 66-RJ
ART_6283

Engine Hood Components

Item	Part Number	Description	Qty.
1	50214	Screw HHCS M06-1.00 x 30 ZP	4
2	53046	WSHR M06 Spring Washer ZP	7
3	50000	WSHR M06 Standard Flat Washer ZP	7
4	42896	Lock	1
5	42353	Doorknob	1
6	50445	Screw HHCS M06-1.00 x 16 ZP	3
7	47614	Rubber Mounting	2
8	48189	Shim	2
9	53154	Screw HHCS M08-1.25 x 16 ZP	2
10	53055	WSHR M08 Spring Washer ZP	5
11	50001	WSHR M08 Standard Flat Washer ZP	5
12	48781	Engine Turntable Hood Gas Spring	2
13	50002	WSHR M10 Standard Flat Washer ZP	4
14	50049	Nut NNYL M10-1.50 ZP	4
15	50031	Screw HHCS M08-1.25 x 25 ZP	3
16	47895	Exhaust Tube	1
17	50048	Nut NNYL M08-1.25 ZP	3
18	50218	WSHR M08 Flat Fender Washer ZP	3

Slew Ring Grease System

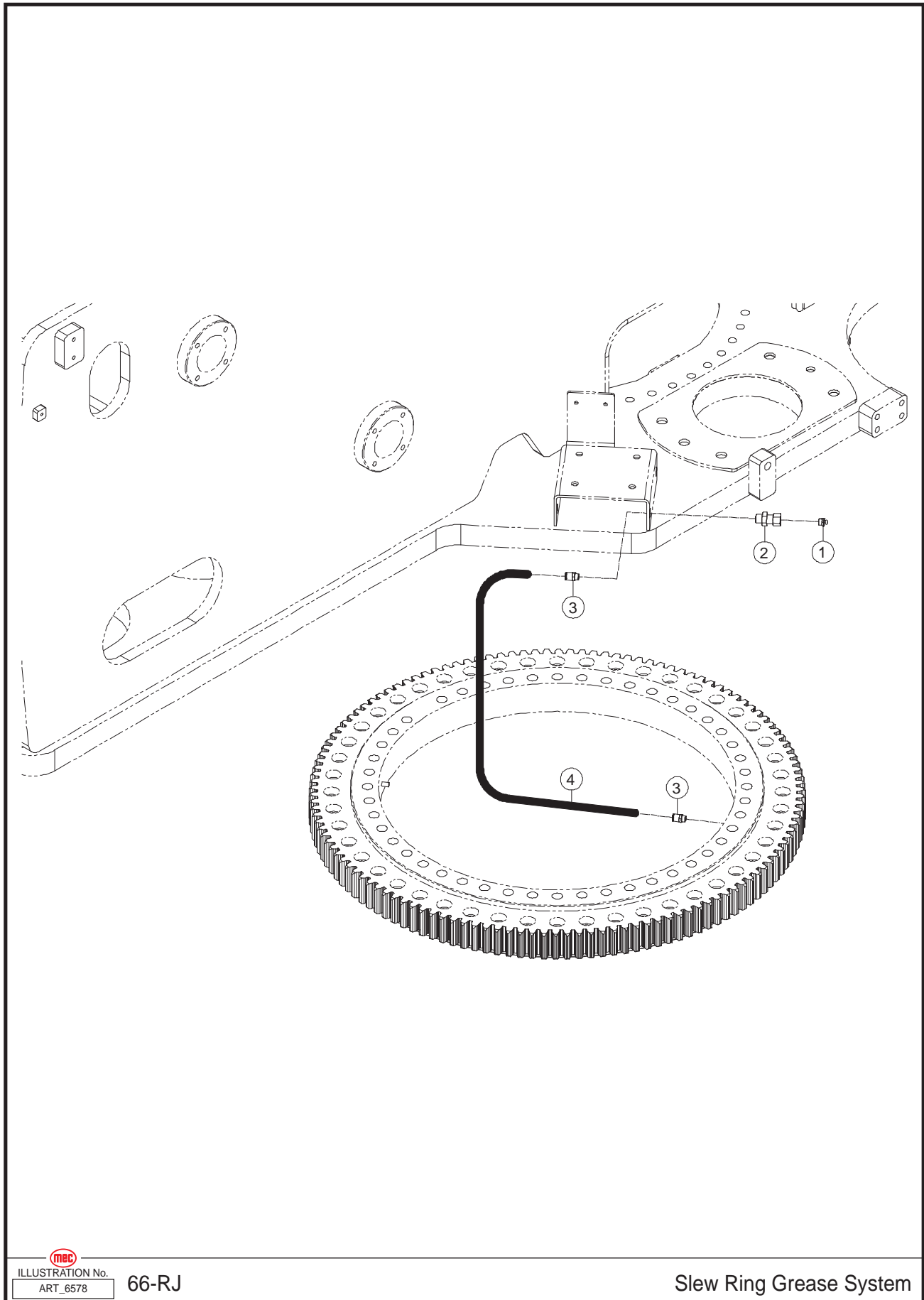



ILLUSTRATION No. 66-RJ
ART_6578

Slew Ring Grease System

Item	Part Number	Description	Qty.
1	48828	Grease Nipple	1
2	48829	Fitting, Grease Nipple	1
3	48830	Fitting, Hose	2
4	49467	Hose, Slew Ring Lubrication	1

Linkage Installation, Part 1

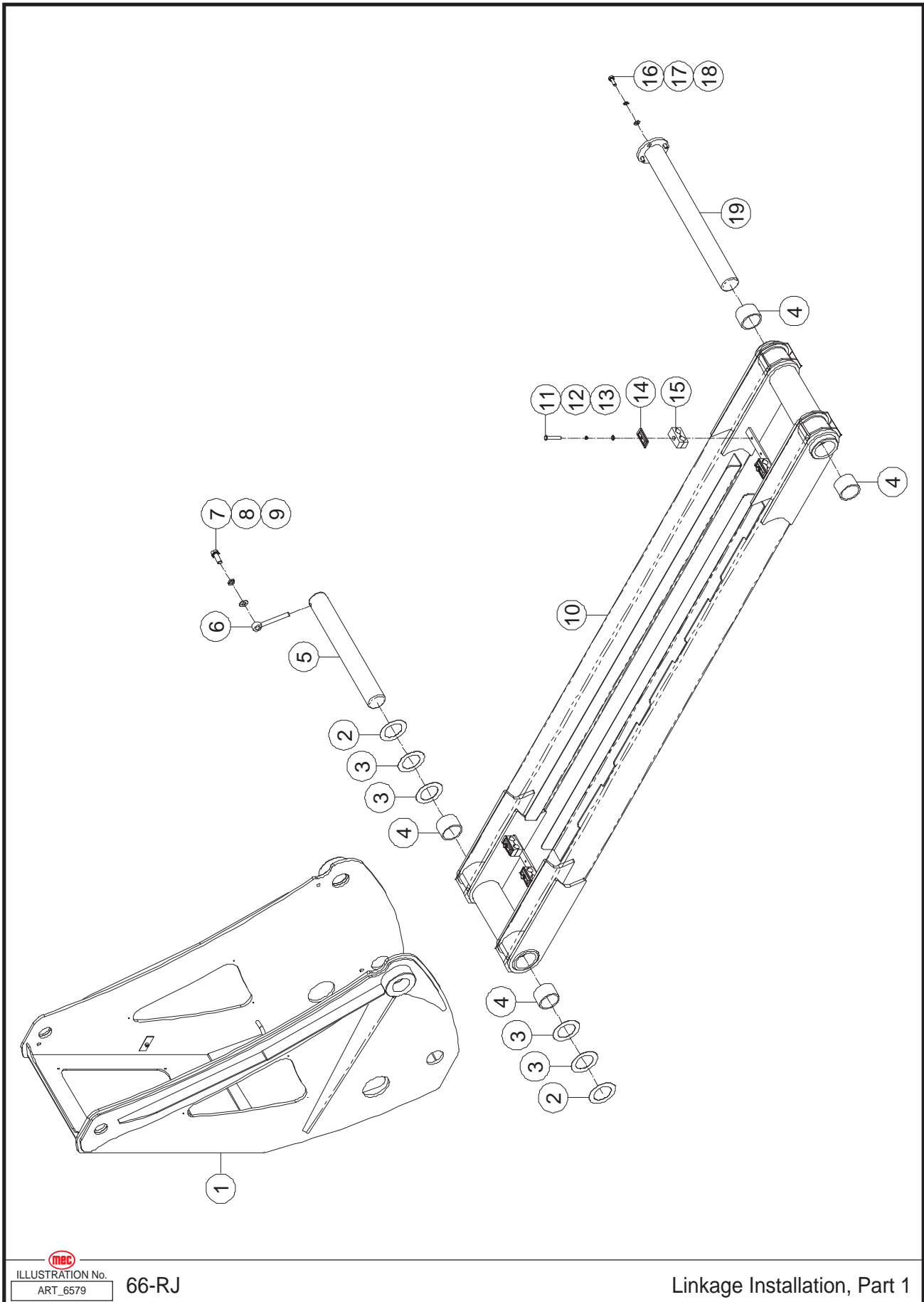
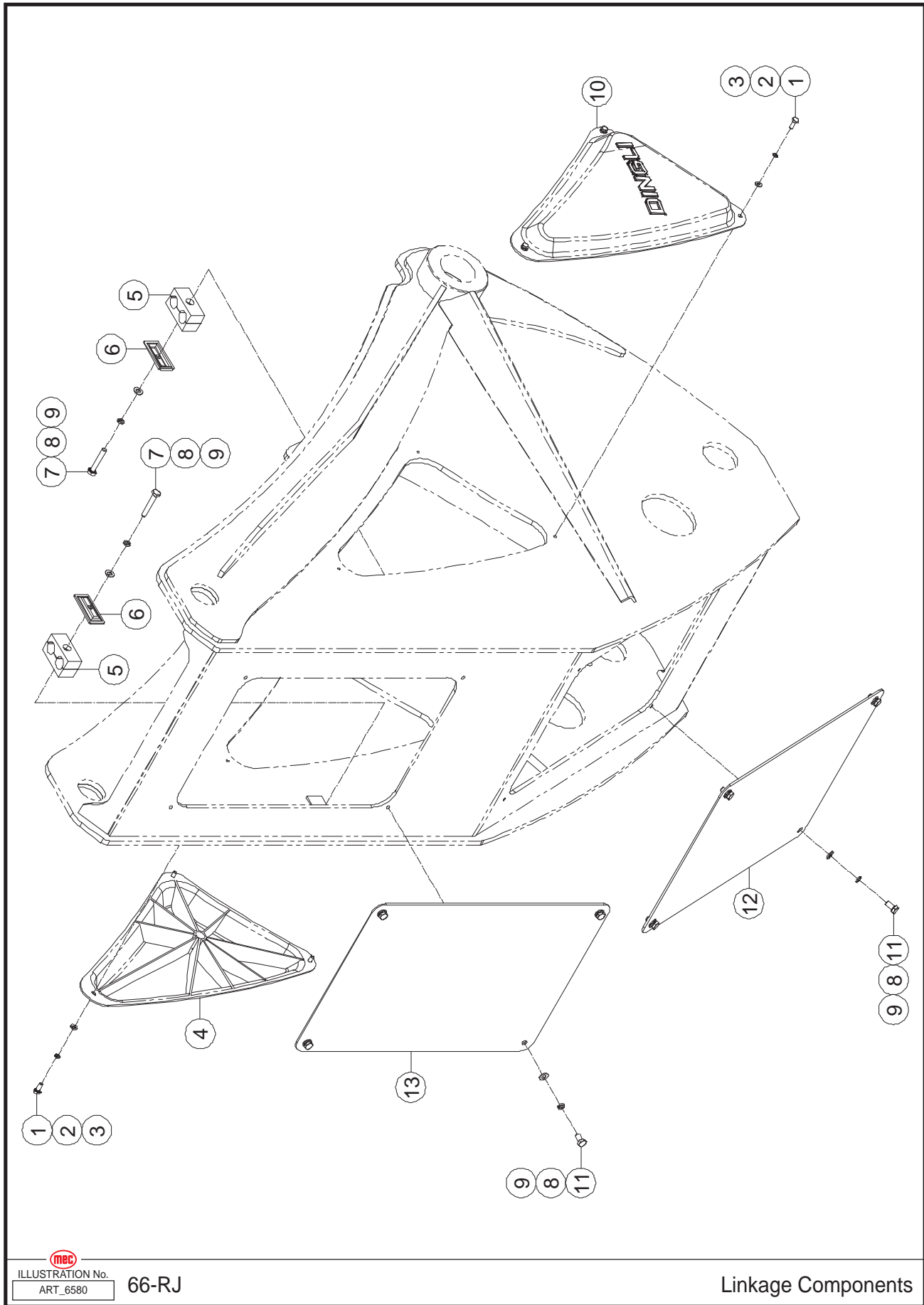



 ILLUSTRATION No. 66-RJ
ART_6579

Linkage Installation, Part 1

Item	Part Number	Description	Qty.
1	49468	Linkage Post	1
2	49469	Shim, Outer	2
3	49470	Shim, Inner	4
4	49471	Sleeve Bearing	4
5	49472	Pin, Pivot Small	1
6	60002	Pin, Lock	1
7	60068	Screw HHCS M16-2.00 x 40 ZP	1
8	53149	WSHR M16 Spring Washer ZP	1
9	50004	WSHR M16 Standard Flat Washer ZP	1
10	49473	Linkage, Riser Support	1
11	60088	Screw HHCS M08-1.25 x 60 ZP	4
12	53055	WSHR M08 Spring Washer ZP	4
13	50001	WSHR M08 Standard Flat Washer ZP	4
14	60411	Plate	4
15	46240	Clamp	4
16	50034	Screw HHCS M10-1.50 x 30 ZP	4
17	53054	WSHR M10 Spring Washer ZP	4
18	50002	WSHR M10 Standard Flat Washer ZP	4
19	49474	Pin, Pivot Long	1

Linkage Components



 ILLUSTRATION No. 66-RJ
ART_6580

Linkage Components

Item	Part Number	Description	Qty.
1	50445	Screw HHCS M06-1.00 x 16 ZP	6
2	53046	WSHR M06 Spring Washer ZP	6
3	50000	WSHR M06 Standard Flat Washer ZP	6
4	49475	Cover, Linkage Right	1
5	46240	Clamp	2
6	60411	Plate	2
7	50015	Screw HHCS M08-1.25 x 50 ZP	2
8	53055	WSHR M08 Spring Washer ZP	10
9	50001	WSHR M08 Standard Flat Washer ZP	10
10	49476	Cover, Linkage Left	1
11	53154	Screw HHCS M08-1.25 x 16 ZP	8
12	49477	Cover, Rear Linkage Bottom	1
13	49478	Cover, Rear Linkage Upper	1

Linkage Installation, Part 2

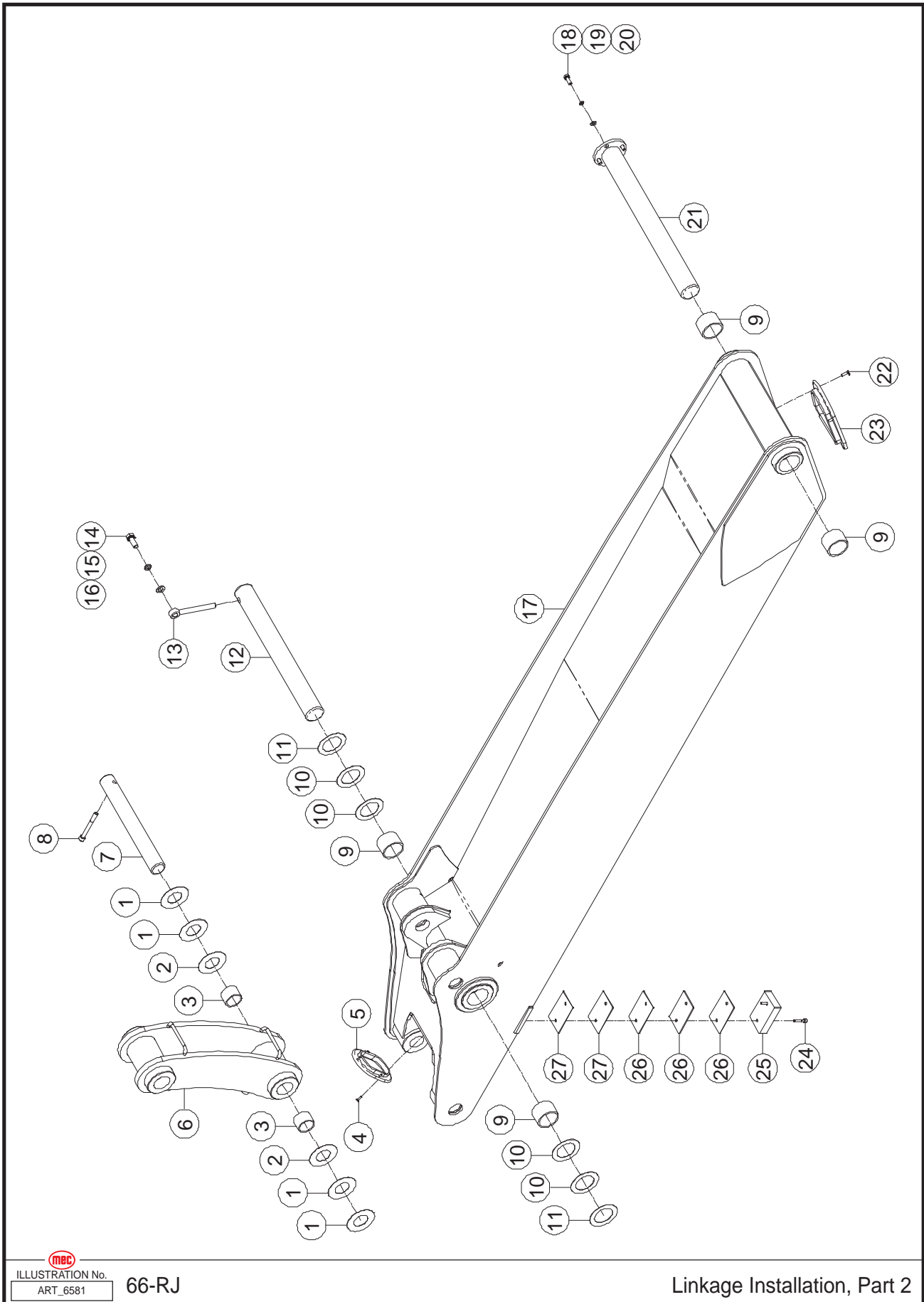


 ILLUSTRATION No. 66-RJ
ART_6581

Linkage Installation, Part 2

Item	Part Number	Description	Qty.
1	49479	Shim, Outer	4
2	49480	Shim, Inner	2
3	49488	Sleeve Bearing	2
4	50561	Screw CSCS M06-1.00 x 20 ZP	4
5	49481	Guard, Riser Inner Line	1
6	49482	Linkage, Inner	1
7	49483	Pin, Inner Linkage Pivot	1
8	50553	Screw SHCS M12-1.75 x 110 ZP	1
9	49471	Sleeve Bearing	4
10	49470	Shim	4
11	49469	Shim	2
12	49484	Pin, Inner Pivot	1
13	60003	Pin, Lock	1
14	60068	Screw HHCS M16-2.00 x 40 ZP	1
15	53149	WSHR M16 Spring Washer ZP	1
16	50004	WSHR M16 Standard Flat Washer ZP	1
17	49485	Linkage, Riser	1
18	50034	Screw HHCS M10-1.50 x 30 ZP	4
19	53054	WSHR M10 Spring Washer ZP	4
20	50002	WSHR M10 Standard Flat Washer ZP	4
21	49474	Pin, Pivot	1
22	45929	Screw CSCS M06-1.00 x 25 ZP	4
23	49486	Guard, Riser Outer Line	1
24	53127	Screw SHCS M08-1.25 x 40 ZP	4
25	49487	Spacer, Riser	2
26	49489	Shim, Spacer Inner	6
27	49490	Shim, Spacer Outer	4

Linkage and Boom Installation

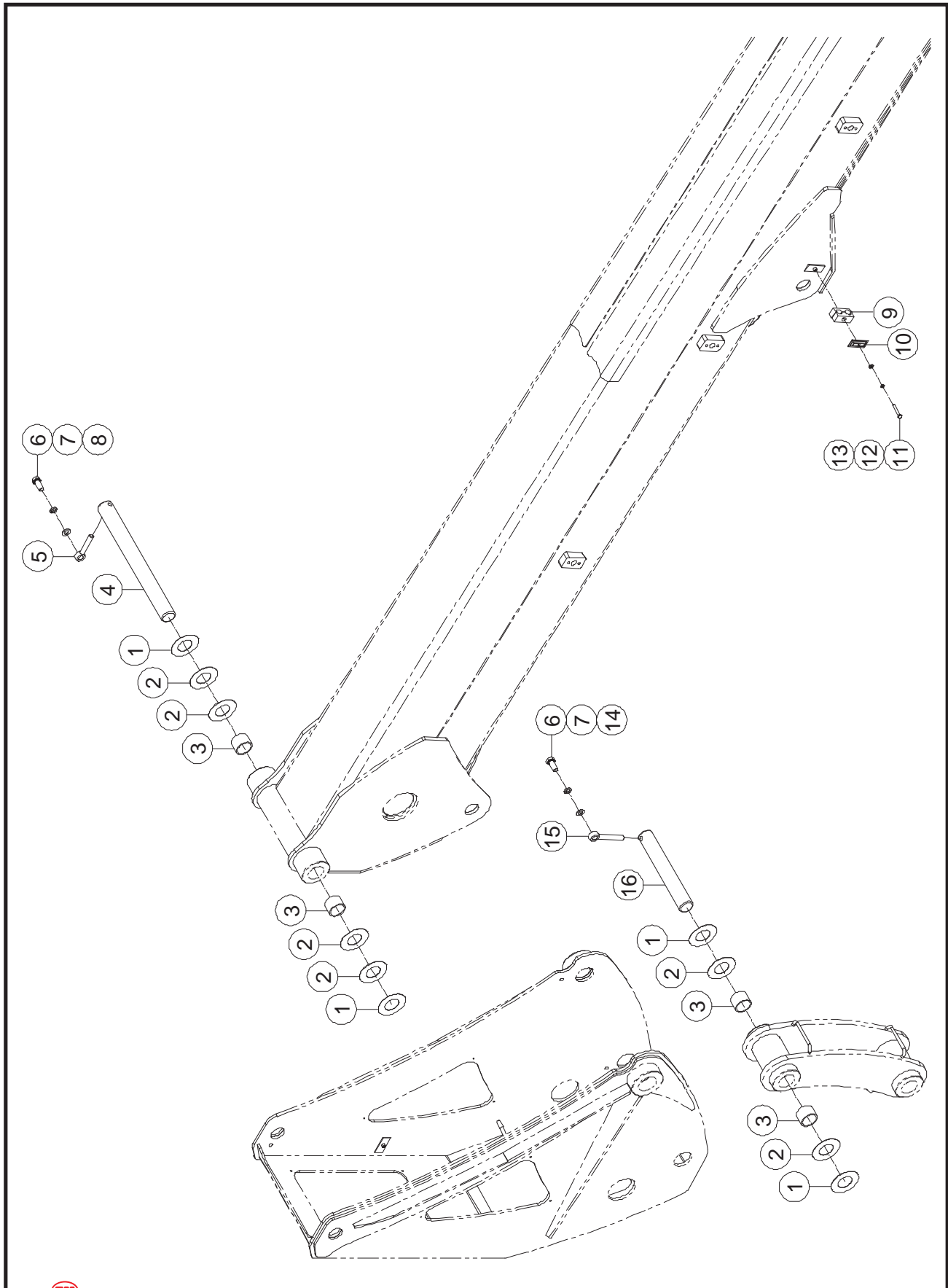



ILLUSTRATION No. 66-RJ
ART_6582

Linkage and Boom Installation

Item	Part Number	Description	Qty.
1	49480	Shim	4
2	49479	Shim	6
3	49488	Sleeve Bearing	4
4	49491	Pin, Pivot	1
5	60001	Pin, Lock	1
6	60068	Screw HHCS M16-2.00 x 40 ZP	2
7	53149	WSHR M16 Spring Washer ZP	2
8	50004	WSHR M16 Standard Flat Washer ZP	1
9	46240	Clamp	1
10	60411	Plate	1
11	50015	Screw HHCS M08-1.25 x 50 ZP	1
12	53055	WSHR M08 Spring Washer ZP	1
13	50001	WSHR M08 Standard Flat Washer ZP	1
14	53049	WSHR M14 Standard Flat Washer ZP	1
15	60002	Pin, Lock	1
16	60434	Pin, Pivot	1

