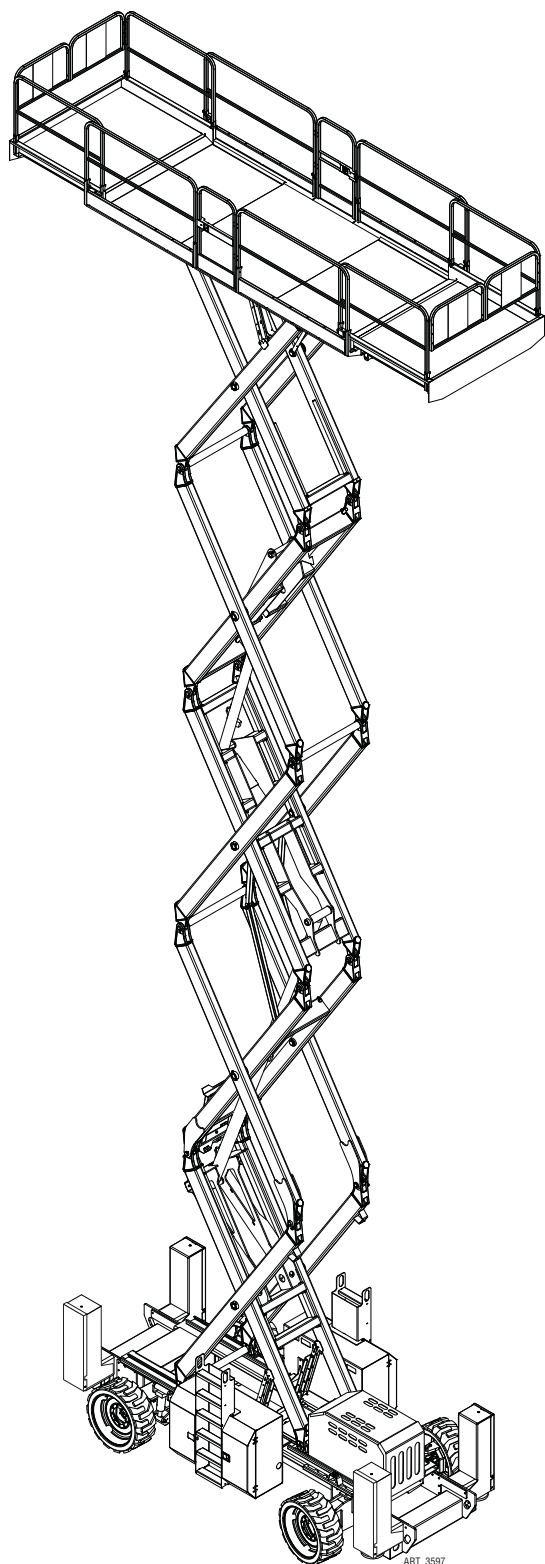




SERVICE AND PARTS MANUAL

92RT Series



ART_3597

Serial Number Range

3392RT-T	13600001 - Up
5492RT	11900001 - Up
6092RT-T	12900001 - UP

Part # 91860
August 2015

Original Release Date: October 2010

Date	Reason for Update
10/2010	New Release
8/2015	Added 3392RT-T and 6092RT model information



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INTRODUCTION

This manual consists of Service and Illustrated Parts sections.

The Service Section of this manual 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 and the Operators 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 Platform, 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, Service and Parts Manuals in order to gain a thorough understanding of the unit prior to making any repairs.

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MACHINE SPECIFICATIONS

5492RT				6092RT		3392RT-T	
Working Height*	Outriggers Deployed	60 ft*	18.46 m*	66 ft*	20 m*	39 ft*	12 m*
	Outriggers Not Deployed	36 ft*	11.15 m*	36 ft*	11 m*		
Platform Height	Outriggers Deployed	54 ft	16.46 m	60 ft	18 m	33 ft	10 m
	Outriggers Not Deployed	30 ft	9.15 m	30 ft	9 m		
Stowed Height	Rails Up	128 in	3.25 m	128 in	3.25 m	9.3 ft	2.84 m
	Rails Folded Down	97 in	2.46 m	97 in	2.46 m	6.7 ft	2.05 m
Maximum Occupants	0 m/s wind	5		4		5	
	45 km/h (12.5 m/s) wind	5		4		5	
Lift Capacity		1500 lbs	680 kg	1200 lbs	545 kg	2650 lbs	1200 kg
Maximum Operating Inclination		3° side/side, 4° fore/aft to 30 ft (9.15 m); Outriggers must be used above this height		3° side/side, 4° fore/aft to 30 ft (9.15 m); Outriggers must be used above this height		†	
Platform Dimensions	Length (inside rails)	202 in / 5.13 m					
	Width (inside rails)	75 in / 1.91 m					
	Guardrail Height	44.75 in / 1.14 m					
	Toeboard Height	7 in / 18 cm					
Overall Length		209 in / 5.31 m					
Overall Width		92 in / 2.34 m					
Wheel Base		114 in / 2.9 m					
Wheel Track		80 in / 2.03 m					
Turning Radius	Inside	7 ft / 2.13 m					
	Outside	17 ft 6 in / 5.33 m					
Ground Clearance		13 in / 43 cm					
Machine Weight** (Approximate, unloaded)		19,600 lb**	8890 kg**	21,780 lb**	9880 kg	16,038 lb**	7275 kg**
Drive System (Proportional)						†	
	Drive Speed - Platform Elevated	0-4 mph	0-.6 km/h	0-.25 mph	0-.4 km/h		
	Drive Speed - Platform Lowered	0-4.4 mph	0-7.0 km/h	0-4.4 mph	0-7.0 km/h	6 mph	9.6 km/h
Lift/Lower Speeds (Approximate)		60 sec/65 sec		72 sec/102 sec		46 sec/46 sec	
Gradeability		40%/22°		40%/22°		40%/22°	
Ground Pressure/Wheel (Maximum)		74 psi	5.2 kg/cm²	80.4 psi	5.65 kg/cm²	88 psi	6.24 kg/cm²
Wheel Load		6350 lb	2880 kg	6900 lb	3130 kg	5776 lb	2620 kg
Wind Speed (Maximum)		28 mph / 45 km/h (12.5 m/s)					
Noise Level (Maximum)		86 dB					
Tire Size - Standard		315/55 D20 12-ply, foam-filled					
Wheel Lug Nut Torque		120 ft/lb / 162.7 Nm					
Hydraulic Pressure	Drive System	4500 psi / 310 bar					
	Lift System	2800 psi / 193 bar					
	Steering System	2800 psi / 193 bar					
Hydraulic Fluid Capacity		40 gallon / 151 liters					
Power Source		Kubota V-2403T diesel					
Noise Level		86 dB maximum					
Maximum Vibration		does not exceed 2.5 m/sec at operator's position					
Ambient Operating Range		-30° C minimum; 50° C maximum					
Fuel Capacity		25 gallon / 95 liter					
Brakes		4 Wheel Multi-Disc					
*Working Height adds 6 feet (2 m) to platform height. **Weight may increase with certain options or country standards.							

*Working Height adds 6 feet (2 m) to platform height. **Weight may increase with certain options or country standards.

†3392RT -- Elevated Angle Rating & Drive Speed				
	Platform Height			
	4m	6m	8m	10m
Rated Tilt Angle side-to-side	8°	6°	5°	4°
Rated Tilt Angle fore-and-aft	10°	8°	6°	5°
Maximum Elevated Drive Speed	5 km/h	4 km/h	3 km/h	2 km/h

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 any question regarding application and/or operation contact:



MEC Aerial Work Platform

1401 S. Madera Avenue
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Ph: 1-800-387-4575
www.mecAWP.com



SAFETY SYMBOLS

To help you recognize important safety information, we have identified warnings and instructions that directly impact on safety with the following signals:



“DANGER” INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

THIS SIGNAL WORD IS LIMITED TO THE MOST EXTREME SITUATIONS.



“WARNING” INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.



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



“Caution” without alert symbol indicates a situation which, if not avoided, may result in property damage.

GENERAL SAFETY TIPS

Regular inspection and conscientious 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 PERFORM SERVICE ON THE MACHINE WITH THE PLATFORM ELEVATED WITHOUT FIRST BLOCKING THE SCISSOR ASSEMBLY USING THE MAINTENANCE LOCK.

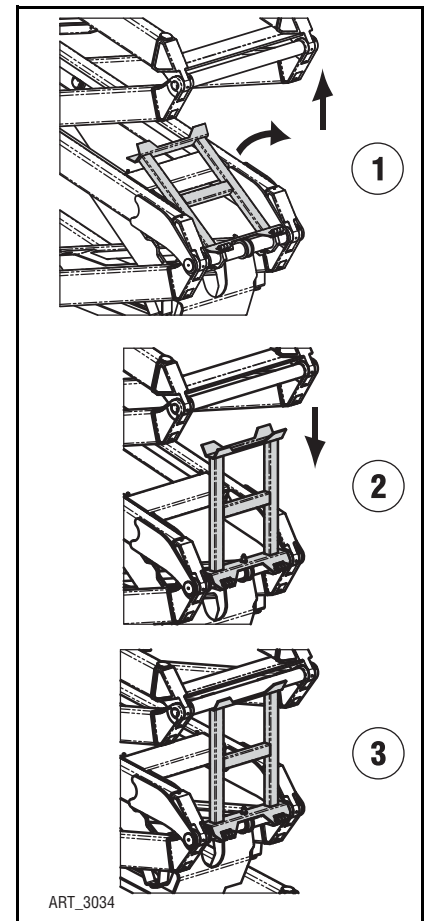
SET MAINTENANCE LOCK

1. Elevate platform approximately 16 feet (5 m) and rotate maintenance lock to Blocked position
2. Lower platform until scissor assembly comes to rest on the maintenance lock.
3. Scissor assembly is blocked.

MAINTENANCE TIPS

- 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.

Figure 1-1: Support Platform



HYDRAULIC SYSTEM



HYDRAULIC FLUID UNDER PRESSURE CAN PENETRATE AND BURN SKIN, DAMAGE EYES, AND MAY CAUSE SERIOUS INJURY, BLINDNESS, AND EVEN DEATH.

CORRECT LEAKS IMMEDIATELY.



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

ELECTRICAL SYSTEM



To 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 electrical system damage, 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.

PRIMARY MACHINE COMPONENTS

Figure 1-2: Component Locations

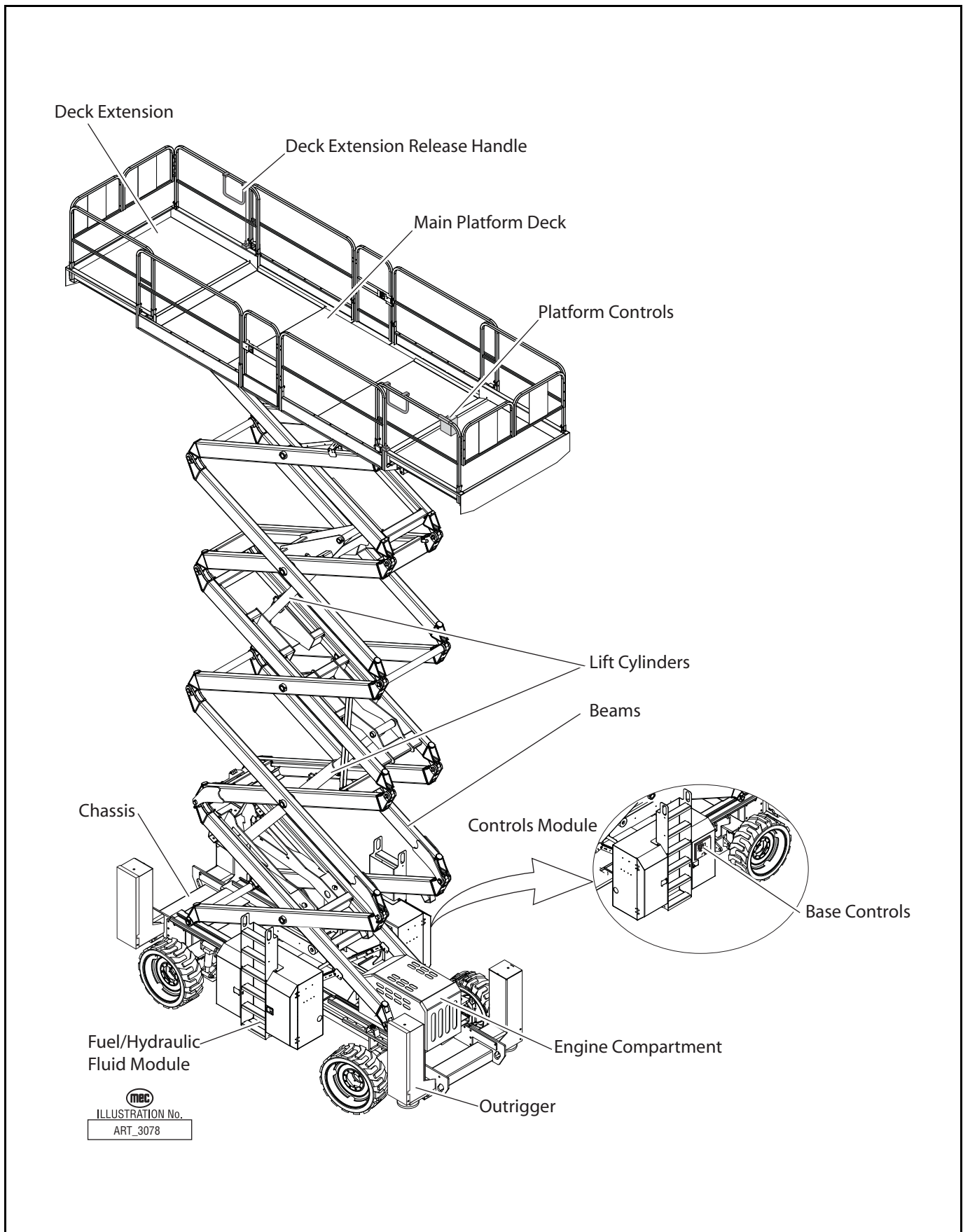
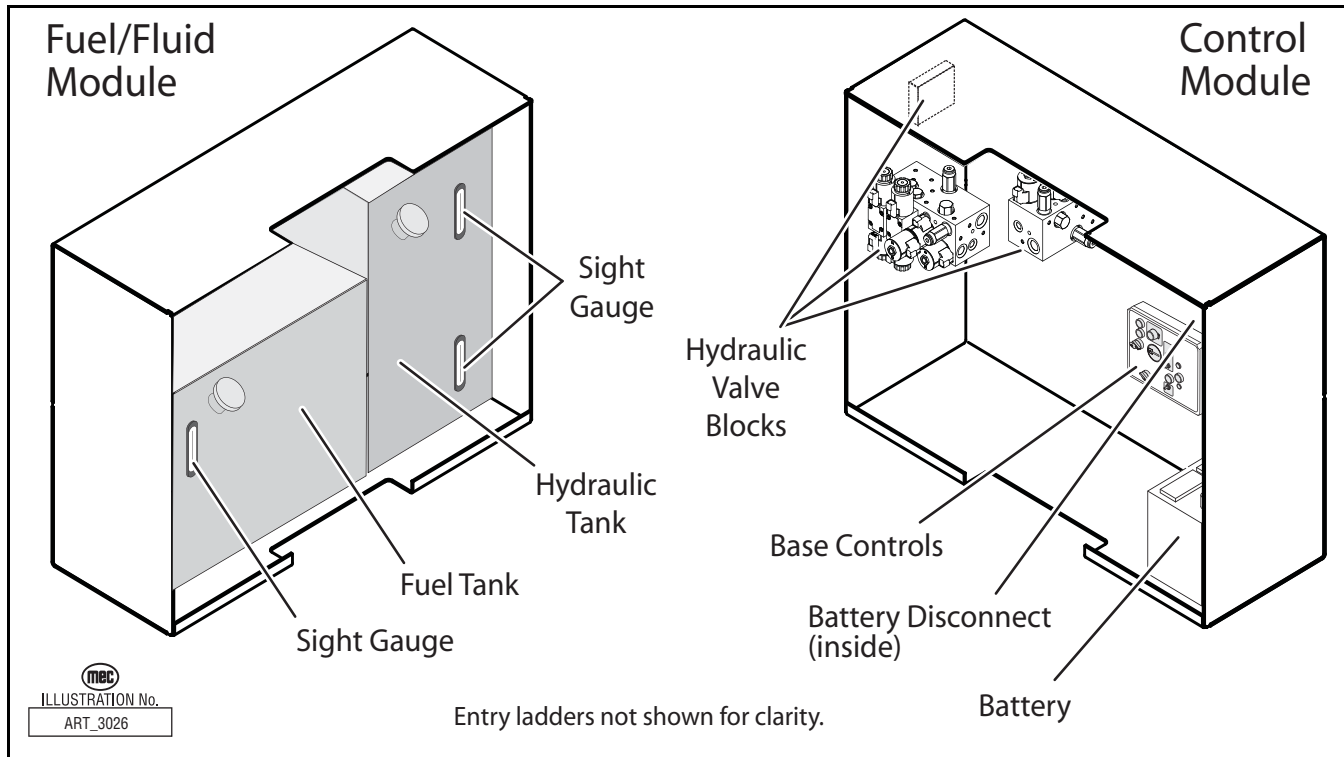








Figure 1-3: Component Locations, Modules



TORQUE SPECIFICATIONS

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									METRIC CAP SCREWS								
SAE GRADE	5				8				METRIC GRADE	8.8				10.9			
CAP SCREW SIZE - inches -									CAP SCREW SIZE - millimeters -	 				 			
	TORQUE				TORQUE					TORQUE				TORQUE			
	FT. LBS		Nm		FT. LBS		Nm			FT. LBS		Nm		FT. LBS		Nm	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
1/4 - 20	6.25	7.25	8.5	10	8.25	9.5	11	13	M6 X 1.00	6	8	8	11	9	11	12	15
1/4 - 28	8	9	11	12	10.5	12	14	16	M8 X 1.25	16	20	21.5	27	23	27	31	36.5
5/16 - 18	14	15	19	20	18.5	20	25	27	M10 X 1.50	29	35	39	47	42	52	57	70
5/16 - 24	17.5	19	23	26	23	25	31	34	M12 X 1.75	52	62	70	84	75	91	102	123
3/8 - 16	26	28	35	38	35	37	47.5	50	M14 X 2.00	85	103	115	139	120	146	163	198
3/8 - 24	31	34	42	46	41	45	55.5	61	M16 X 2.50	130	158	176	214	176	216	238	293
7/16 - 14	41	45	55.5	61	55	60	74.5	81	M18 X 2.50	172	210	233	284	240	294	325	398
7/16 - 20	51	55	69	74.5	68	75	92	102	M20 X 2.50	247	301	335	408	343	426	465	577
1/2 - 13	65	72	88	97.5	86	96	116	130	M22 X 2.50	332	404	450	547	472	576	639	780
1/2 - 20	76	84	103	114	102	112	138	152	M24 X 3.00	423	517	573	700	599	732	812	992
9/16 - 12	95	105	129	142	127	140	172	190	M27 X 3.00	637	779	863	1055	898	1098	1217	1488
9/16 - 18	111	123	150	167	148	164	200	222	M3 X 3.00	872	1066	1181	1444	1224	1496	1658	2027
5/8 - 11	126	139	171	188	168	185	228	251	<p>Torque values apply to fasteners as received from the supplier, dry or when lubricated with normal engine oil.</p> <p>If special graphite grease, molydisulphide grease, or other extreme pressure lubricants are used, these torque values <i>do not</i> apply.</p>								
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									

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.

TYPE: SAE PORT SERIES	CARTRIDGE POPPET		FITTINGS		HOSES	
	FT. LBS	Nm	FT. LBS	Nm	FT. 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

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.
- Turn switch *clockwise* to reset.

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.

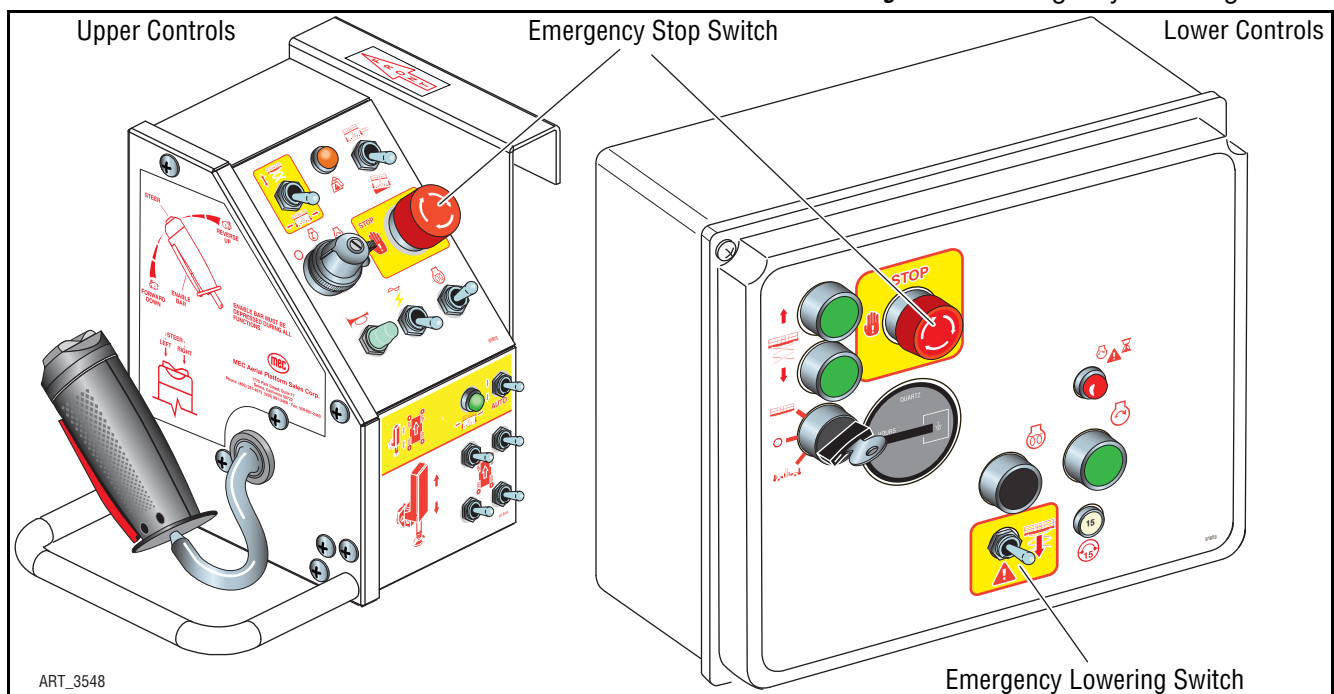
EMERGENCY LOWERING

The Emergency Lowering System is used to lower the platform in case of power failure. The Emergency Lowering switch **will** continue to function if the EMERGENCY STOP switch is tripped.