Lifting Cylinder Installation

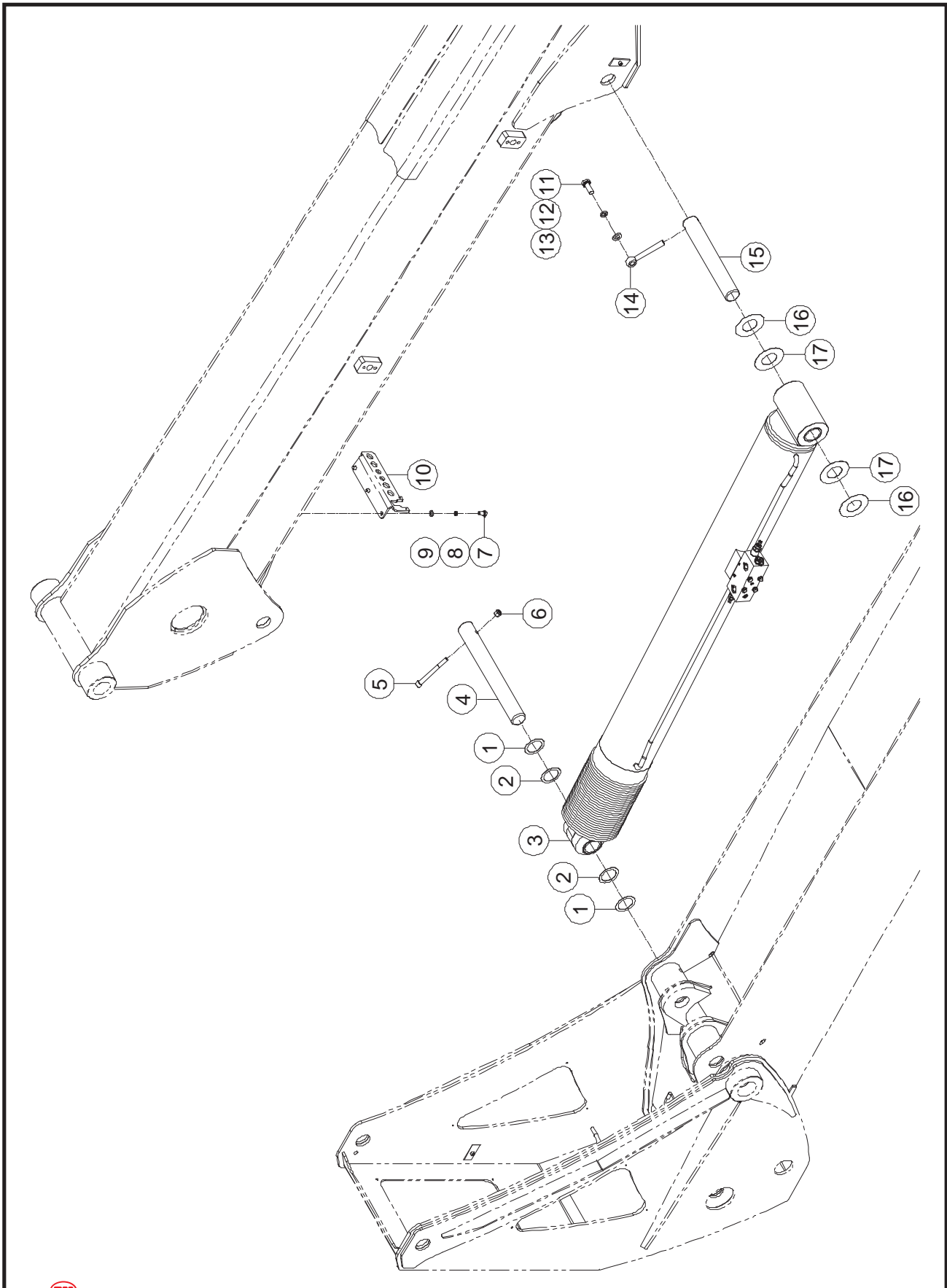



ILLUSTRATION No. 66-RJ
ART_6583

Lifting Cylinder Installation

Item	Part Number	Description	Qty.
1	49492	Shim, Riser Outer	2
2	49493	Shim, Riser Inner	2
3	REF	Lifting Cylinder Assembly (Refer to page 224)	1
4	49494	Pin, Riser Cylinder Pivot	1
5	53636	Screw SHCS M12-1.75 x 120 ZP	1
6	50050	Nut NNYL M12-1.75 ZP	1
7	50215	Screw HHCS M10-1.50 x 20 ZP	3
8	53054	WSHR M10 Spring Washer ZP	3
9	50002	WSHR M10 Standard Flat Washer ZP	3
10	49495	Bracket, Hose Support	1
11	60068	Screw HHCS M16-2.00 x 40 ZP	1
12	53149	WSHR M16 Spring Washer ZP	1
13	50004	WSHR M16 Standard Flat Washer ZP	1
14	60002	Pin, Lock	1
15	60434	Pin, Pivot	1
16	49480	Shim	2
17	49479	Shim	2

REF - Reference

Telescopic Booms

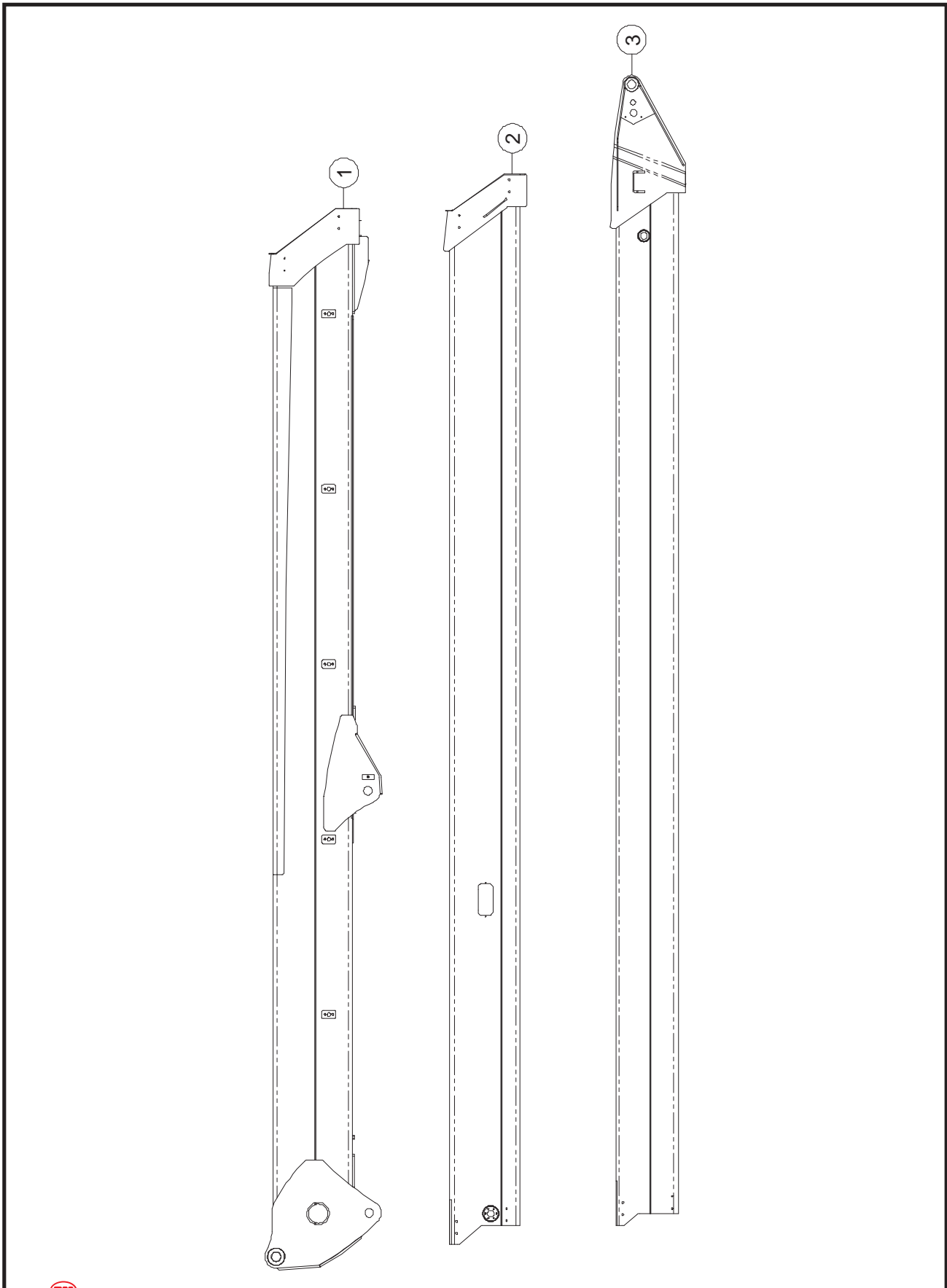


 ILLUSTRATION No. 66-RJ
ART_6584

Telescopic Booms

Item	Part Number	Description	Qty.
1	49496	Base Boom	1
2	49497	Second Boom	1
3	49498	Third Boom	1

Base Boom Sliding Block Installation

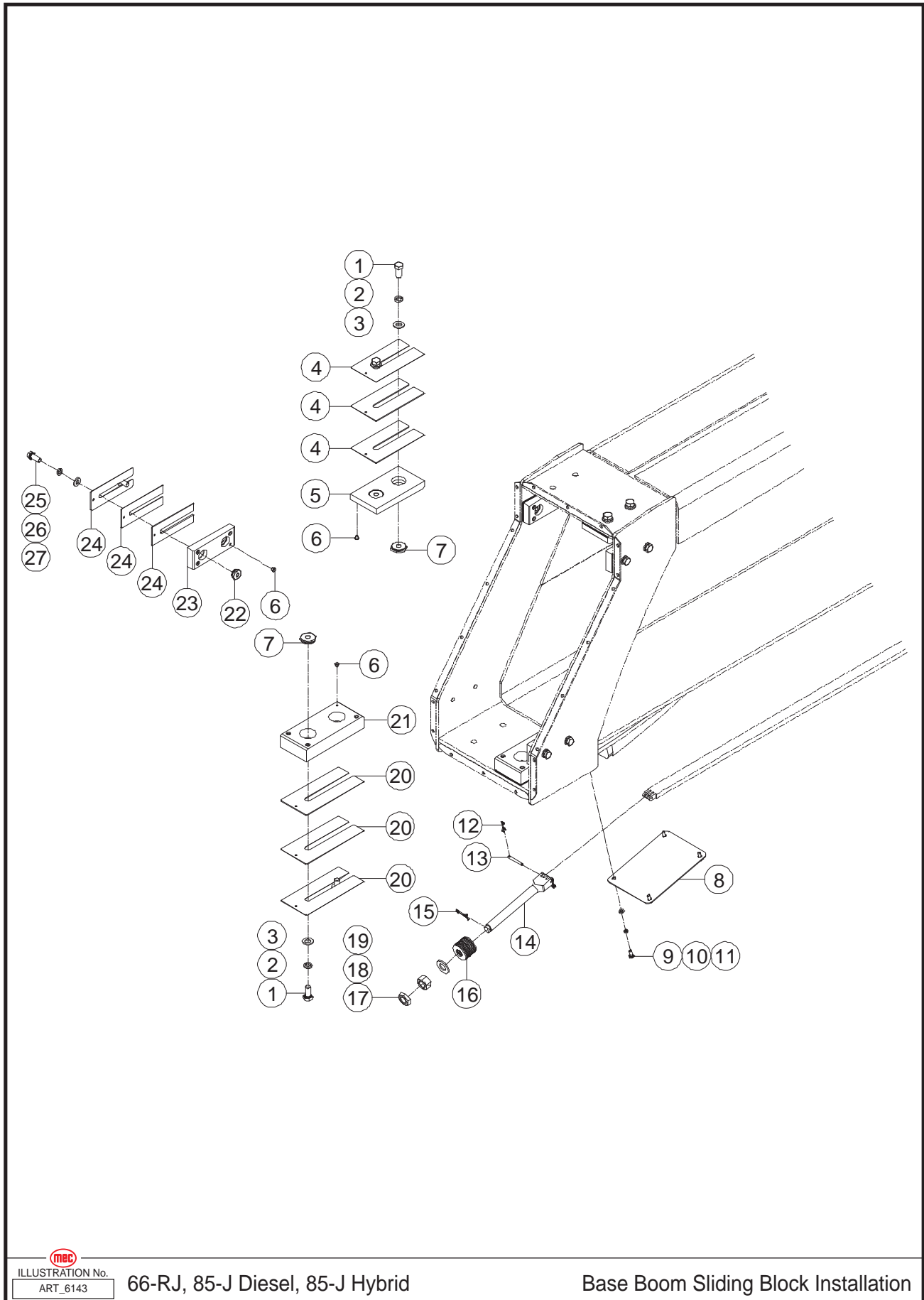



ILLUSTRATION No.
ART_6143

66-RJ, 85-J Diesel, 85-J Hybrid

Base Boom Sliding Block Installation

Item	Part Number	Description	Qty.
1	53564	Screw HHCS M12-1.25 x 25 ZP	8
2	53148	WSHR M12 Spring Washer ZP	8
3	50003	WSHR M12 Standard Flat Washer ZP	8
4	47931	Shim	6
5	47932	Sliding Block	2
6	47933	Plug	32
7	47934	Insert	8
8	47935	Cover	1
9	50445	Screw HHCS M06-1.00 x 16 ZP	4
10	53046	WSHR M06 Spring Washer ZP	4
11	50000	WSHR M06 Standard Flat Washer ZP	4
12	44311	Cotter Pin	4
13	47937	Pin	2
14	47938	Pull Chain	2
15	44493	Cotter Pin	2
16	47940	Disc Spring	2
17	53565	Nut NHEX M18-2.50, Thin Nut Chamfered ZP	2
18	53566	Nut NHEX M18-2.50 ZP	2
19	53514	WSHR M18 Standard Flat Washer ZP	2
20	47941	Shim	6
21	47942	Sliding Block	2
22	47943	Insert	8
23	47944	Sliding Block	4
24	47945	Shim	12
25	50033	Screw HHCS M10-1.50 x 25 ZP	8
26	53054	WSHR M10 Spring Washer ZP	8
27	50002	WSHR M10 Standard Flat Washer ZP	8

Second Boom Sliding Block Installation 1

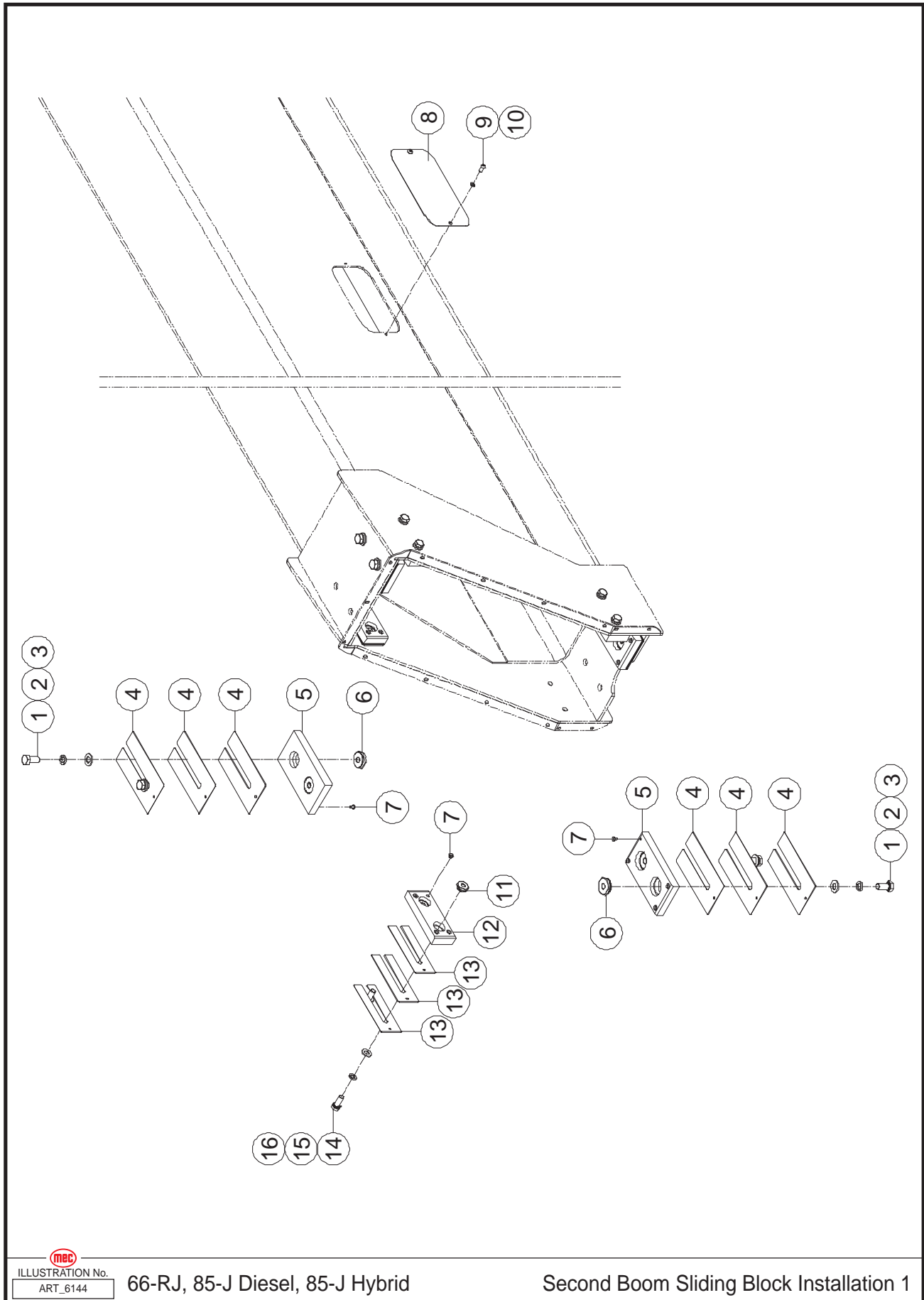



ILLUSTRATION No.
ART_6144

66-RJ, 85-J Diesel, 85-J Hybrid

Second Boom Sliding Block Installation 1

Item	Part Number	Description	Qty.
1	53564	Screw HHCS M12-1.25 x 25 ZP	8
2	53148	WSHR M12 Spring Washer ZP	8
3	50003	WSHR M12 Standard Flat Washer ZP	8
4	47931	Shim	12
5	47932	Sliding Block	4
6	47934	Insert	8
7	47933	Plug	32
8	47946	Cover	1
9	53026	Screw BHCS M06-1.00 x 12 ZP	2
10	53046	WSHR M06 Spring Washer ZP	2
11	47943	Insert	8
12	47944	Sliding Block	4
13	47945	Shim	12
14	50033	Screw HHCS M10-1.50 x 25 ZP	8
15	53054	WSHR M10 Spring Washer ZP	8
16	50002	WSHR M10 Standard Flat Washer ZP	8

Second Boom Sliding Block Installation 2

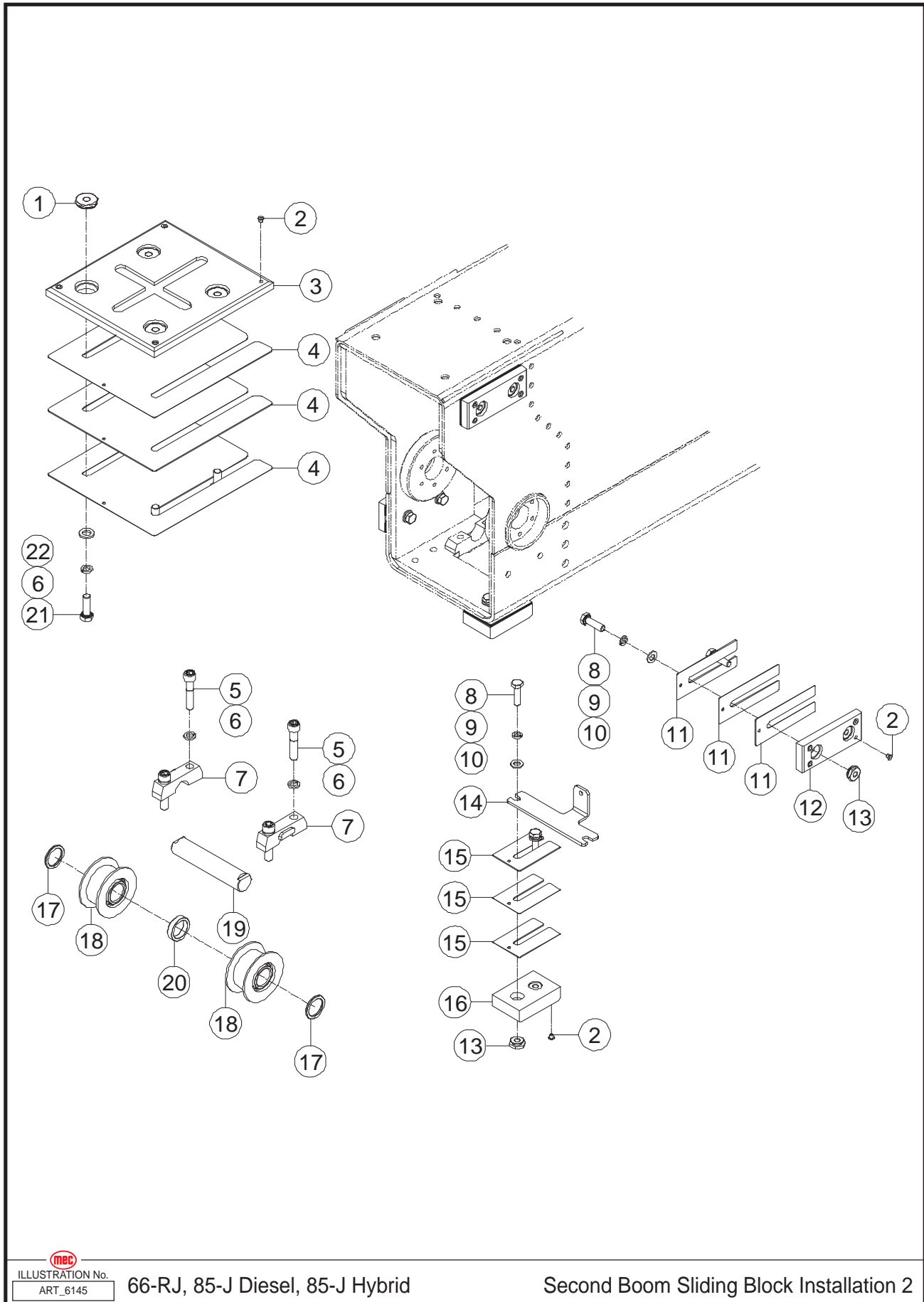



ILLUSTRATION No.
ART_6145

66-RJ, 85-J Diesel, 85-J Hybrid

Second Boom Sliding Block Installation 2

Item	Part Number	Description	Qty.
1	47934	Insert	4
2	47933	Plug	28
3	47947	Sliding Block	1
4	47948	Shim	3
5	53176	Screw SHCS M12-1.75 x 55 ZP	4
6	53148	WSHR M12 Spring Washer ZP	8
7	47949	Lock	2
8	50332	Screw HHCS M10-1.50 x 35 ZP	12
9	53054	WSHR M10 Spring Washer ZP	12
10	50002	WSHR M10 Standard Flat Washer ZP	12
11	47945	Shim	12
12	47950	Sliding Block	4
13	47943	Insert	12
14	49499	Plate, Shim Sliding Block	1
15	47952	Shim	6
16	47953	Sliding Block	2
17	47954	Spacer	2
18	47955	Pulley Bearing	2
19	47956	Pin, Pivot	1
20	47957	Spacer	1
21	50133	Screw HHCS M12-1.25 x 35 ZP	4
22	50003	WSHR M12 Standard Flat Washer ZP	4

Third Boom Sliding Block

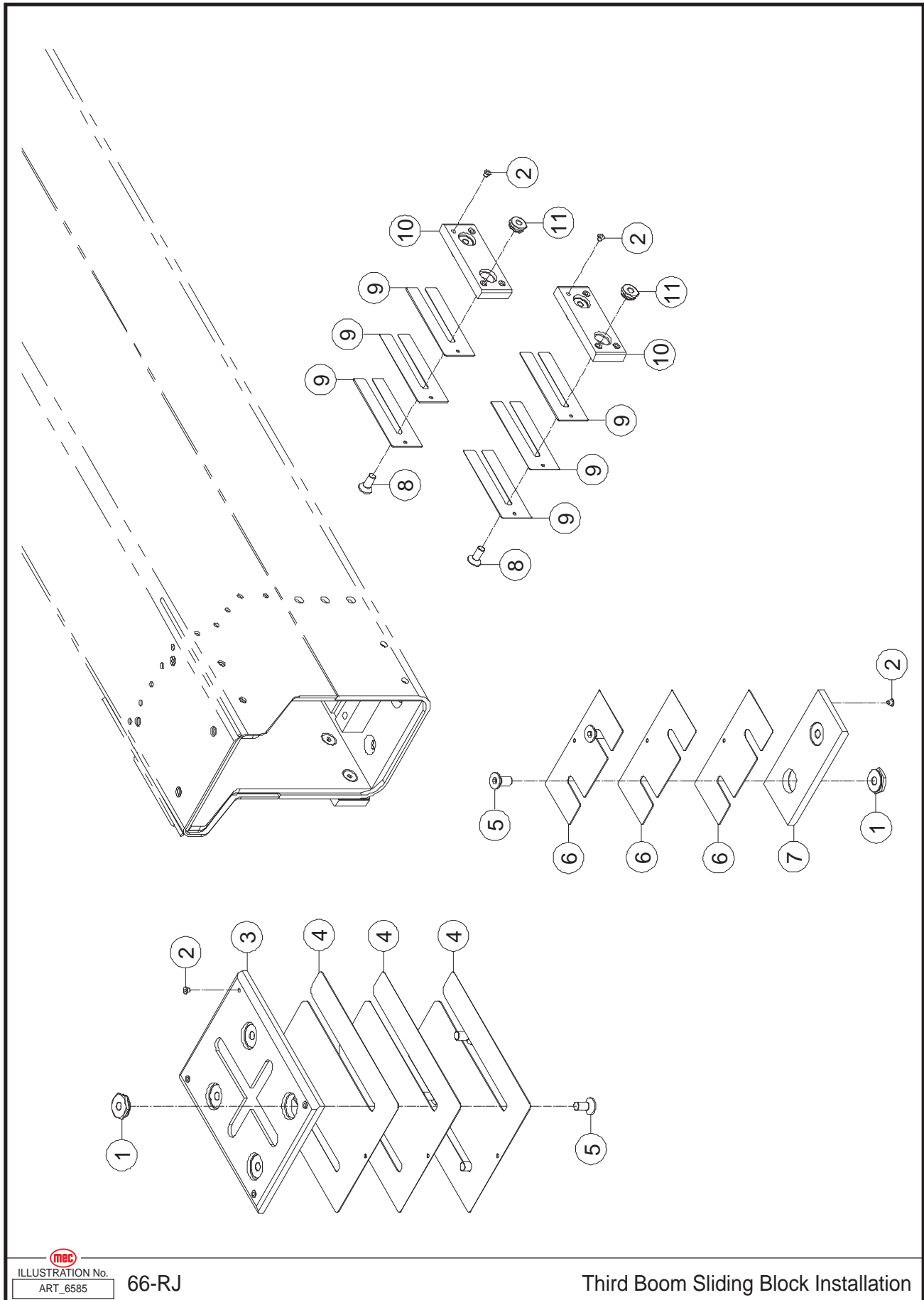



ILLUSTRATION No. 66-RJ
ART_6585

Third Boom Sliding Block Installation

Item	Part Number	Description	Qty.
1	47934	Insert	6
2	47933	Plug	24
3	47958	Sliding Block	1
4	47959	Shim	3
5	53637	Screw CSCS M12-1.25 x 25 ZP	6
6	47960	Shim	3
7	47961	Sliding Block	1
8	53483	Screw CSCS M10-1.50 x 25 ZP	8
9	47945	Shim	12
10	47950	Sliding Block	4
11	47943	Insert	8