To lower the platform, perform the following steps:

- Push and hold the toggle switch down to lower the platform.
- Once the platform is fully lowered, release the toggle switch.

Figure 1-4: Emergency Lowering Switch



BRAKE RELEASE AND TOWING

The machine can be winched or moved short distances in case of power failure at speeds not to exceed 5 MPH (8.05 km/h). Before towing or winching the machine, it is necessary to release the brake. Reset the brakes after winching or towing.



AFTER DISENGAGING BRAKES THERE IS NOTHING TO STOP THE MACHINE'S TRAVEL. MACHINE WILL ROLL FREELY ON SLOPES. BE ON GUARD AGAINST RUNAWAY.

PRIOR TO MANUALLY RELEASING BRAKES, INSURE WHEELS ARE CHOCKED TO PREVENT UNINTENTIONAL MOVEMENT.

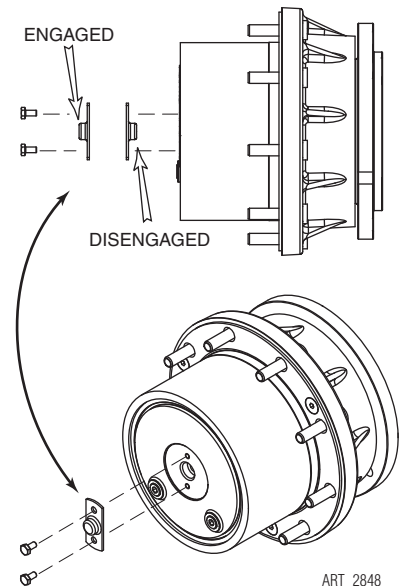
DISENGAGE BRAKES BEFORE TOWING OR WINCHING

- Chock the wheels.
- Remove the Brake Engage Cap and reinstall with the bump facing inward on all four (4) hubs.

ENGAGE BRAKES BEFORE DRIVING

- Remove the Brake Engage Cap and reinstall with the bump facing outward on all four (4) hubs.

Figure 1-5: Brake Release



LIFT AND SUPPORT THE MACHINE



DEATH OR SERIOUS PERSONAL INJURY MAY RESULT FROM THE USE OF SUBSTANDARD LIFTING DEVICES AND/OR JACK STANDS. ENSURE THAT ALL LIFTING DEVICES AND JACK STANDS ARE OF ADEQUATE CAPACITY AND IN GOOD WORKING CONDITION BEFORE USE.

The following are needed to safely lift and support the machine;

- a jack with a lifting capacity of five (5) tons or more.
- jack stands with a rating of five (5) tons or more.

TO RAISE THE MACHINE

1. Move machine to a firm level surface capable of supporting the weight of the machine.
2. Chock the tires on the end of machine opposite the end to be raised.
3. If wheel is to be removed, break loose but ***do not remove*** lug nuts before raising the machine.
4. Position a jack at the end of the machine to be lifted, under a solid lifting point in the center of the frame.
5. Raise the machine and place two (2) suitable jack stands under solid support points at the outer ends of the frame.
6. Lower the machine to rest on the jack stands and inspect for stability.

TO LOWER THE MACHINE

1. Tighten lug nuts to hold the wheel snug to the hub. Do not torque the lug nuts at this time.
2. Raise machine slightly and remove jack stands.
3. Lower the machine and remove the jack.
4. Tighten lug nuts to proper torque (refer to machine specifications).
5. Remove chocks.

TRANSPORTING THE MACHINE

SAFETY INFORMATION



THIS INFORMATION IS PROVIDED FOR REFERENCE AND DOES NOT SUPERSEDE ANY GOVERNMENT OR COMPANY POLICY REGARDING THE LOADING, TRANSPORT OR LIFTING OF MEC MACHINERY.

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).

DRIVING OR WINCHING ONTO OR OFF OF A TRANSPORT VEHICLE

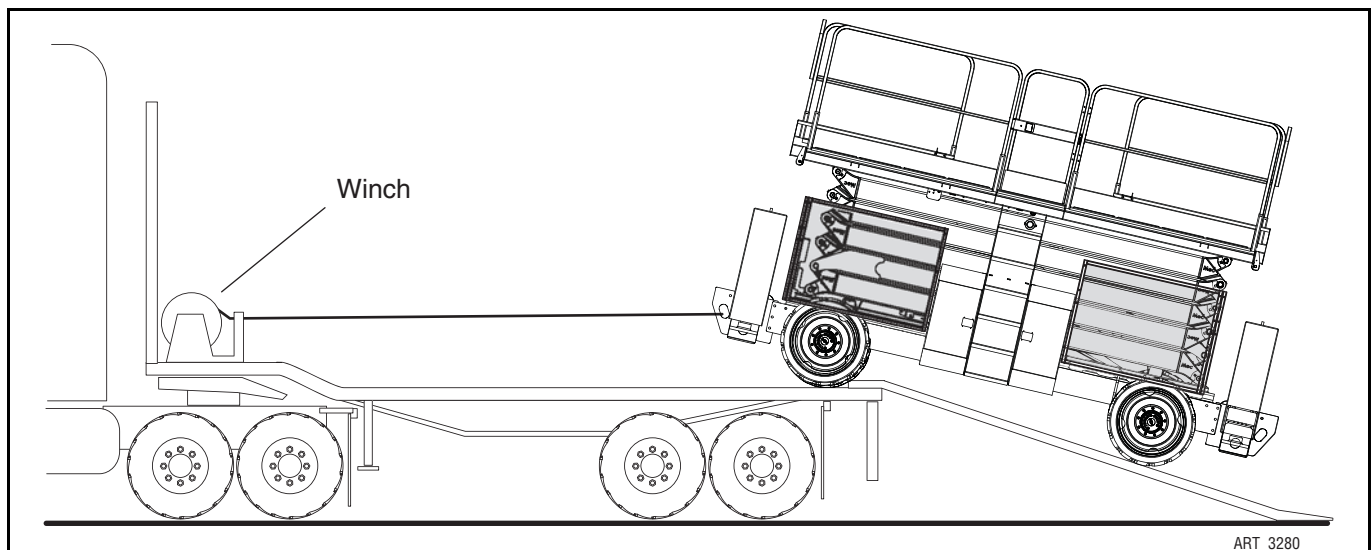


MEC DOES NOT RECOMMEND UNASSISTED LOADING OR UNLOADING.

ALWAYS ATTACH THE MACHINE TO A WINCH WHEN LOADING OR UNLOADING FROM A TRUCK OR TRAILER BY DRIVING.

Refer to the Operator's Manual for loading, unloading, driving and operating instructions.

Figure 1-6: Loading the Machine



NOTES:





Section 1

HYDRAULIC SYSTEM

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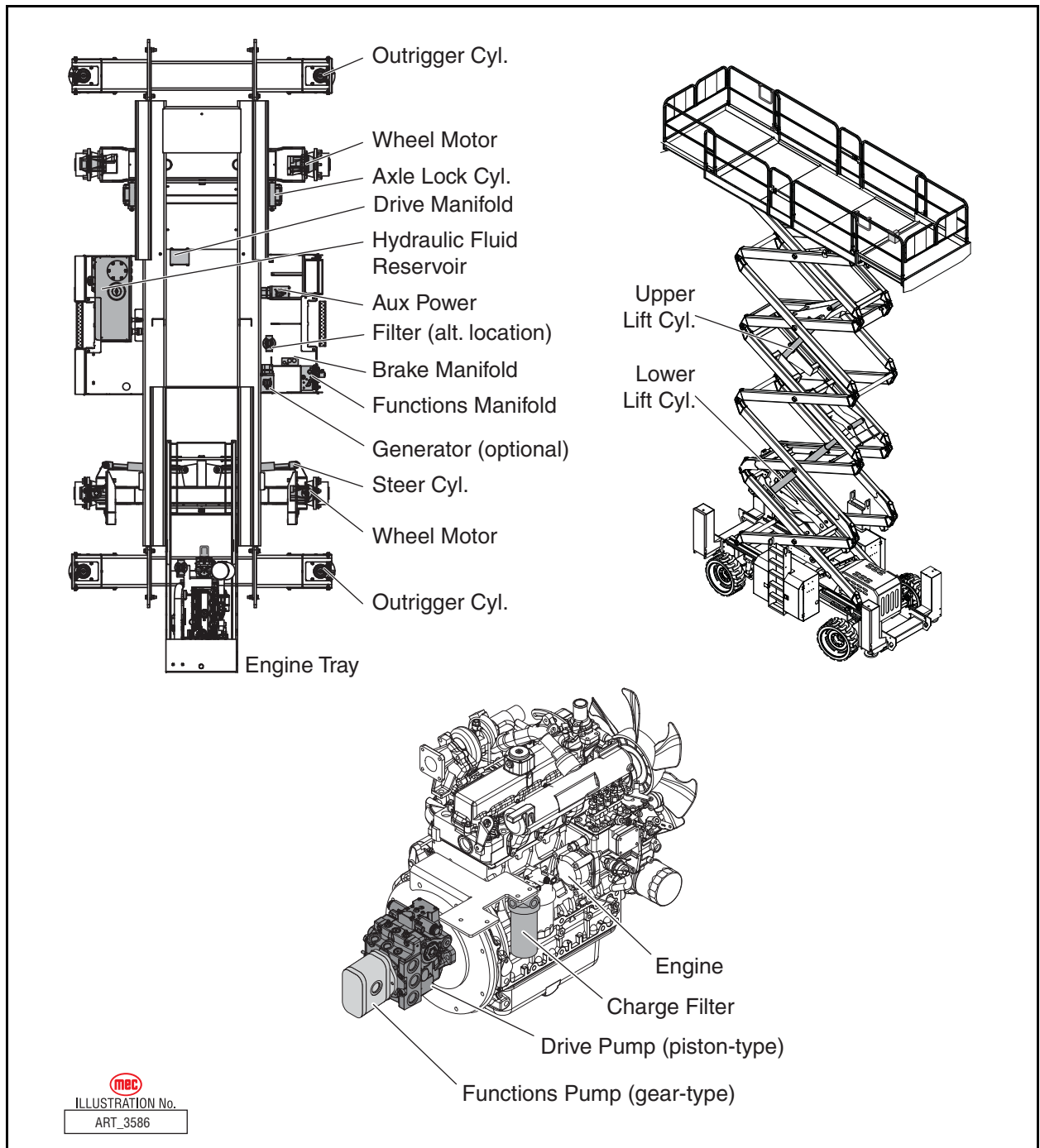
HYDRAULIC SYSTEM – GENERAL

The hydraulic integrated system is designed to control all or part of machine functions by integrating various hydraulic cartridge valves into three manifolds to provide directional, pressure, flow, and load control.

The drive system is a hydrostatic type. Hydraulic fluid is provided by a variable displacement, axial piston-type Drive Pump which is directly coupled to the engine. All other functions are operated by a fixed displacement gear-type Functions Pump mounted to the piston pump. As the engine turns, the hydraulic pumps draw fluid from the reservoir and pump this fluid to the valve manifolds.

Each function has a maximum pressure control limit set by pressure relief valves.

Figure 1-1: Hydraulic System



HYDRAULIC ROADMAP

HYDRAULIC RESERVOIR

Hydraulic fluid is held in the reservoir for delivery to the pumps and is returned to the reservoir after use. Returning hydraulic fluid is routed through a filter before entering the reservoir. The reservoir also serves as the oil cooling device.

DRIVE PUMP

The piston-type Drive Pump with infinitely variable proportional control delivers hydraulic fluid under pressure to the Drive and Brake Manifolds.

FUNCTIONS PUMP

The gear-type Functions Pump delivers hydraulic fluid under pressure to the Functions Manifold.

DRIVE MANIFOLD

The Drive Manifold directs hydraulic fluid to the Wheel Motors and contains valve circuitry that improves performance on slippery surfaces.

BRAKE MANIFOLD

The Brake Manifold provides hydraulic pressure needed to release the brakes and actuate the high speed setting on the Wheel Motors, and controls the Axle Lock Cylinders.

FUNCTIONS MANIFOLD

The Functions Manifold directs the hydraulic fluid to the Lift, Outrigger and Steering Cylinders through the use of electronically-operated solenoid valves.

WHEEL MOTORS

There are four (4) two-speed hydraulic wheel motors to provide power to all four wheels. The wheel motors turn gear hubs with integral spring-held brakes. The brakes are released by hydraulic pressure from the Brake Manifold. A fixed orifice in each gear hub controls the deceleration rate and initiates a smooth stop.

AXLE LOCK CYLINDERS

Two (2) hydraulic cylinders control the floating axle at the rear of the machine. When platform is elevated, the cylinders lock in place to increase machine stability. Each cylinder has an integral counterbalance valves for load-holding.

STEERING SYSTEM

Two (2) hydraulic cylinders control steering.

LIFT SYSTEM

The machine is equipped with one or two hydraulic lift cylinders. On 5492RT and 3392RT-T models, each cylinder has an integral counterbalance valves for load-holding. On 6092RT models, poppet-type valves hold the load.

OUTRIGGER SYSTEM

Four hydraulic cylinders provide leveling capability from front to rear and side to side.

AUXILIARY POWER UNIT -- 5492RT & 3392RT-T MODELS

The Auxiliary Power Unit provides hydraulic fluid power to lower the platform in the event of engine failure or emergency.

GENERATOR SYSTEM -- OPTIONAL

If equipped, the generator is driven by a hydraulic motor which receives hydraulic fluid directly from the pressure port of the Functions Pump.

HYDRAULIC FLUID

HANDLING PRECAUTIONS



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.

FLUID LEAKS UNDER PRESSURE MAY NOT ALWAYS BE VISIBLE.

FLUID RECOMMENDATIONS

MEC recommends hydraulic fluids listed in the chart below, and each only in the operating temperatures listed in the chart. Do not substitute other fluids as pump damage may result, and use only the fluid appropriate to the ambient operating temperature.

Table 1-1: Hydraulic Fluid

Recommended Hydraulic Fluid	
> 30° F (0° C)	Chevron 1000THF
0° F (-18° C) ~ 30° F (0° C)	Chevron Rando Premium MV
< 0° F (-18° C)	Chevron Rando Premium MV

SYSTEM FLUSHING PROCEDURE

1. With platform fully down, drain hydraulic fluid from hydraulic reservoir into a clean, empty container.
2. When the hydraulic reservoir is empty, remove suction strainer and hoses.
3. Remove the filter elements.
4. Flush the hoses with clean hydraulic fluid.
5. Discard old filter elements and replace.
6. Flush out the reservoir with hoses removed from the hydraulic reservoir.
7. Reinstall all hoses removed in the previous steps.
8. Fill hydraulic reservoir with filtered, fresh hydraulic fluid. Use only the appropriate hydraulic fluid as recommended in "Fluid Recommendations" on page 1-5.
9. Loosen output hose fittings at the Functions Pump to flood with hydraulic fluid. Tighten fittings.
10. Perform the "Drive Pump Start-Up Procedure" on page 1-9.



DO NOT operate the Drive Pump until you have completed the "Drive Pump Start-Up Procedure" on page 1-9.
Severe damage will occur.

11. Start up the machine. Briefly operate all functions. Two or three lift cycles may be necessary to purge all air from lift cylinder(s).
12. When the above procedures have been completed, lower the platform to the stowed position, completely retract all outriggers, then fill hydraulic reservoir to the full mark on sight gauge.
13. Check for leaks and correct as necessary. Machine is now ready to be placed into operation.

HYDRAULIC FLUID RESERVOIR

The Hydraulic Fluid Reservoir Assembly consists of the reservoir, a filler cap with breather, a drain plug, a sight gauge, and a bypass filter with a 10 micron filter element. On early machines this filter was located remotely in the Controls Module.

- Check reservoir for signs of leakage weekly.

HYDRAULIC FILTERS

Early 5492RT models were assembled with a Filter Assembly located in the Controls Module and no filter in the Hydraulic Reservoir. All later machines have the filter element in the Hydraulic Reservoir.

Additionally, all machines have a Filter Assembly attached to the engine.

When the filter is clogged, hydraulic flow bypasses the filter element.

Replace all filter elements every six (6) months or 500 hours. Extremely dirty conditions may require that the filter be replaced more often.



BEWARE OF HOT FLUID. CONTACT WITH HOT FLUID MAY CAUSE SEVERE BURNS.

HYDRAULIC PUMPS

NOTE: Refer to *Parts Section E*.

An internal combustion engine drives the Drive Pump and the Functions Pump.

The Drive Pump is a variable displacement axial piston pump that provides hydraulic power to the Drive Manifold.

The Functions Pump is a gear pump that provides hydraulic power to the Functions Manifold.

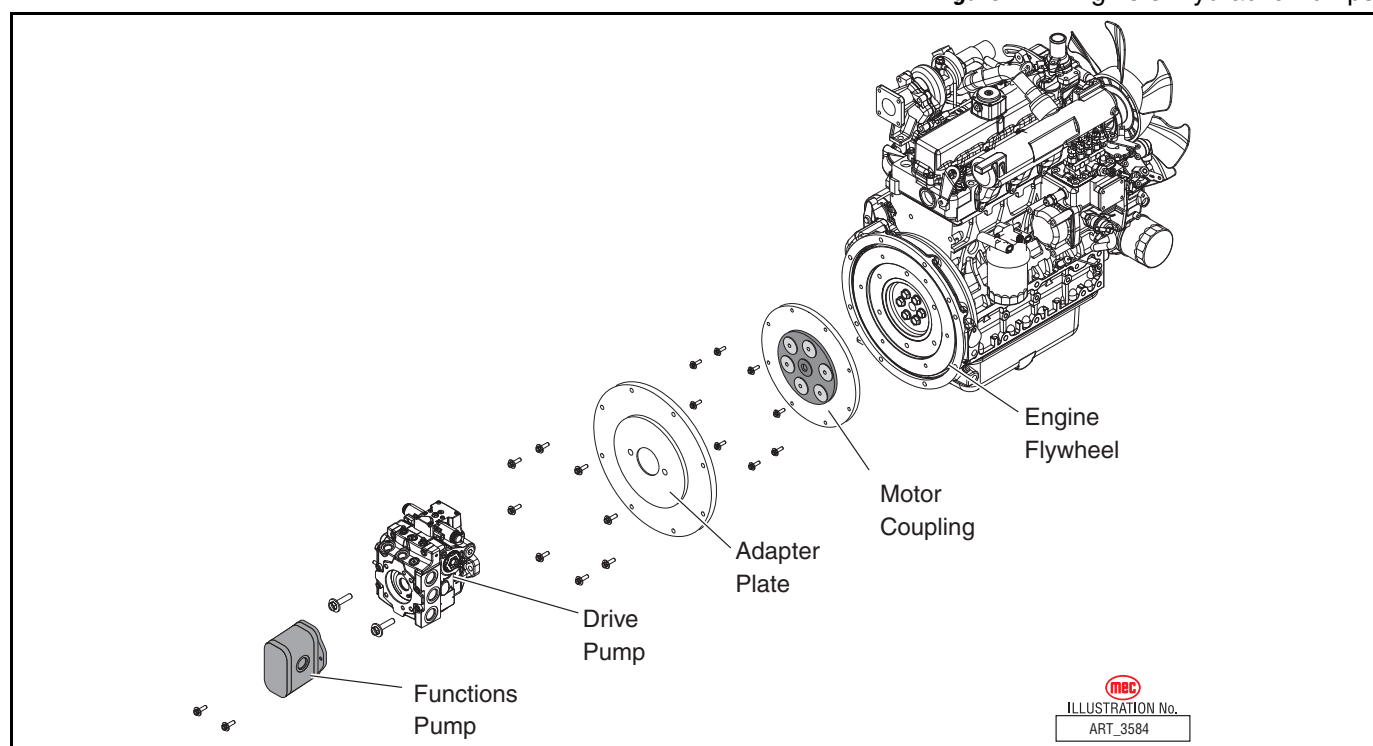
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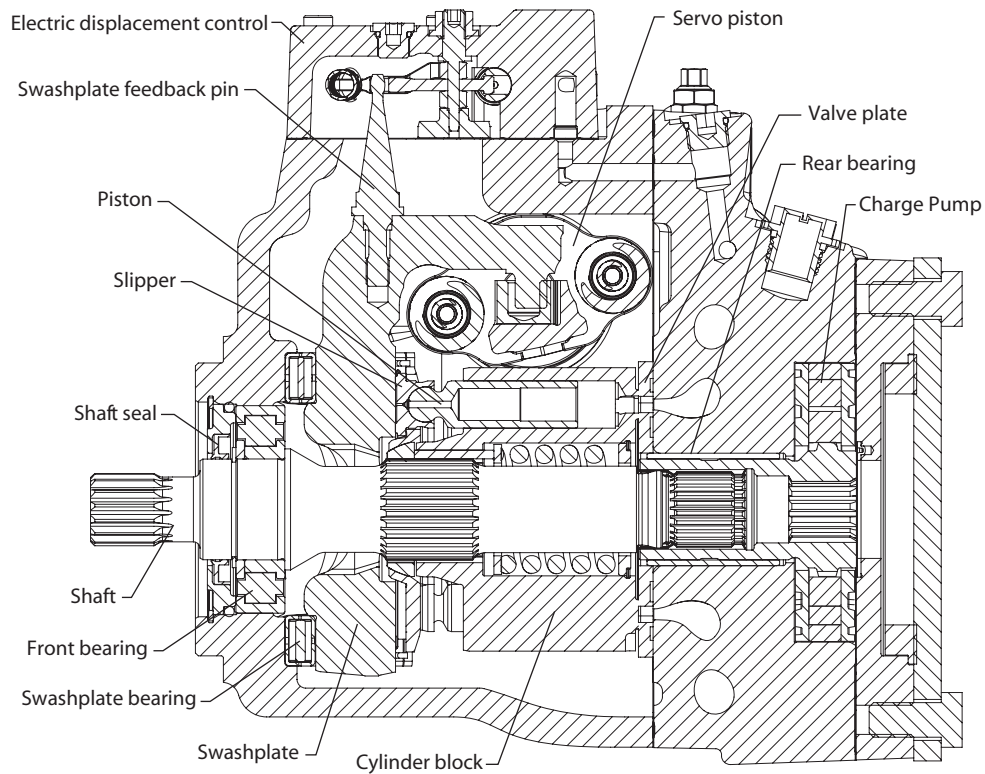
1. Turn the Battery Disconnect Switch (inside Control Module) to the OFF position.
2. Place a large container under the engine and pump to catch fluid that will be lost during pump replacement. Dispose of used fluid properly.
3. Tag and disconnect hydraulic hoses, and IMMEDIATELY cap or cover the openings to prevent contamination.
4. Remove the two (2) bolts that hold the gear pump to the piston pump. Remove the gear pump.
5. Remove the two (2) bolts that hold the piston pump to the housing. Remove the piston pump.
6. Installation is reverse of removal. Apply one (1) drop of Loctite® to mounting bolts.



DO NOT operate the Drive Pump until you have completed the "Drive Pump Start-Up Procedure" on page 1-9.
Severe damage will occur.