Boom Shield Installation

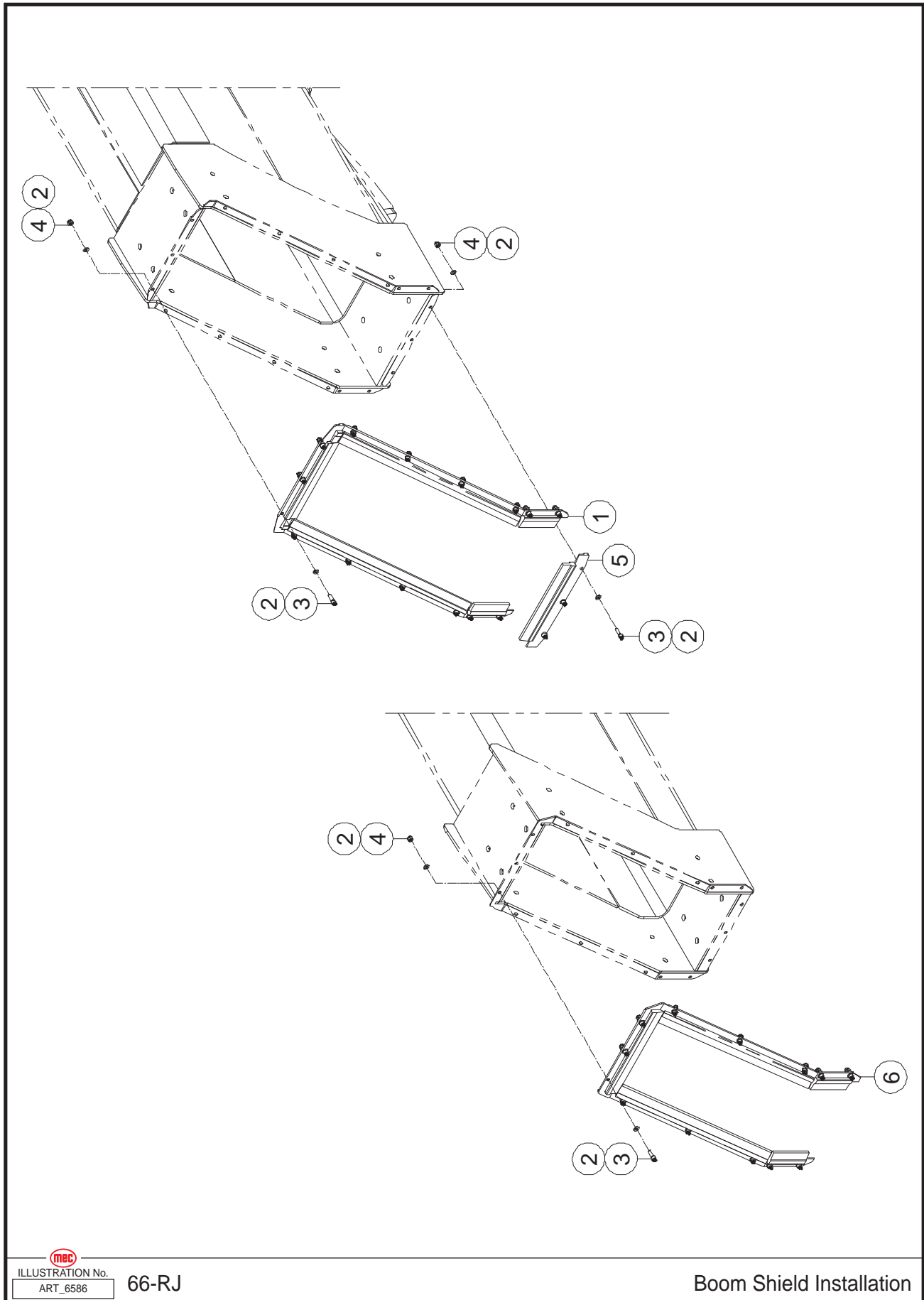


 ILLUSTRATION No. 66-RJ
ART_6586

Boom Shield Installation

Item	Part Number	Description	Qty.
1	49500	Guard, Second Boom	1
2	50000	WSHR M06 Standard Flat Washer ZP	62
3	53124	Screw SHCS M06-1.00 x 20 ZP	31
4	50047	Nut NNYL M06-1.00 ZP	31
5	47963	Guard	1
6	49501	Guard, First Boom	1

Telescopic System Installation

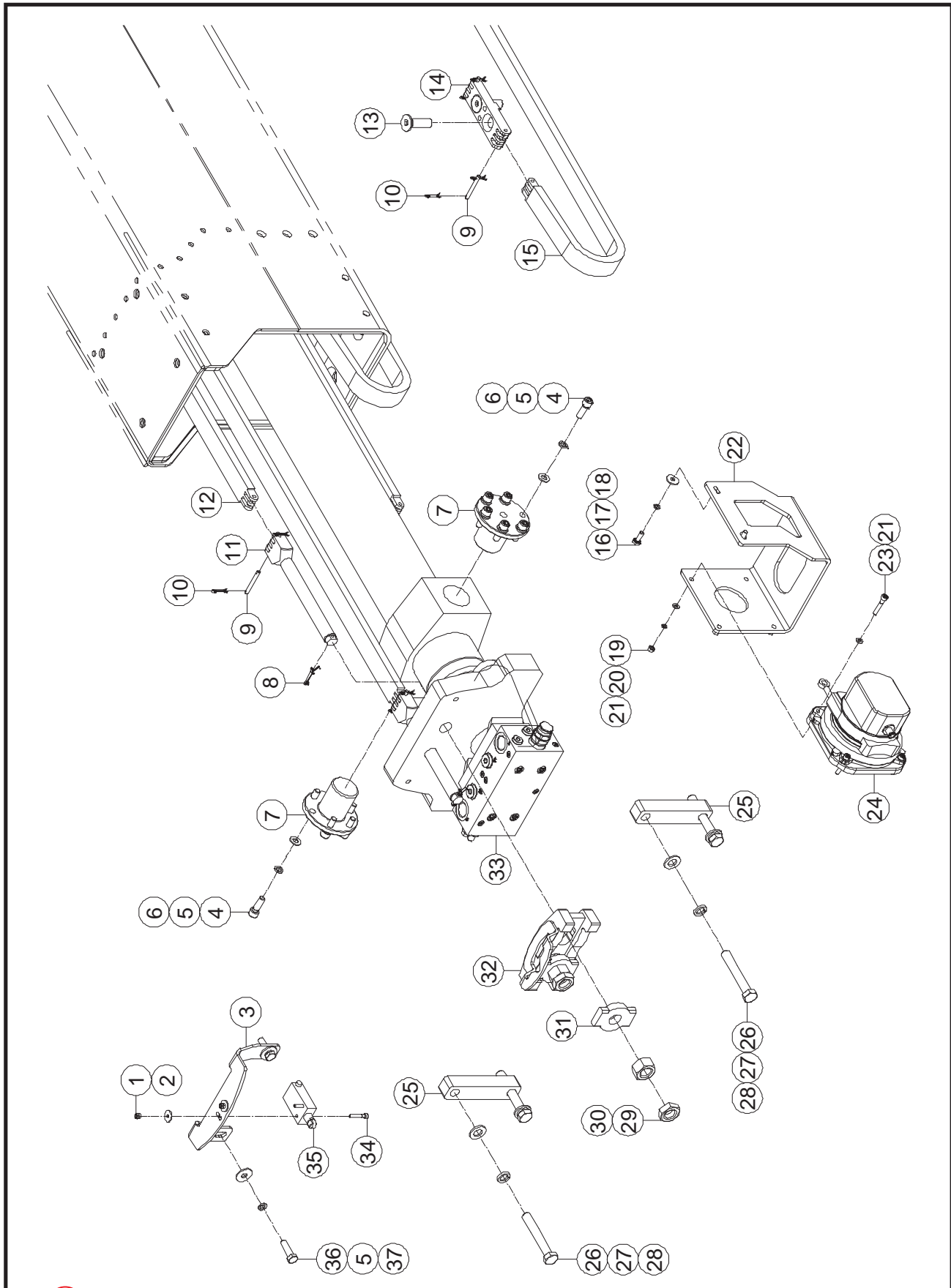


 ILLUSTRATION No. 66-RJ
ART_6587

Telescopic Cylinder Installation

Item	Part Number	Description	Qty.
1	50285	Nut NNYL M04-0.70 ZP	2
2	47966	Washer	2
3	47967	Support	1
4	53210	Screw SHCS M08-1.25 x 25 ZP	12
5	53055	WSHR M08 Spring Washer ZP	14
6	50001	WSHR M08 Standard Flat Washer ZP	12
7	47968	Pin	2
8	44493	Cotter Pin	2
9	47937	Pin	6
10	44311	Cotter Pin	12
11	47938	Pull Chain	2
12	49502	Chain, Telescopic Cylinder Right Side	2
13	53568	Screw CSCS M12-1.75 x 40 ZP	4
14	47970	Pull Chain	2
15	49503	Chain, Telescopic Cylinder Left Side	2
16	50445	Screw HHCS M06-1.00 x 16 ZP	2
17	53046	WSHR M06 Spring Washer ZP	2
18	50068	WSHR M06 Flat Fender Washer ZP	2
19	53367	Nut NHEX M05-0.80	4
20	53043	WSHR M05 Spring Washer ZP	4
21	53038	WSHR M05 Standard Flat Washer ZP	8
22	49504	Support, Length Angle Sensor	1
23	53171	Screw SHCS M05-0.80 x 30 ZP	4
24	47972	Length Angle Sensor	1
25	47974	Block	2
26	50362	Screw HHCS M12-1.75 x 80 ZP	4
27	53148	WSHR M12 Spring Washer ZP	4
28	50003	WSHR M12 Standard Flat Washer ZP	4
29	53565	Nut NHEX M18-2.50, Thin Nut Chamfered	2
30	53566	Nut NHEX M18-2.50	2
31	47976	Spacer	2
32	47975	Support	1
33	REF	Telescopic Cylinder Assembly (Refer to page 226)	1
34	53115	Screw SHCS M04-0.70 x 25 ZP	2
35	44736	Limit Switch	1
36	50032	Screw HHCS M08-1.25 x 30 ZP	2
37	50218	WSHR M08 Flat Fender Washer ZP	2

REF - Reference

Carrier System Installation, Part 1

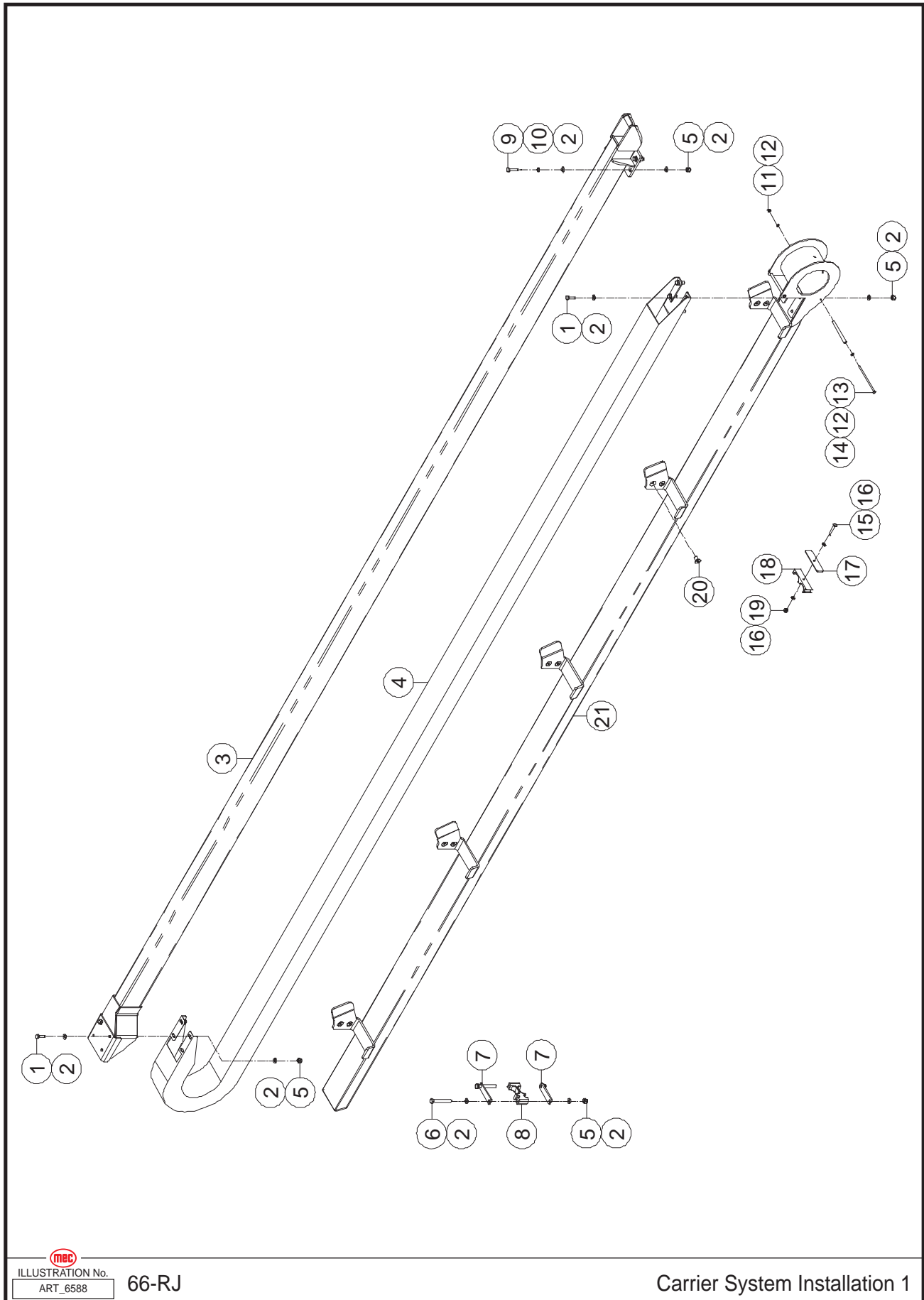



ILLUSTRATION No. 66-RJ
ART_6588

Carrier System Installation 1

Item	Part Number	Description	Qty.
1	50034	Screw HHCS M10-1.50 x 30 ZP	10
2	50002	WSHR M10 Standard Flat Washer ZP	20
3	49505	Support, Cable Track Top	1
4	49506	Chain, Cable Track	1
5	50049	Nut NNYL M10-1.50 ZP	8
6	50213	Screw HHCS M10-1.50 x 90 ZP	2
	50243	Screw HHCS M10-1.50 x 100 ZP	2
7	47980	Plate	2
8	49507	Clamp, Front Cable Track (To serial # 24400139)	1
	47981	Clamp, Front Cable Track (To serial # 24400140)	1
9	50237	Screw HHCS M10-1.50 x 40 ZP	4
10	53054	WSHR M10 Spring Washer ZP	4
11	50047	Nut NNYL M06-1.00 ZP	2
12	50000	WSHR M06 Standard Flat Washer ZP	4
13	53569	Screw HHCS M06-1.00 x 145 ZP	2
14	47982	Roller	2
15	50015	Screw HHCS M08-1.25 x 50 ZP	1
	50017	Screw HHCS M08-1.25 x 60 ZP	1
16	50001	WSHR M08 Standard Flat Washer ZP	2
17	47984	Plate	1
18	49508	Clamp, Rear Cable Track (To serial # 24400139)	1
	47985	Clamp, Rear Cable Track (To serial # 24400140)	1
19	50048	Nut NNYL M08-1.25 ZP	1
20	53570	Screw CSCS M12-1.75 x 25 ZP	10
21	49509	Support, Cable Track Bottom	1

Carrier System Installation, Part 2

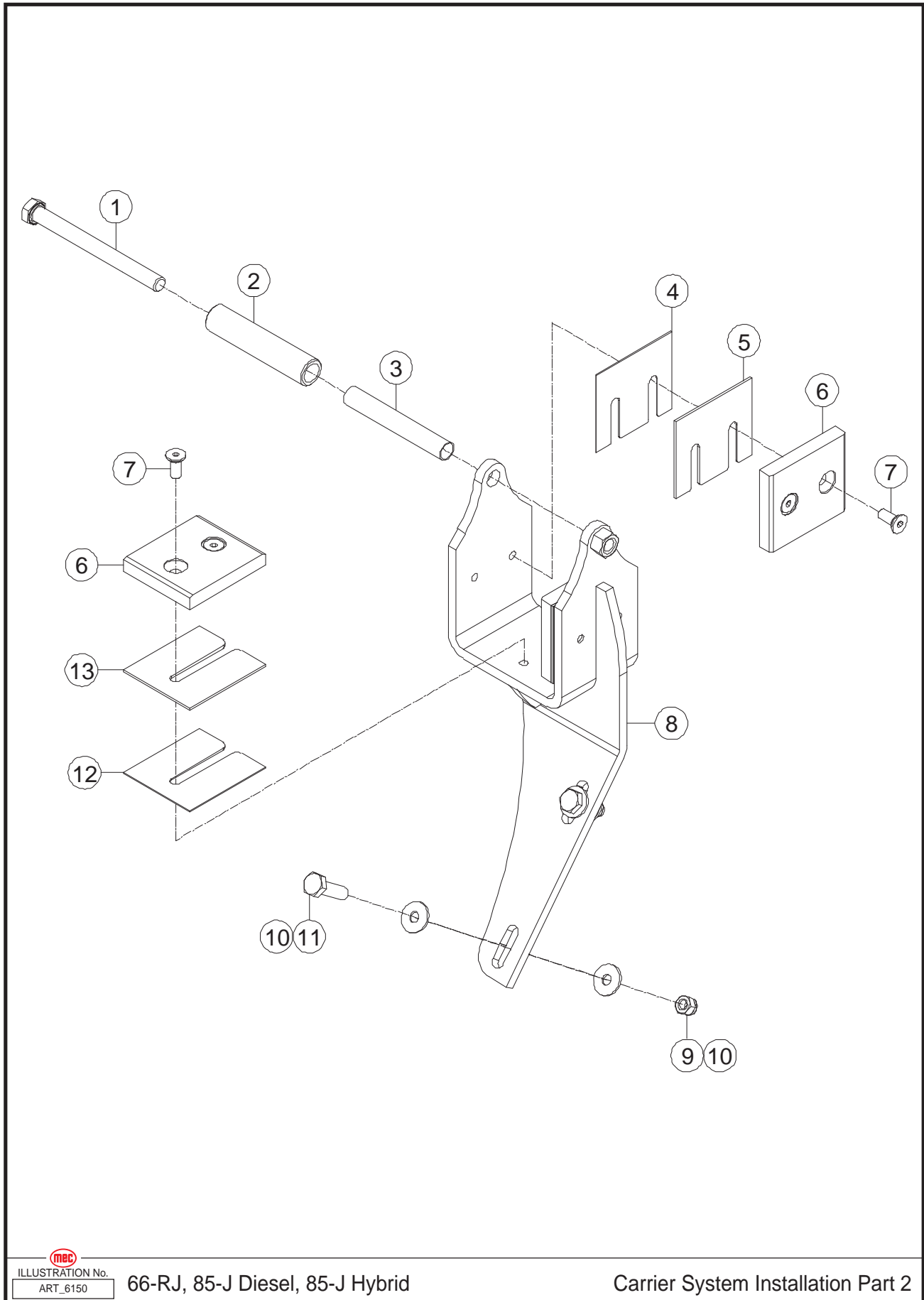



ILLUSTRATION No.
ART_6150

66-RJ, 85-J Diesel, 85-J Hybrid

Carrier System Installation Part 2

Item	Part Number	Description	Qty.
1	53320	Screw HHCS M12-1.75 x 130 ZP	1
2	47986	Roller	1
3	47987	Roller	1
4	47988	Shim	2
5	47989	Shim	2
6	47990	Sliding Block	3
7	53282	Screw CSCS M08-1.25 x 20 ZP	6
8	47991	Support	1
9	50048	Nut NNYL M08-1.25 ZP	2
10	50218	WSHR M08 Flat Fender Washer ZP	4
11	50332	Screw HHCS M10-1.50 x 35 ZP	2
12	47992	Shim	1
13	47993	Shim	1

Jib Leveling Cylinder Installation

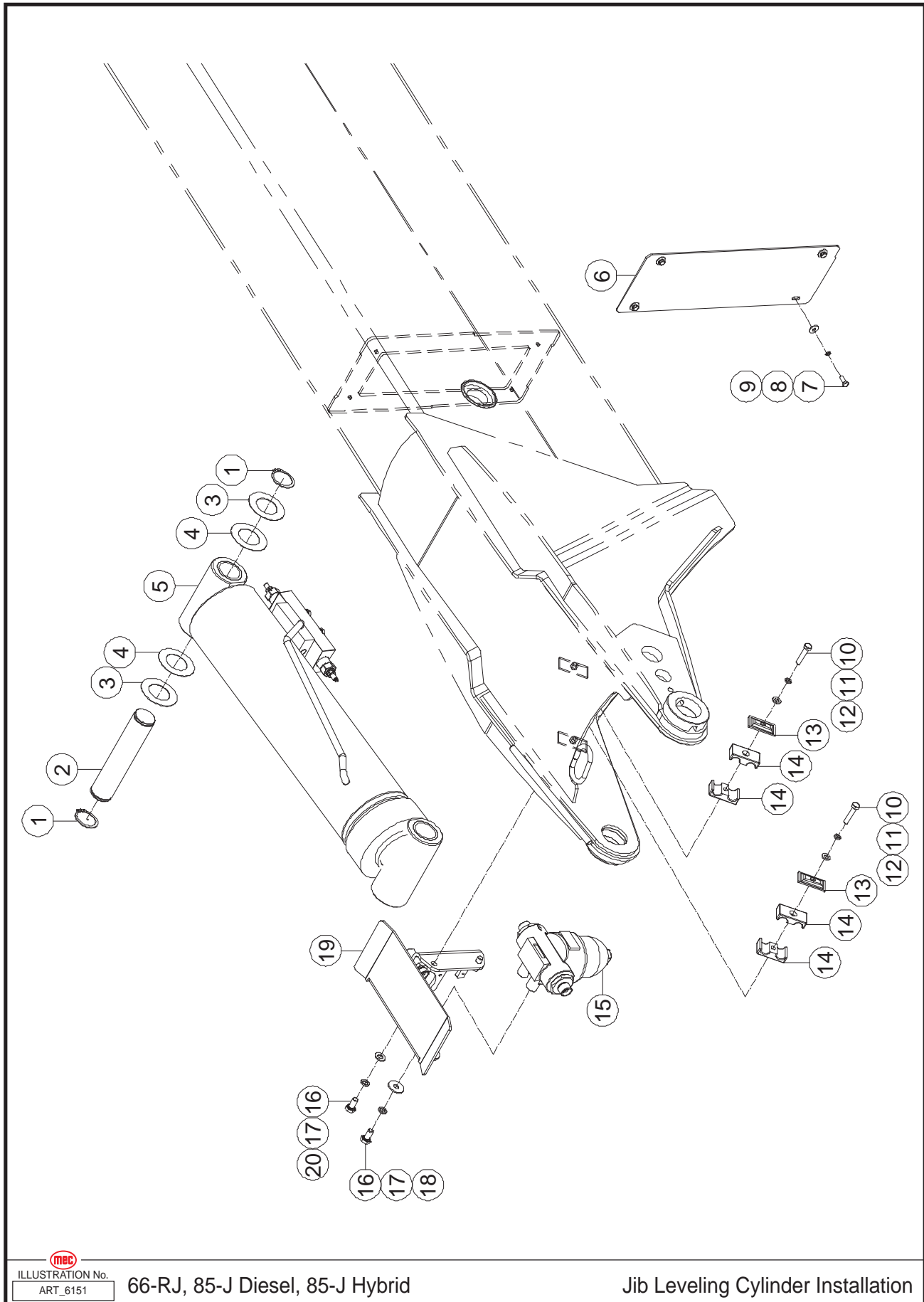



ILLUSTRATION No.
ART_6151

66-RJ, 85-J Diesel, 85-J Hybrid

Jib Leveling Cylinder Installation

Item	Part Number	Description	Qty.
1	47994	Washer	2
2	47995	Pin, Pivot	1
3	47996	Shim	2
4	47997	Shim	2
5	REF	Jib Leveling Cylinder Assembly (Refer to page 228)	1
6	49510	Cover, Boom Head	1
7	50445	Screw HHCS M06-1.00 x 16 ZP	4
8	53046	WSHR M06 Spring Washer ZP	4
9	50068	WSHR M06 Flat Fender Washer ZP	4
10	50014	Screw HHCS M08-1.25 x 40 ZP	2
11	53055	WSHR M08 Spring Washer ZP	2
12	50001	WSHR M08 Standard Flat Washer ZP	2
13	47999	Plate	2
14	47864	Clamp	4
15	47863	Pressure Filter	1
--	48389	Element, Pressure Filter	1
16	50215	Screw HHCS M10-1.50 x 20 ZP	4
17	53054	WSHR M10 Spring Washer ZP	4
18	53375	WSHR M10 Flat Fender Washer ZP	2
19	49511	Support, Pressure Filter Bracket	1
20	50002	WSHR M10 Standard Flat Washer ZP	2

REF - Reference

Jib and Platform Rotator Installation

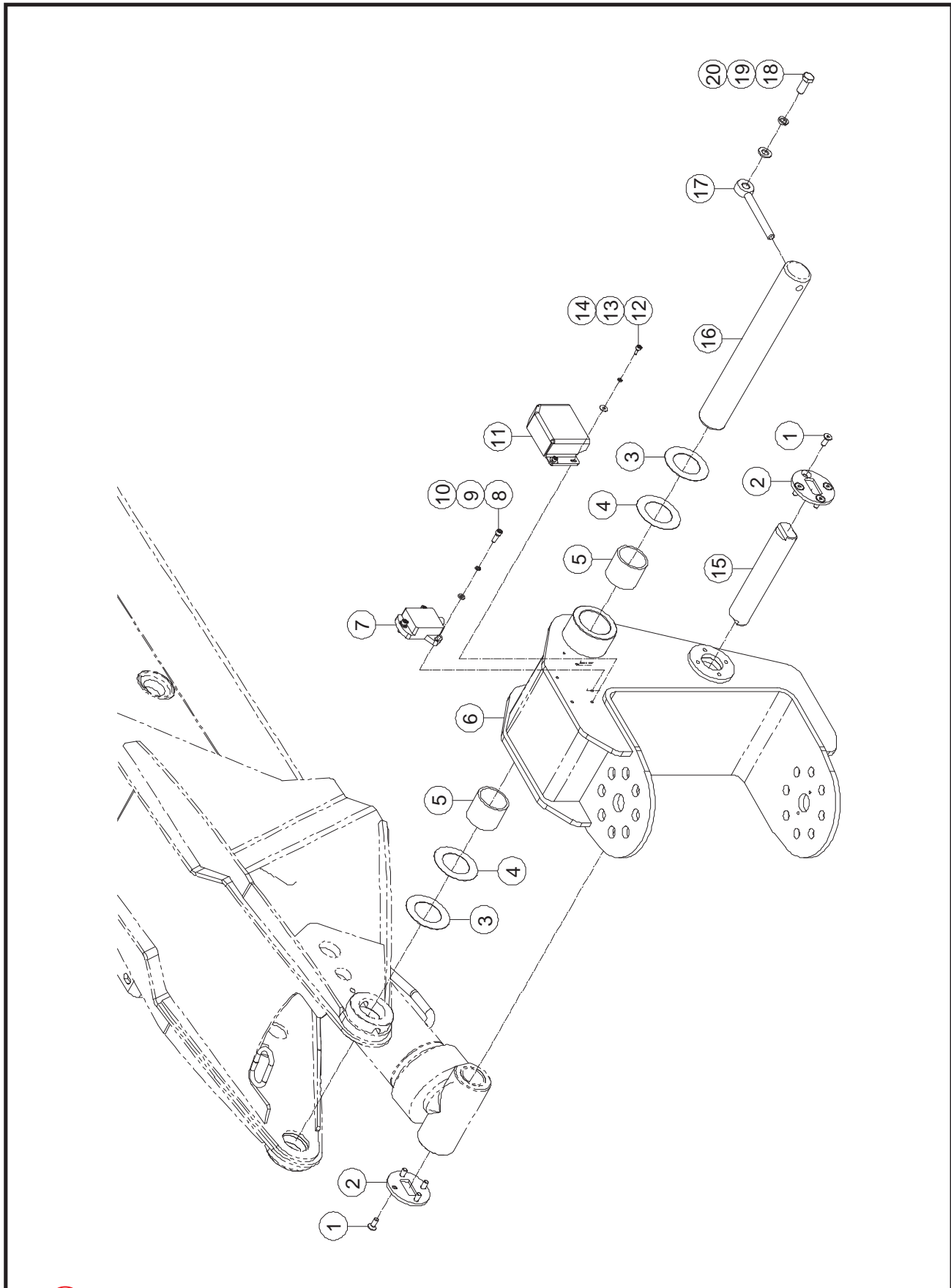


 ILLUSTRATION No. 66-RJ
ART_6589

Jib and Platform Rotator Installation

Item	Part Number	Description	Qty.
1	53282	Screw CSCS M08-1.25 x 20 ZP	8
2	49512	Cover, Lower Pivot Pin	2
3	47861	Shim	2
4	47860	Shim	2
5	47554	Sleeve Bearing	2
6	49513	Rotary, Jib and Platform	1
7	45455	Angle Sensor	1
8	53124	Screw SHCS M06-1.00 x 20 ZP	3
9	53046	WSHR M06 Spring Washer ZP	3
10	50000	WSHR M06 Standard Flat Washer ZP	3
11	49514	Cover, Angle Sensor	1
12	53116	Screw SHCS M05-0.80 x 12 ZP	3
13	53043	WSHR M05 Spring Washer ZP	3
14	50525	WSHR M05 Flat Fender Washer ZP	3
15	49515	Pin, Lower Pivot	1
16	47559	Pin, Pivot	1
17	45441	Pin, Lock	1
18	50039	Screw HHCS M12-1.75 x 30 ZP	1
19	53148	WSHR M12 Spring Washer ZP	1
20	50003	WSHR M12 Standard Flat Washer ZP	1

Jib Rotator Installation

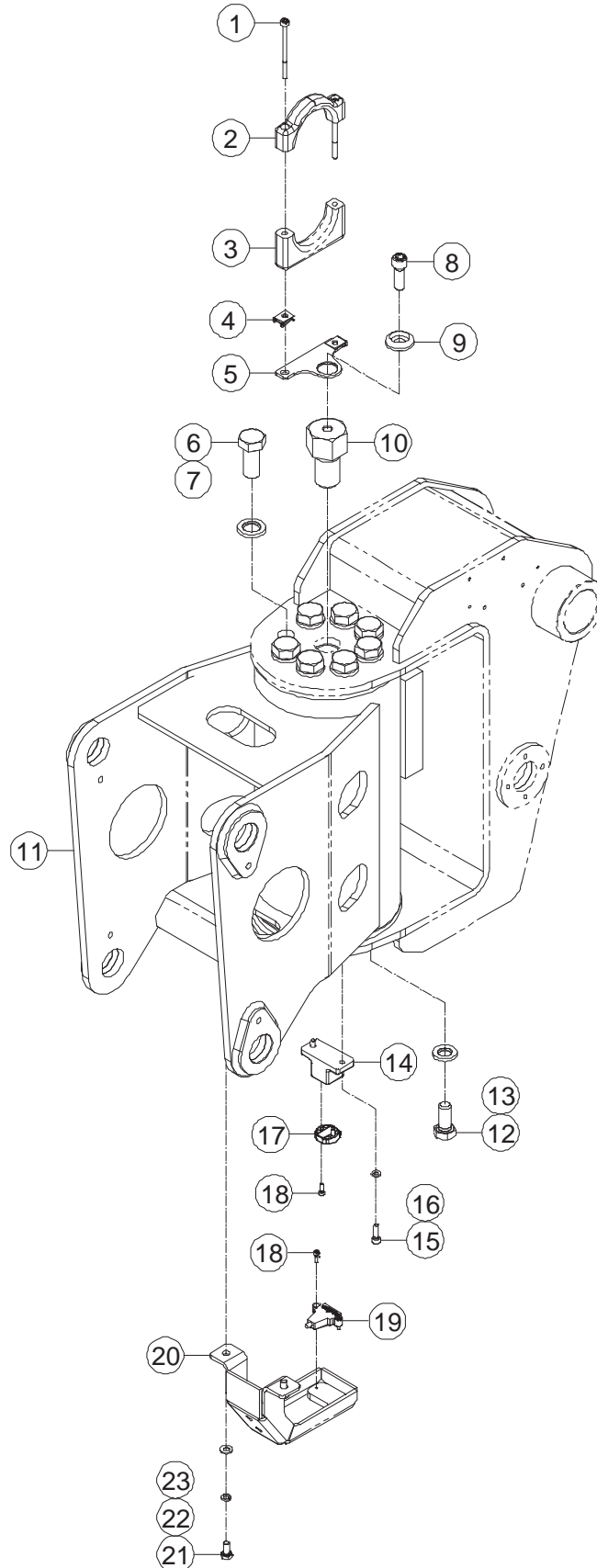


 ILLUSTRATION No. 66-RJ
ART_6590

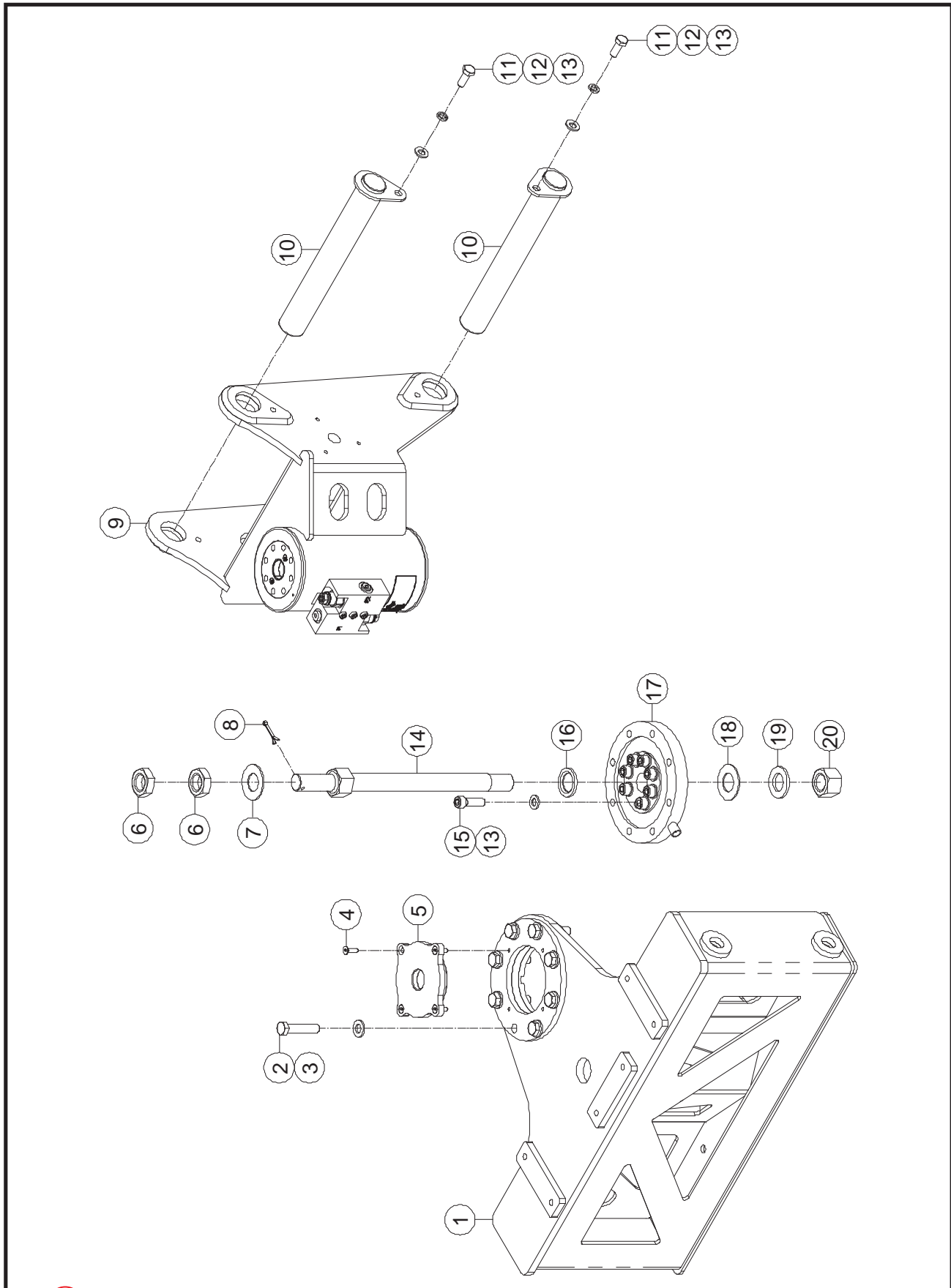
Jib Rotator Installation


Item	Part Number	Description	Qty.
1	60941	Screw CSCS M06-1.00 x 80 ZP	2
2	49288	Clamp	1
3	49287	Clamp	1
4	53481	No-Slip Clip-On Barrel Nut M06-1.00 ZP	2
5	49286	Support	1
6	53576	Screw HHCS M20-2.50 x 45 ZP	8
7	47601	Flat Washer	8
8	53013	Screw SHCS M12-1.75 x 35 ZP	1
9	49284	Support	1
10	49285	Support	1
11	49516	Jib Rotate Cylinder Assembly	1
12	50374	Screw HHCS M16-2.00 x 35 ZP	8
13	60064	Flat Washer	8
14	49297	Bracket	1
15	53124	Screw SHCS M06-1.00 x 20 ZP	2
16	50000	WSHR M06 Standard Flat Washer ZP	2
17	60653	Angle Sensor Actuator	1
18	50423	Screw SHCS M04-0.70 x 12 ZP	4
19	60618	Angle Sensor	1
20	49517	Cover, Angle Sensor	1
21	53154	Screw HHCS M08-1.25 x 16 ZP	2
22	53055	WSHR M08 Spring Washer ZP	2
23	50001	WSHR M08 Standard Flat Washer ZP	2

Item	Part Number	Description	Qty.
1	50048	Nut NNYL M08-1.25 ZP	3
2	50218	WSHR M08 Flat Fender Washer ZP	3
3	49518	Cover, Jib Hoses	1
4	41103	Sleeve Bearing	4
5	45443	Pin, Pivot	2
6	41431	Pin, Lock	2
7	50332	Screw HHCS M10-1.50 x 35 ZP	2
8	53054	WSHR M10 Spring Washer ZP	2
9	50002	WSHR M10 Standard Flat Washer ZP	2
10	45444	Sleeve Bearing	4
11	45445	Linker, Lower	2
12	REF	Jib Lifting Cylinder Assembly (Refer to page 230)	1
13	45446	Roller	1
14	50018	Screw HHCS M08-1.25 x 80 ZP	2
15	53055	WSHR M08 Spring Washer ZP	2
16	50001	WSHR M08 Standard Flat Washer ZP	2
17	45447	Pin, Pivot	1
18	47868	Proximity Switch	1
19	45448	Linker, Upper	1
20	45449	Clamp	1
21	53207	Screw SHCS M06-1.00 x 30 ZP	2

REF - Reference

Platform Rotator Assembly

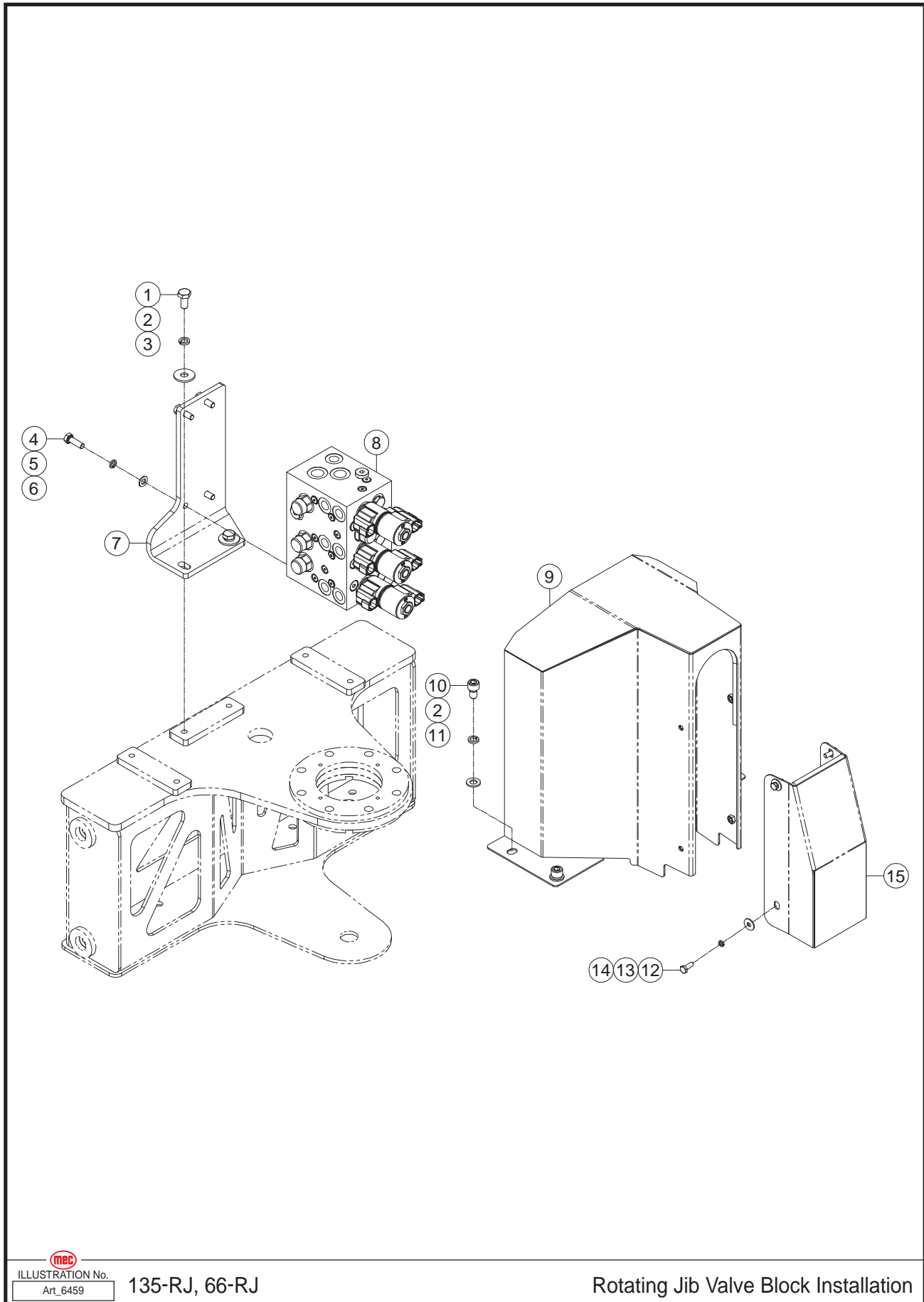



 ILLUSTRATION No. **66-RJ**
ART_6592

Platform Rotator Assembly

Item	Part Number	Description	Qty.
1	45491	Support	1
2	50301	Screw HHCS M12-1.75 x 55 ZP	8
3	50003	WSHR M12 Standard Flat Washer ZP	8
4	50561	Screw CSCS M06-1.00 x 20 ZP	4
5	45450	Cover	1
6	53571	Nut NHEX M24-2.00, Thin Nut Chamfered ZP	2
7	45451	Disc Spring	1
8	41322	Cotter Pin	1
9	45453	Rotate Cylinder Assembly	1
10	45454	Pin, Pivot	2
11	50033	Screw HHCS M10-1.50 x 25 ZP	2
12	53054	WSHR M10 Spring Washer ZP	2
13	50002	WSHR M10 Standard Flat Washer ZP	10
14	45456	Pin, Pivot	1
15	50378	Screw SHCS M10-1.50 x 35 ZP	8
16	45457	Washer	1
17	45458	Load Sensor	1
18	45459	Shim	1
19	53158	WSHR M24 Standard Flat Washer ZP	1
20	53572	Nut NHEX M24-2.00 ZP	1

Rotating Jib Valve Block Installation



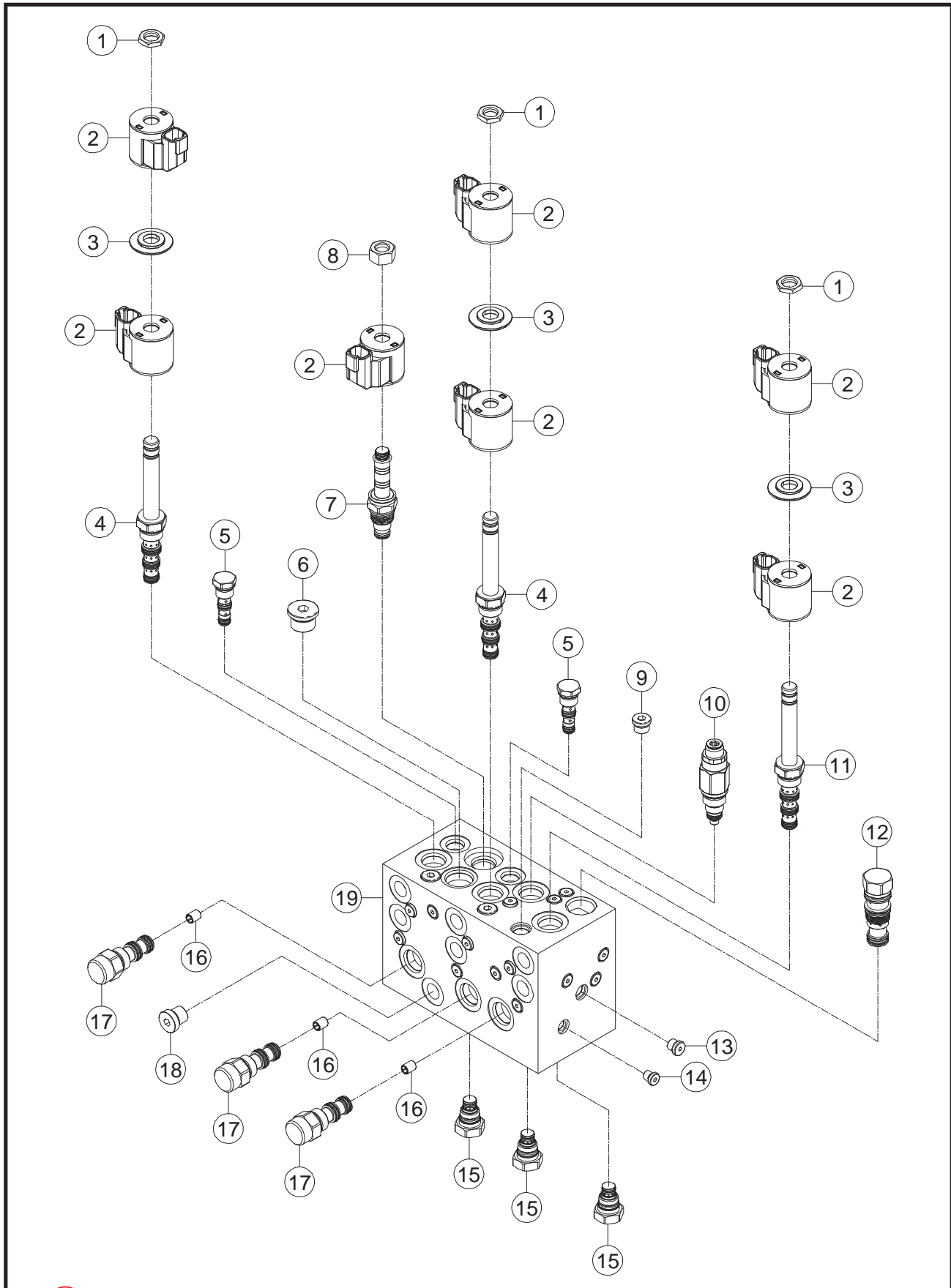
 ILLUSTRATION No. 135-RJ, 66-RJ
Art_6459


Rotating Jib Valve Block Installation

Item	Part Number	Description	Qty.
1	50215	Screw HHCS M10-1.50 x 20 ZP	2
2	53054	WSHR M10 Spring Washer ZP	6
3	53375	WSHR M10 Flat Fender Washer ZP	2
4	50031	Screw HHCS M08-1.25 x 25 ZP	4
5	53055	WSHR M08 Spring Washer ZP	4
6	50001	WSHR M08 Standard Flat Washer ZP	4
7	49299	Bracket	1
8	REF	Jib Valve Block Assembly (Refer to page 212)	1
9	45462	Housing	1
10	53573	Screw SHCS M10-1.50 x 16 ZP	4
11	50002	WSHR M10 Standard Flat Washer ZP	4
12	50445	Screw HHCS M06-1.00 x 16 ZP	4
13	53046	WSHR M06 Spring Washer ZP	4
14	50068	WSHR M06 Flat Fender Washer ZP	4
15	45463	Housing	1

REF - Reference

Jib Valve Block Assembly



 ILLUSTRATION No. 135-RJ, 66-RJ
Art_6460

Jib Valve Block Assembly

Item	Part Number	Description	Qty.
--	49300	Jib Valve Block Assembly	--
1	42795	Nut	3
2	47741	Coil	7
3	60184	Spacer	3
4	60182	Cartridge, Proportional Solenoid Valve	2
5	60194	Cartridge, Shuttle Valve	2
6	60153	Plug	1
7	60116	Cartridge, Solenoid Valve	1
8	60185	Nut	1
9	42802	Plug	3
10	49301	Cartridge, Relief Valve	1
11	49302	Cartridge, Proportional Solenoid Valve	1
12	49303	Cartridge, Shuttle Valve	1
13	43643	Plug	1
14	43465	Plug	25
15	49304	Cartridge, Check Valve	3
16	49305	Orifice	3
17	60180	Cartridge, Logic Valve	3
18	42480	Plug	1
19	49306	Body	1

Platform Components

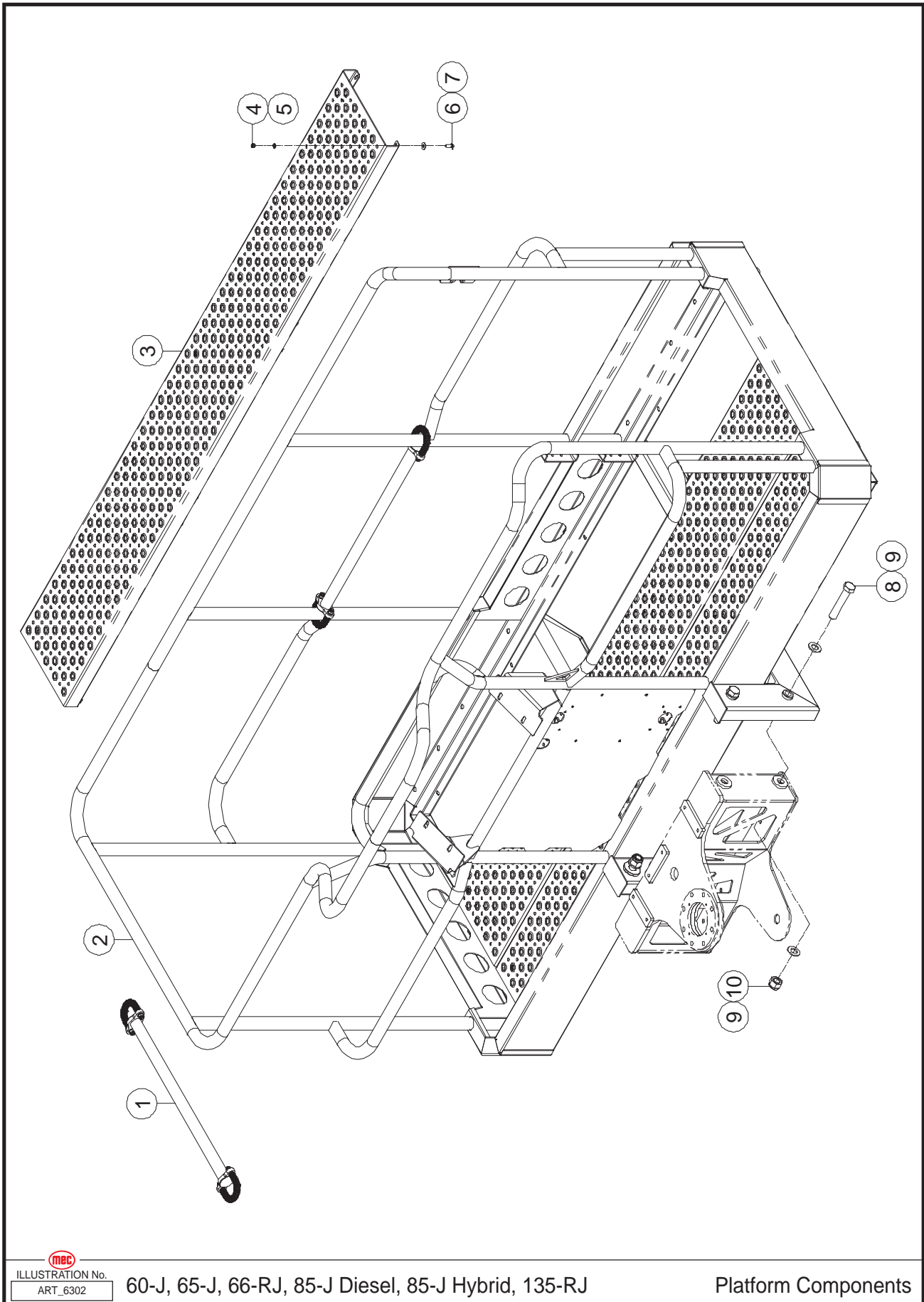



ILLUSTRATION No.
ART_6302

60-J, 65-J, 66-RJ, 85-J Diesel, 85-J Hybrid, 135-RJ

Platform Components

Item	Part Number	Description	Qty.
1	REF	Platform Lifting Gate Assembly (Refer to page 218)	2
2	45470	Platform	1
3	45471	Deck Plate	3
4	50047	Nut NNYL M06-1.00 ZP	34
5	50000	WSHR M06 Standard Flat Washer ZP	34
6	50028	Screw HHCS M06-1.00 x 20 ZP	34
7	50068	WSHR M06 Flat Fender Washer ZP	34
8	53002	Screw HHCS M20-2.50 x 110 ZP	4
9	50005	WSHR M20 Standard Flat Washer ZP	8
10	50052	Nut NNYL M20-2.50 ZP	4