Figure 1-2: Engine & Hydraulic Pumps



DRIVE PUMP**Figure 1-3: Drive Pump**

Pump Port	Connection
A	out to Drive Manifold A
B	out to Drive Manifold B
S	Suction -- in from Tank
E	in from Charge Filter
F	out to Charge Filter
MA	out to Brake Manifold A
MB	out to Brake Manifold B
M3	out to Brake Manifold CP
L1	Case drain -- out to Tank

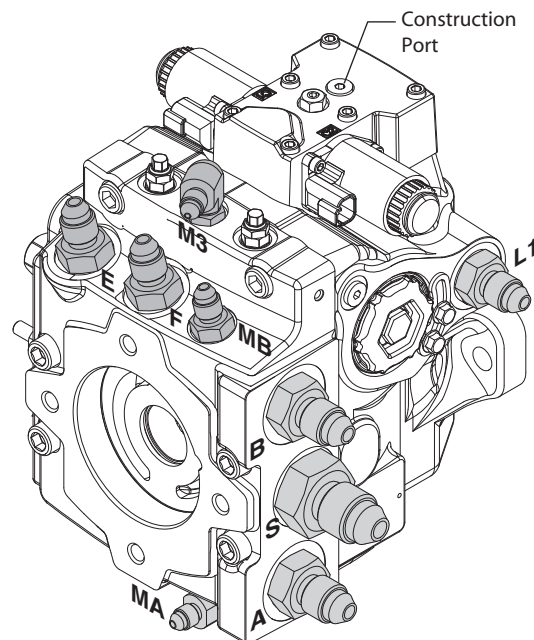



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DRIVE PUMP START-UP PROCEDURE

Follow this procedure when restarting a machine on which the Drive Pump has been:

- Removed and re-installed, or
- Drained of fluid for any reason.



UNINTENDED MOVEMENT OF THE MACHINE OR MECHANISM MAY CAUSE INJURY. CHOCK THE WHEELS SECURELY BEFORE PERFORMING THIS PROCEDURE.

Inspect the pump for damage prior to installation. Use only the appropriate hydraulic fluid as recommended in "Fluid Recommendations" on page 1-5.

1. Ensure that the machine's hydraulic oil and system components (reservoir, hoses, valves, fittings, and heat exchanger) are clean and free of any foreign material.
2. Install new system filter element(s) if necessary. Check that inlet line fittings are properly tightened and that there are no air leaks.
3. Install the pump. Do not yet connect the hose between port L1 and the hydraulic fluid tank.
4. Install a 1000 psi (50 bar) gauge in the pressure gauge port GCP on the Brake Manifold.
5. Fill the housing by adding filtered hydraulic fluid in port L1. Open the construction plug in the top of the control to assist in air bleed.
6. Fill the reservoir with hydraulic fluid. Use a 10-micron filler filter. Fill the inlet line from reservoir to pump.
7. Fill the hydraulic hoses that connect ports E and F to the charge filter.
8. Connect the hose between port L1 to the hydraulic fluid tank. Close the construction plug removed in step 4.



After start-up the fluid level in the reservoir may drop due to system components filling. Damage to hydraulic components may occur if the fluid supply runs out. Ensure reservoir remains full of fluid during start-up.

Air entrapment in oil under high pressure may damage hydraulic components. Check carefully for inlet line leaks.

Do not run at maximum pressure until system is free of air and fluid has been thoroughly filtered.

9. Disable the engine to prevent it from starting by disconnecting the fuel shutoff solenoid. Crank the starter for several seconds. Do not to exceed the engine manufacturer's recommendation. Wait 30 seconds and then crank the engine a second time as stated above. This operation helps remove air from the system lines. Refill the reservoir to recommended full oil level.
10. When the gauge begins to register charge pressure, reconnect the fuel shutoff solenoid, then start engine. Let the engine run for a minimum of 30 seconds at low idle to allow the remaining air to work itself out of the system. Check for leaks at all line connections and listen for cavitation. Check for proper fluid level in reservoir.

11. When charge pressure rises above 160 psi (11 bar), increase engine speed to normal operating rpm to further purge residual air from the system.
12. Shut off the engine. Connect the pump control signal wires. Start the engine, checking to be certain pump remains in neutral. Run the engine at normal operating speed and carefully check for forward and reverse control operation.
13. Continue to cycle between forward and reverse for at least five minutes to bleed all air and flush system contaminants out of loop.

NOTE: Normal charge pressure fluctuation will occur during forward and reverse operation.

14. Check that the reservoir is full. Remove the pressure gauge.
15. The pump is now ready for operation.

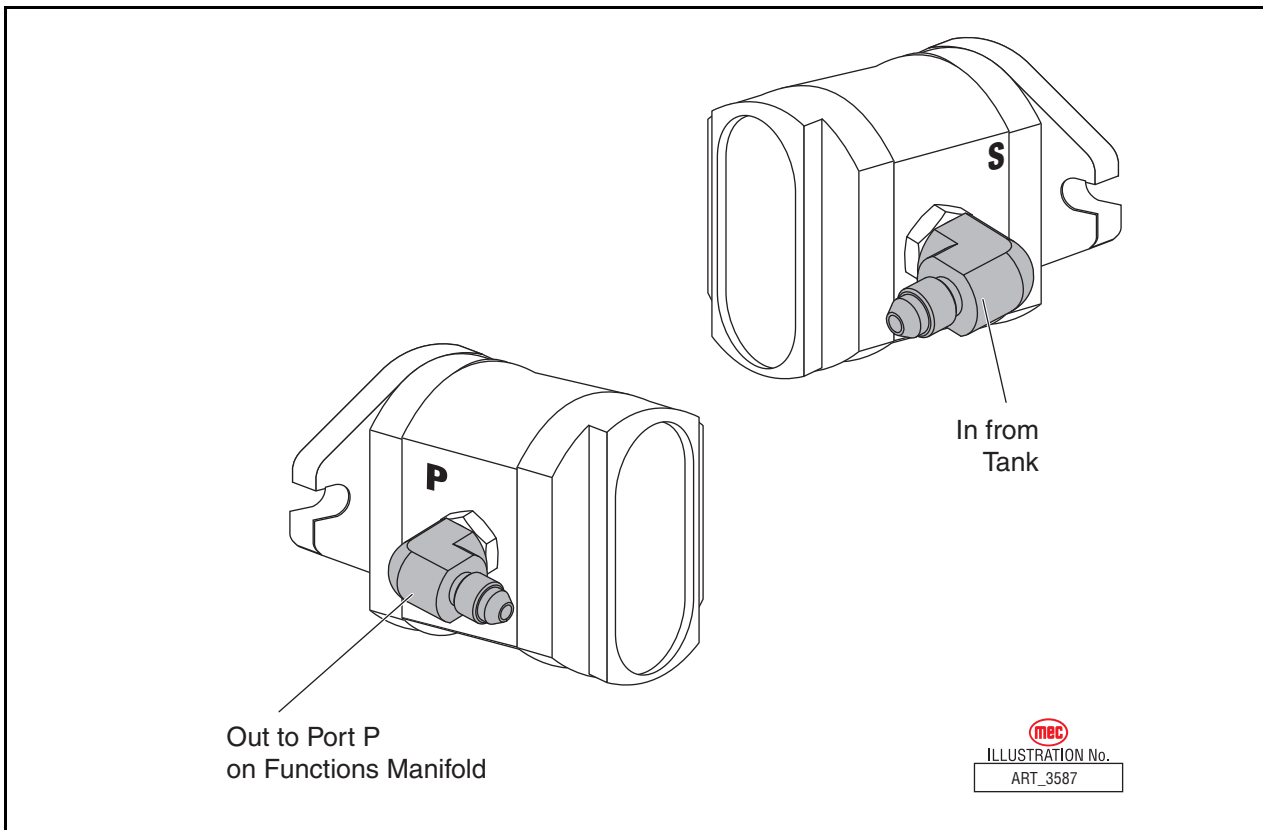
DRIVE PUMP SERVICE

MEC does not recommend end-user maintenance or repair of the Sauer Danfoss hydraulic pump. Contact MEC or Sauer Danfoss for the nearest service provider.

FUNCTIONS PUMP

The Functions Pump is a fixed-displacement gear pump. Power to functions is controlled by the Proportional Valve (SP1), and unused flow is returned to the tank by the Flow Regulator (EPFR1).

Figure 1-4: Functions Pump



HYDRAULIC MANIFOLDS

NOTE: Refer to *Parts Section E*.

This machine has three hydraulic manifolds: the Functions Manifold, the Brake Manifold and the Drive Manifold.



- **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.**

REMOVAL

1. Disconnect the negative battery terminal.
2. Tag and disconnect the solenoid valve electrical leads.
3. Tag and disconnect hydraulic hoses. Immediately cap the openings to prevent contamination.
4. Remove the bolts that hold the manifold to the mounting bracket.
5. Remove the manifold block.

DISASSEMBLY

1. Remove coils from solenoid valves.
2. Mark and remove valves.
3. Mark and remove fittings, plugs, springs, balls, and orifices.

CLEANING AND INSPECTION

1. Wash the manifold in cleaning solvent to remove built-up contaminants, then blow out all passages with clean compressed air.
2. Inspect the manifold for cracks, thread damage and scoring where O-rings seal against internal and external surfaces.
3. Wash and dry each component and check for thread damage, torn or cracked O-rings, and proper operation.
4. Replace defective parts and O-rings.

ASSEMBLY

NOTE: Lubricate all O-rings before installation to prevent damage to the O-ring. Seat balls in manifold block by lightly tapping on the ball with a brass drift punch.

1. Install fittings, plugs, springs, balls, and orifices. Use one drop of Loctite #424 or equivalent thread locker on each screw-in orifice.
2. Install valves.

INSTALLATION

1. Attach manifold assembly to mounting plate with mounting bolts.
2. Connect solenoid leads as previously tagged.
3. Connect hydraulic hoses as previously tagged. Be certain to tighten hoses.
4. Connect the battery.

5. Operate each hydraulic function and check for leaks and for proper operation.
6. Adjust valve pressures.

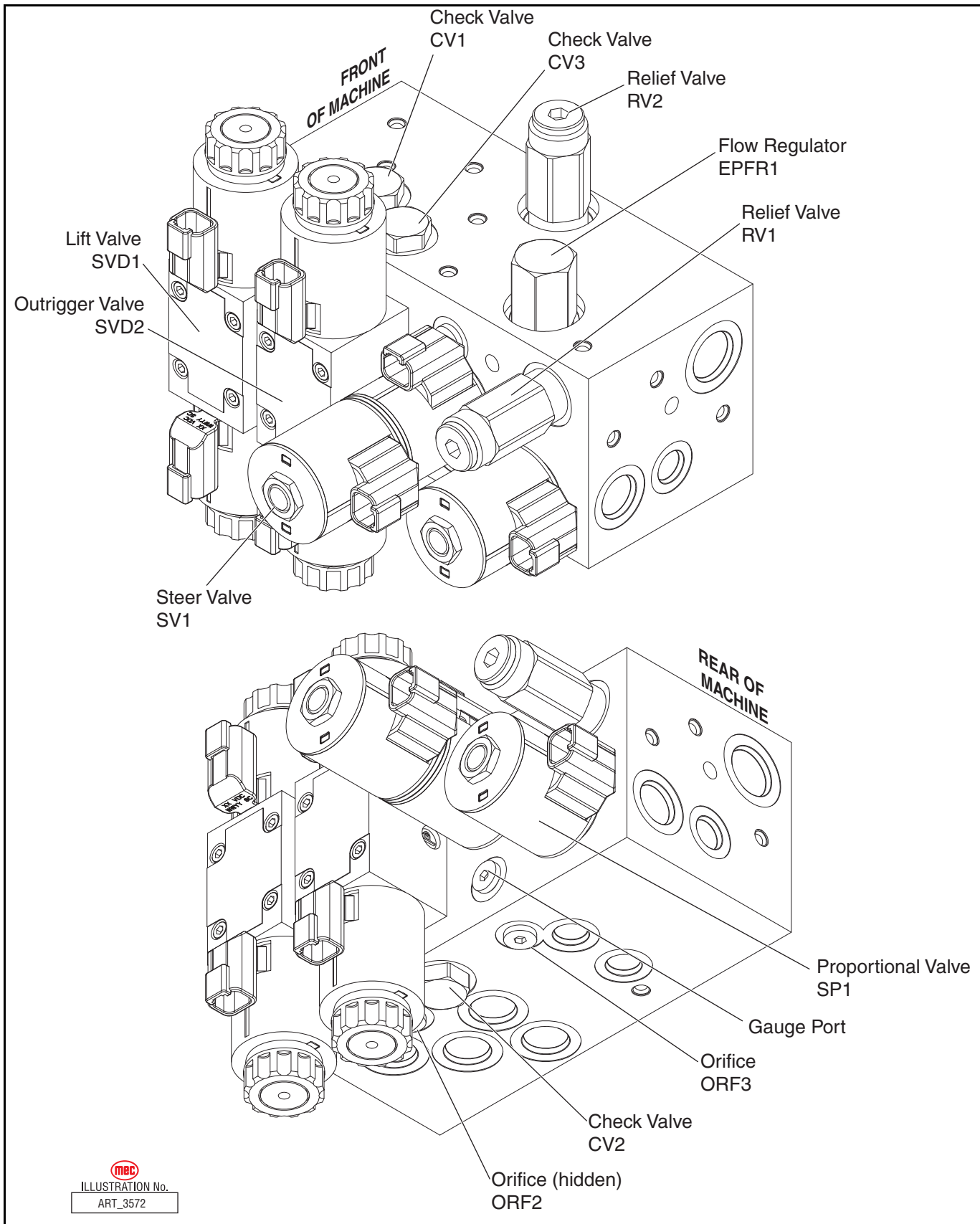
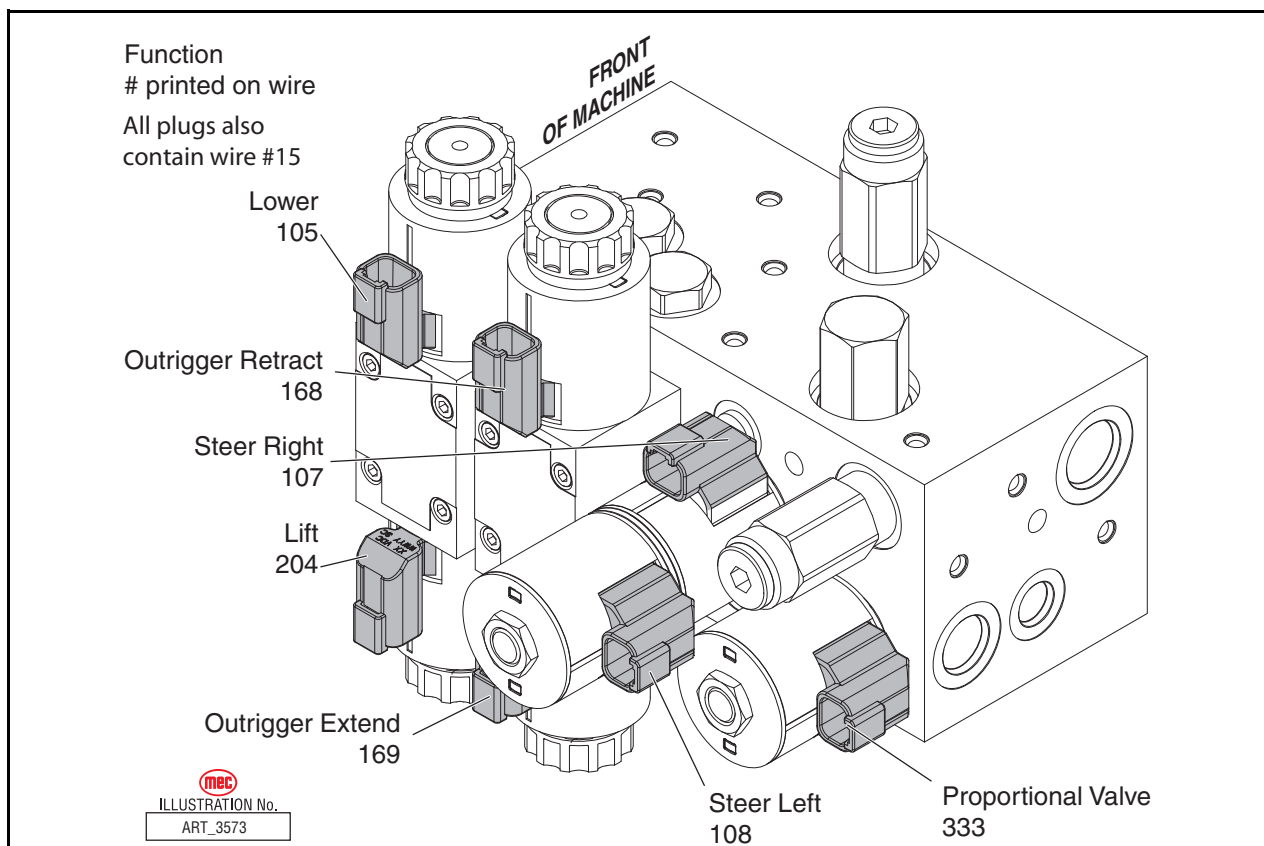
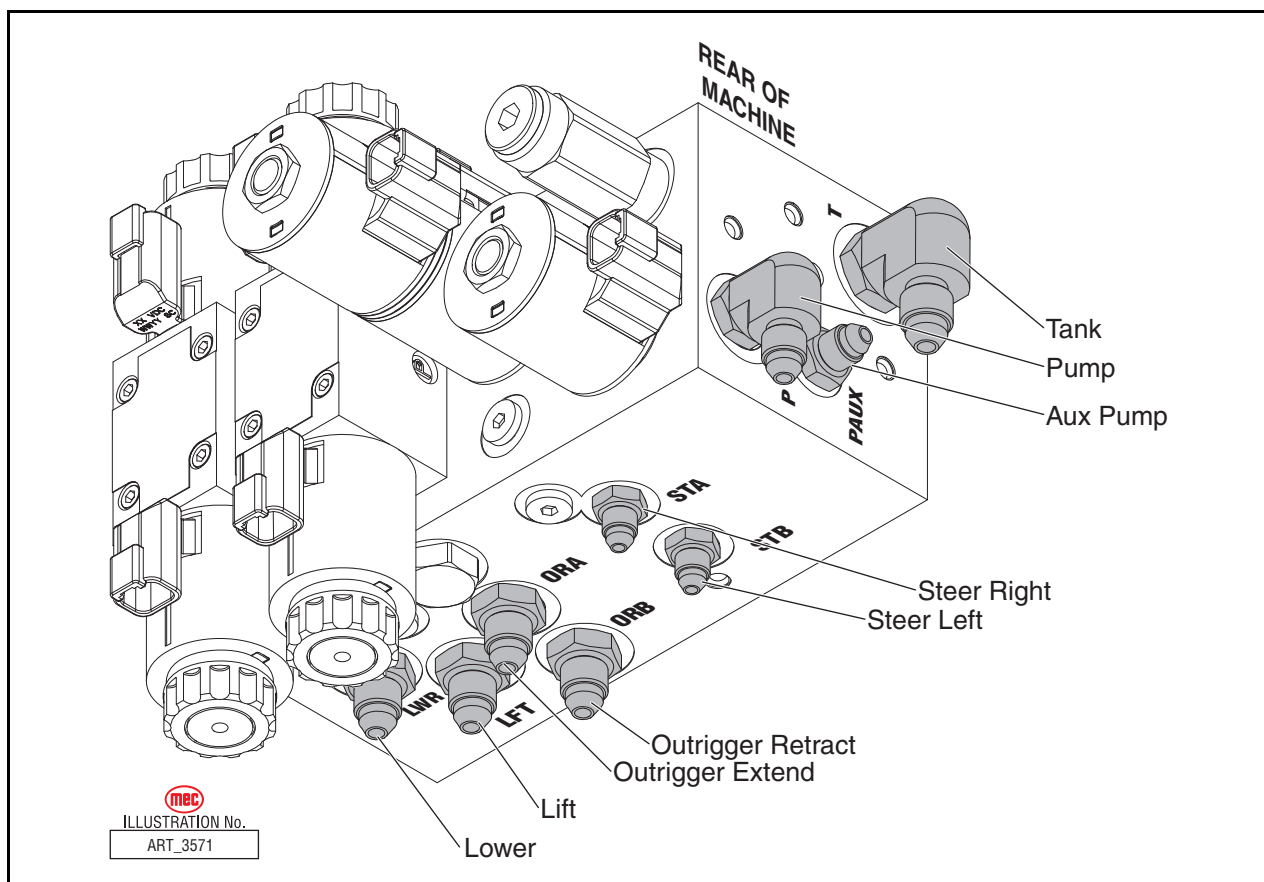
Figure 1-5: Functions Manifold, Components

Figure 1-6: Functions Manifold, Wiring Harness Connection**Figure 1-7:** Functions Manifold, Fittings**Figure 1-8:** Brake Manifold, Components