REF - Reference

Platform Accessories

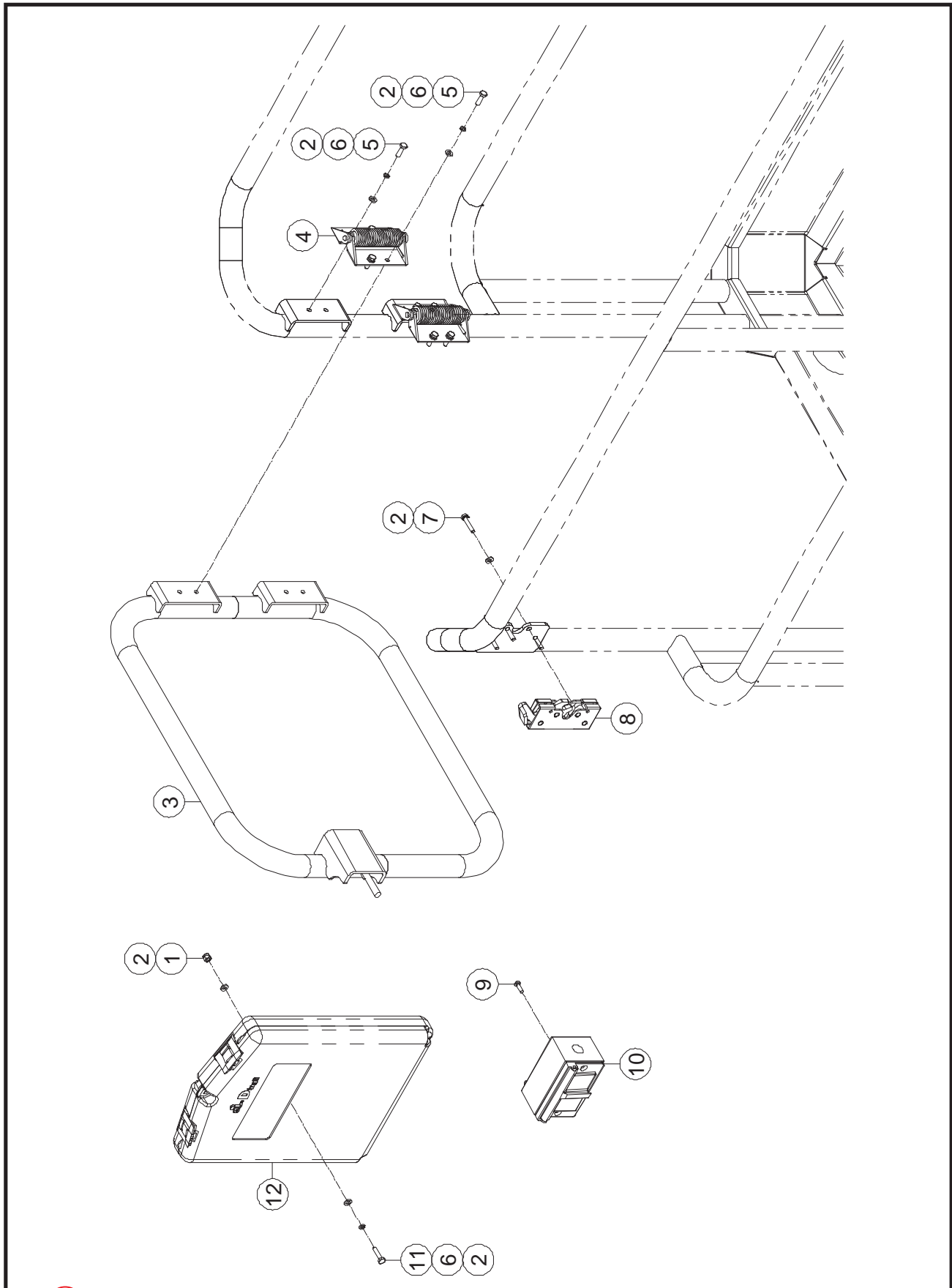


 ILLUSTRATION No. **60-J, 65-J, 66-RJ, 85-J Diesel, 85-J Hybrid, 135-RJ** Platform Accessories
ART_6303

Item	Part Number	Description	Qty.
1	50047	Nut NNYL M06-1.00 ZP	4
2	50000	WSHR M06 Standard Flat Washer ZP	20
3	45472	Side Swing Gate Assembly	1
4	44764	Hinge	2
5	50028	Screw HHCS M06-1.00 x 20 ZP	8
6	53046	WSHR M06 Spring Washer ZP	12
7	50214	Screw HHCS M06-1.00 x 30 ZP	4
8	41067	Lock	1
9	53351	Screw PHMS M05-0.80 x 16 ZP	4
10	42613	Electrical Outlet	1
11	50117	Screw HHCS M06-1.00 x 25 ZP	4
12	8909	Manual Box	1

Platform Lifting Gate Assembly

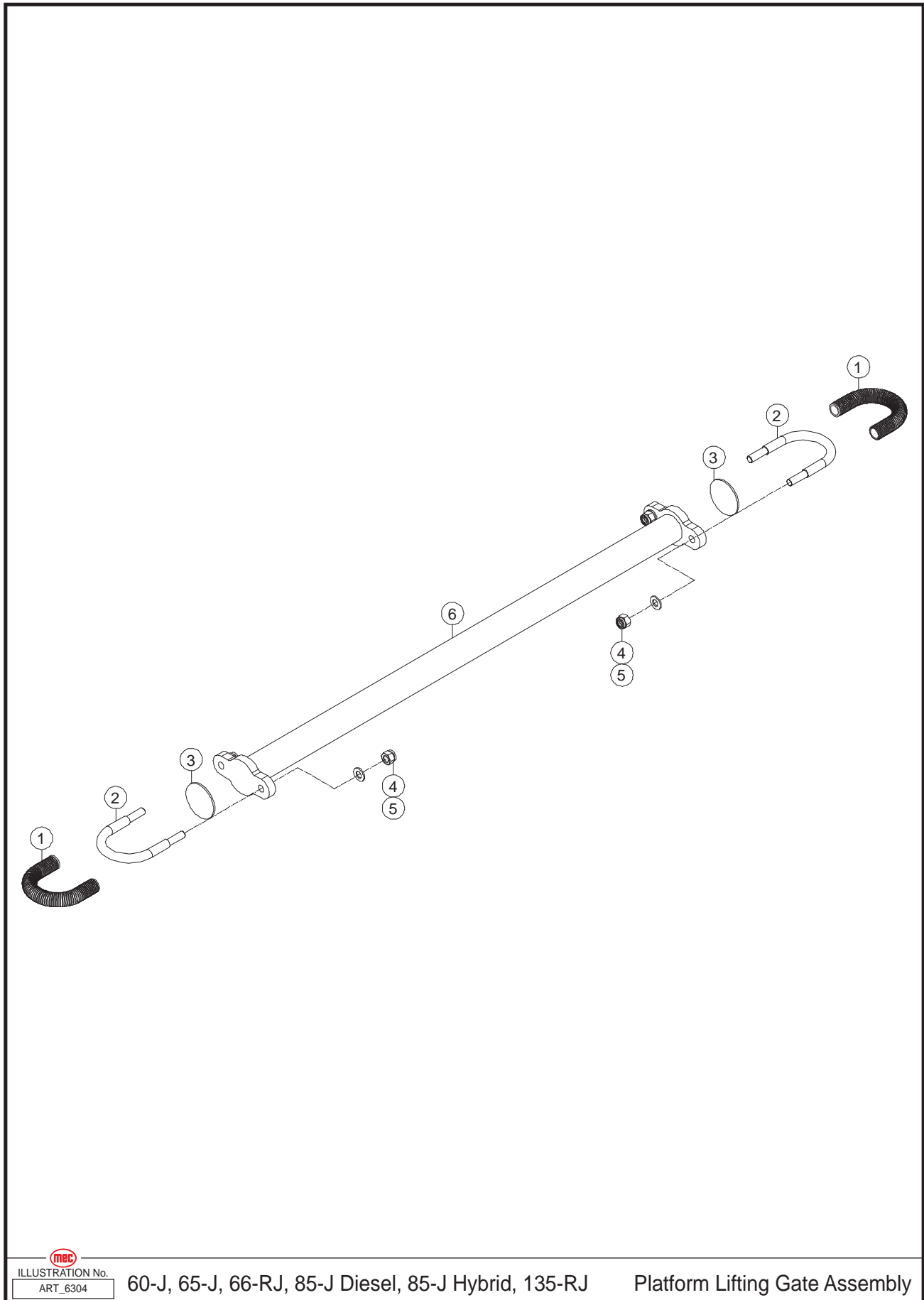


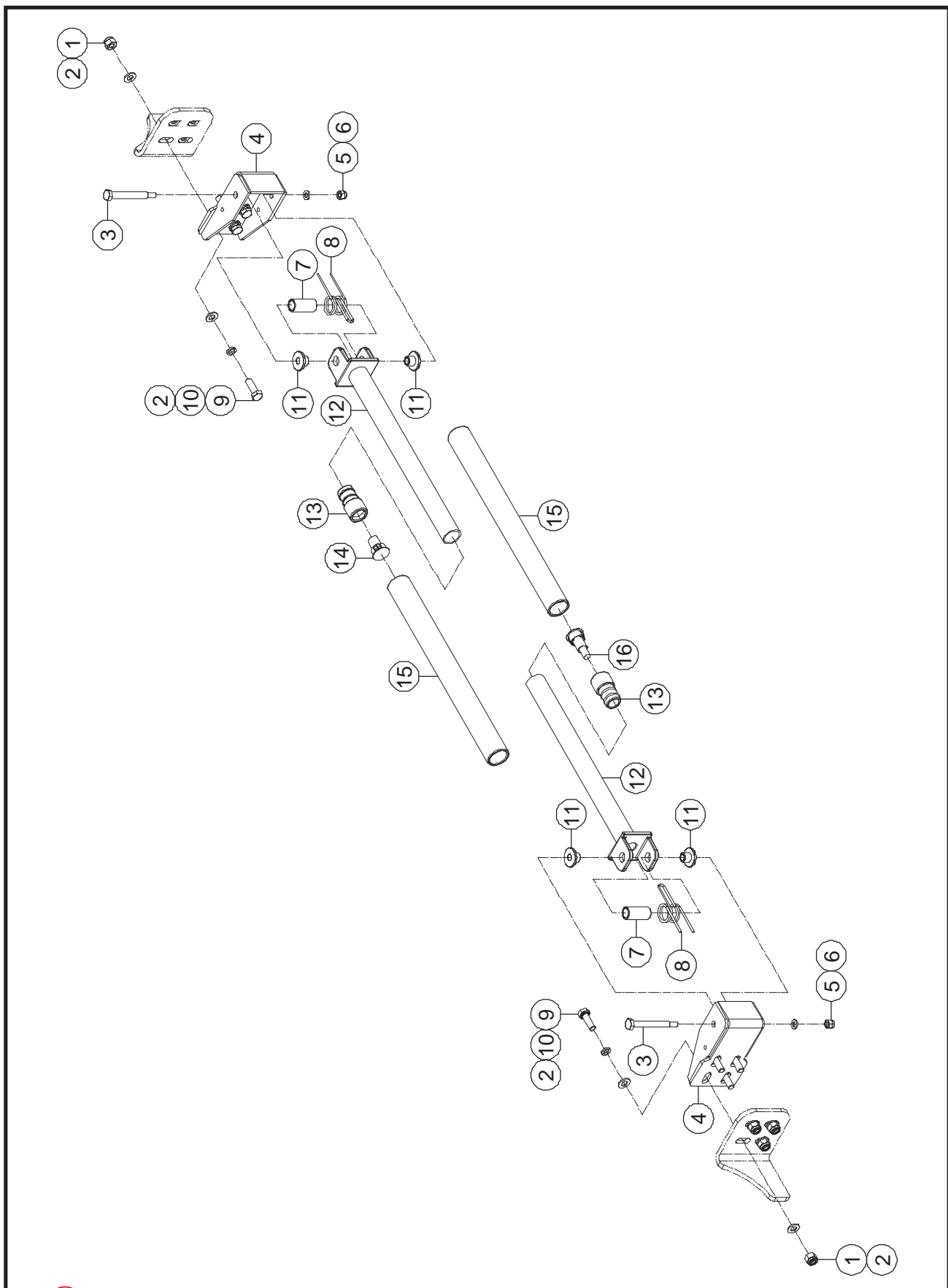

ILLUSTRATION No.
ART_6304


60-J, 65-J, 66-RJ, 85-J Diesel, 85-J Hybrid, 135-RJ

Platform Lifting Gate Assembly

Item	Part Number	Description	Qty.
1	45476	Jacket	2
2	45477	Clamp	2
3	45478	Anti-Scratch Guard	2
4	50048	Nut NNYL M08-1.25 ZP	4
5	50001	WSHR M08 Standard Flat Washer ZP	4
6	45479	Gate, Lift	1

Platform Secondary Guarding Assembly



 ILLUSTRATION No. **ART_6160** 60-J, 65-J, 66-RJ, 85-J Diesel (From #14900200), 85-J Hybrid, 135-RJ Platform Secondary Guarding Assembly

Item	Part Number	Description	Qty.
1	50048	Nut NNYL M08-1.25 ZP	8
2	50001	WSHR M08 Standard Flat Washer ZP	16
3	45480	Pin	2
4	45490	Bracket, Contact Alarm	2
5	50047	Nut NNYL M06-1.00 ZP	2
6	50000	WSHR M06 Standard Flat Washer ZP	2
7	45482	Tube	2
8	45483	Spring	2
9	50031	Screw HHCS M08-1.25 x 25 ZP	8
10	53055	WSHR M08 Spring Washer ZP	8
11	45484	Bearing	4
12	45485	Tube, Contact Alarm	2
13	45486	Plug, Nylon	2
14	45487	Magnet	1
15	45488	Jacket, Foam	2
16	45489	Door Magnetic Switch	1

Axle Lockout Cylinder Assembly

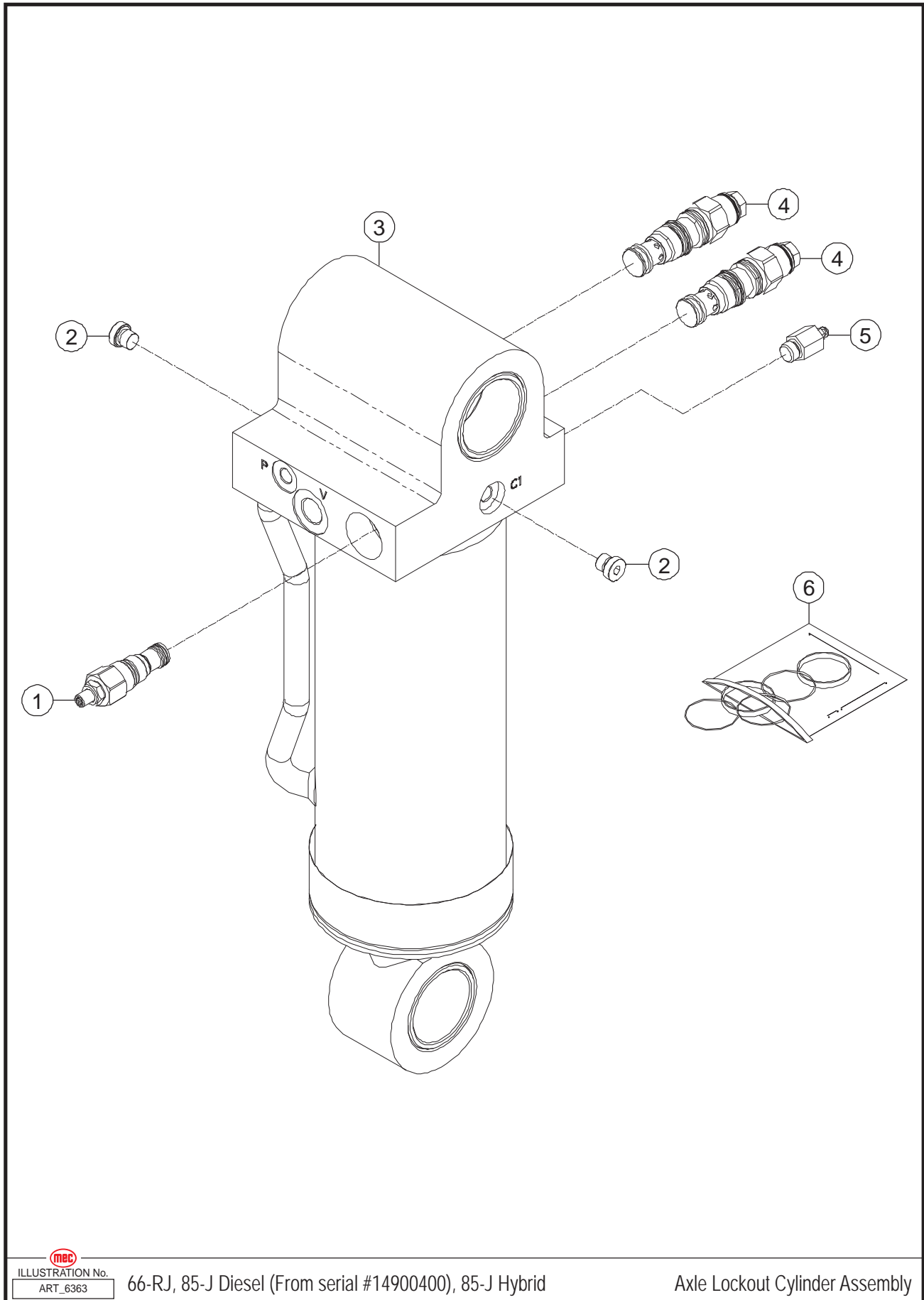



ILLUSTRATION No.
ART_6363

66-RJ, 85-J Diesel (From serial #14900400), 85-J Hybrid

Axle Lockout Cylinder Assembly

Item	Part Number	Description	Qty.
1	48879	Check Throttle Valve	1
2	48880	Plug	2
3	49186	Axle Lockout Cylinder Assembly	1
4	48882	Cartridge, Counterbalance	2
5	48883	Exhaust Valve	1
6	49187	Seal Kit	1

Lifting Cylinder Assembly

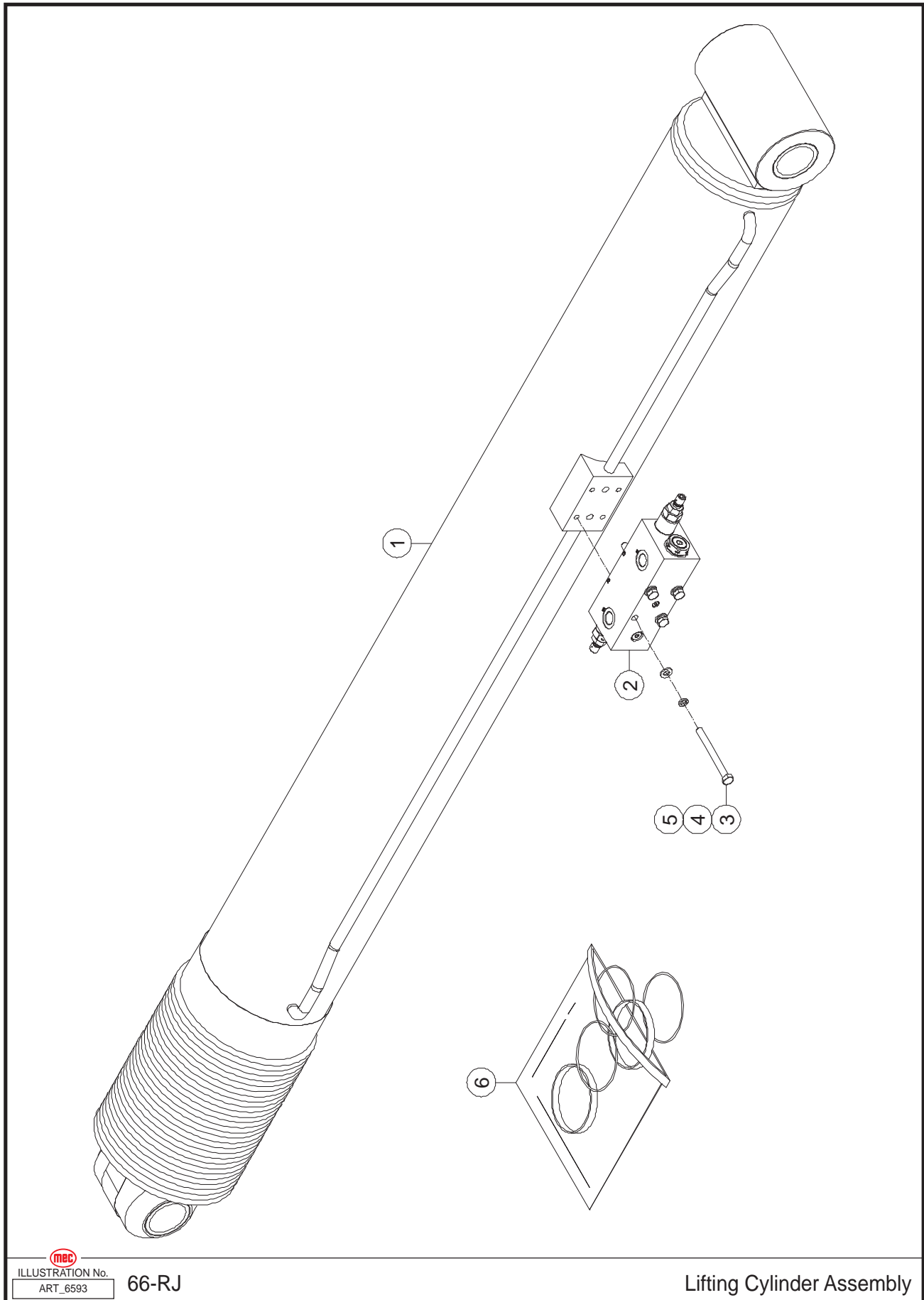


 ILLUSTRATION No. **66-RJ**
ART_6593

Lifting Cylinder Assembly

Item	Part Number	Description	Qty.
1	49519	Lifting Cylinder Assembly	1
2	49520	Lifting Cylinder Cartridge	1
3	50019	Screw HHCS M08-1.25 x 85 ZP	4
4	53055	WSHR M08 Spring Washer ZP	4
5	50001	WSHR M08 Standard Flat Washer ZP	4
6	49521	Seal Kit	1

Telescopic Cylinder Assembly

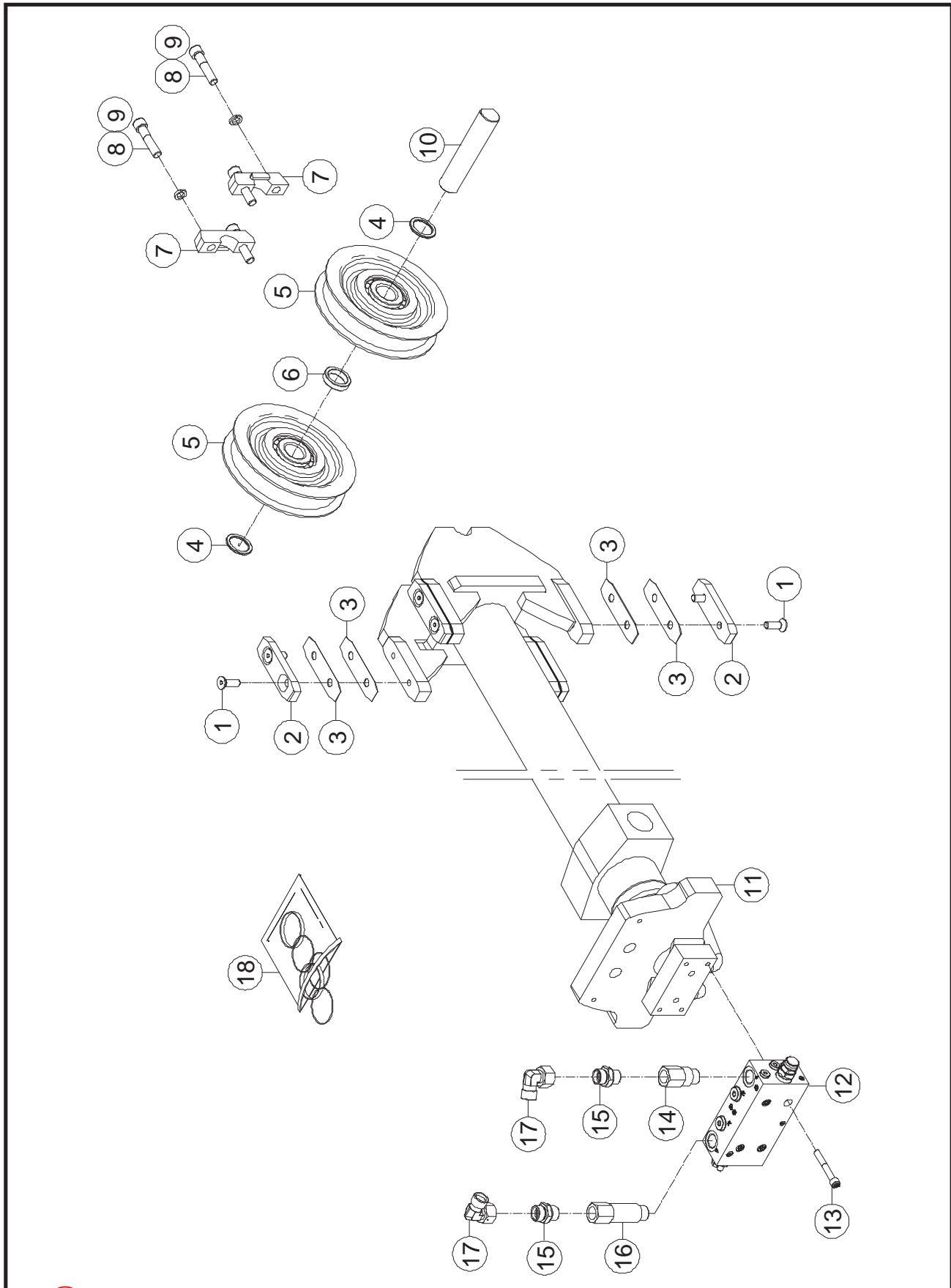


ILLUSTRATION No. **66-RJ**
ART_6594

Telescopic Cylinder Assembly



Item	Part Number	Description	Qty.
1	53225	Screw CSCS M10-1.50 x 30 ZP	8
2	45505	Sliding Block	4
3	45506	Shim	8
4	47954	Spacer	2
5	45507	Pulley Bearing	2
6	47957	Spacer	1
7	47949	Lock	2
8	53176	Screw SHCS M12-1.75 x 55 ZP	4
9	53148	WSHR M12 Spring Washer ZP	4
10	47956	Pin	1
11	49522	Telescopic Cylinder Assembly	1
12	45511	Valve	1
13	53129	Screw SHCS M08-1.25 x 60 ZP	4
14	45589	Fitting, Straight	1
15	45529	Fitting, Straight	2
16	45590	Fitting, Straight	1
17	48402	Fitting, 90°	2
18	49523	Seal Kit	1

Jib Leveling Cylinder Assembly

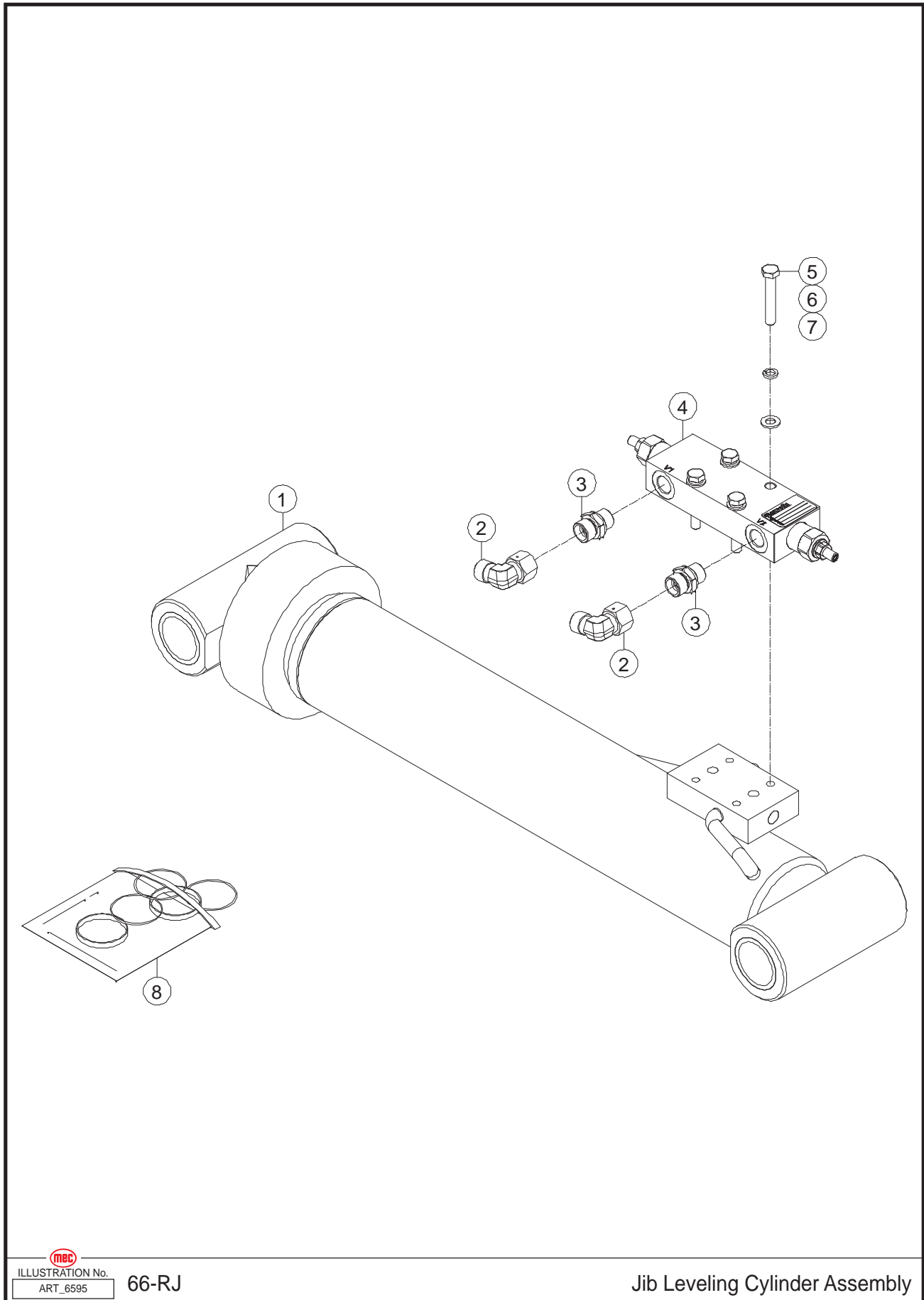
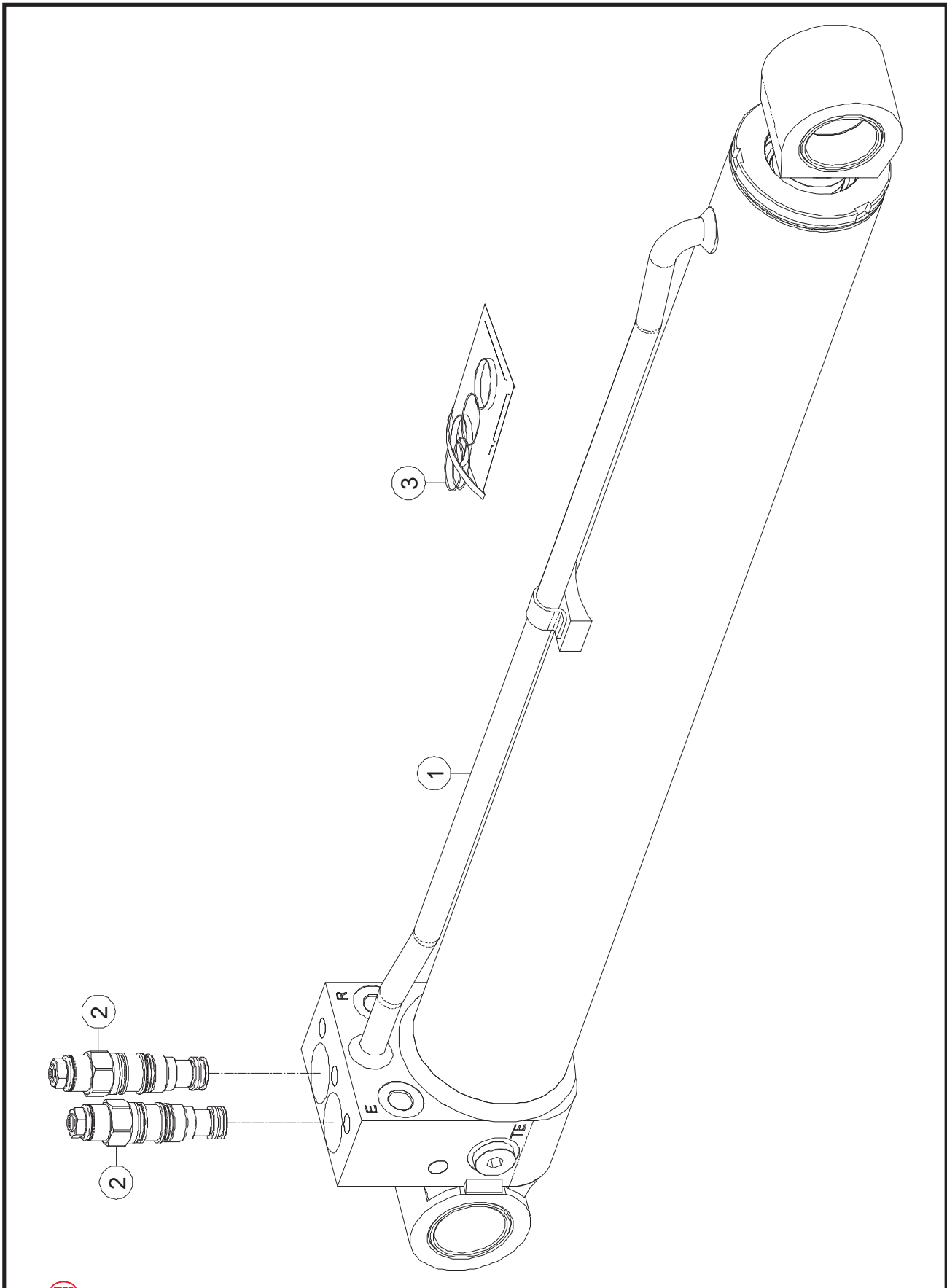



 ILLUSTRATION No. 66-RJ
ART_6595

Jib Leveling Cylinder Assembly

Item	Part Number	Description	Qty.
1	49524	Jib Leveling Cylinder Assembly	1
2	43082	Fitting, 90°	2
3	45547	Fitting, Straight	2
4	45514	Valve	1
5	50015	Screw HHCS M08-1.25 x 50 ZP	4
6	53055	WSHR M08 Spring Washer ZP	4
7	50001	WSHR M08 Standard Flat Washer ZP	4
8	49525	Seal Kit	1

Jib Lifting Cylinder Assembly

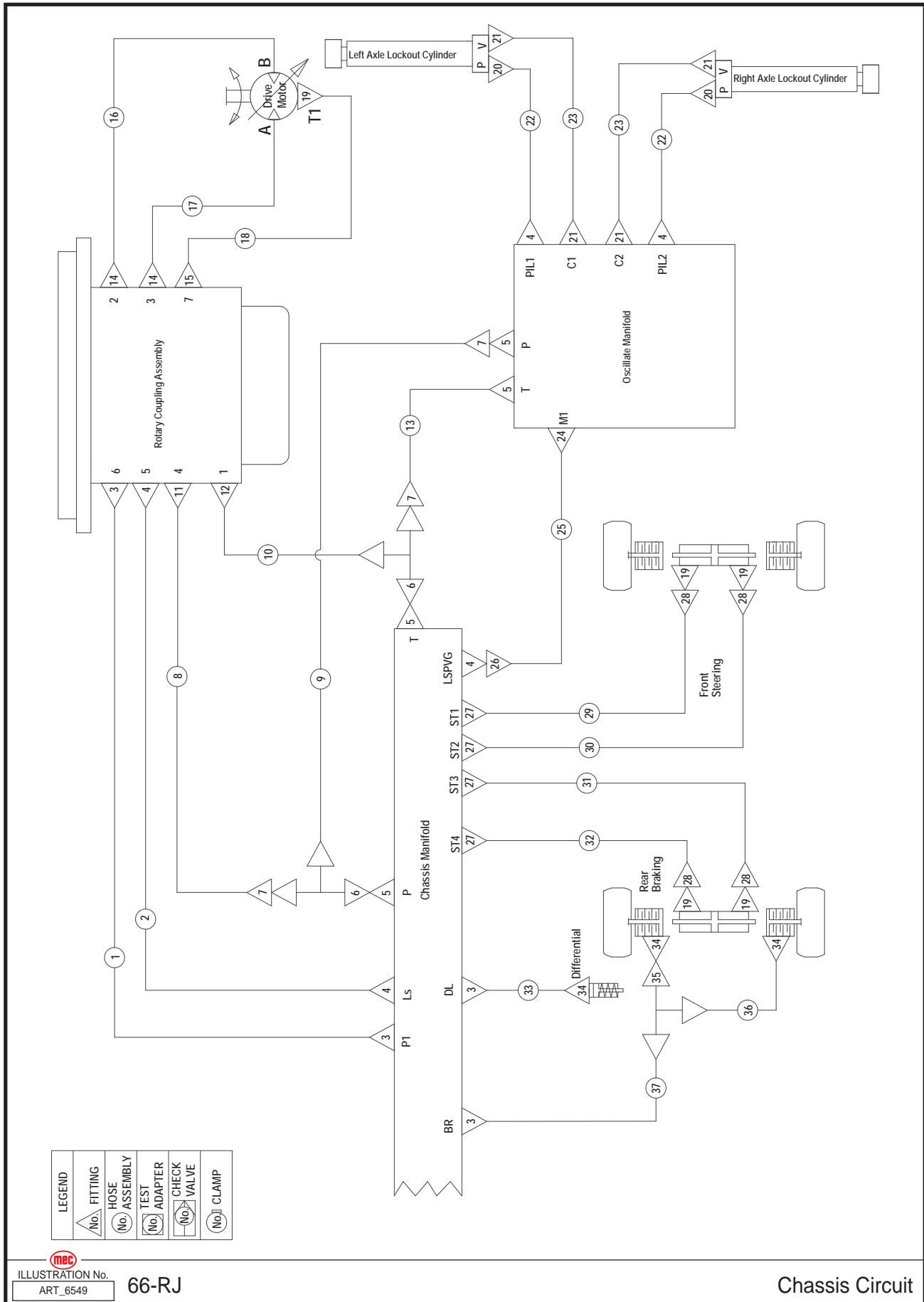


 ILLUSTRATION No. 66-RJ, 85-J Diesel, 85-J Hybrid
ART_6167

Jib Lifting Cylinder Assembly

Item	Part Number	Description	Qty.
1	45516	Jib Lifting Cylinder Assembly	1
2	42121	Cartridge, Counterbalance	2
3	45518	Seal Kit	1

Chassis Hydraulic Circuit



Item	Part Number	Description	Qty.
1	45527	Hose Assembly	1
2	45522	Hose Assembly	1
3	41296	Fitting, Straight	4
4	46792	Fitting, Straight	5
5	48399	Fitting, Straight	4
6	43117	Fitting, Tee	2
7	48402	Fitting, 90°	3
8	45521	Hose Assembly	1
9	49230	Hose Assembly	1
10	45523	Hose Assembly	1
11	45529	Fitting, Straight	1
12	43576	Fitting, Straight	1
13	49231	Hose Assembly	1
14	45531	Fitting, Straight	2
15	45530	Fitting, Straight	1
16	49526	Hose Assembly, Rotary Coupling to Drive Motor Port B	1
--	45533	Flat Flange	2
--	50003	WSHR M12 Standard Flat Washer ZP	4
--	53148	WSHR M12 Spring Washer ZP	4
--	53247	Screw HHCS M12-1.75 x 40 ZP	4
17	49527	Hose Assembly, Rotary Coupling to Drive Motor Port A	1
--	45533	Flat Flange	2
--	50003	WSHR M12 Standard Flat Washer ZP	4
--	53148	WSHR M12 Spring Washer ZP	4
--	53247	Screw HHCS M12-1.75 x 40 ZP	4
18	49528	Hose Assembly, Rotary Coupling to Tank	1
19	43083	Fitting, Straight	5
20	48912	Fitting, Straight	2
21	48913	Fitting, Straight	4
22	49232	Hose Assembly	2
23	49233	Hose Assembly	2
24	43076	Fitting, Straight	1
25	48930	Hose Assembly	1
26	43077	Fitting, 90°	1
27	45547	Fitting, Straight	4
28	43082	Fitting, 90°	4
29	45545	Hose Assembly	1
30	49529	Hose Assembly, Chassis Manifold to Front Steering	1
31	45548	Hose Assembly	1
32	45549	Hose Assembly	1
33	49530	Hose Assembly, Chassis Manifold to Axle Differential	1
34	45542	Fitting, Straight	3
35	45543	Fitting, Tee	1
36	45541	Hose Assembly	1
37	45553	Hose Assembly	1

Item	Part Number	Description	Qty.
1	48921	Hose Assembly	1
2	45556	Fitting, Straight	2
3	49531	Hose Assembly, Pressure Filter to Function Pump Assembly	1
4	48923	Fitting, Straight	2
5	48924	Hose Assembly	1
6	43582	Fitting, Straight	2
7	48402	Fitting, 90°	7
8	48925	Hose Assembly	1
9	48926	Fitting, Flange	1
--	45558	Flange Fitting	1
--	45559	O-Ring	1
--	50002	WSHR M10 Standard Flat Washer ZP	4
--	53054	WSHR M10 Spring Washer ZP	4
--	50034	Screw HHCS M10-1.50 x 30 ZP	4
10	48392	Fitting, 90°	6
11	45561	Fitting, Straight	1
12	49532	Valve, Check	1
13	45563	Fitting, Straight	4
14	48927	Hose Assembly	1
15	46792	Fitting, Straight	3
16	47749	Fitting, Straight	1
17	48928	Hose Assembly	1
18	47759	Fitting, Check Valve	1
19	48929	Hose Assembly	1
20	48930	Hose Assembly	1
21	48931	Hose Assembly	1
22	45566	Fitting, Tee	1
23	45565	Fitting, Tee	1
24	43077	Fitting, 90°	4
25	45473	Fitting, Straight	1
26	45468	Fitting, Tee, Shuttle Valve	1
27	49533	Fitting, Tee	1
28	45474	Fitting, Straight	1
29	43112	Fitting, 90°	1
30	43115	Fitting, Tee	1
31	48932	Hose Assembly	1
32	48933	Hose Assembly	1
33	48934	Fitting, Tee	1
34	43085	Fitting, Straight	3
35	48935	Hose Assembly	1
36	45525	Fitting, Straight	1
37	49534	Hose Assembly, Rotary Coupling to Radiator	1
38	47693	Plug	2
39	45528	Fitting, Straight	1

40	45537	Fitting, Straight	2
41	45539	Valve, Ball	1
42	48937	Hose Assembly	1
43	48399	Fitting, Straight	1
44	45567	Fitting, Straight	1
45	48938	Hose Assembly	1
46	45529	Fitting, Straight	3
47	47766	Plug	1
48	49571	Hose Assembly, Function Pump Case Drain to Hydraulic Tank	1
49	48940	Fitting, Straight	1
50	48941	Fitting, 90°, Flange Fitting	1
--	48274	Flange Fitting	1
--	50002	WSHR M10 Standard Flat Washer ZP	4
--	53054	WSHR M10 Spring Washer ZP	4
--	50034	Screw HHCS M10-1.50 x 30 ZP	4
51	49535	Hose Assembly, Function Pump Suction to Hydraulic Tank	1
52	45569	Fitting, Straight	2
53	45570	Valve, Ball	1
54	45568	Fitting, Straight	1
55	45575	Fitting, Straight	1
56	45573	Fitting, Straight	2
57	45574	Valve, Ball	1
58	48943	Hose Assembly	1
59	48943	Fitting, Straight	1
60	49536	Hose Assembly, Drive Pump Case Drain to Hydraulic Tank	1
61	45578	Fitting, Straight	1
62	45593	Fitting, Straight	1
63	48946	Hose Assembly	1
64	43082	Fitting, 90°	1
65	45530	Fitting, Straight	1
66	43576	Fitting, Straight	1
67	41296	Fitting, Straight	1
68	43639	Fitting, 90°	1
69	49537	Hose Assembly, Drive Pump Load Sense to Rotary Coupling	1
70	44006	Fitting, Straight	1
71	48948	Flange Fitting	2
--	48949	Flange Fitting	4
--	50003	WSHR M12 Standard Flat Washer ZP	8
--	53148	WSHR M12 Spring Washer ZP	8
--	50040	Screw HHCS M12-1.75 x 35 ZP	8
72	49538	Hose Assembly, Drive Pump Port B to Rotary Coupling	1
73	49539	Hose Assembly, Drive Pump Port A to Rotary Coupling	1
74	48908	Fitting, Straight	2

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Item	Part Number	Description	Qty.
1	45589	Fitting, Straight	1
2	45590	Fitting, Straight	1
3	45529	Fitting, Straight	6
4	48402	Fitting, 90°	4
5	49540	Hose Assembly, Telescopic Cylinder to PVG Valve Block	2
6	48399	Fitting, Straight	2
7	49541	Hose Assembly, Lifting Cylinder Exit	1
8	49542	Hose Assembly, Lifting Cylinder Return	1
9	43657	Fitting, Bulkhead, Straight	4
10	49543	Hose Assembly, Lifting Cylinder Bulkhead to PVG Valve Block Bulkhead	2
11	49544	Hose Assembly, PVG Valve Block Bulkhead to PVG Valve Block	2
12	45593	Fitting, Straight	6
13	49545	Hose Assembly, PVG Valve Block to Gearmotor	2
14	45547	Fitting, Straight	4
15	43082	Fitting, Straight	2
16	49546	Hose Assembly, Jib Leveling Cylinder V2	1
17	49547	Hose Assembly, Jib Leveling Cylinder V1	1
18	43680	Fitting, Bulkhead, Straight	9
19	49548	Hose Assembly, PVG Valve Block Long	3
20	49549	Hose Assembly, PVG Valve Block Small	3
21	49550	Hose Assembly, Pressure Filter Bulkhead to Pressure Filter	1
22	45601	Fitting, Straight	2
23	49551	Hose Assembly, Pressure Filter to Valve Block	1
24	43083	Fitting, Straight	2
25	49572	Hose Assembly, Valve Block Port T to Bulkhead	1
26	49573	Hose Assembly, Valve Block Bulkhead Small	1
27	49574	Hose Assembly, Valve Block Bulkhead Long	1
28	49575	Hose Assembly, Valve Block Bulkhead Long to PVG Valve Block	1
29	48388	Fitting, Straight	1
30	48972	Fitting, Straight	1
31	49100	Fitting, 90°	2
32	45609	Fitting, Tee	1
33	48974	Hose Assembly	1
34	48975	Hose Assembly	1
35	48392	Fitting, 90°	1
36	45563	Fitting, Straight	1
37	45613	Fitting, Straight	1
38	48976	Hose Assembly	1
39	45614	Fitting, Straight	1
40	45615	Plug	2
41	45616	Test Adapter	1

Jib Hydraulic Circuit

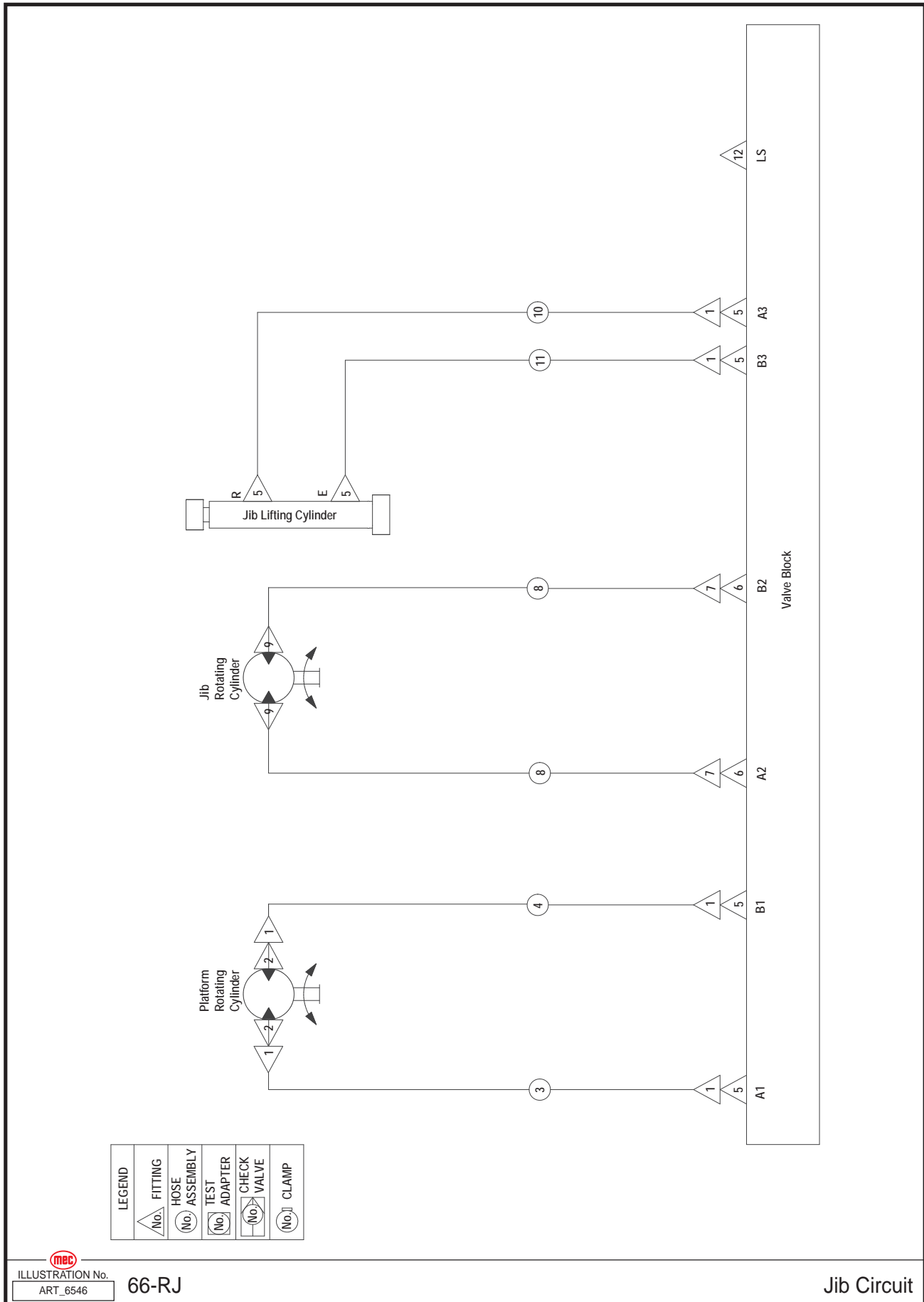


ILLUSTRATION No. ART_6546

66-RJ

Jib Circuit

Item	Part Number	Description	Qty.
1	43639	Fitting, 90°	6
2	47749	Fitting, Straight	2
3	49552	Hose Assembly, Valve Block Port A1 to Platform Rotary Cylinder	1
4	49553	Hose Assembly, Valve Block Port B1 to Platform Rotary Cylinder	1
5	44006	Fitting, Straight	6
6	43076	Fitting, Straight	2
7	43077	Fitting, 90°	2
8	49554	Hose Assembly, Valve Block to Jib Rotary Cylinder	2
9	49555	Fitting, Jib Rotary Straight Orifice	2
10	49556	Hose Assembly, Jib Lifting Cylinder Return	1
11	49557	Hose Assembly, Jib Lifting Cylinder Exit	1
12	42480	Plug	1