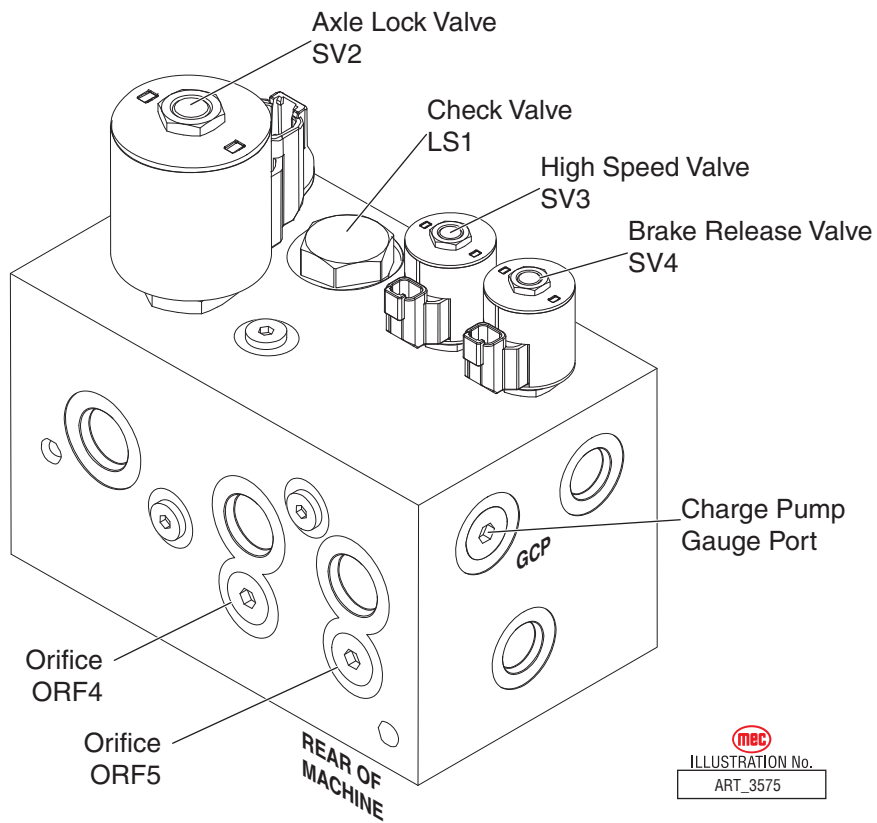


Figure 1-9: Brake Manifold, Wiring Harness Connection

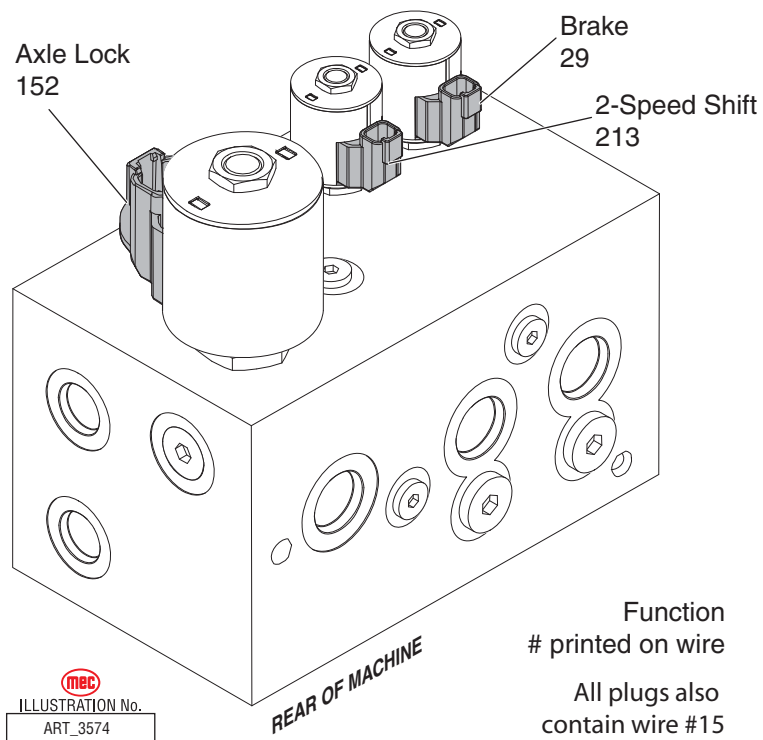


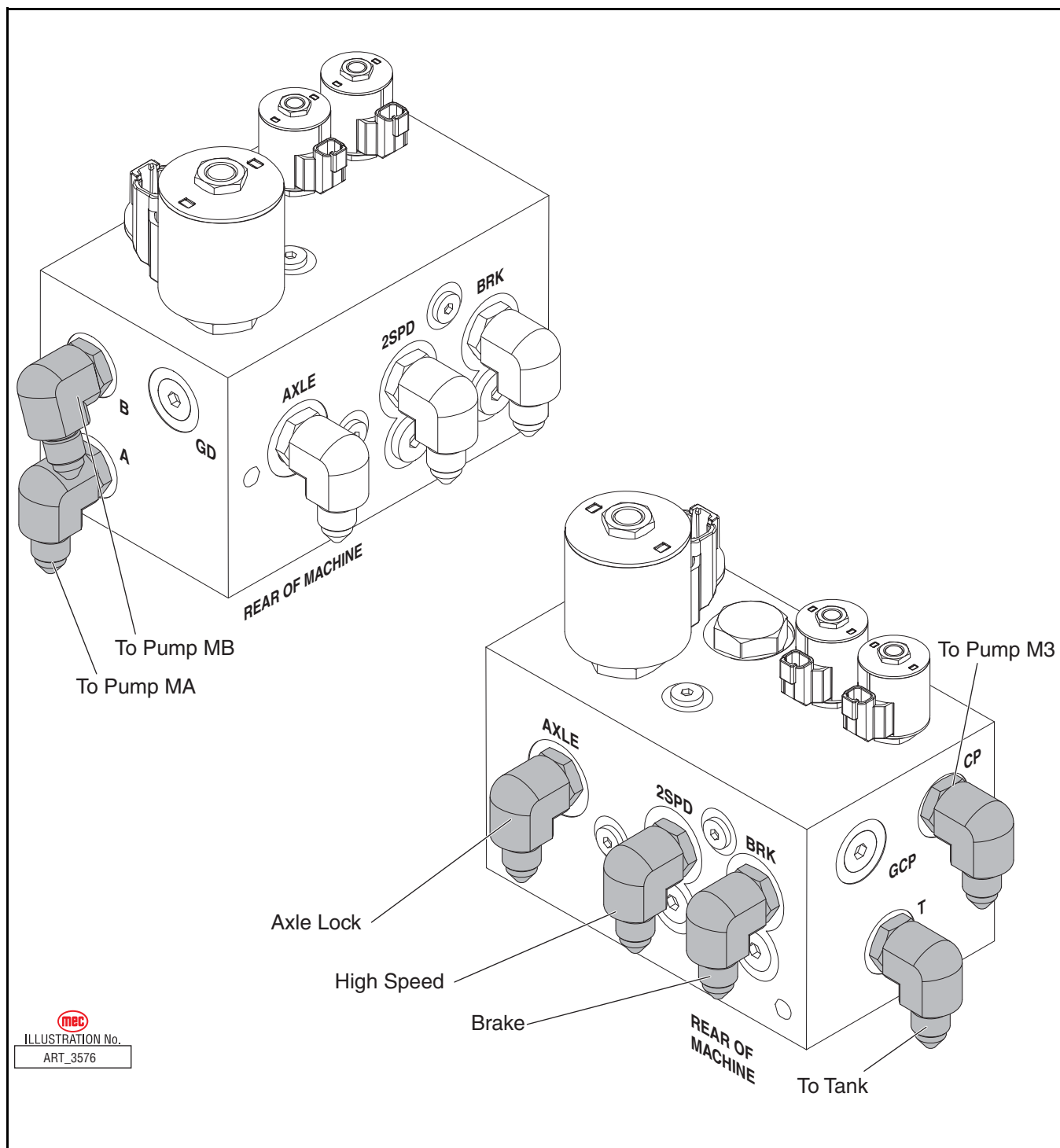
Figure 1-10: Brake Manifold, Fittings

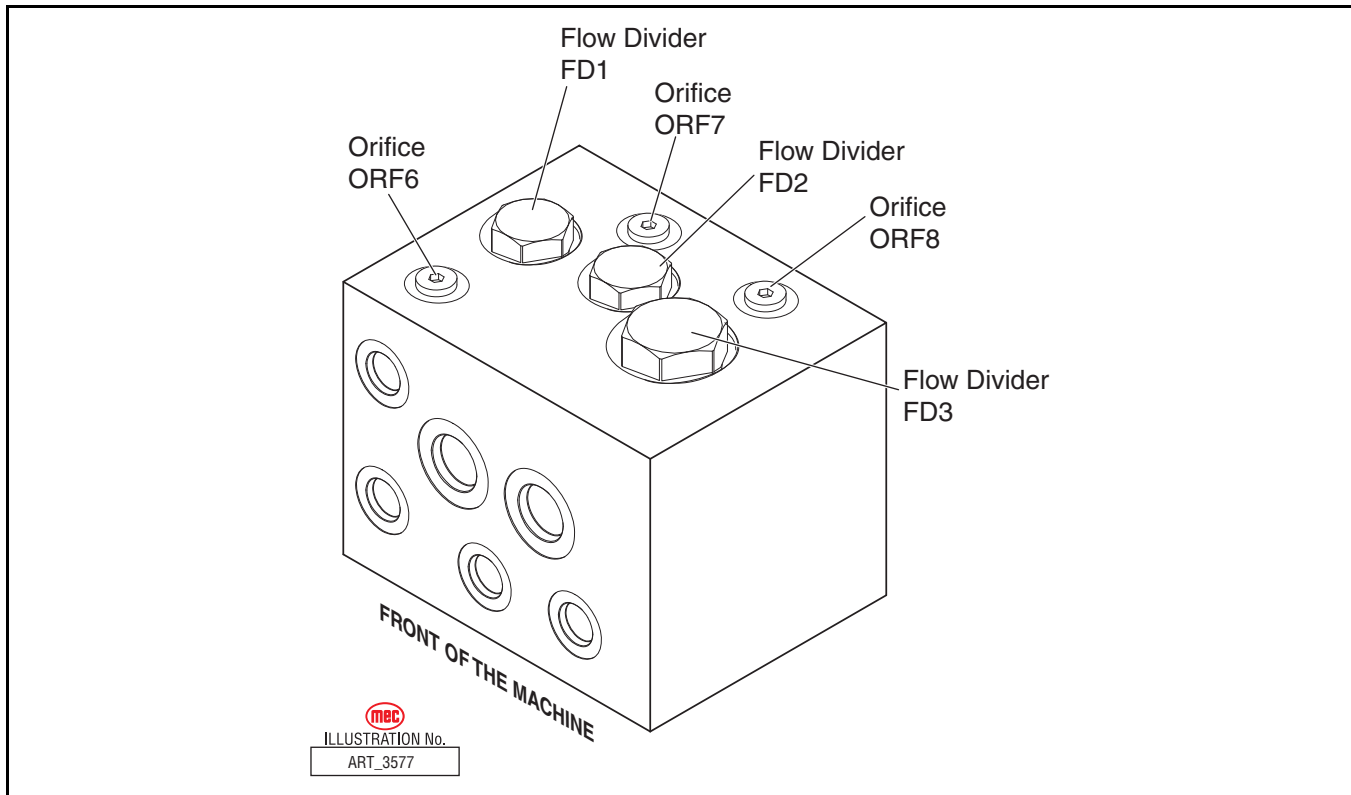
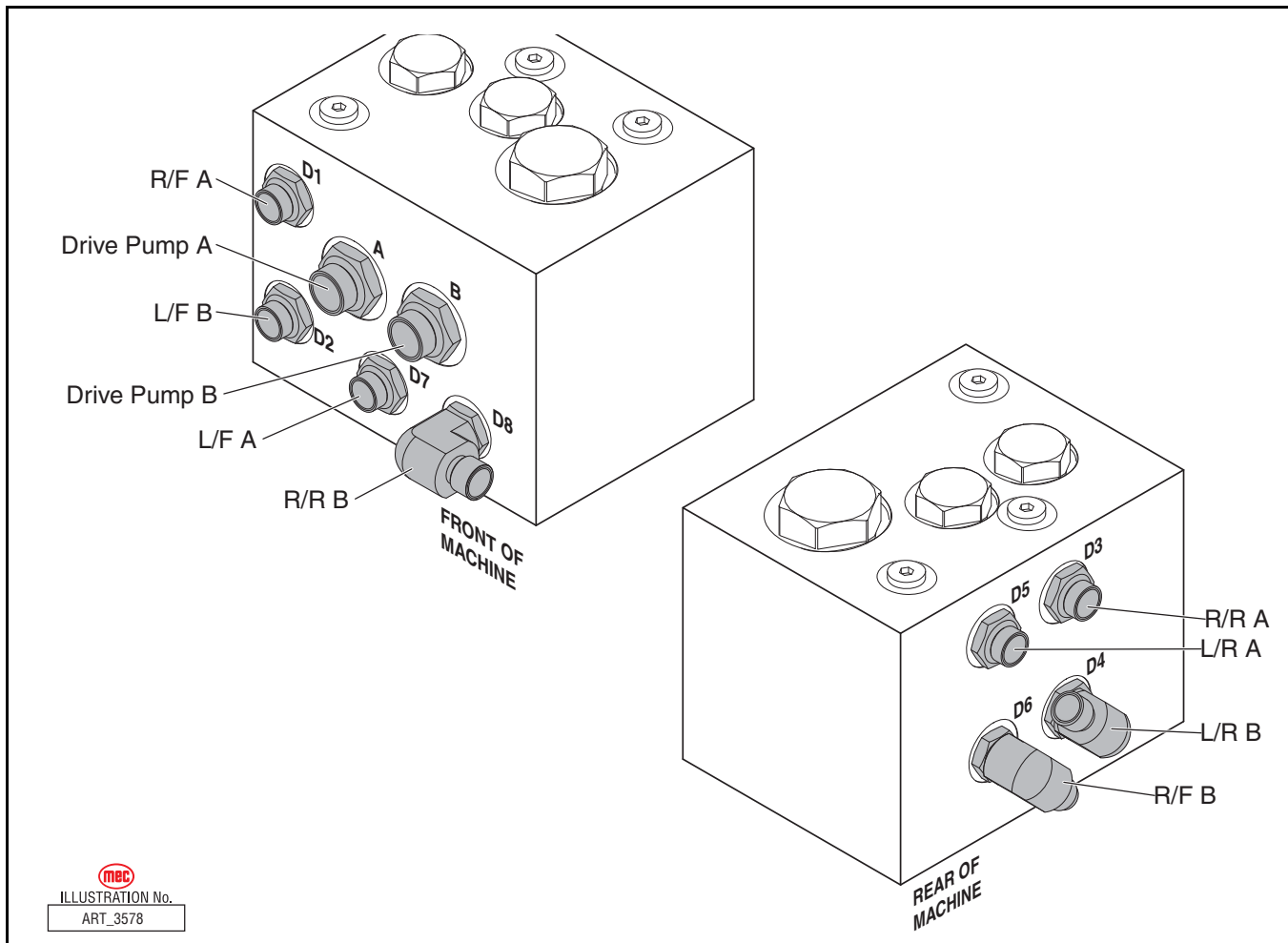
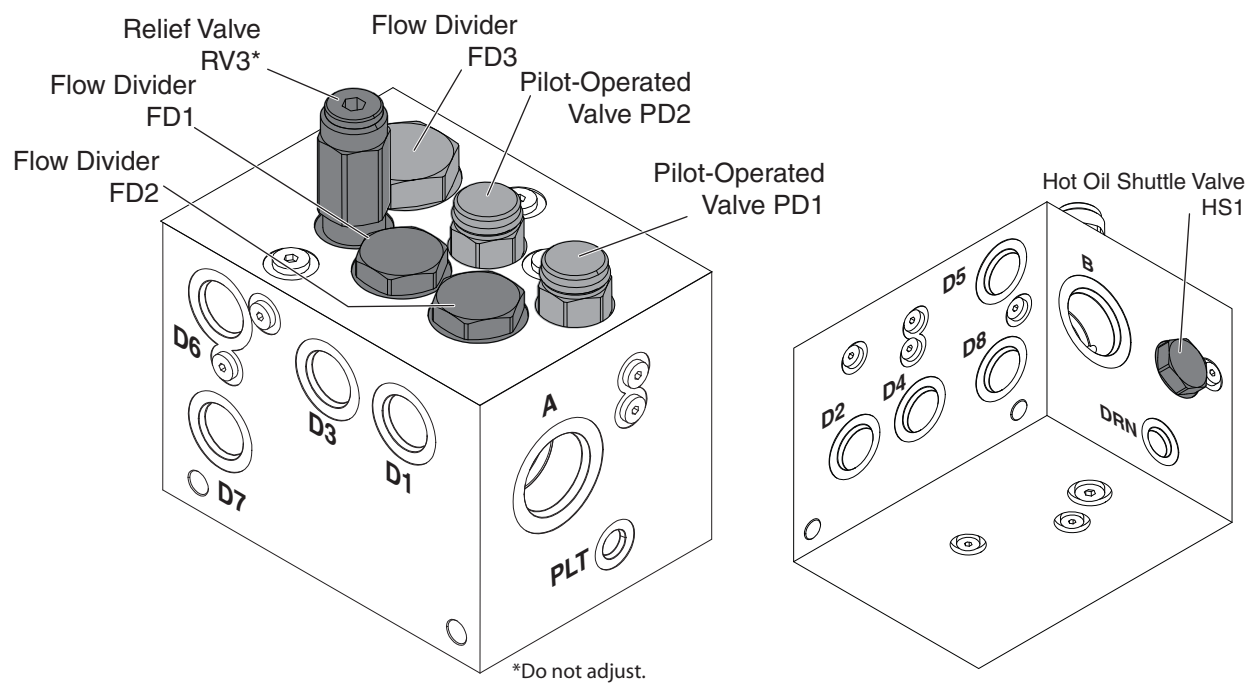
Figure 1-11: Drive Manifold, Components -- 5492RT**Figure 1-12:** Drive Manifold, Fittings -- 5492RT

Figure 1-13: Drive Manifold -- 3392RT-T ~#13600044

Components

Fitting Orientation

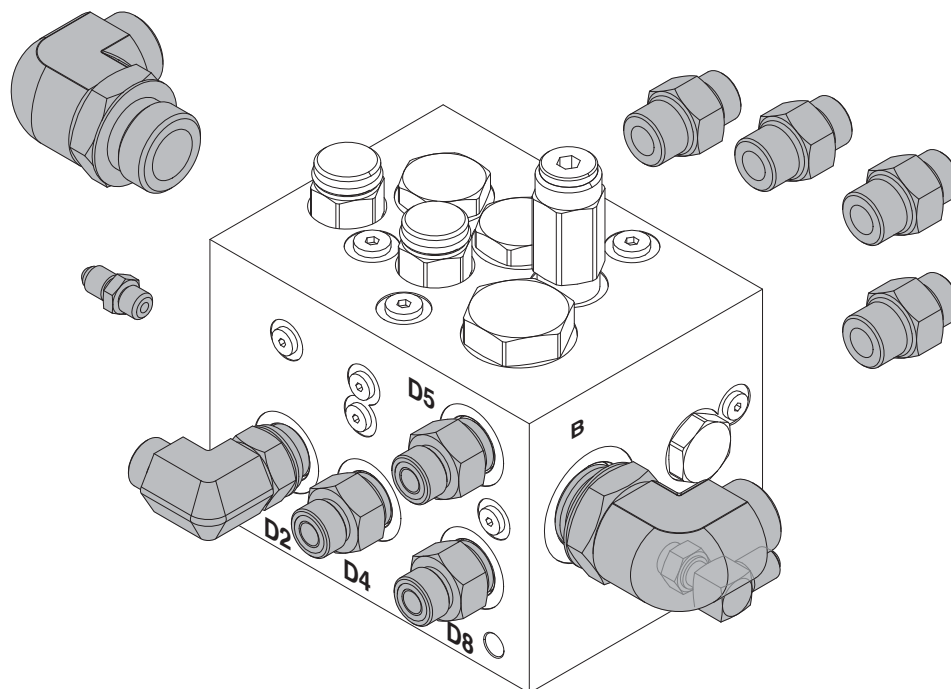


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HYDRAULIC PRESSURE ADJUSTMENT

- Before attempting to check and/or adjust pressure relief valves, operate the machine for 15 minutes or long enough to sufficiently warm the hydraulic fluid.
- Insert a 0-5000 psi gauge onto the pressure test port on the valve manifold using gauge adapter fitting MEC part no. 8434

Table 1-2: Hydraulic Pressure Settings

DRIVE	4500 PSI / 310 bar
CHARGE	348 PSI / 24 bar
LIFT	3000 PSI / 193 bar
STEER/ OUTRIGGER	2800 PSI / 193 bar

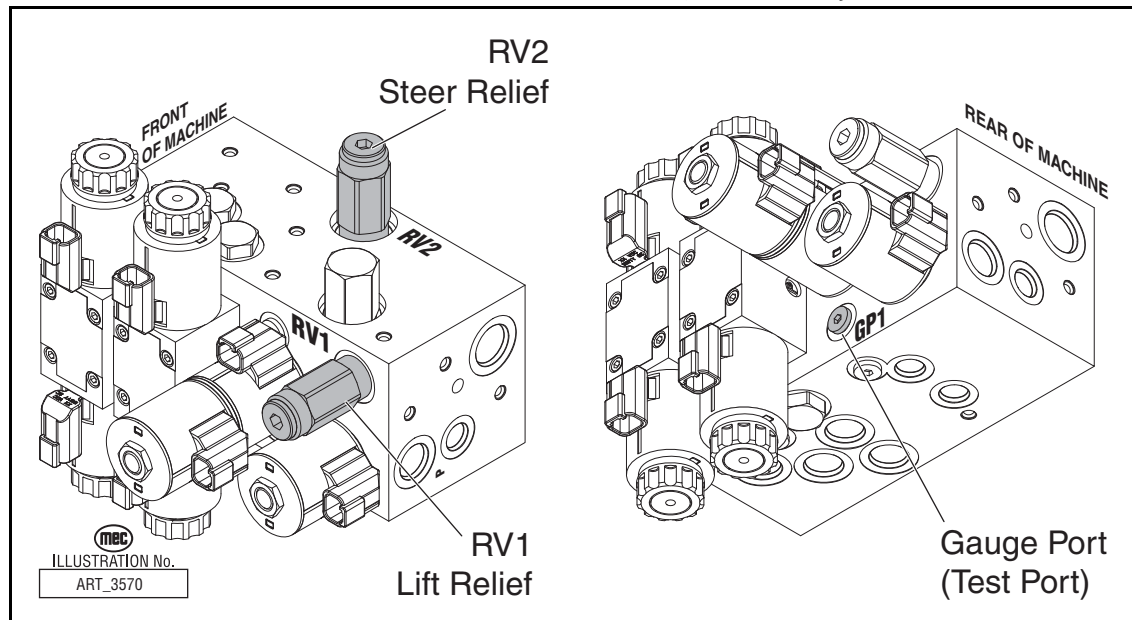
ADJUSTING RELIEF VALVES

- Remove the tamper proof cap.
- Turn adjustment screw “IN” to increase pressure.
- Turn adjustment screw “OUT” to decrease pressure.
- When correct pressure is obtained replace tamper proof cap with a new one.



Do not operate pump with tamper proof cap removed. Fluid will emit under pressure.

Figure 1-14: Adjustable Valves Location



ADJUSTMENTS

COUNTERBALANCE VALVES

The counterbalance valves, located on the lift and axle lock cylinders of the 5492RT, are set by the manufacturer and should not be adjusted for any reason.

Replace any counterbalance valve that shows evidence of adjustment or tampering.

LIFT RELIEF (RV1)

The Lift Relief Valve (RV1) should be checked during routine maintenance to ensure proper lift capacity. It will be necessary to remove the cap from the relief valve if adjustment is necessary.

REMOVING THE CAP WHILE THE ENGINE IS RUNNING WILL RESULT IN FLUID LEAKAGE.

To check Lift Relief valve setting, park the machine on a firm level surface free from overhead obstructions.

Lift Relief Valve (RV1) should be set to 2800 psi (193 bar).

- Insert a 0-5000 psi gauge into the port GP of the Functions Manifold.
- Extend the platform to full height with **no load on platform**.
- Hold the switch for 10 seconds to get an accurate reading on the pressure gauge.
- If pressure is LOW, adjust lift relief valve ¼ turn clockwise and recheck.
- If pressure is HIGH, adjust lift relief valve ¼ turn counterclockwise and recheck.
- Repeat until correct.