Electrical Harness, Part 1, To serial # 24400139

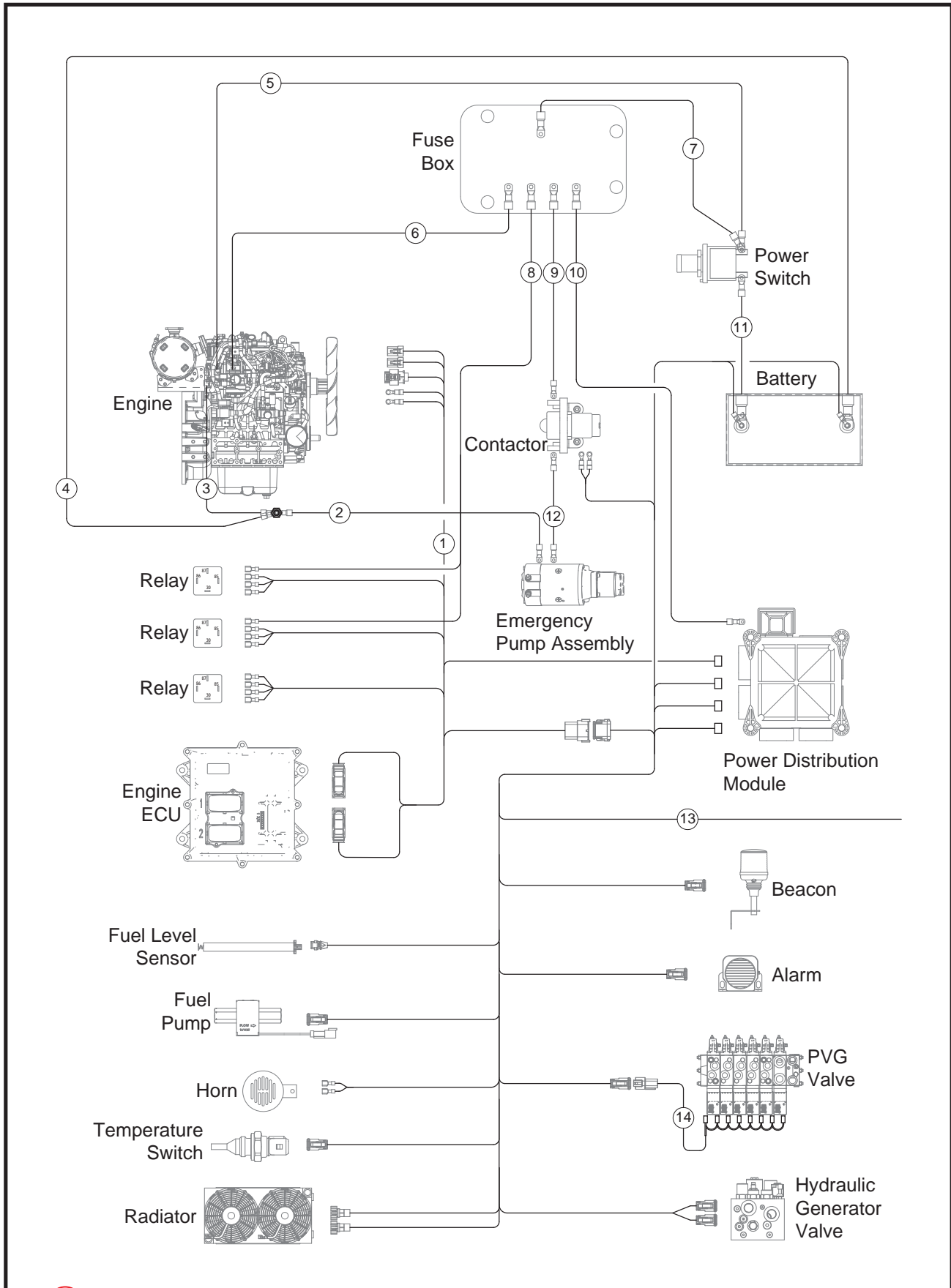


ILLUSTRATION No. **66-RJ**
ART_6550

Electrical Harness (To Serial #24400139)



Item	Part Number	Description	Qty.
1	48973	Engine Harness	1
2	48977	Emergency Pump Negative Harness	1
3	48978	Engine Negative Harness	1
4	49558	12V Battery Negative Harness	1
5	48980	Start Motor Harness	1
6	48981	Alternator Harness	1
7	49559	Fuse Box Power Harness	1
8	48983	Preheat Contactor Harness	1
9	48984	Emergency Pump Contactor Harness	1
10	48985	Fuse Relay Box Power Harness	1
11	48986	12V Battery Positive Harness	1
12	48987	Emergency Power Positive Harness	1
13	49560	Control Cabin Harness	1

Electrical Harness, Part 2, To serial # 24400139

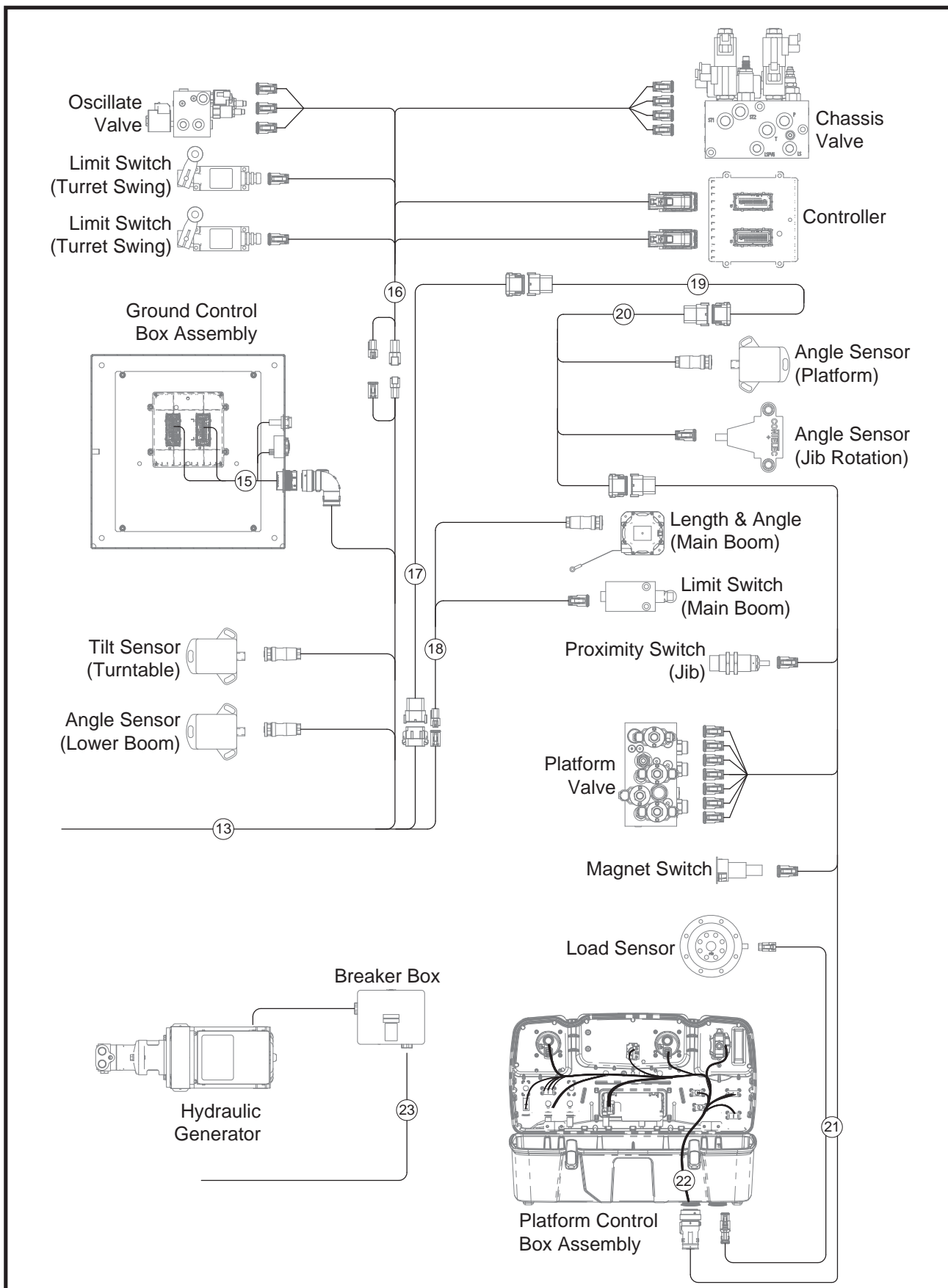


 ILLUSTRATION No. **66-RJ**
ART_6550

Electrical Harness (To Serial #24400139)

Item	Part Number	Description	Qty.
12	48987	Emergency Power Positive Harness	1
14	48989	PVG Harness	1
15	49561	Ground Control Box Harness	1
16	49562	Chassis Harness	1
17	49563	Lower Boom Harness	1
18	49564	Sensor Harness	1
19	49565	Main Boom Harness	1
20	49566	Jib Harness	1
21	49567	Platform Harness	1
22	49568	Platform Control Box Harness	1
23	49569	Welding Harness	1

Electrical Harness, Part 1, , From serial # 24400140

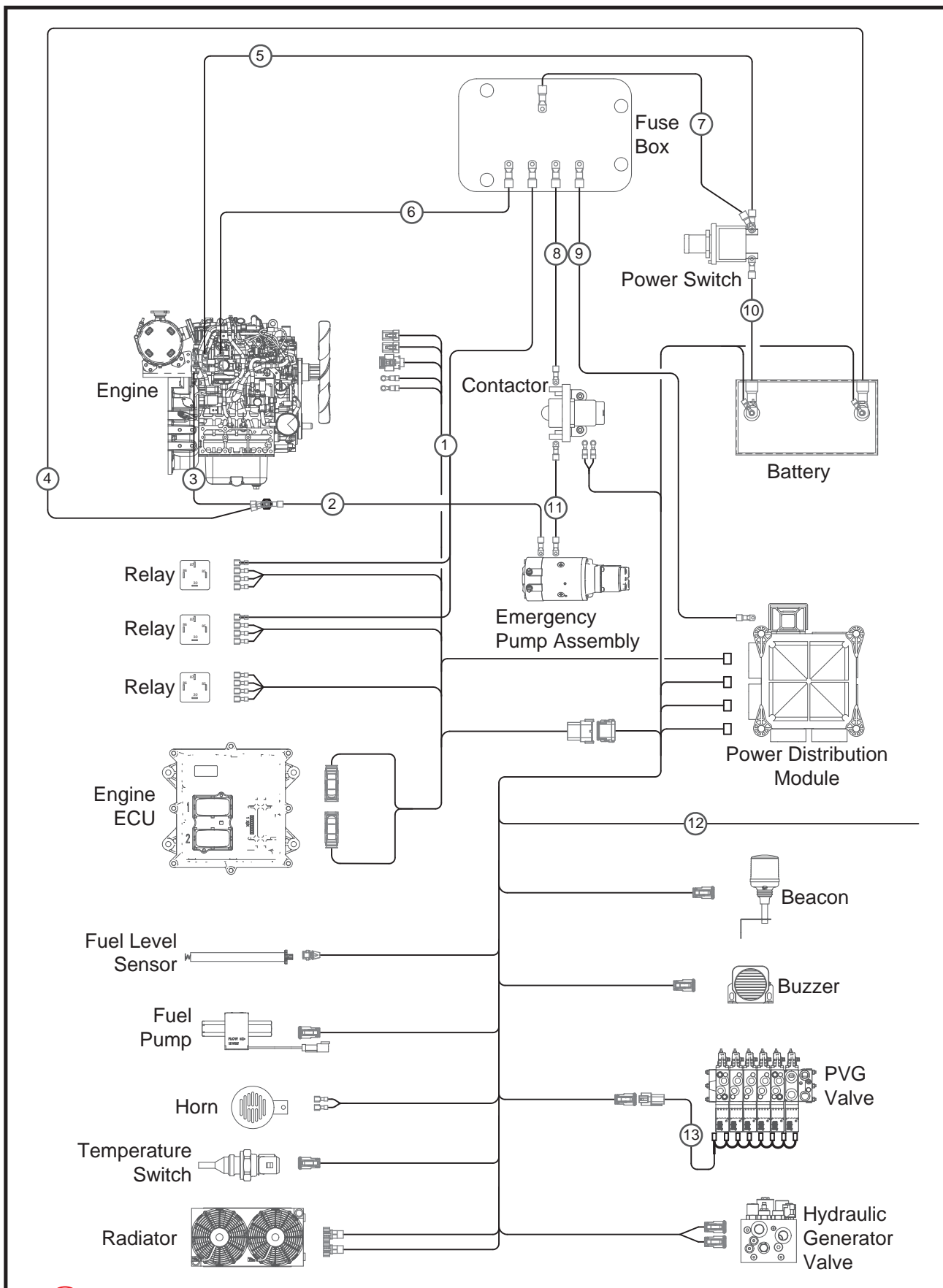


ILLUSTRATION No. ART_6550

66-RJ

Electrical Harness (From Serial #24400140)

Item	Part Number	Description	Qty.
1	48973	Engine Harness	1
2	48977	Emergency Pump Negative Harness	1
3	48978	Engine Negative Harness	1
4	49558	12V Battery Negative Harness	1
5	48980	Start Motor Harness	1
6	48981	Alternator Harness	1
7	49559	Fuse Box Power Harness	1
8	48984	Emergency Pump Contactor Harness	1
9	48985	Fuse Relay Box Power Harness	1
10	48986	12V Battery Positive Harness	1
11	48987	Emergency Power Positive Harness	1
12	49560	Control Cabin Harness	1
13	48989	PVG Harness	1

Electrical Harness, Part 2, , From serial # 24400140

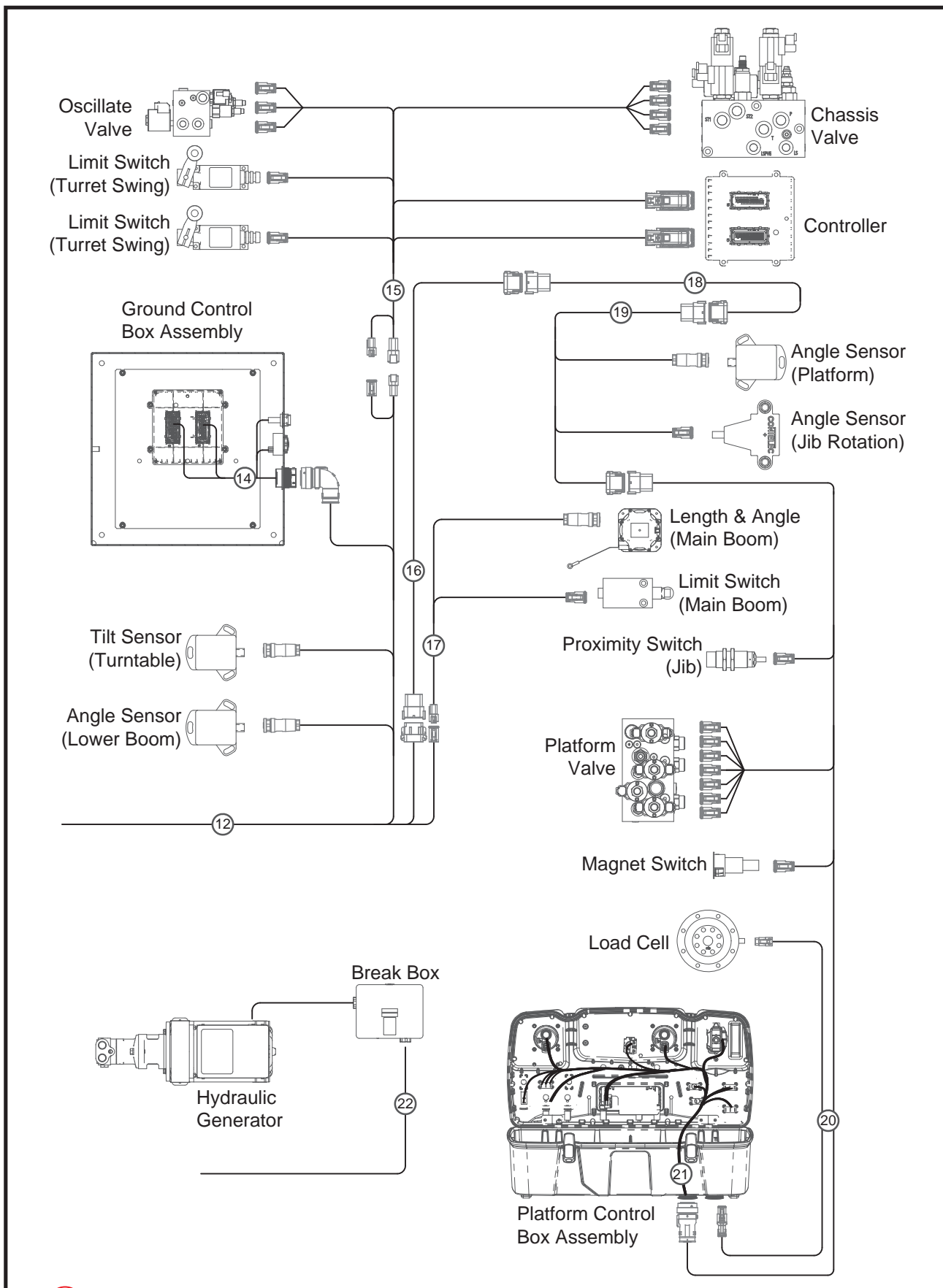


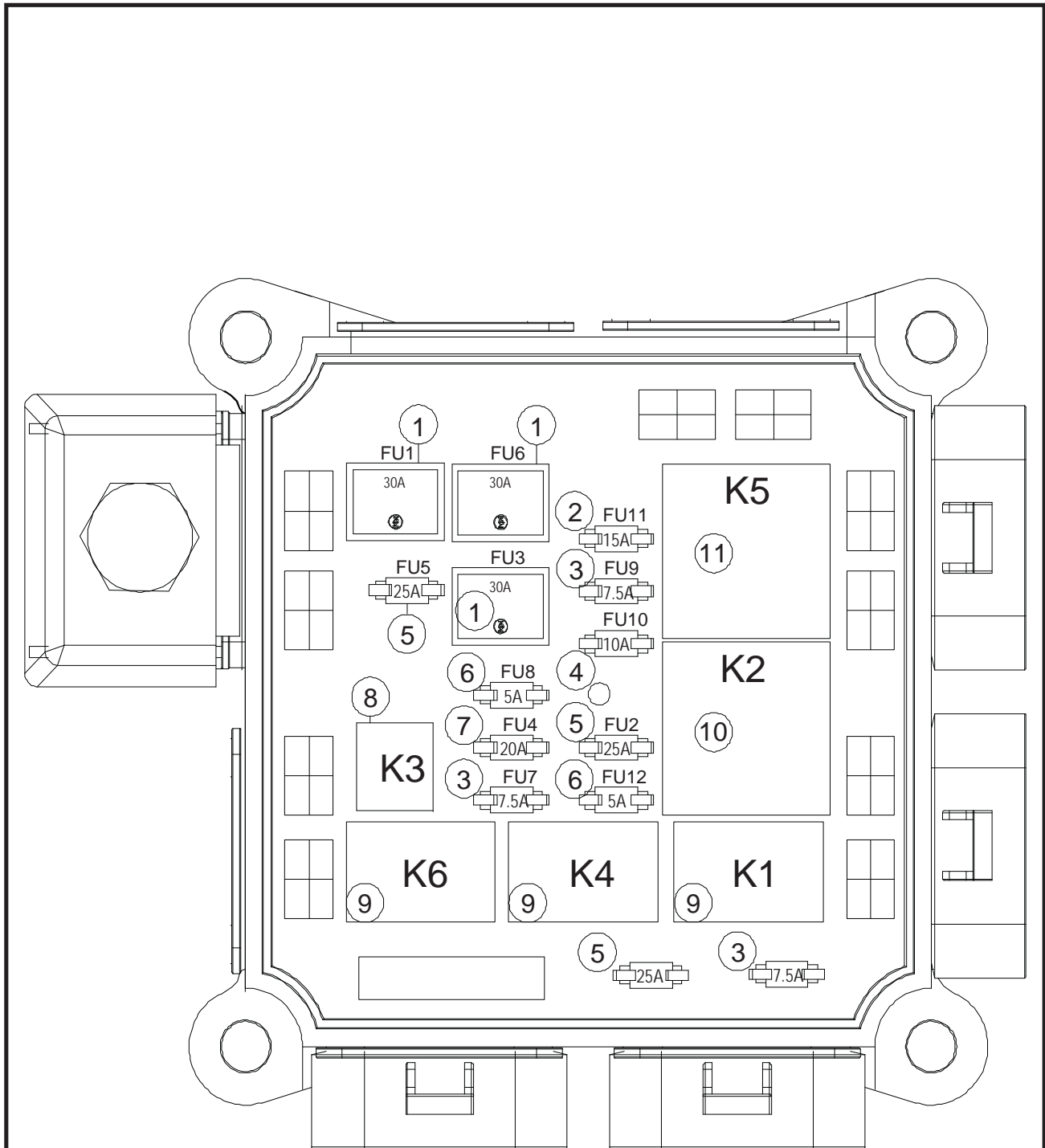
ILLUSTRATION No. **66-RJ**
ART_6550

Electrical Harness (From Serial #24400140)



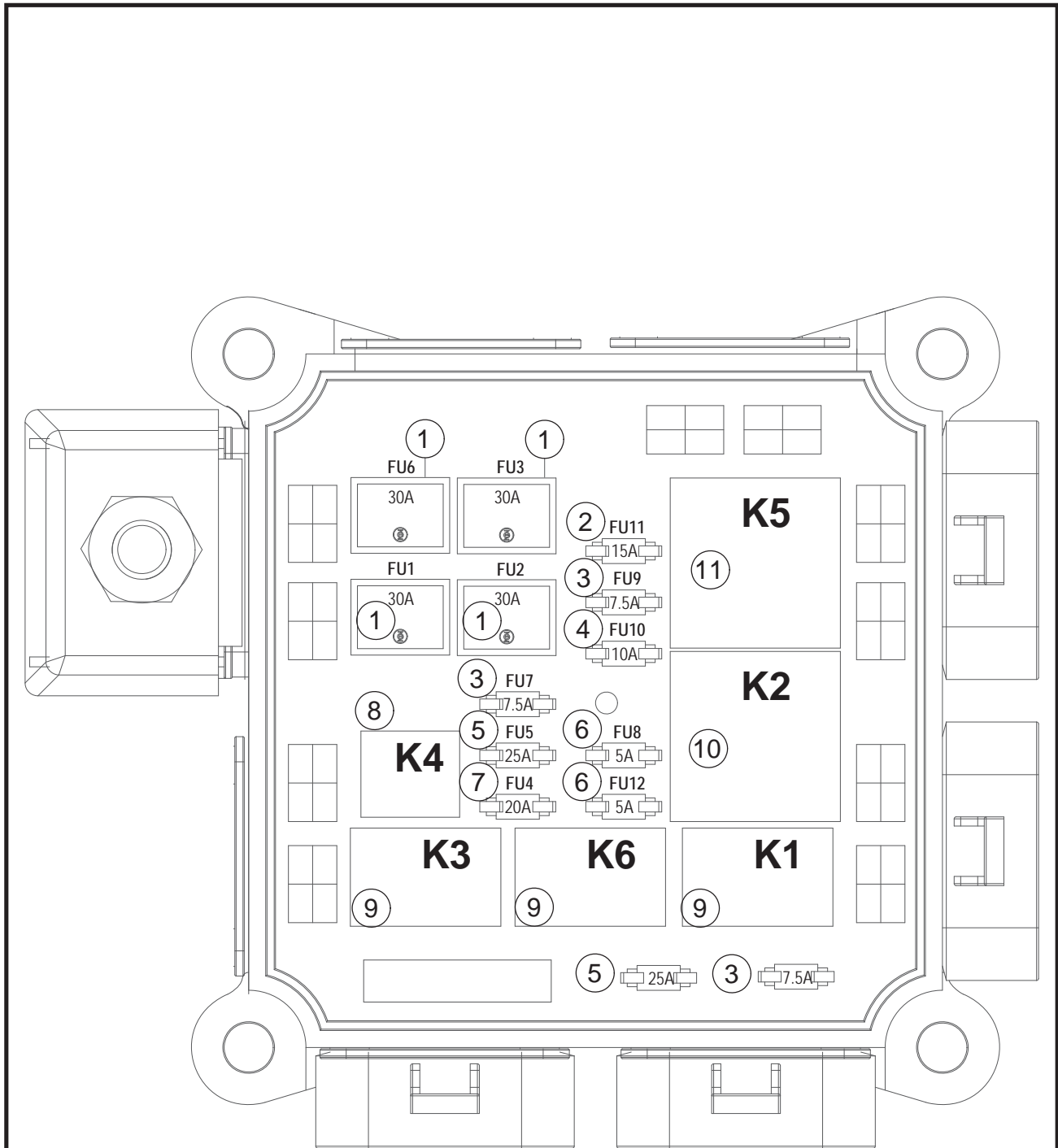
Item	Part Number	Description	Qty.
12	49560	Control Cabin Harness	1
15	49562	Chassis Harness	1
16	49563	Lower Boom Harness	1
17	49564	Sensor Harness	1
18	49565	Main Boom Harness	1
19	49566	Jib Harness	1
20	49567	Platform Harness	1
21	49568	Platform Control Box Harness	1
22	49569	Welding Harness	1

Power Distribution Module, To serial # 24400139



Item	Part Number	Description	Qty.
--	47701	Power Distribution Module Assembly	--
1	48137	Fuse 30 Amp	3
2	48138	Fuse 15 Amp	1
3	48139	Fuse 7.5 Amp	3
4	48140	Fuse 10 Amp	1
5	48141	Fuse 25 Amp	2
6	48142	Fuse 5 Amp	2
7	48143	Fuse 20 Amp	1
8	48144	Relay	1
9	48145	Relay	3
10	48146	Relay	1
11	48147	Relay	1

Power Distribution Module, From serial # 24400140



Item	Part Number	Description	Qty.
--	47701	Power Distribution Module Assembly	--
1	48137	Fuse 30 Amp	4
2	48138	Fuse 15 Amp	1
3	48139	Fuse 7.5 Amp	3
4	48140	Fuse 10 Amp	1
5	48141	Fuse 25 Amp	2
6	48142	Fuse 5 Amp	2
7	48143	Fuse 20 Amp	1
8	48144	Relay	1
9	48145	Relay	3
10	48146	Relay	1
11	48147	Relay	1