STEERING RELIEF (RV2)

The steering Relief Valve (RV2) should be checked during routine maintenance to ensure proper steering function. It is necessary to remove the cap from the relief valve if adjustment is necessary.

REMOVING THE CAP WHILE THE ENGINE IS RUNNING WILL RESULT IN FLUID LEAKAGE.

Steering Relief Valve (RV2) should be set to 2800 psi (193 bar).

- Insert a 0-5000 psi gauge into the port GP of the Functions Manifold.
- Energize the steering to full left.
- Hold the switch for 10 seconds to get an accurate reading on the pressure gauge.
- If pressure is LOW, adjust steering relief valve ¼ turn clockwise and recheck.
- If pressure is HIGH, adjust steering relief valve ¼ turn counterclockwise and recheck.
- Repeat until correct.

DRIVE PUMP ADJUSTMENTS

This section offers instruction on inspection and adjustment of pump components. Read through the entire topic before beginning a service activity.



Contamination can damage internal components and void your warranty. Take precautions to ensure system cleanliness when removing and reinstalling system lines

Standard Procedures

1. With the engine off, thoroughly clean the outside of the pump.
2. If removing the pump, tag each hydraulic line. When you disconnect hydraulic lines, immediately cap them and plug each open port to prevent contamination.
3. Ensure the surrounding area is clean and free of contaminants like dirt and grime.
4. Inspect the system for contamination.
5. Check the hydraulic fluid for signs of contamination: oil discoloration, foam in the oil, sludge, or metal particles.
6. If there are signs of contamination in the hydraulic fluid, replace all filters and drain the hydraulic system. Flush the lines and refill the reservoir with the correct filtered hydraulic fluid.
7. Before re-installing the pump, test for leaks.
8. See the pump start-up procedure on Page 9.

Charge Pressure Relief Valve Adjustment

This procedure explains how to check and adjust the charge pressure relief valve.

1. Install a 1000 psi (50 bar) pressure gauge in charge pressure gauge port GCP on the Brake Manifold. This gauge shows charge pressure.
2. Install a 100 psi (10 bar) gauge at case pressure port L1, L2, or L3. This gauge shows case pressure.
3. Operate the system with the pump in neutral (zero displacement) when measuring charge pressure.

NOTE: Ensure charge pressure is properly set before checking pressure limiter. See Section 1.

4. The charge pressure relief valve setting for this pump is 348 psi (24 bar). This pressure assumes 1800 rpm pump speed, charge flow of 7 gal/min (26.5 l/min), and reservoir temperature of 120°F (50°C). The charge pressure references case pressure.

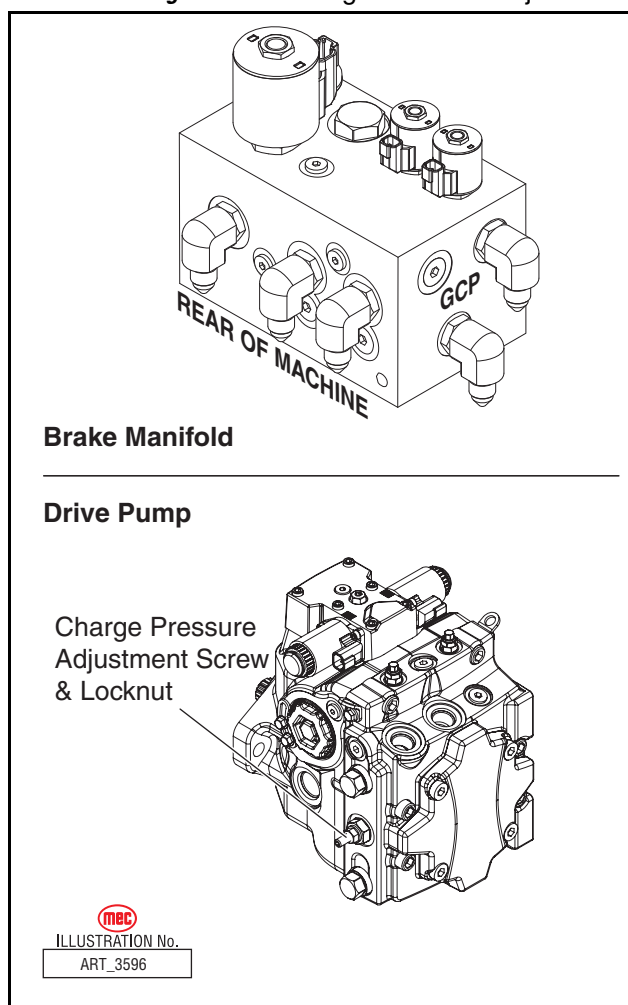
NOTE: At higher pump speeds or higher charge flows the charge pressure will rise over the rated setting.

5. Rotate the adjusting screw clockwise to increase the setting; counter clockwise to decrease it.
Subtract the case pressure reading from the charge pressure reading to compute the actual charge pressure.

NOTE: Pressure change per turn is dependant on charge flow entering pump.

6. While holding the adjusting screw, torque locknut to 13 lb-ft (17 Nm).
7. When you achieve the desired charge pressure setting, remove the gauges and plug the ports.

Figure 1-15: Charge Pressure Adjustment



Pressure Limiter Adjustment

NOTE: Ensure charge pressure is properly set before checking pressure limiter.

At the Platform Controls, set the Speed/Torque Switch to HIGH SPEED (up).

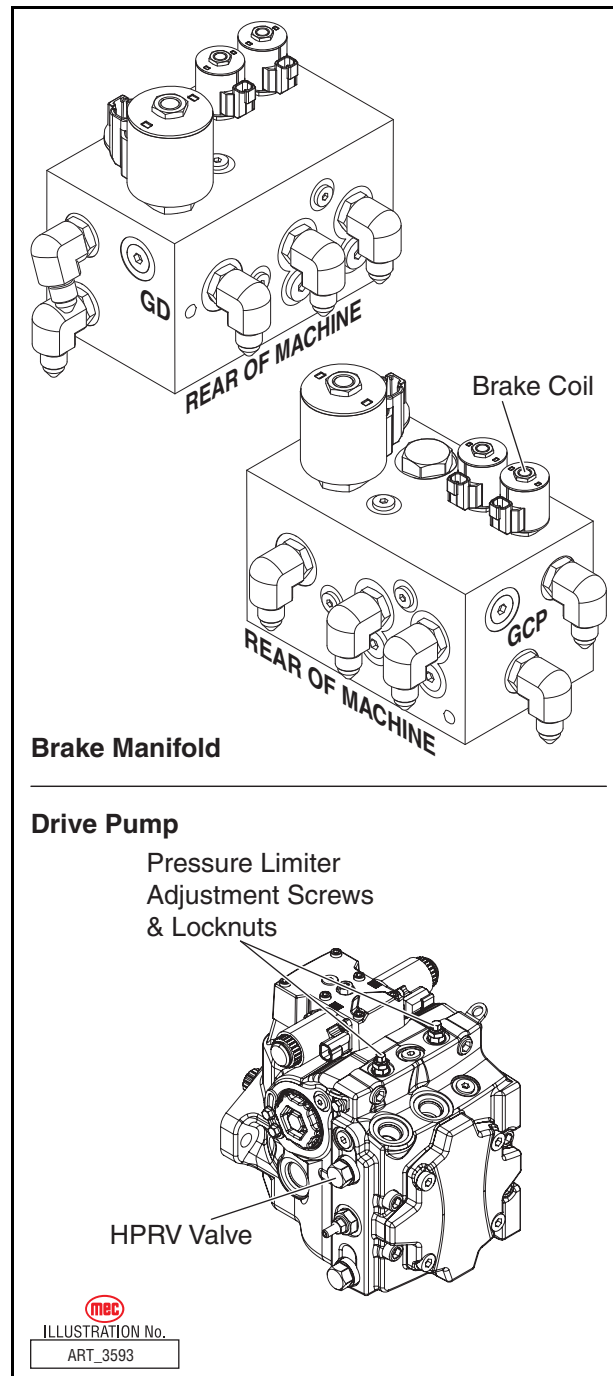
Position the platform such that it cannot drive and the wheels cannot rotate.



THIS PROCEDURE REQUIRE THAT THE DRIVE SYSTEM BE BROUGHT TO FULL PRESSURE WITH THE MACHINE IMMOBILIZED. THE MACHINE MUST BE SECURELY RESTRAINED BEFORE PERFORMING THIS PROCEDURE.

1. Install a 5000 psi (350 bar) pressure gauge in port GD of the Brake Manifold. Install a 1000 psi (50 bar) pressure gauge in port GCP of the Brake Manifold.
2. Start the engine and run at idle.
3. Use a 17mm wrench to loosen the locknut.
4. Activate the Drive Joystick until pressure in the high side of the system loop stops rising. This pressure is the PL setting.
5. Release the Drive Joystick and adjust the PL setting using an internal hex wrench. Turn the adjusting screw clockwise to increase the PL setting, counter clockwise to decrease it. The adjustment is very sensitive. Change per full turn is approximately 2176 psi (150 bar).
6. Repeat steps four and five until pressure read 4500 psi (310 bar). After adjustment, torque the locknut to 9 lb/ft (12 Nm). Do not over torque.
7. Shut down the engine. Remove gauges and replace plugs.

Figure 1-16: Brake Manifold



Control Neutral Adjustment

All functions of the Electric Displacement Control (EDC) are preset by the pump manufacturer. Adjust the pump to neutral with the pump running on the vehicle with the engine operating. If adjustment fails to give satisfactory results, it may be necessary to replace the control or coils.

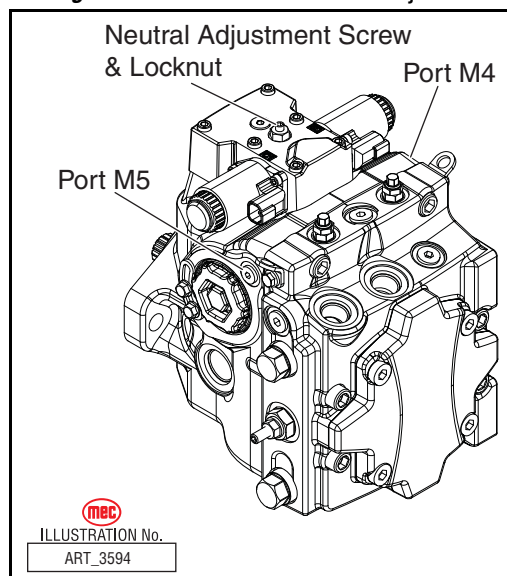


UNINTENDED MOVEMENT OF THE MACHINE MAY CAUSE INJURY TO THE TECHNICIAN OR BYSTANDERS. TO PROTECT AGAINST UNINTENDED MOVEMENT, SECURE THE MACHINE AGAINST MOVEMENT AND DISCONNECT THE BRAKE COIL WHILE SERVICING. SEE FIGURE 1-16 ON PAGE 1-22 FOR LOCATION OF COIL.

1. Install a 1000 psi (50 bar) gauge in each of the two servo gauge ports (M4 and M5). Disconnect the external control input (electrical connections) from the control. Start the engine and operate at idle speed.
2. Use a 4mm internal hex wrench to hold the neutral adjusting screw stationary while loosening the locknut with a 13mm wrench.
3. Observe pressure gauges. If necessary, turn adjusting screw to reduce any pressure differential.
4. Rotate the neutral adjusting screw clockwise until the pressure increases on the gauge. Note the angular position of the wrench. Then rotate the neutral adjusting screw counter clockwise until the pressure increases by an equal amount on the other gauge. Again note the angular position of the wrench.
5. Rotate the neutral adjusting screw clockwise half the distance between the wrench positions noted above. The gauges should read the same pressure, indicating that the control is in its neutral position.
6. Hold the neutral adjusting screw stationary and tighten the lock nut. Torque to 7 lb/ft (10 Nm). Do not over-torque the nut.
7. When the neutral position is set, stop the engine, remove the gauges, and install the gauge port plugs. Reconnect the external control input.

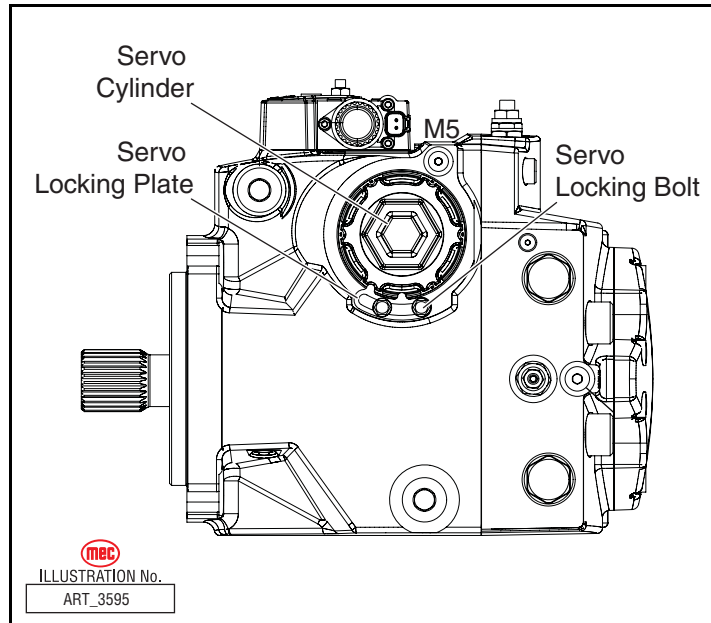
NOTE: A small pressure differential of 22 psi (1.5 bar) or less is acceptable. Zero differential is usually not possible.

Figure 1-17: Control Neutral Adjustment



Mechanical Neutral Adjustment**SERVO ADJUSTMENT****Figure 1-18:** Servo Adjustment, Port M5 Side

1. Run engine at 1800 rpm.
2. If using a PWM signal, ensure the signal is off. Check the servo pressure gauges. Ensure the differential between M4 and M5 is less than 22 psi (1.5 bar).
3. Using a 3/4 in hex deep socket, unthread both servo cylinders 2-3 turns. This step ensures the servo cylinders have no contact with the servo piston.
4. Stroke the pump by turning the control eccentric screw, or by supplying current to solenoid C1, until the servo pressure at port M4 is 1 to 2 bar [14– 29 psi]



- greater than at port MB. This also indicates the servo piston is in contact with the servo cylinder on side M5.
5. Slowly thread the servo cylinder on the M5 side in until the system pressure differential starts to decrease. Maintain servo pressure differential between 1-2 bar [14-29 psi] during this step. Continue turning the servo cylinder in until the system pressure differential (between ports MA/MB) is less than 22 psi (1.5 bar). This procedure sets the servo and swash plate to mechanical neutral on the M5 side.
 6. Repeat steps 1-5 but stroke the pump in the opposite direction by turning the eccentric screw in the opposite direction, or by supplying current to solenoid C2. Reverse gauge locations (M4 for M5, MB for MA) from those stated above since the pump is now stroking the other direction.
 7. Remove all gauges and replace gauge port plugs.

VERIFY NEUTRAL SETTING

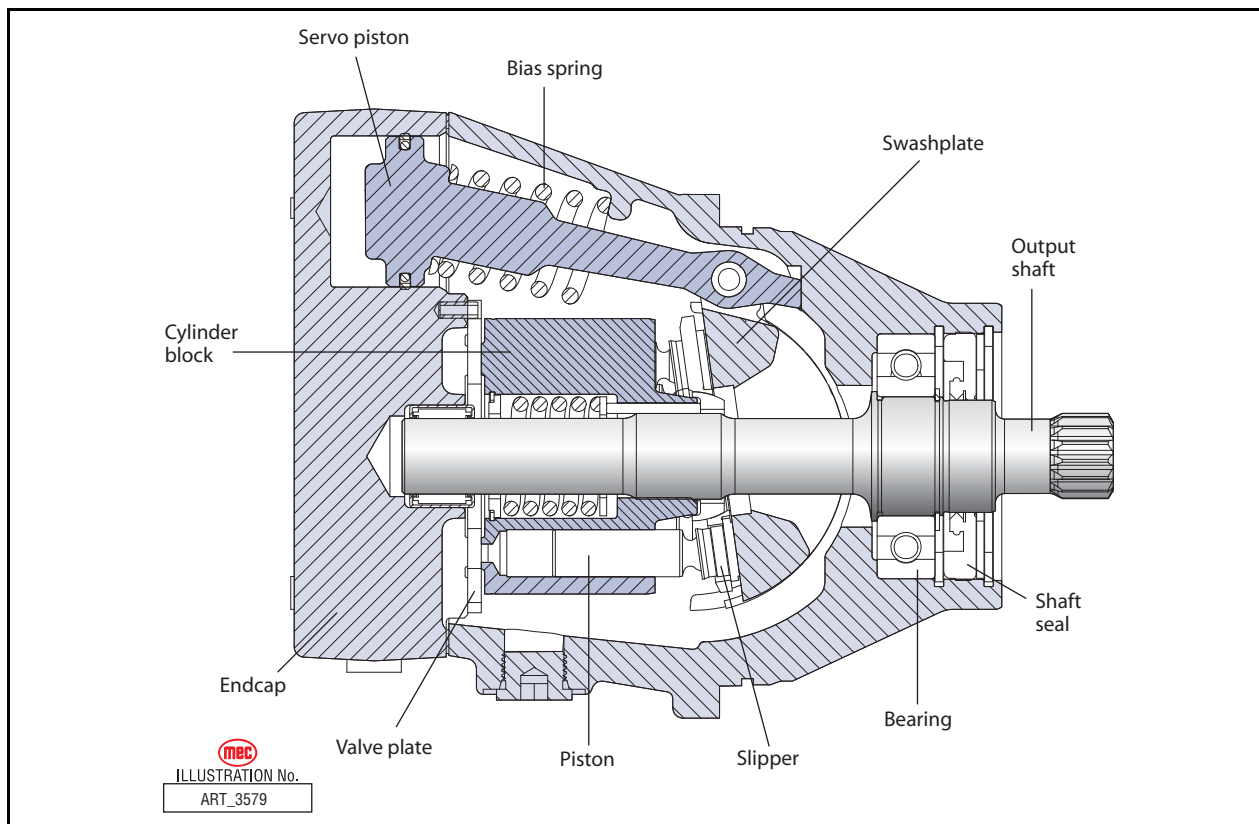
1. If using a PWM signal to set mechanical neutral, check that servo pressure differential is less than 22 psi (1.5 bar). Refer to "Control Neutral Adjustment" on page 1-23.
2. To verify mechanical neutral, provide current to solenoid C1, or turn neutral adjustment screw, until the servo pressure differential is 3 bar [43 psi]. The system pressure differential must be below 22 psi (1.5 bar). Repeat test on solenoid C2 side.
3. The current required to set the servo pressure differential to 3 bar [43 psi] should be the same for each solenoid.
4. If using neutral adjustment screw to set mechanical neutral, reset control neutral. Refer to "Control Neutral Adjustment" on page 1-23.

DRIVE FUNCTION

NOTE: Refer to *Section 3* for Remove and Install instructions.
Refer to *Parts Section E*.

There are four (4) variable-displacement hydraulic Drive Wheel motors that provide power to all four wheels.

Figure 1-19: Drive Motor



WHEEL MOTOR STARTUP PROCEDURE

Follow this procedure when restarting a machine on which the Drive Motors have been:

- Removed and re-installed, or
- Drained of fluid for any reason.



UNINTENDED MOVEMENT OF THE MACHINE OR MECHANISM MAY CAUSE INJURY. SECURE THE MACHINE BEFORE PERFORMING THIS PROCEDURE.



If oil has drained from the Drive Pump, DO NOT operate the Drive Pump until you have completed the "Drive Pump Start-Up Procedure" on page 1-9. Severe damage will occur.

Inspect each Drive Motor for damage prior to installation. Use only the appropriate hydraulic fluid as recommended in "Fluid Recommendations" on page 1-5.

1. Fill the reservoir with the appropriate hydraulic fluid as recommended in "Fluid Recommendations" on page 1-5. Always filter fluid through a 10 micron filter when pouring into the reservoir. Never reuse hydraulic fluid.
2. Fill the inlet line leading from the pump to the reservoir. Check the inlet line for properly tightened fittings and be certain it is free of restrictions and air leaks.
3. Fill the pump and motor housing with clean hydraulic fluid. Pour filtered oil directly into the upper most case drain port.
4. To ensure the pump and motor stay filled with oil, install case drain lines into the upper most case drain ports.
5. Install a 0 to 35 bar [0 to 500 psi] gauge in the pressure gauge port (M3) of the pump to monitor system pressure during start up.
6. Follow recommendations in the vehicle / machine operator's manual for engine start up procedures.
7. While watching the pressure gauge, jog the engine or run at the lowest possible speed until system pressure builds to normal levels (minimum 11 bar [160 psi]). Once system pressure is established, increase to full operating speed. If system pressure is not maintained, shut down the engine, determine cause, and take corrective action.
8. Operate the hydraulic system for at least fifteen minutes under light load conditions.
9. Check and adjust pump control settings as necessary after installation.
10. Shut down the engine and remove the pressure gauge. Replace hose and fitting at the pressure gauge port.
11. Check the fluid level in the reservoir; add clean filtered fluid if necessary.
12. The motor is now ready for operation.

REPAIR

MEC does not recommend end-user maintenance or repair of the Sauer Danfoss drive motors. Contact MEC or Sauer Danfoss for the nearest service provider.

AXLE LOCK FUNCTION

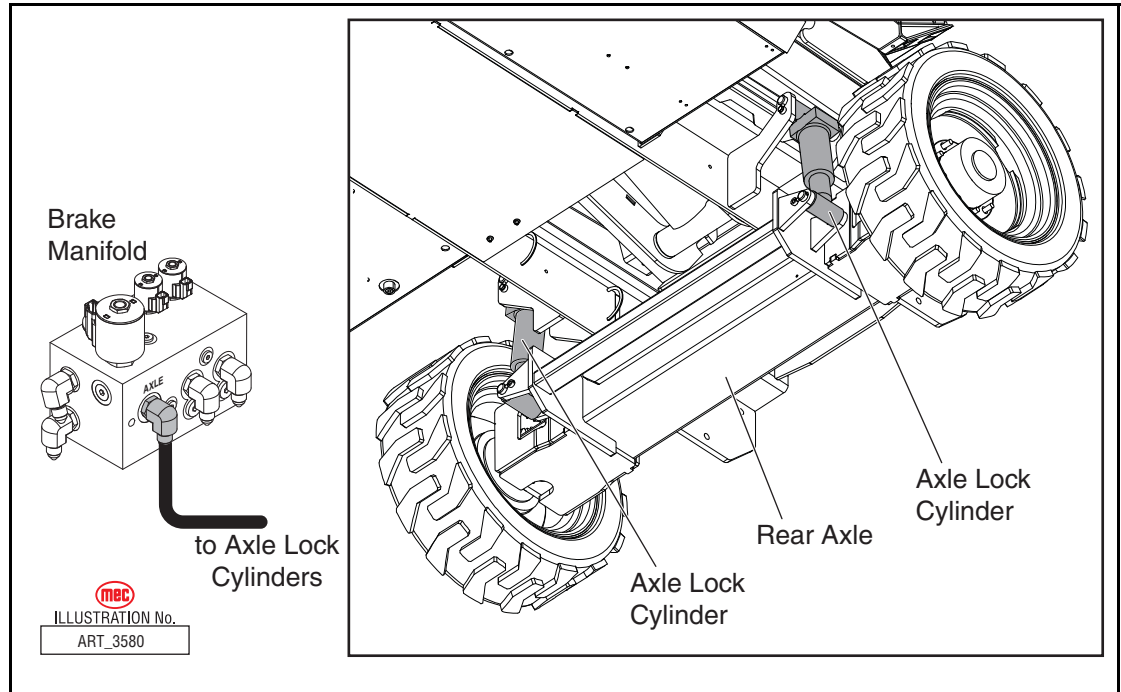
NOTE: Refer to *Cylinder Repair*.