Ground Control Box Assembly

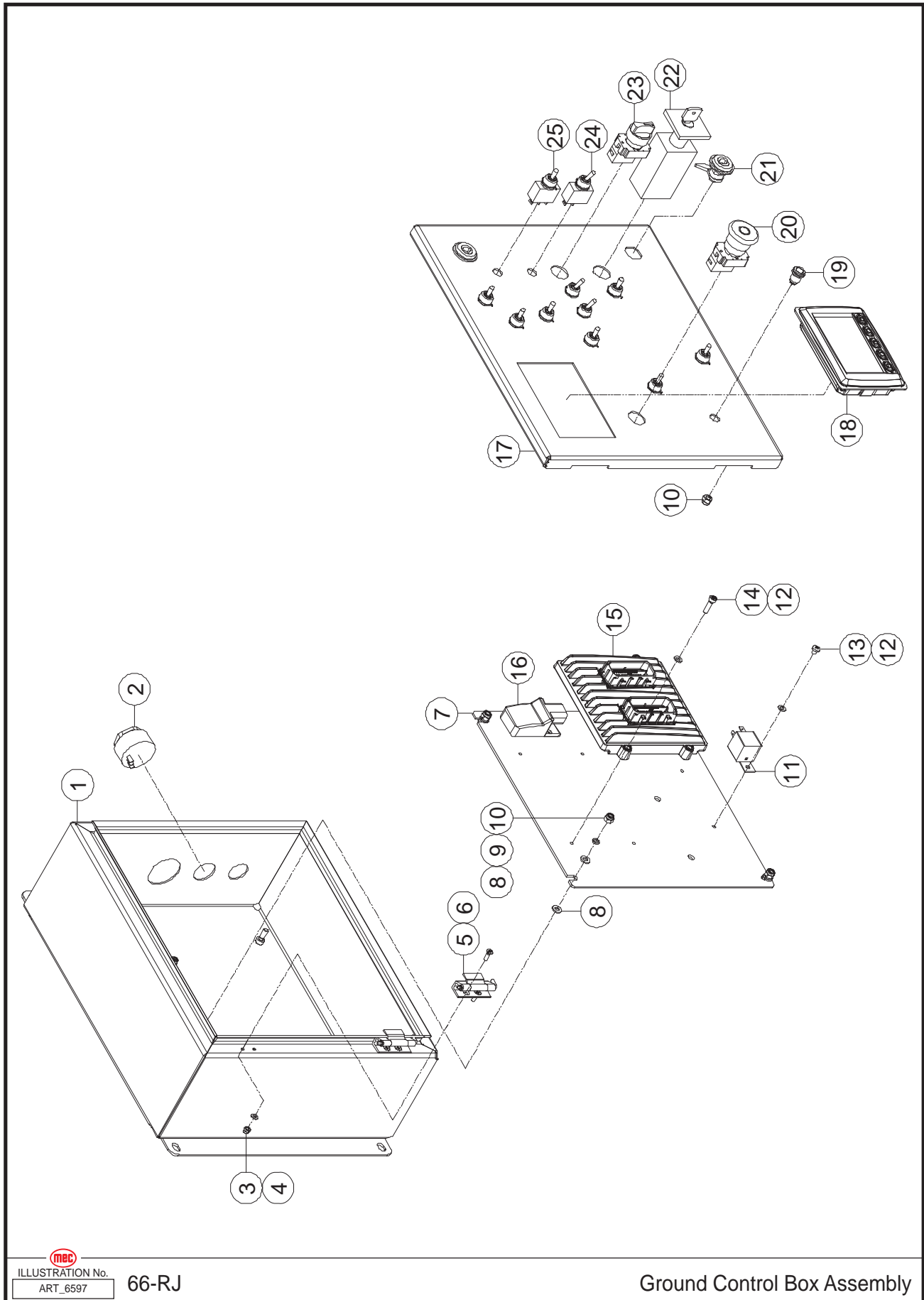


 ILLUSTRATION No. 66-RJ
ART_6597

Ground Control Box Assembly

Item	Part Number	Description	Qty.
1	49005	Box	1
2	41961	Alarm	1
3	50285	Nut NNYL M04-0.70 ZP	4
4	50284	WSHR M04 Standard Flat Washer ZP	4
5	46916	Rack, Gemel	2
6	53575	Screw CSCS M04-0.70 x 14 ZP	4
7	48149	Bracket	1
8	50000	WSHR M06 Standard Flat Washer ZP	8
9	53046	WSHR M06 Spring Washer ZP	4
10	50047	Nut NNYL M06-1.00 ZP	6
11	43089	Relay	1
12	53038	WSHR M05 Standard Flat Washer ZP	5
13	53383	Screw PHMS M05-0.80 x 6 ZP	1
14	53150	Screw SHCS M05-0.80 x 20 ZP	4
15	46913	Controller	1
16	49353	Bluetooth Adapter	1
17	49570	Electric Control Box Cover	1
18	48159	Display	1
19	48152	Indicator	1
20	41422	Emergency Stop Switch	1
--	43097	Base with 1 NC Contact	1
--	43098	Red Mushroom Head	1
21	42352	Lock, Column	2
22	48155	Key Switch	1
23	46582	Select Switch	1
--	43994	Base with 1 NO Contact	1
--	48156	Select Switch Head	1
24	48163	Switch, Toggle	3
25	48151	Switch, Toggle	8

Platform Control Box Assembly

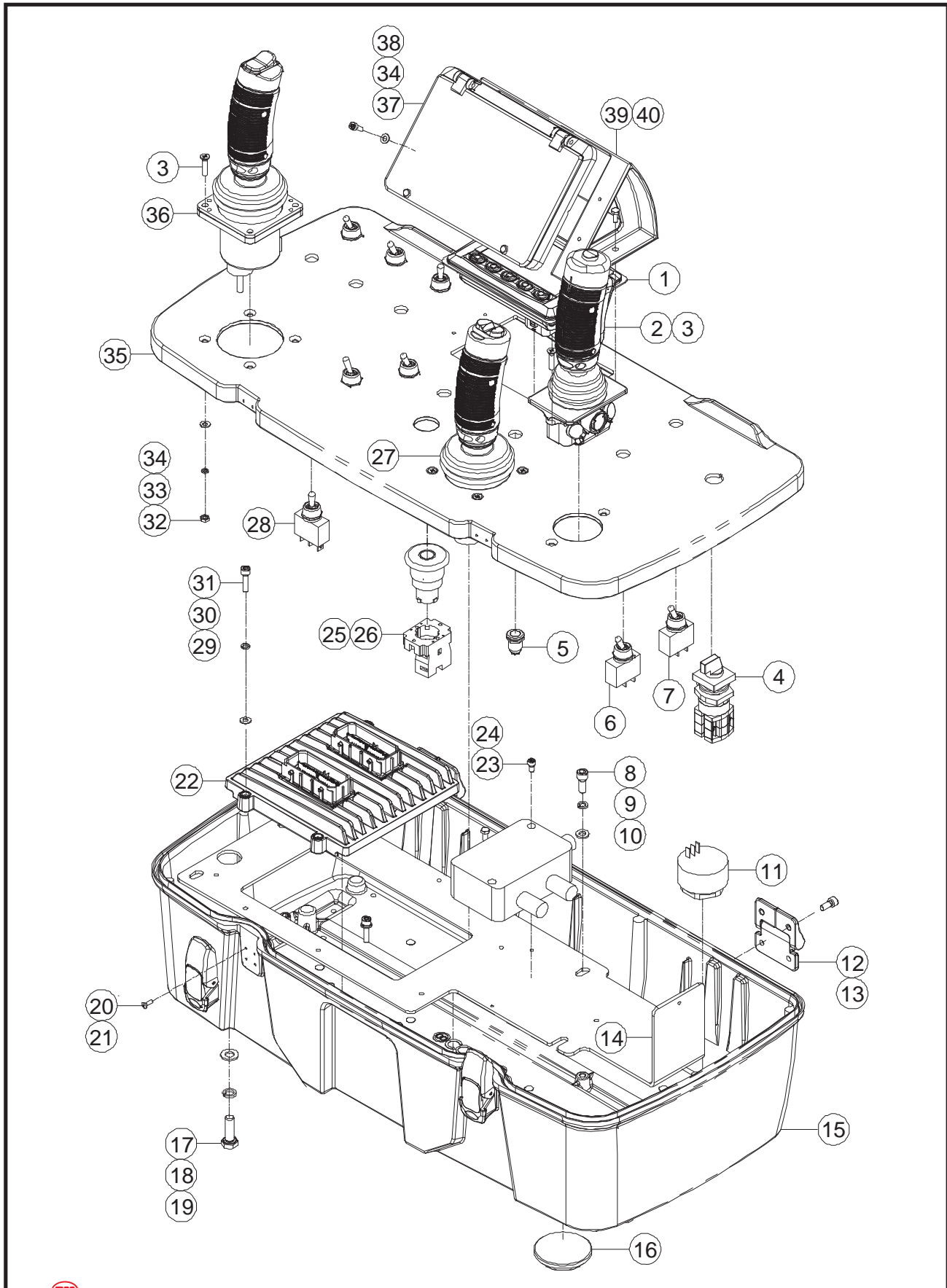
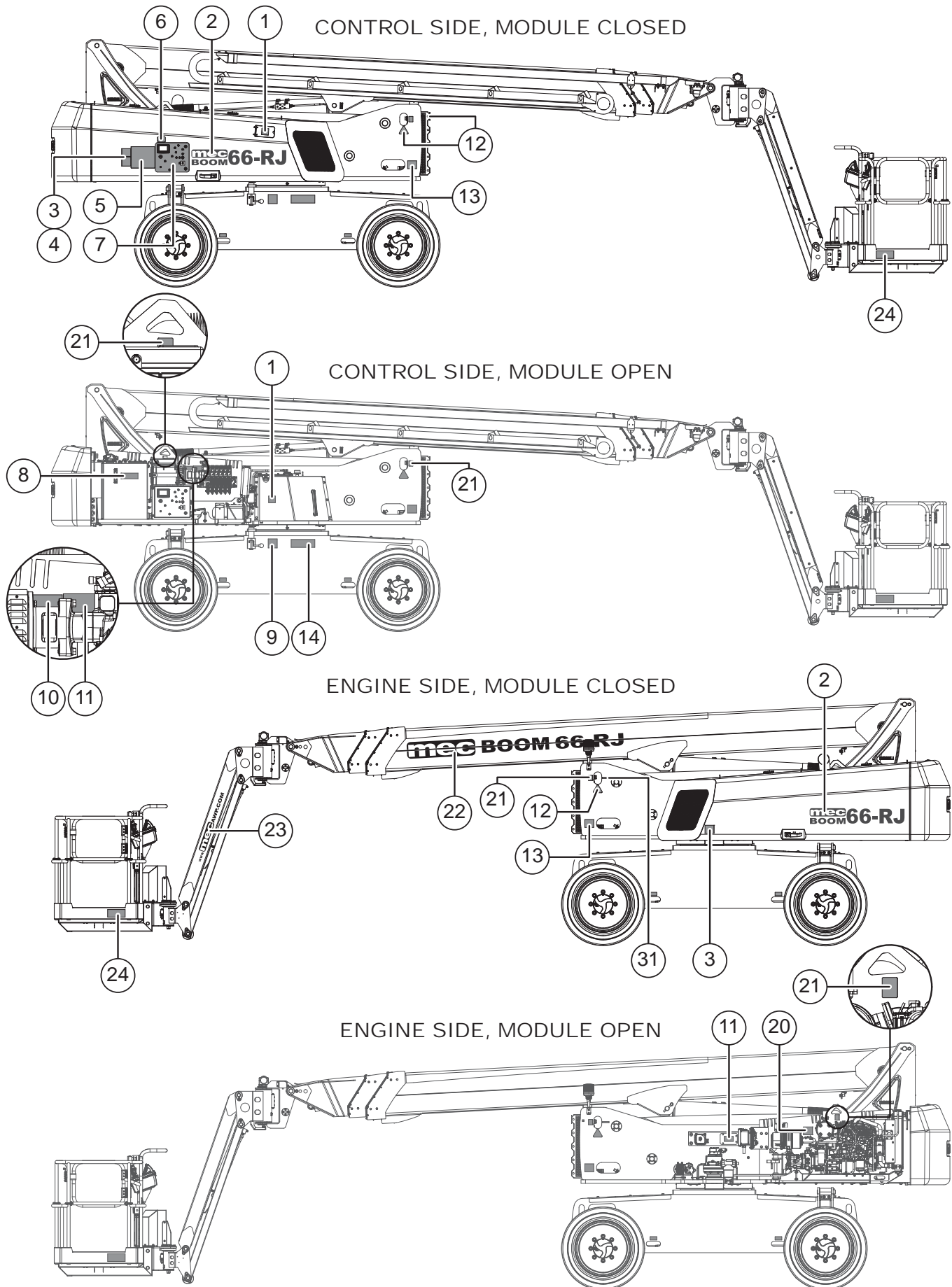


 ILLUSTRATION No. 66-RJ
ART_6598

Platform Control Box Assembly

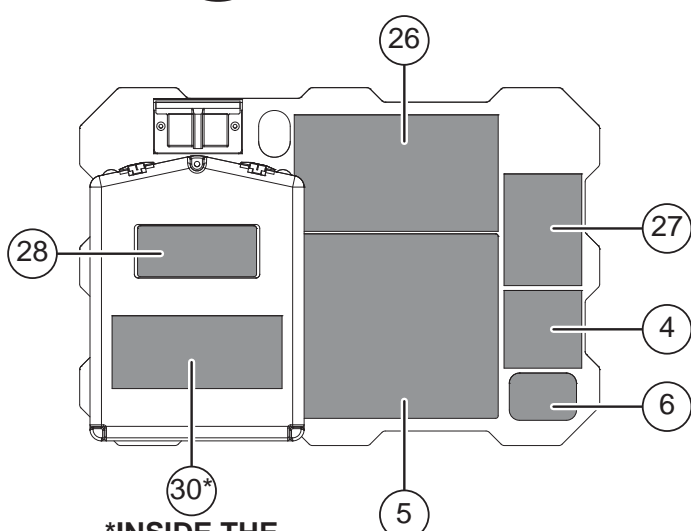
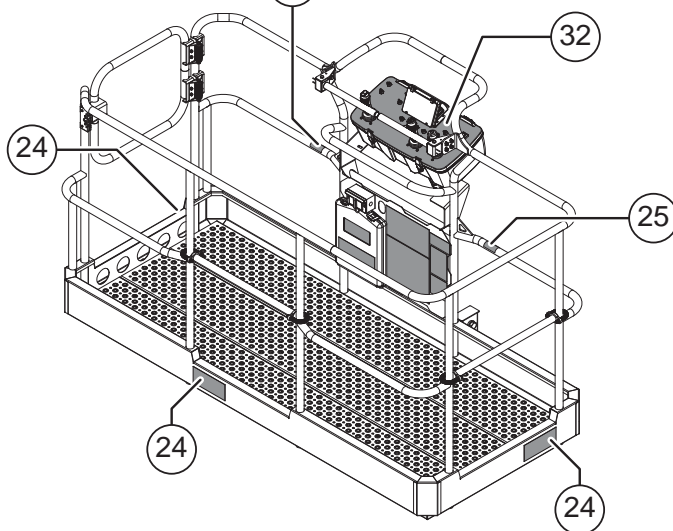
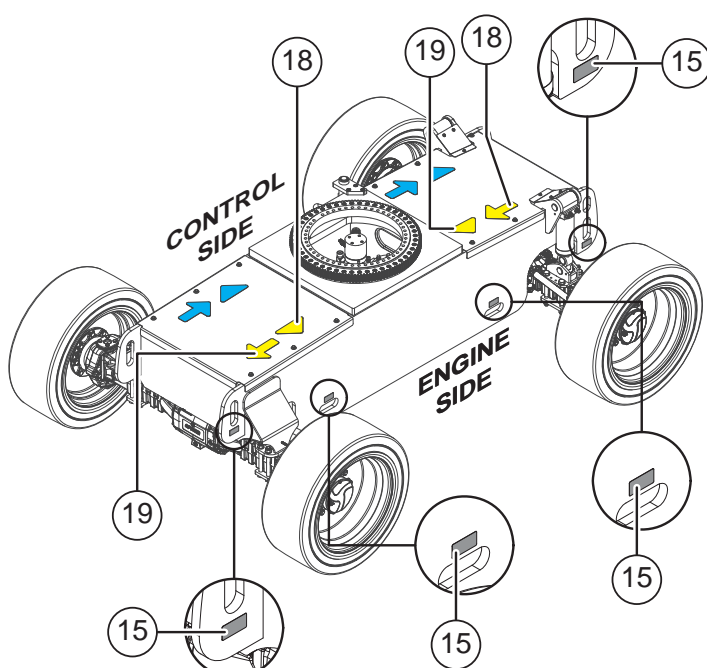
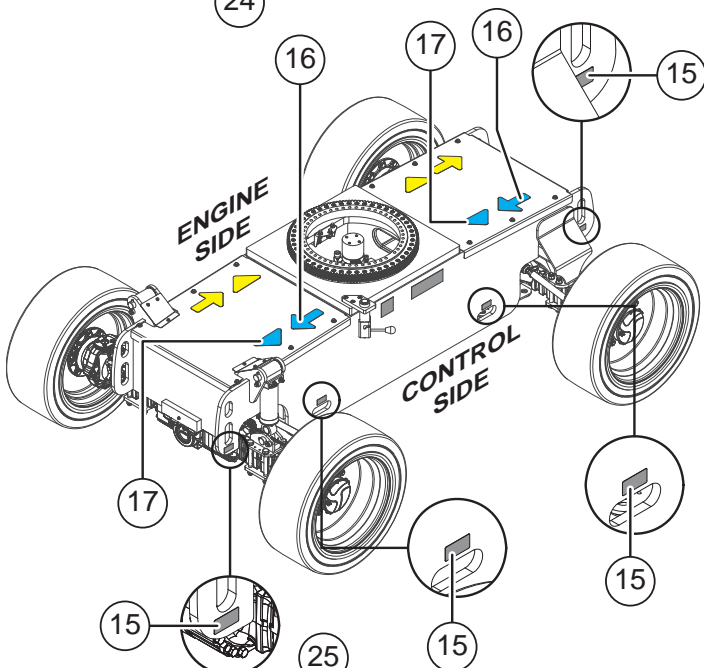
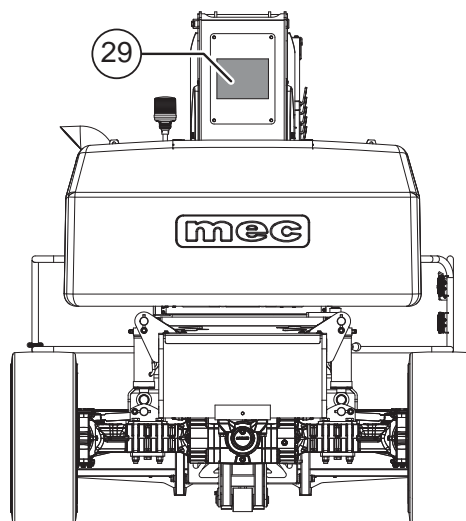
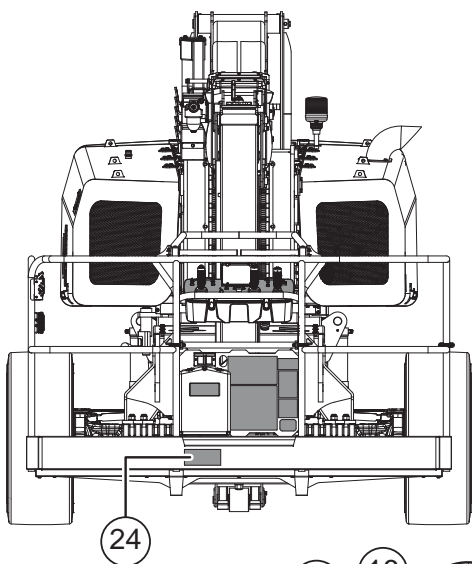
Item	Part Number	Description	Qty.
1	48159	Display	1
2	48161	Joystick (Steer & Drive)	1
3	53489	Screw CSCS M04-0.70 x 20 ZP	10
4	48162	Select Switch	1
5	48152	Indicator	1
6	48153	Switch, Toggle	3
7	48163	Switch, Toggle	6
8	53138	Screw SHCS M06-1.00 x 16 ZP	5
9	53046	WSHR M06 Spring Washer ZP	5
10	50000	WSHR M06 Standard Flat Washer ZP	5
11	41961	Alarm	1
12	48164	Hinge	2
13	53116	Screw SHCS M05-0.80 x 12 ZP	8
14	48165	Bracket	1
15	48168	Platform Control Box	1
16	48169	Plug, Connector	1
17	50031	Screw HHCS M08-1.25 x 25 ZP	4
18	53055	WSHR M08 Spring Washer ZP	4
19	50001	WSHR M08 Standard Flat Washer ZP	4
20	53093	Screw PHMS M03-0.50 x 8 ZP	12
21	48170	Latch	2
22	46913	Controller	1
23	53389	Screw SHCS M04-0.70 x 8 ZP	2
24	48172	Load Sensor Amplifier	1
25	43098	Red Mushroom Head	1
26	43097	Base with 1 NC Contact	1
27	60319	Joystick (Dual Axle)	1
28	48151	Switch, Toggle	2
29	53038	WSHR M05 Standard Flat Washer ZP	4
30	53043	WSHR M05 Spring Washer ZP	4
31	53150	Screw SHCS M05-0.80 x 20 ZP	4
32	53157	Nut NHEX M04-0.70 ZP	10
33	53062	WSHR M04 Spring Washer ZP	10
34	50284	WSHR M04 Standard Flat Washer ZP	14
35	48174	Cover, Platform Control Box	1
36	48175	Joystick (Dual Axle)	1
37	48176	Cover, Display	1
38	50423	Screw SHCS M04-0.70 x 12 ZP	4
39	49188	Cover 2, Display	1
40	53377	Screw HHCS M04-0.70 x 10 ZP	4

Decals

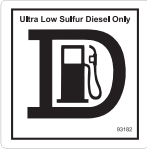


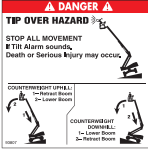


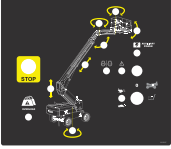
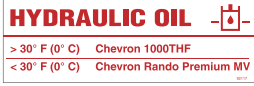
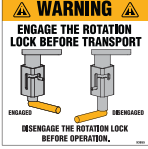




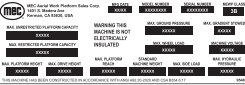









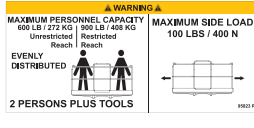

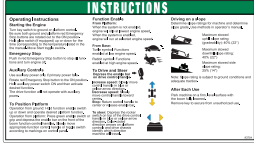
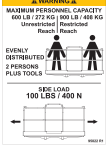
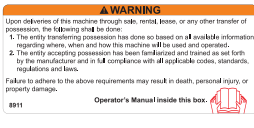



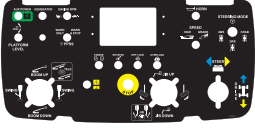


FRONT SIDE

BACK SIDE



***INSIDE THE MANUAL CASE**

<p>1</p>  <p>93182 Qty. - 2</p>	<p>2</p>  <p>96889 Qty. - 2</p>	<p>3</p>  <p>93801 Qty. - 2</p>	<p>4</p>  <p>93807 Qty. - 2</p>	<p>5</p>  <p>93755 Qty. - 2</p>
<p>6</p>  <p>96985 Qty. - 2</p>	<p>7</p>  <p>49366 Qty. - 1</p>	<p>8</p>  <p>92117 Qty. - 1</p>	<p>9</p>  <p>93855 Qty. - 1</p>	<p>10</p>  <p>90732 Qty. - 1</p>
<p>11</p>  <p>93805 Qty. - 2</p>	<p>12</p>  <p>91850 Qty. - 3</p>	<p>13</p>  <p>93804 Qty. - 2</p>	<p>14</p>  <p>95481 Qty. - 1</p>	<p>15</p>  <p>91973 Qty. - 8</p>
<p>16</p>  <p>91971 Qty. - 2</p>	<p>17</p>  <p>91981 Qty. - 2</p>	<p>18</p>  <p>91972 Qty. - 2</p>	<p>19</p>  <p>91982 Qty. - 2</p>	<p>20</p>  <p>93806 Qty. - 1</p>
<p>21</p>  <p>9311013</p> <p>45899 Qty. - 4</p>	<p>22</p>  <p>96890 Qty. - 1</p>	<p>23</p>  <p>92416 Qty. - 1</p>	<p>24</p>  <p>95823 Qty. - 3</p>	<p>25</p>  <p>91970 Qty. - 2</p>
<p>26</p>  <p>93754 Qty. - 1</p>	<p>27</p>  <p>95822 Qty. - 1</p>	<p>28</p>  <p>8911 Qty. - 1</p>	<p>29</p>  <p>90719 Qty. - 1</p>	<p>30</p>  <p>90718 Qty. - 1</p>
<p>31</p>  <p>90751 Qty. - 1</p>	<p>32</p>  <p>49367 Qty. - 1</p>			

Notes

Notes

Notes



Limited Owner Warranty

MEC Aerial Platform Sales Corp. warrants its equipment to the original purchaser against defects in material and/or workmanship under normal use and service for one (1) year from date of registered sale or date the unit left the factory if not registered. MEC Aerial Platform Sales Corp. further warrants the structural weldments of the main frame and scissor arms to be free from defects in material or workmanship for five (5) years from date of registered sale or date unit left the factory if not registered. Excluded from such warranty is the battery(s) which carries a ninety (90) day warranty from described purchase date. Warranty claims within such warranty period shall be limited to repair or replacement, MEC Aerial Platform Sales Corp's option, of the defective part in question and labor to perform the necessary repair or replacement based on MEC Aerial Platform Sales Corp's then current flat rate, provided the defective part in question is shipped prepaid to MEC Aerial Platform Sales Corp. and is found upon inspection by MEC Aerial Platform Sales Corp. to be defective in material and/or workmanship. MEC Aerial Platform Sales Corp. shall not be liable for any consequential, incidental or contingent damages whatsoever. Use of other than factory authorized parts; misuse, improper maintenance, or modification of the equipment voids this warranty. The foregoing warranty is exclusive and in lieu of all other warranties, express or implied. All such other warranties, including implied warranties of merchantability and of fitness for a particular purpose, are hereby excluded. No Dealer, Sales Representative, or other person purporting to act on behalf of MEC Aerial Platform Sales Corp. is authorized to alter the terms of this warranty, or in any manner assume on behalf of MEC Aerial Platform Sales Corp. any liability or obligation which exceeds MEC Aerial Platform Sales Corp's obligations under this warranty.



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