Refer to *Section 3* for Remove and Replace instructions.

Refer to the *Parts Section E* for parts list.

There are two (2) cylinders in the floating axle system. These cylinders allow fluid to freely flow in and out while driving over rough terrain, provided that the platform is in the stowed position. When the platform is elevated, the electrically-operated valve in the manifold closes, preventing fluid flow and locking the cylinders.

Figure 1-20: Axle Lock Cylinders



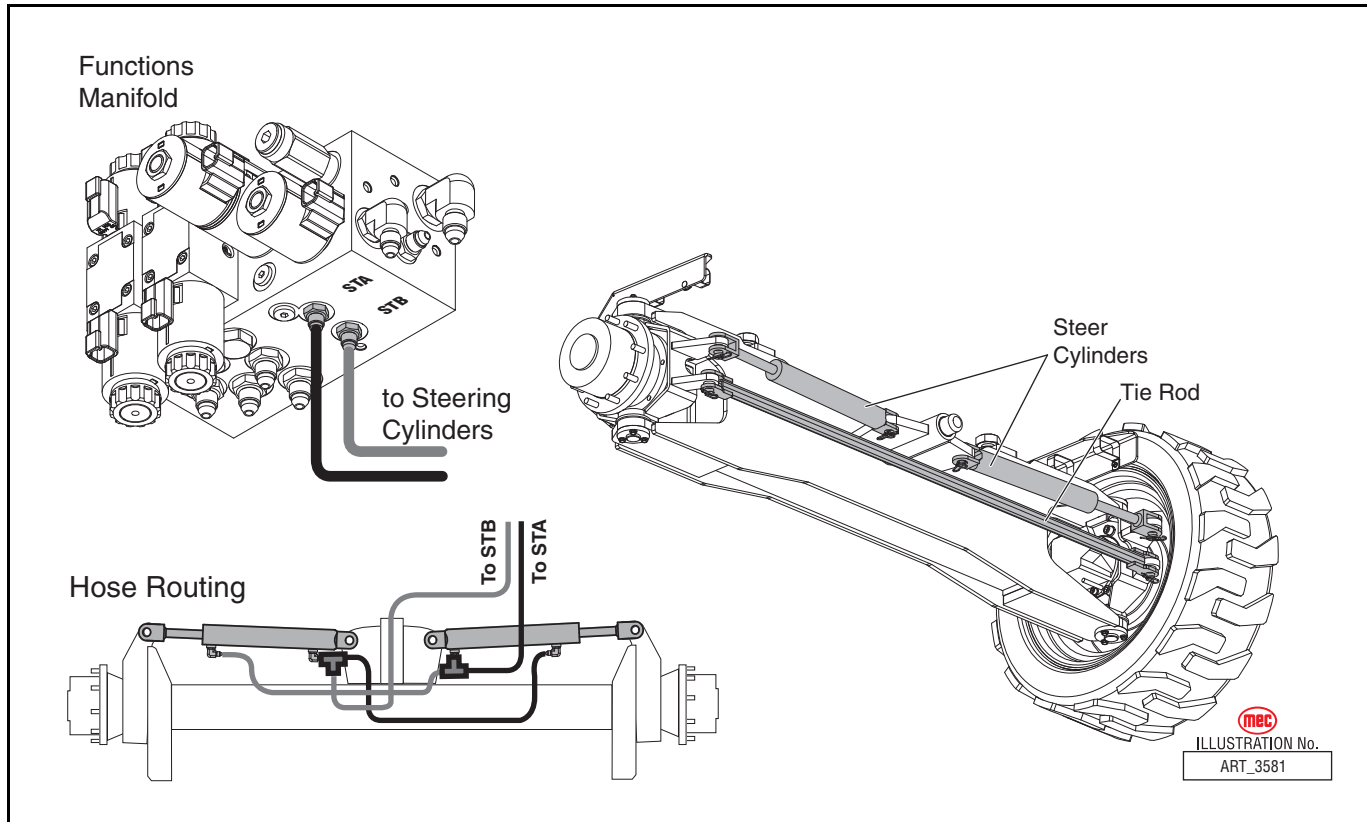
STEERING FUNCTION

NOTE: Refer to *Section 3* for Remove and Replace instructions.
Refer to *Parts Section E* for parts list and hose routing.

The steering system consists of the following components:

- The yokes have pivots on the top and bottom. These have mechanically linked together via a tie-rod.
- Steering is accomplished hydraulically by using two (2) double-acting cylinders, and a 4-way 3-position solenoid-operated, hydraulic directional control cartridge valve.
- Maximum steering pressure is limited by the steering relief valve (refer to *Section 4*).

Figure 1-21: Steering Circuit



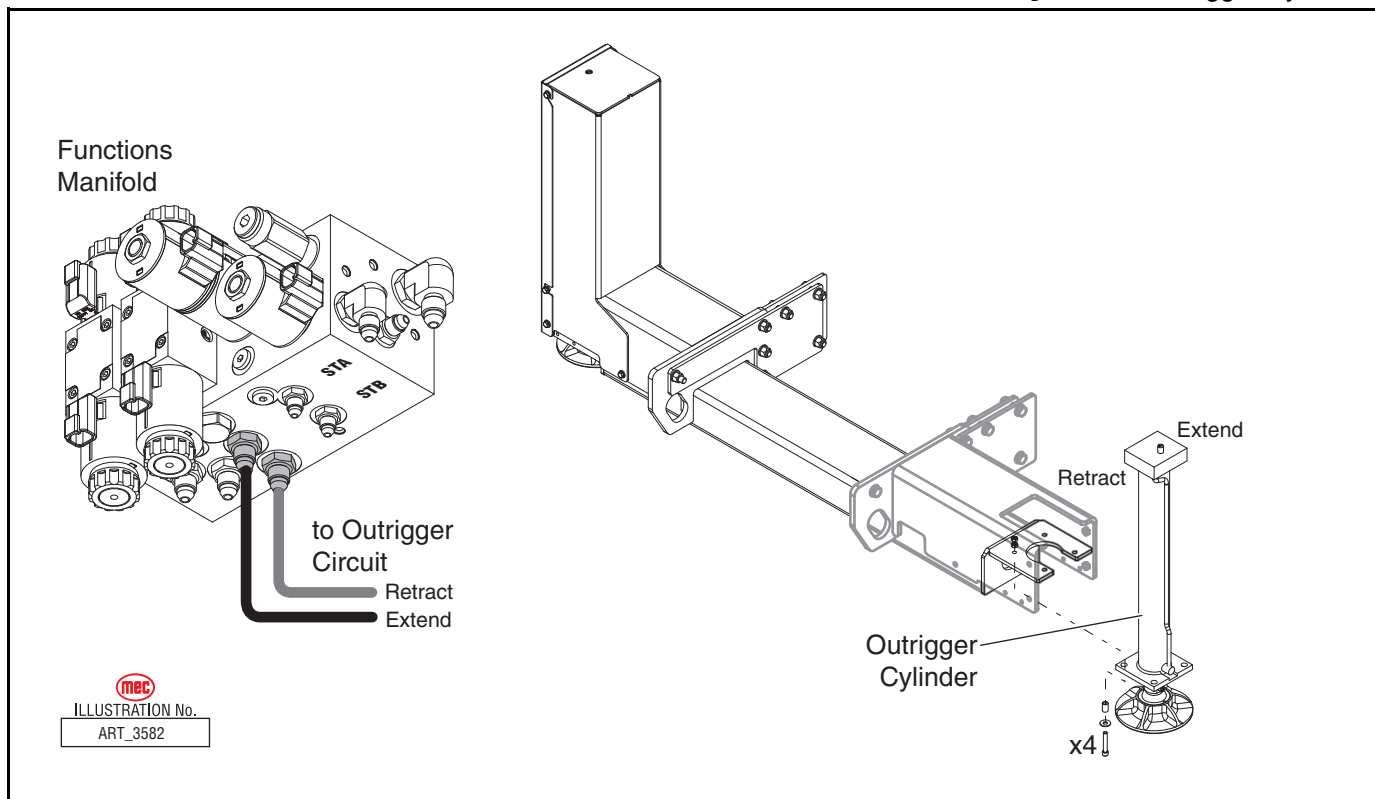
OUTRIGGER SYSTEM

NOTE: Refer to *Section 3* for Remove and Replace instructions.
Refer to *Parts Section E* for parts list and hose routing.

There are four (4) Outrigger Cylinders, each located at one of the corners of the machine. These cylinders allow the machine to adjust front-to-rear and side-to-side in order to provide a level work platform.

Automatic leveling is controlled by the GP400 processor.

Figure 1-22: Outrigger Cylinders



PLATFORM LIFT FUNCTION

NOTE: Refer to *Section 3* for Remove and Replace instructions.
Refer to *Parts Section E* for parts list and hose routing.

LIFT CIRCUIT

- The lift system uses the hydraulic pump to obtain proportional Lift/Lower function controlled by the lift valve and proportional valve.

LIFT CYLINDERS

NOTE: Refer to *Cylinder Repair*.

5492RT -- Two (2) double-acting hydraulic cylinders lift the platform.

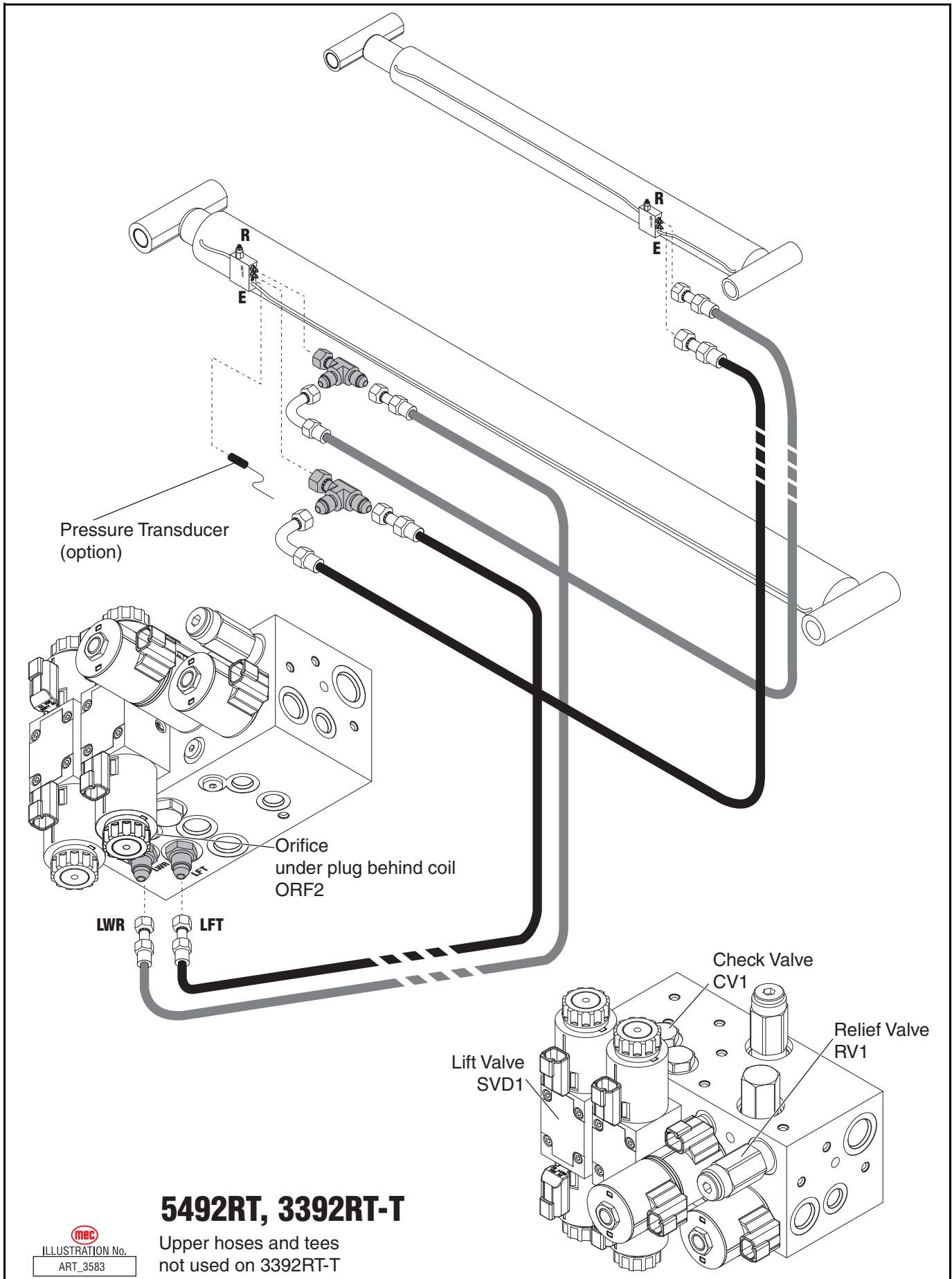
6092RT -- Two (2) single-acting hydraulic cylinders lift the platform.

3392RT-T -- One (1) double-acting hydraulic cylinder lifts the platform.

The cylinders are operated by a 3-position, 2-way proportional solenoid-operated valve. The cylinders are also operable by the auxiliary hydraulic power unit for emergency lowering.

A counterbalance valve (5492RT, 3392RT-T) or solenoid valve (6092RT) prevents retraction of the cylinder rod should a hydraulic line rupture or a leak develop between the cylinder and its related control valve.

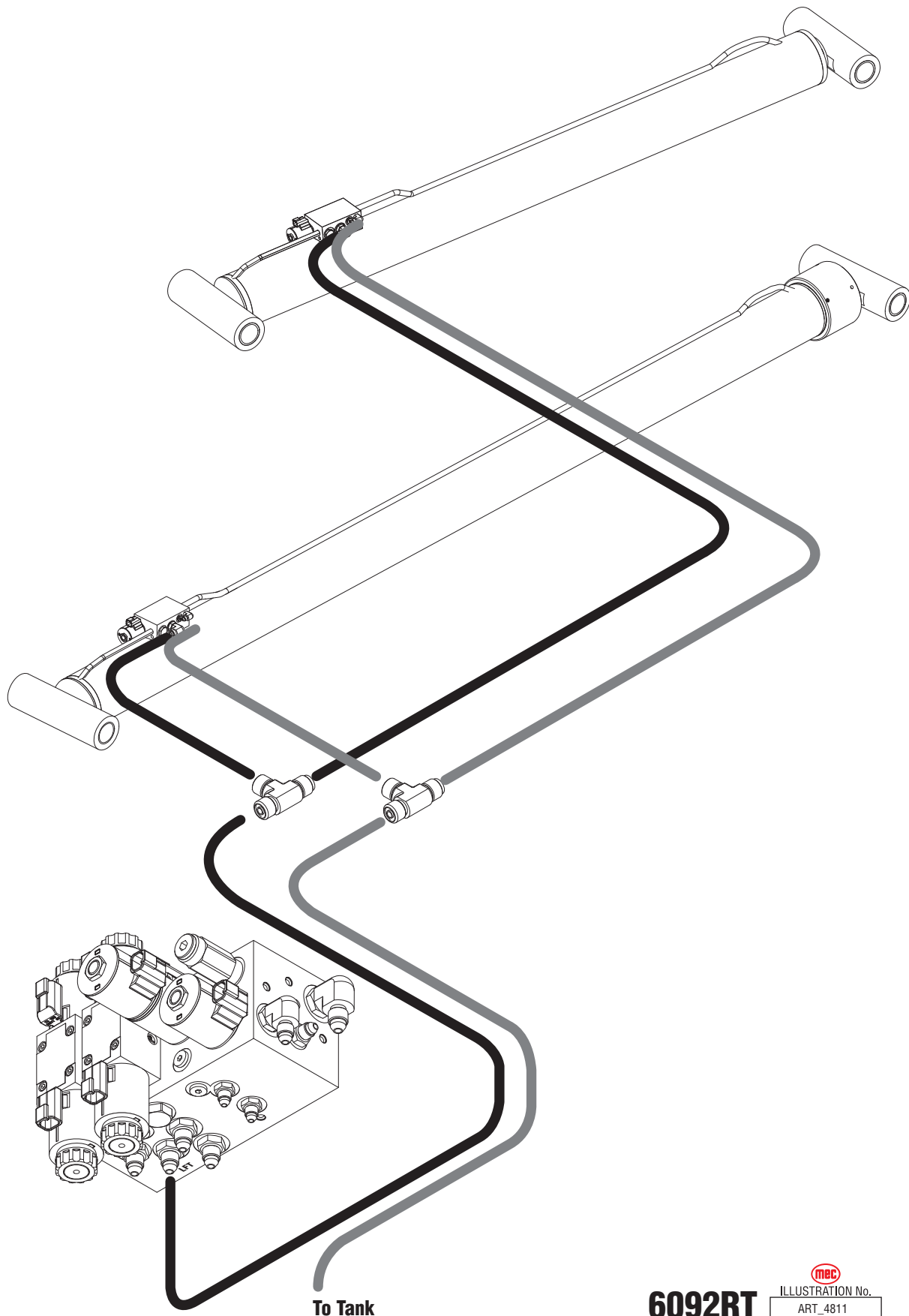
Figure 1-23: Platform Lift Circuit, 5492RT, 3392RT-T



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ILLUSTRATION No.
ART_3583



Figure 1-24: Platform Lift Circuit, 6092RT



6092RT

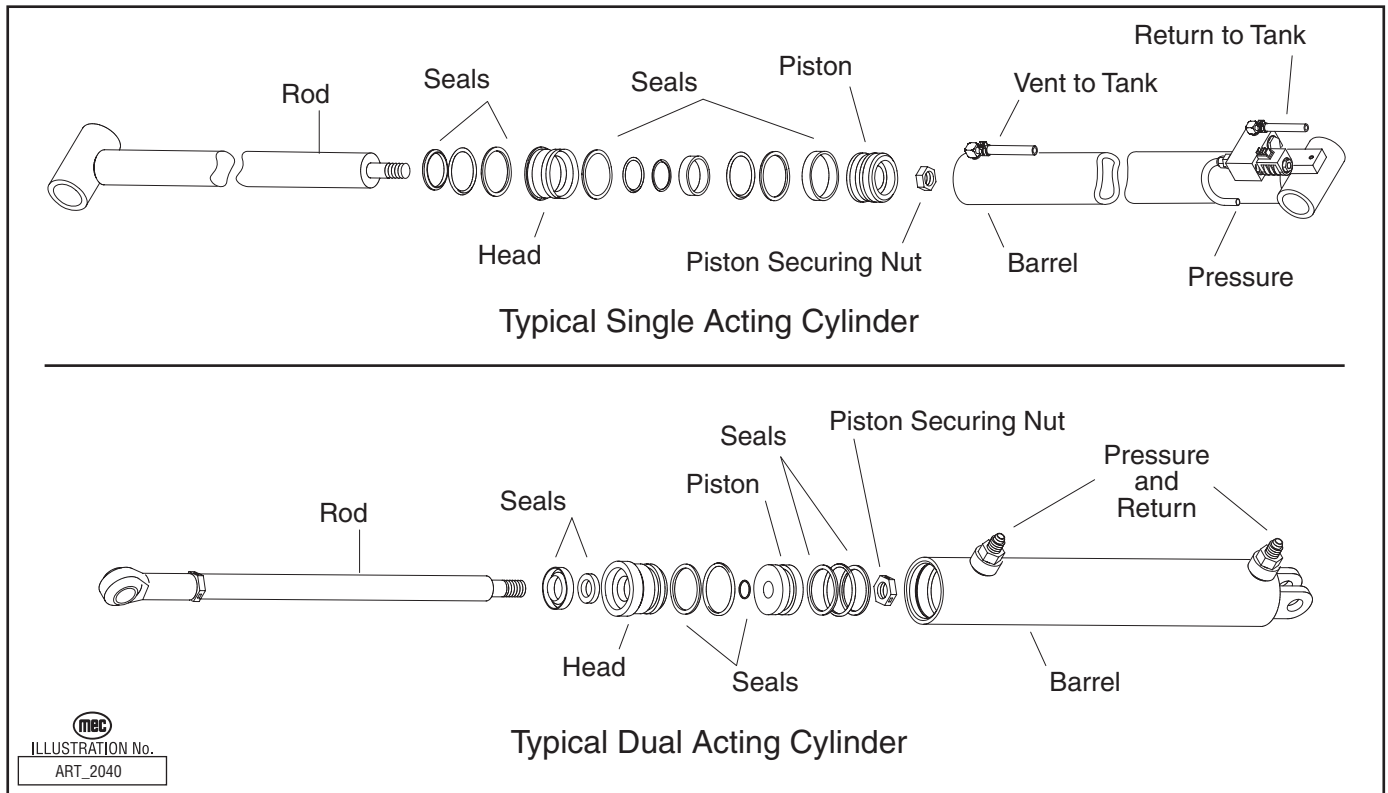
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ILLUSTRATION No.
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GENERAL CYLINDER REPAIR



CYLINDERS ARE HEAVY. SUPPORT CYLINDERS BEFORE REMOVING HARDWARE THAT SECURES THE CYLINDER TO THE MACHINE.

Figure 1-25: Typical Cylinders, Exploded View



REMOVAL

NOTE: Refer to *Section 3* for Remove and Replace instructions, and the *Parts Manual* for a list of hardware specific to the cylinder being repaired.

1. Tag hoses for proper reassembly.
2. Disconnect hoses and **IMMEDIATELY** cap the openings to prevent contamination.
3. Remove cylinder from the machine as described in *Section 3*.

PREPARATION



Take precautions to protect the rod surface. Guard against dirt or other foreign objects entering system.

1. Drain all fluid from cylinder.
2. Clean all dirt and grit from outside of cylinder.
3. Insert cylinder into vise.

CYLINDER DISASSEMBLY

1. Remove the head from the cylinder body.
2. Remove the shaft assembly from the barrel, pulling in a straight line, so as not to scar the internal parts.
3. Insert shaft into a **soft jawed** vise so that the head and piston can be removed. Be sure the shaft and vise are both clean before using.
4. Remove nut at the end of the shaft and pull head and piston off of the rod.
5. Remove all seals from the head and piston using a non-sharp seal tool. These tools are available from various seal suppliers.
6. Clean all fluid and debris off of the head, piston, shaft, collar and barrel using solvent, rags, and an air hose.
7. Inspect parts for scratches, pits or polishing. Check seal grooves and sealing surfaces.
 - a. Scratches or pits deep enough to catch the fingernail are unacceptable; replace the cylinder.
 - b. Polishing is a sign of uneven loading. Check for roundness. If a polished surface is not round within .007 in. (0.18 mm) replace the cylinder.

CYLINDER ASSEMBLY

CAUTION:

- To ensure a quality repair, cylinder parts must be thoroughly cleaned, dry, and free of solvents, and assembly must be performed in a clean area free of dust and contamination.
 - Do not use sharp edged tools during seal replacement. After installing seals wait at least one hour before assembling the cylinder to allow the seals to return to their original shape.
 - Torque all hardware according to the Hydraulic Components Torque Table unless otherwise specified.
1. Lubricate all components with clean hydraulic fluid.
 2. Install new seal kit components. Install all seals on the head and piston using the non-sharp seal tool.
 3. Place a small amount of fluid on the inside head seals. Reinstall the head on the shaft by slipping head over the piston end of the shaft. Be very careful not to damage the inside seals.
 4. Place a small amount of fluid on the inside seals of the piston. Reinstall the piston on the shaft by slowly twisting the piston onto the threads of the shaft. Be very careful not to damage the inside seals.
 5. Reinstall the shaft nut. Torque 1 ½" nut to 160 ft. lbs. (216 Nm).
 6. Grease the outside seals of the head and piston.
 7. Reinstall the shaft into the barrel of the cylinder and push in until groove of the head lines up with the slot in the barrel.
 8. Reinstall the cylinder retainer. Installation is reverse of removal.
 9. Cycle the cylinder using air to check for proper operation.

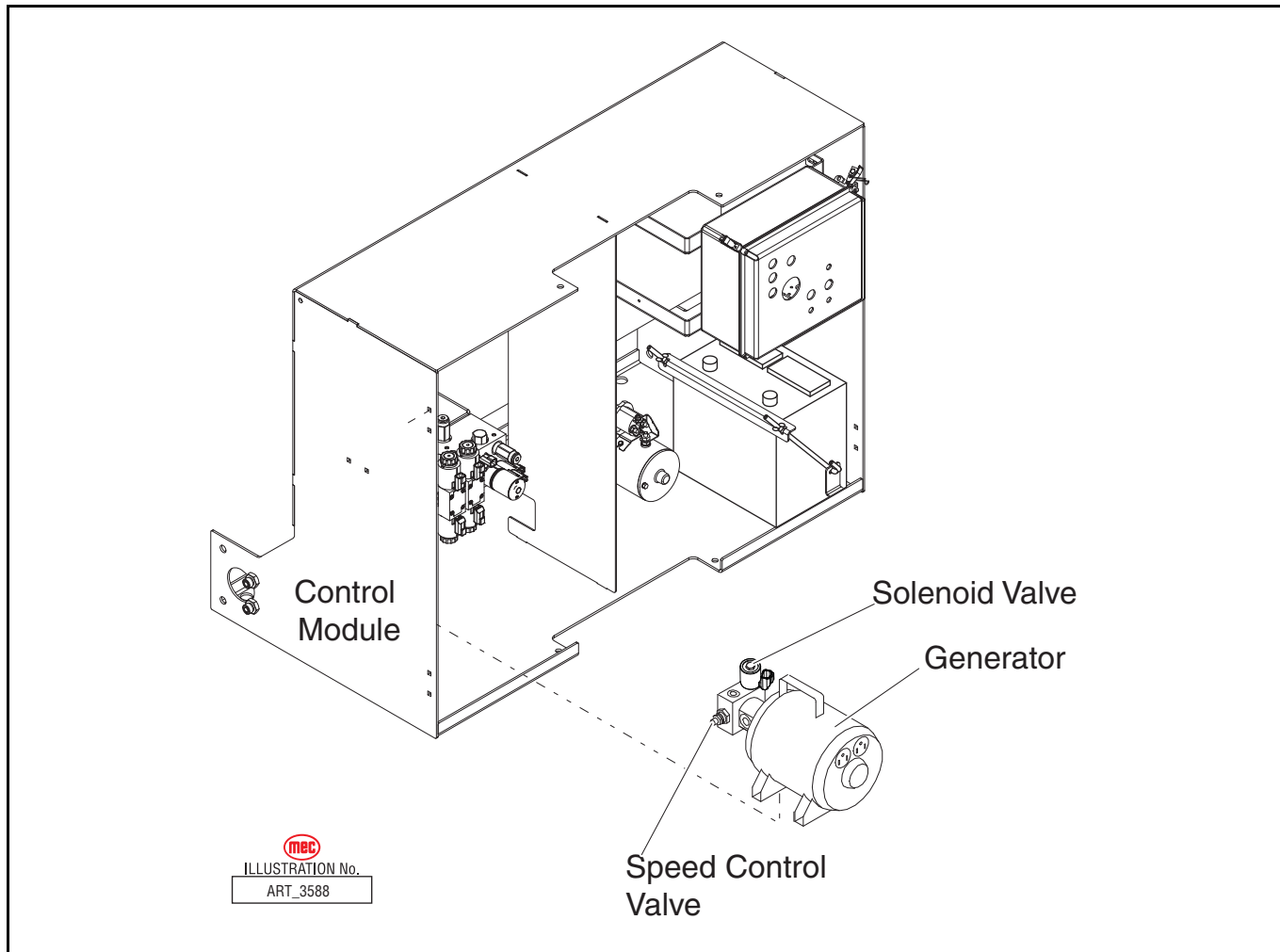
NOTE: Keep all parts clean when working with hydraulic cylinders. Even one small piece of dirt or grit can damage the cylinder.

GENERATOR OPTION

NOTE: Refer to *Section 5*,
Refer to *Parts Sections F*

The optional generator is driven by hydraulic pressure that takes off from the pressure line going into the Functions Manifold. It is turned on and off by means of a solenoid valve that is actuated by a switch located at the Platform Controls station. A short extension cord connects the generator to the Power To Platform plug located in the Controls Module.

Figure 1-26: Optional Generator





Section 2

ELECTRICAL SYSTEM

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ELECTRICAL SYSTEM – GENERAL

The electrical control system consists of lower controls located on the machine base and upper controls located on the machine platform. Emergency lowering controls are also located on the machine base.

LOWER CONTROLS

The lower controls will operate all functions except the steer, drive and outrigger functions.

UPPER CONTROLS

The upper controls will operate all functions including drive, steer, lift, and lower. A momentary bi-directional rocker switch on the joystick provides the steering function. The control system for operation of drive, steer, lift, and lower is electric-over-hydraulic type. The drive system is a proportional system controlled by position and direction of the upper controls joystick.

EMERGENCY STOP

There are two red Emergency Stop switches: One located on the upper controls and one on the lower controls. Activation of either Emergency Stop switch will immediately cut electrical power to all controls, thereby stopping all machine functions. Press the switch to stop all electrical power and turn the switch clockwise to reset.

When both Emergency Stop switches are “set”, the controls have electrical power and the machine will operate.

Figure 2-1: Diagnostic LED

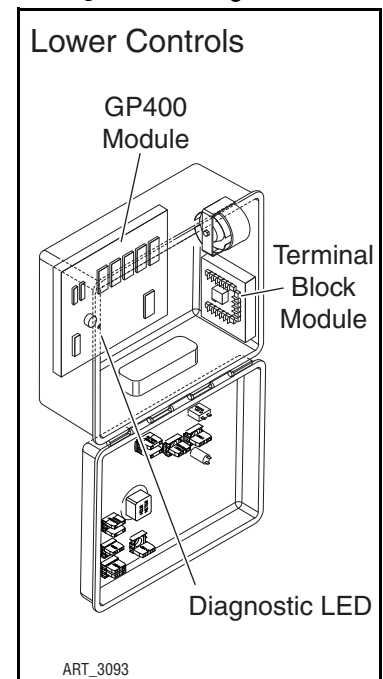
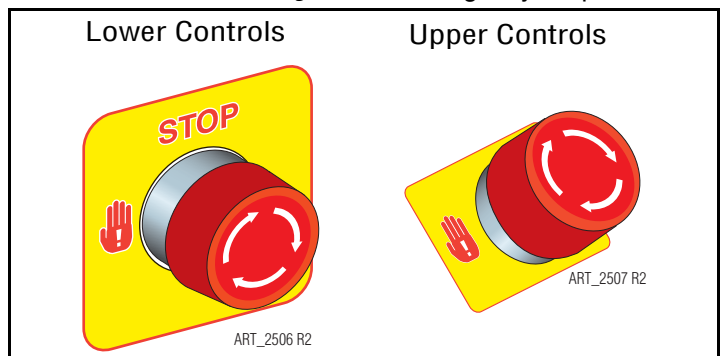


Figure 2-2: Emergency Stop Switches



NOTE: Both switches must be set or the machine will not operate.
The electric Emergency Lowering switch will continue to function when the Emergency Stop switches are depressed.

EMERGENCY LOWERING

The machine utilizes a toggle switch to operate an emergency hydraulic pump that provides power to lower the platform.

DIAGNOSTIC LED

If the machine fails to operate, inspect the GP400 Module located inside the control box. The LED located on the processor should be *ON*. If the LED is *OFF* or *FLASHING*, refer to *Section 4: Troubleshooting*.

START DELAY LIGHT

The START DELAY light is located on the Lower Control box (see Figure 2-4 on Page 2-8, item #7).

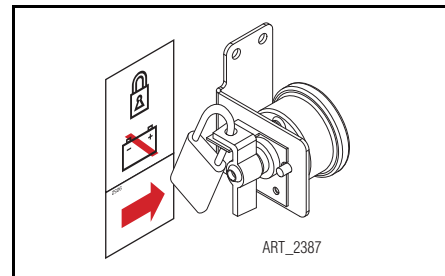
The machine is equipped with a start system protective device, controlled by the GP400. This protects the starter and related parts from damage caused by over-cranking in hard starting situations.

- Maximum starter operation time is 10 seconds.
- If no start, the START DELAY light will illuminate and the starter will be disabled for 35 seconds.
- When the START DELAY light goes OFF the starter will operate.

BATTERY DISCONNECT SWITCH

All electrical power is routed through the Master Disconnect switch located in the Control Module. The switch can be locked in the OFF position with a padlock to prevent unauthorized use.

Figure 2-3: Master Disconnect Switch



BATTERIES



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



CHARGING BATTERIES 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.

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.

One (1) battery (12 Volts DC) -- supplies the electrical power required to start the engine, operate the electrical circuits, and provides power for the Emergency Down auxiliary power unit.

BATTERY MAINTENANCE (IN STORAGE)

Follow these procedures for maintenance of battery on a machine not in use:

- Keep battery clean. Electrolyte of batteries should be checked regularly and kept at proper level.
- Never stack one battery directly on top of another because post or container damage can result. If batteries are stored individually, place supporting boards between layers. Rotate stock so that the oldest batteries are used first.
- Batteries should be kept fully charged. A battery, while in storage, should be recharged to full charge at recommended intervals.

A BATTERY FULLY (100%) CHARGED AT 80°F (26.6°C)

- drops to 65% at 32°F (0°C)
- drops to 40% at 0°F (-32°C)

Table 2-1: Recommended Battery Charge Intervals

If Stored At	Recharge
Below 40°F (4°C)	Every week
40°-60°F (4°-15°C)	Every 2 weeks
Above 60°F (15°C)	Every month

BATTERY MAINTENANCE (IN USE)

Check battery and surrounding area for signs of damage or corrosion.

Check battery terminals for:

- **Corrosion:** Regularly clean connections and apply a nonmetallic grease or protective spray to retard corrosion.
- **Loose connections:** Be sure all cable connections are tightly secured, and that good contact is made with terminals.
- **Broken or frayed cables:** Be sure all connections are good and that no loose or broken wires are exposed. Replace as necessary.

Check battery electrolyte level. Replenish the electrolyte, if necessary. Remove vent caps before filling, and **USE ONLY DISTILLED WATER. DO NOT OVERFILL.** Fill to level indicator (or ½ inch over the top of separators, if there is no level indicator). Fill after charging to prevent overflow of acid due to expansion. Do not use a hose to add water to batteries.

Allowing the electrolyte level to drop below the top of the separators will lead to shortened battery life.

Excessive water usage can indicate that a battery has been overcharged, has been subjected to excessively high temperatures, or is nearing the end of its service life.

BATTERY PREVENTATIVE MAINTENANCE:

During quarterly maintenance (after battery has been charged), check the specific gravity of two or more cells. A fully charged battery should indicate 1.28 specific gravity. If low readings are noted, check the following:

- Check terminals for corrosion, loose connections and broken or frayed cables.
- Check all cells with a hydrometer for variance in specific gravity. A variation of 0.03 points or more between cells is a cause for concern. Mark the low cells.

Recheck specific gravity of all cells after recharging. Wash the top of the battery, making sure all vents are in place. Do not allow cleaning water or other foreign matter to enter the cells. Use a solution of bicarbonate soda (5 tsp. of baking soda per quart of warm water) and water to wash the battery if there is an accumulation of acid.

Table 2-2: Battery Specific Gravity and Voltage

Specific Gravity		Volts DC		
	Each Cell	Per Cell	6V Battery	12V Battery
Fully Charged	1.280	2.10	6.30	12.60
Fully Discharged	1.130	1.75	5.19	10.50

BATTERY REPLACEMENT



TURN OFF THE BATTERY DISCONNECT SWITCH BEFORE REMOVING ANY BATTERY FROM THE MACHINE.



Prevent damage to the battery and/or electrical system;

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

TO REMOVE A BATTERY:

1. Turn the Battery Disconnect switch to OFF.
2. Disconnect the battery cables and remove battery hold-down hardware.
3. Lift the battery from the compartment, put the battery aside and dispose of properly.

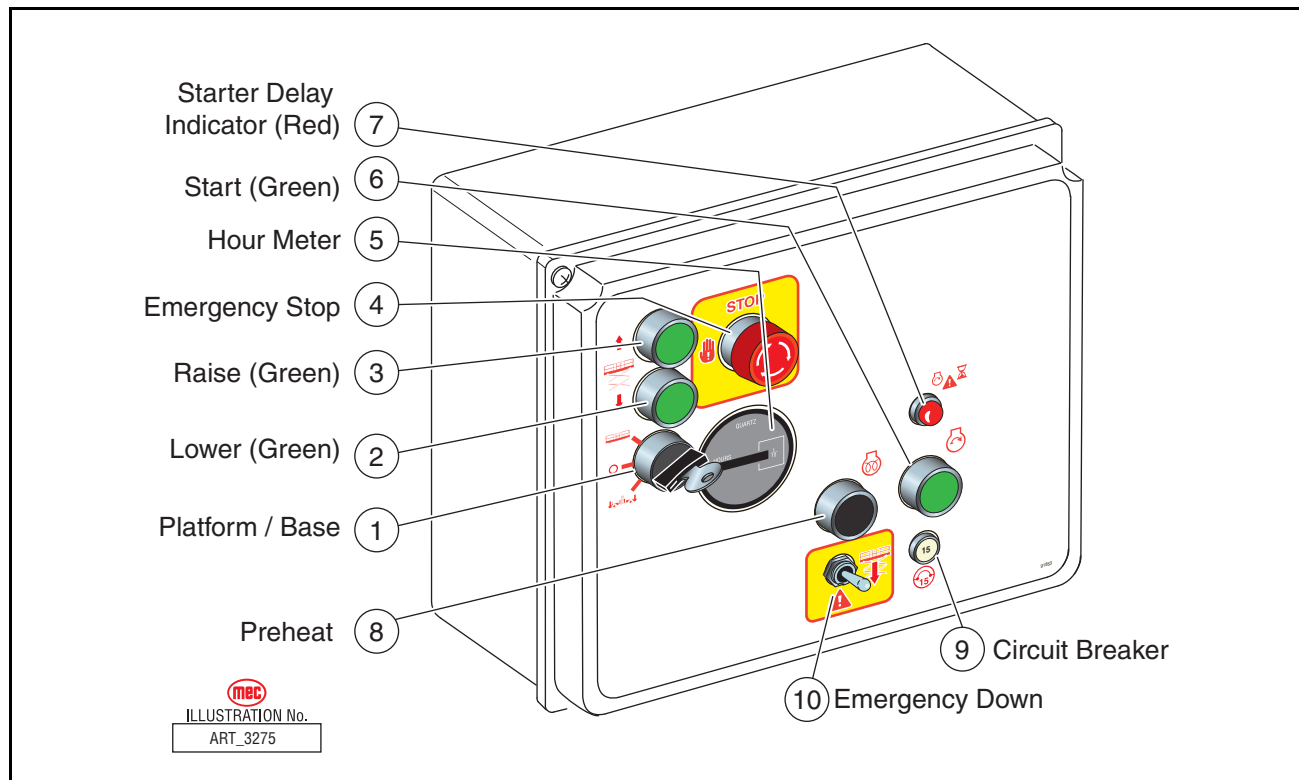
TO INSTALL A BATTERY:

1. Position the battery in the compartment and secure with hold-down hardware.
2. Connect battery cables.

CONTROLS

LOWER CONTROLS

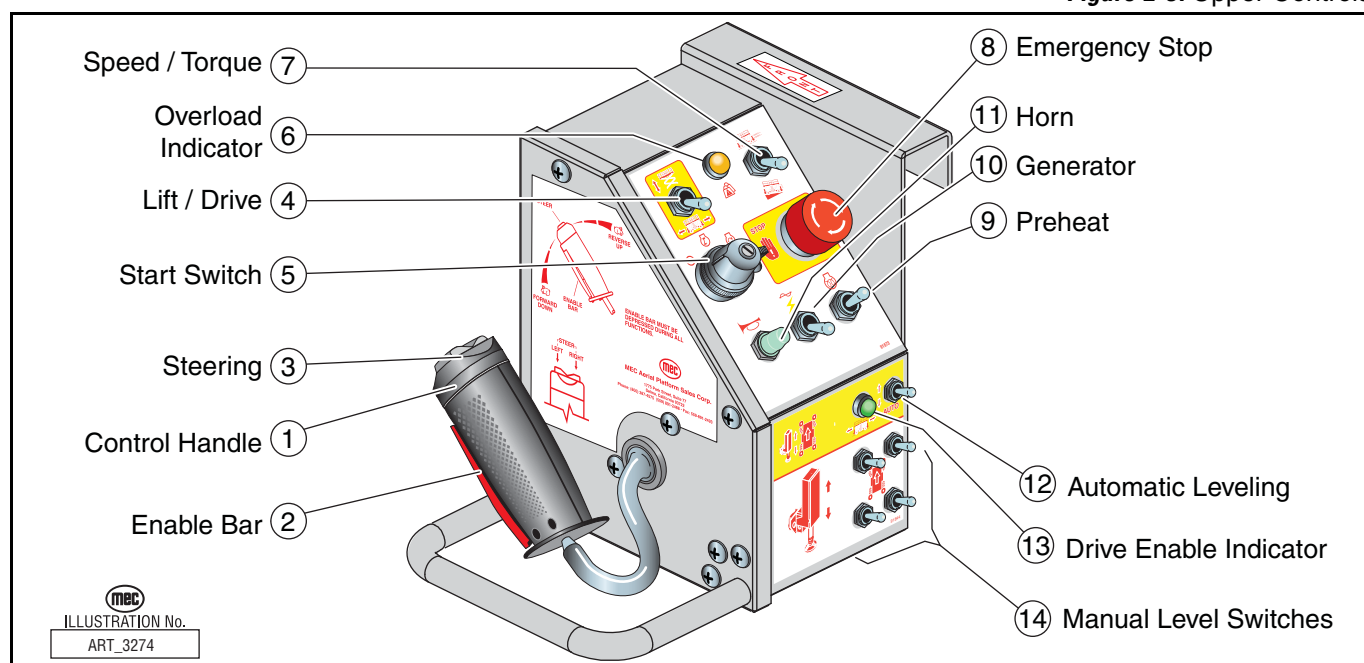
Figure 2-4: Lower Controls



CONTROL		DESCRIPTION	
1	Platform/Base Selector Switch	PLATFORM	Select to operate from the platform control panel.
		BASE	Select to operate from the base control panel.
		OFF	Select to stop operation from either control panel.
2	LOWER Button	Press and hold to lower the platform. Release to stop lowering.	
3	RAISE Button	Press and hold to elevate the platform. Release to stop elevation.	
4	Emergency Stop Switch	Press to stop all machine functions. Turn <i>clockwise</i> to reset.	
5	Hour Meter	Indicates total elapsed time of machine operation.	
6	Engine Start Button	After setting the Selector Switch (#1) to BASE, press this button to start the engine.	
7	Start Delay Indicator Light	After 20 seconds of continuous cranking, the engine starter circuit cuts off momentarily to prevent damage to the starter. This light illuminates when the starter circuit is cut off. Resets after 25 seconds	
8	Preheat	Press this button while starting a cold engine	
9	Circuit Breaker	Trips when there is excessive electrical load. Push to reset.	
10	Emergency Down Switch	Activate this switch to run the Emergency Down auxiliary hydraulic pump.	

UPPER CONTROLS

Figure 2-5: Upper Controls



CONTROL		DESCRIPTION	
1	Control Handle	DRIVE	Controls Forward and Reverse travel at stepped speeds.
		LIFT	Move toward operator to elevate platform. Lift speed increases proportional to the Control Handle movement Move away from operator to lower platform. Lower speed is proportional to the Control Handle movement. For the 6092RT, the lower speed is fixed.
2	Enable Bar	Squeeze to enable DRIVE, STEER, and LIFT from Control Handle.	
3	Steering Switch	Using thumb, press and hold the rocker switch to steer Left or Right.	
4	Lift/Drive Selector	Select LIFT or DRIVE function for Control Handle.	
5	Start/Run Switch	Turn power ON or OFF at the platform. Does not affect lower controls.	
6	Tilt Indicator	Platform is not level when light is ON. Alarm sounds in Lower Control box and all functions except Lower are cut out.	
	Option-Overload Indicator	Platform overloaded when light is ON. Alarms will sound in Upper and Lower Control boxes.	
7	Speed / Torque Switch	HIGH TORQUE	Slow speed. Provides maximum torque for rough terrain.
		HIGH SPEED	Provides high speed when platform height is below 10 feet (3 m).
8	Emergency Stop Switch	PUSH to stop all machine functions. TURN CLOCKWISE to reset.	
9	Preheat	Operate when starting in cold conditions.	
10	Generator Switch (option)	Turn switch ON to engage optional AC generator. Drive and Lift functions are disabled while the generator is on.	
11	Horn	Press to sound warning horn.	
12	Automatic Level Switch	Move switch Up and hold until automatic leveling is complete.	
13	Drive Enable Indicator	Drive function is enabled when the light is ON.	
14	Manual Level Switches	Push these switches UP or DOWN to adjust individual outriggers.	

ALARMS AND SWITCHES

MOVEMENT ALARM

The Movement Alarm is activated as soon as the DOWN operation is activated from either control station. This is the default setting. If desired, the movement alarm setting can be modified to activate the alarm during other functions (refer to *Section 4: Troubleshooting*).



THE MOVEMENT ALARM IS PROVIDED FOR YOUR PROTECTION, AND PROTECTION OF PERSONS WORKING IN THE IMMEDIATE AREA. DISABLING THIS IMPORTANT SAFETY DEVICE MAY RESULT IN SERIOUS INJURY OR DEATH.

EZFIT ANGLE SENSOR

The Angle Sensor provides platform elevation information to the GP400 control module. When the GP400 reads a certain output from the angle sensor it will:

- disable tilt operation.
- enable tilt sensor cutout operation.
- reduce drive speed

On machines equipped with the platform overload option, the Angle Sensor works in conjunction with the Pressure Transducer to monitor the load in the platform and a second redundant Angle Sensor located beside the first.

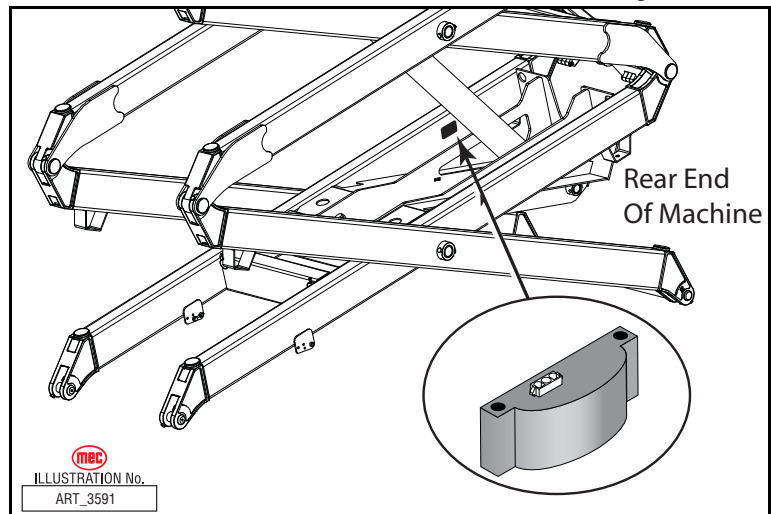


Figure 2-6: EZfit Angle Sensor

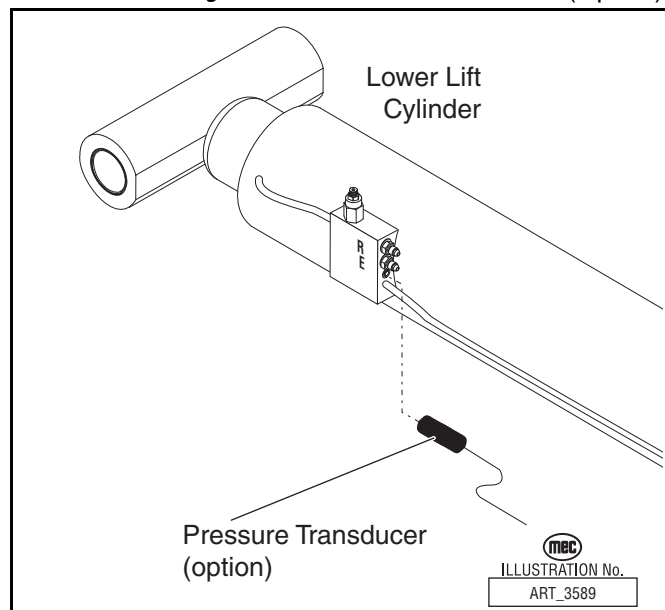


NEVER PERFORM SERVICE ON THE MACHINE WITH THE PLATFORM ELEVATED WITHOUT FIRST BLOCKING THE SCISSOR ASSEMBLY USING THE MAINTENANCE LOCK.

Figure 2-7: Pressure Transducer (Option)**PRESSURE TRANSDUCER (OPTION)**

The Pressure Transducer provides lift cylinder pressure information to the GP400. It works in conjunction with the Angle Sensor. Excessive pressure indicates platform overload. When the GP400 detects overload, it will:

- disable lift, lower and drive operation.
- sound audible alarms.
- turn ON the OVERLOAD light on the upper control panel.

**Figure 2-8: CAN Tilt Angle Transducer****CAN TILT ANGLE TRANSDUCER**

The CAN Tilt Angle Transducer provides axle level information to GP400.

- **Axle Level** located on the rear axle near the axle lock cylinder mount behind the Controls Module. Provides axle position information to the GP400 through the CAN-bus system.

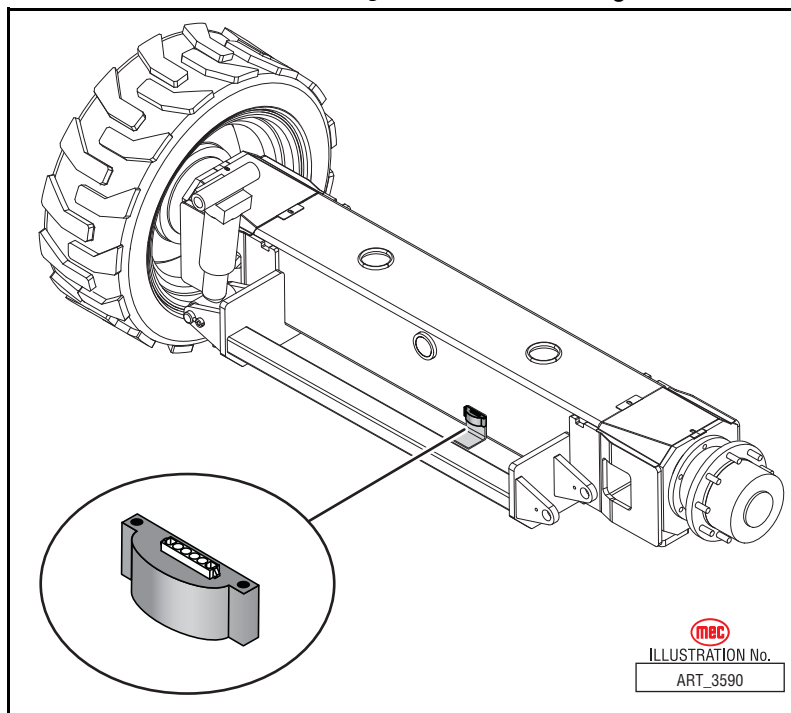


Figure 2-9: Relay Locations**RELAYS**

Relays are located beside the engine on the engine tray. These relays reduce the current flow through the GP400 Control Module. Refer to the Section 5 for relay functions and interconnect.

START RELAY

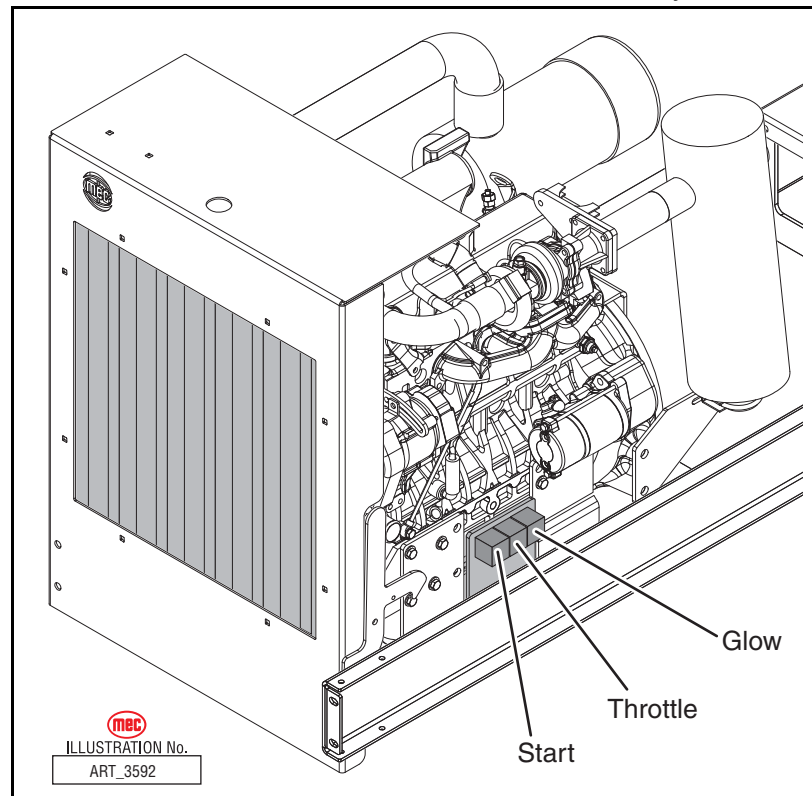
Provides power to the starter solenoid.

THROTTLE RELAY

Provides power to the electric throttle solenoid.

PREHEAT RELAY

Provides power to the diesel engine glow plugs.



DEUTSCH CONNECTORS

Deutsch connectors used on MEC equipment are designed so that individual parts may be replaced without replacing the entire component. Special tools and detailed instructions are provided in Deutsch Connector field kits, MEC part no. 84091.

Figure 2-10: Deutsch Connectors

MALE PLUG CONNECTOR

- Use the flat end of the Removal Tool or a flat blade screwdriver to pry the locking wedge from the connector, taking care not to damage the Sealing Gasket.
- Inspect and replace damaged parts.
- Replace or re-crimp wires and contacts.

FEMALE RECEPTACLE CONNECTOR

- Use the notched end of the removal tool or a wire hook to pull the locking wedge from the connector
- Replace worn or damaged parts
- Replace or re-crimp wires and contacts.

LOCKING FINGERS

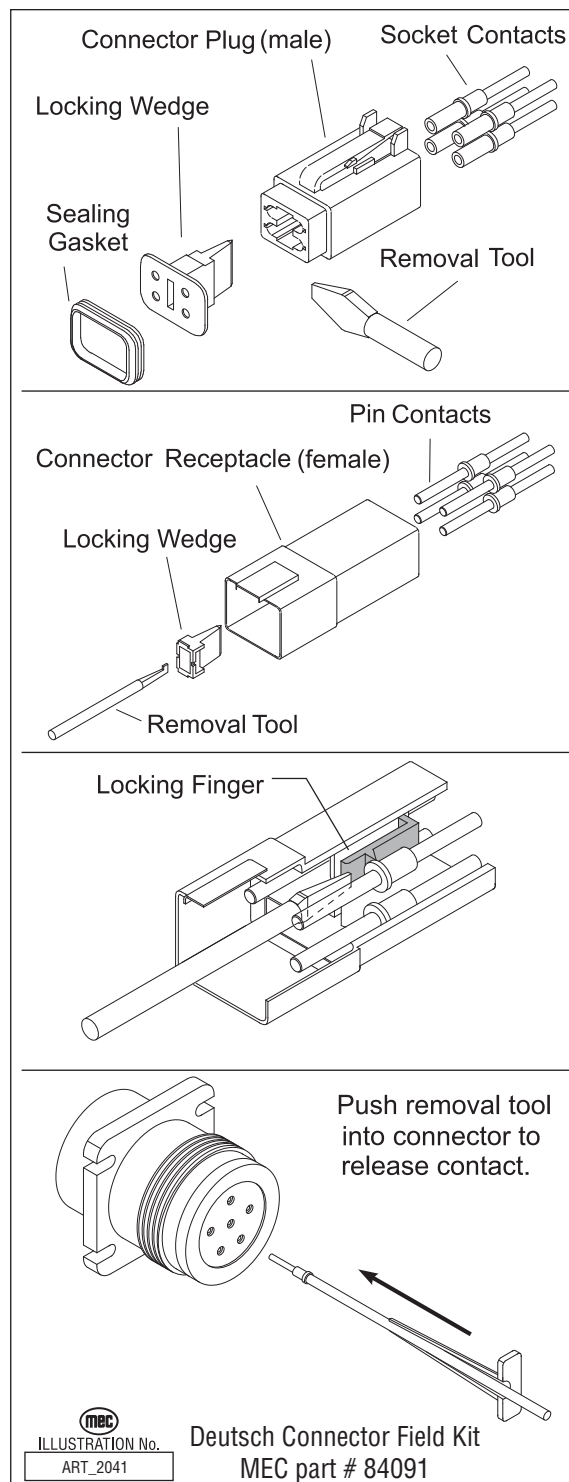
- Remove the locking wedge as outlined above.
- Using the removal tool or a flat blade screwdriver, push the Locking Fingers aside to release the contact.
- Pull the wire and contact out of the connector.

HEAVY DUTY PLUG

- Slide the removal tool along the wire to be replaced and push into the connector to release the contact.
- Pull the wire and contact out of the plug.

CRIMPING

- Strip 1/4 in. (6 mm) insulation from the wire.
- Insert the contact into the crimping tool and insert the stripped wire into the contact making sure no wires are outside the contact barrel.
- Close the handles of the crimping tool, then release the handles to remove the crimped contact.

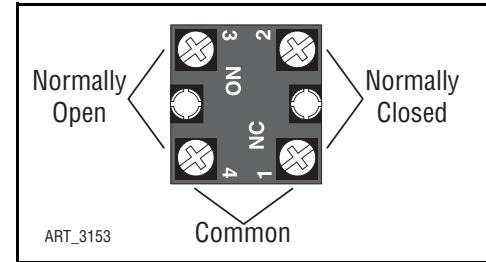


CONTINUITY CHECKS

SELECTOR SWITCH – ON-OFF

- Disconnect wires.
- Connect first probe of ohm meter to *common* terminal.
- Connect second probe to any normally open terminal.
- With switch OFF (open) there should be no reading.
- With the switch ON (closed) there should be a low resistance reading.
- Repeat for each normally open terminal.

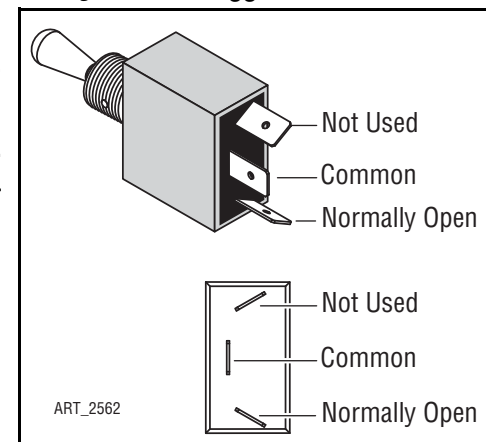
Figure 2-11: Selector Switch



TOGGLE SWITCH – ON-OFF

- Disconnect wires.
- Connect first probe of ohm meter to *common* terminal.
- Connect second probe to normally open terminal.
- With the switch turned OFF there should be no reading.
- With the switch turned ON there should be a low resistance.

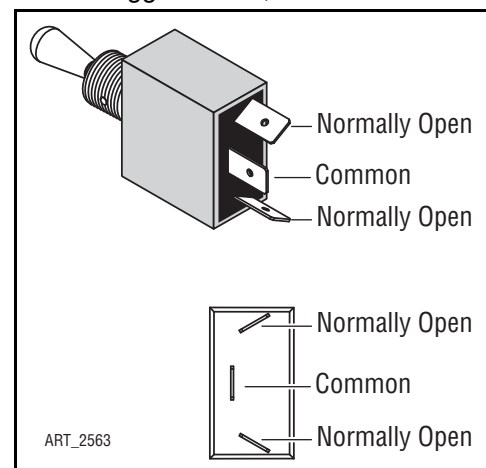
Figure 2-12: Toggle Switch, ON-OFF



TOGGLE SWITCH – 1-POLE 2-POSITION

- Disconnect wires.
- Connect first probe of ohm meter to *common* terminal.
- Connect second probe to *top* normally open terminal.
- With toggle DOWN there should be no reading.
- With the toggle UP there should be a low resistance.
- Move second probe to *bottom* normally open terminal.
- With toggle UP there should be no reading.
- With the toggle DOWN there should be a low resistance.

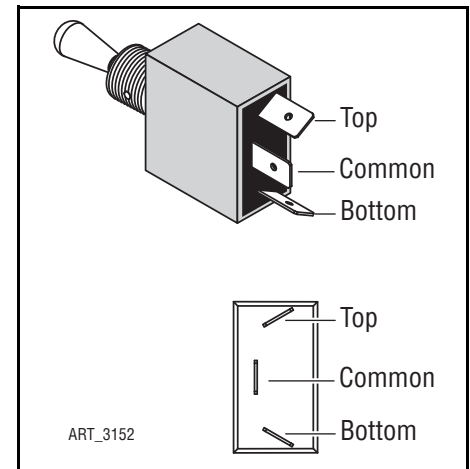
Figure 2-13: Toggle Switch, 1-Pole 2-Position



TOGGLE SWITCH – 1-POLE 3-POSITION

- Disconnect wires.
- Connect first probe of ohm meter to *common* terminal.
- Connect second probe of ohm meter to *top* terminal.
- With the toggle UP or MIDDLE there should be a low resistance.
- Move second probe to *bottom* terminal.
- With the toggle DOWN or MIDDLE there should be a low resistance.
- Connect first probe of ohm meter to *top* terminal.
- Connect second probe of ohm meter to *bottom* terminal.
- With toggle in ANY POSITION there should be no reading.

Figure 2-14: Toggle Switch, 1-Pole 3-Position



TOGGLE MOMENTARY SWITCH

- Disconnect wires.
- Connect first probe of ohm meter to common terminal.

Test top position

- Connect second probe to *top* normally open terminal.
- With the toggle in the neutral (open) position there should be no reading.
- With the toggle UP (closed) there should be a low resistance.
- With the toggle DOWN (closed) there should be no reading.

Test bottom position

- Move second probe to *bottom* normally open terminal.
- With the toggle in the neutral (open) position there should be no reading.
- With the toggle DOWN (closed) there should be a low resistance.
- With the toggle UP (closed) there should be no reading.
- Repeat for both rows of two-row switch.

Figure 2-15: Toggle Switch, Momentary

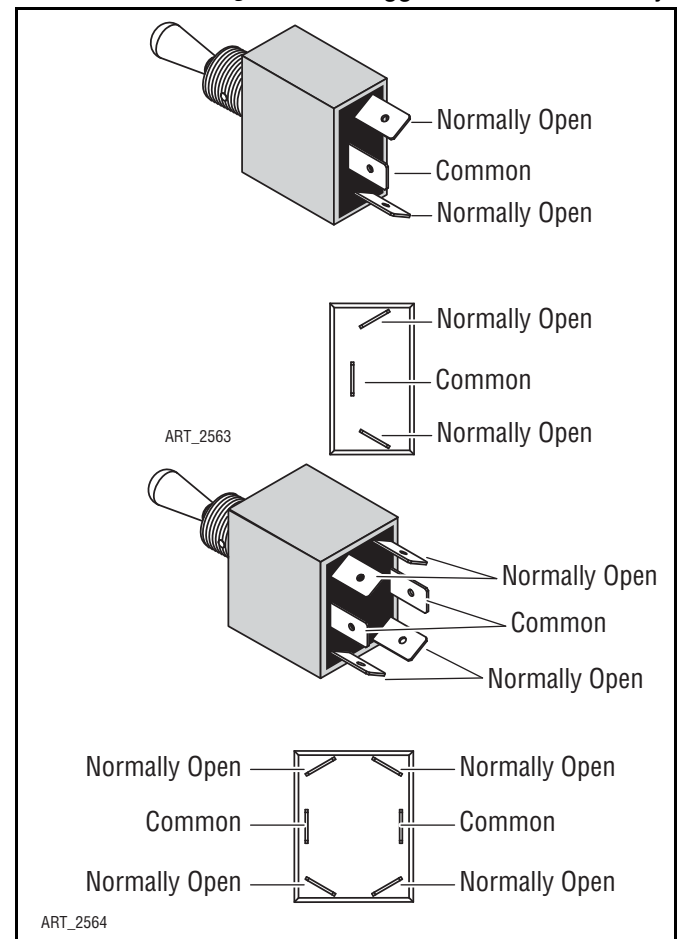


Figure 2-16: Button Switch, Momentary

MOMENTARY BUTTON SWITCH

- Disconnect wires.
- Connect one probe of ohm meter each terminal.
- With the button in the neutral (open) position there should be no reading.
- With the button pushed (closed) there should be a low resistance

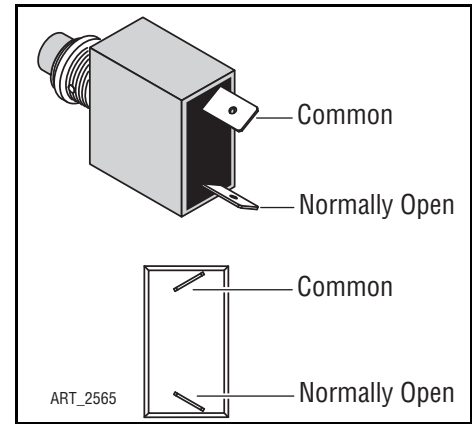


Figure 2-17: Emergency Stop Switch

EMERGENCY STOP BUTTON

- Disconnect wires.
- Connect one probe of ohm meter each terminal.
- With the button PRESSED there should be no reading.
- With the button RESET there should be a low resistance.

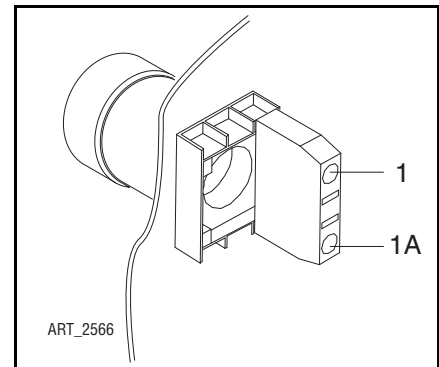
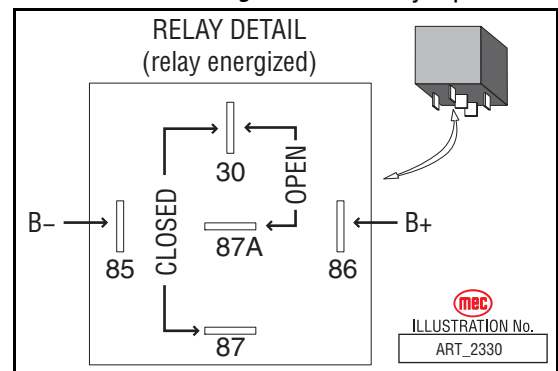


Figure 2-18: Relay Operation

RELAY

- With the #85 terminal grounded, apply voltage to #86 terminal connection.
- Confirm normally closed (#87A) contacts are opening. Continuity with #30 will be broken.
- Confirm normally open (#87) contacts are closing. Continuity with #30 will be made.



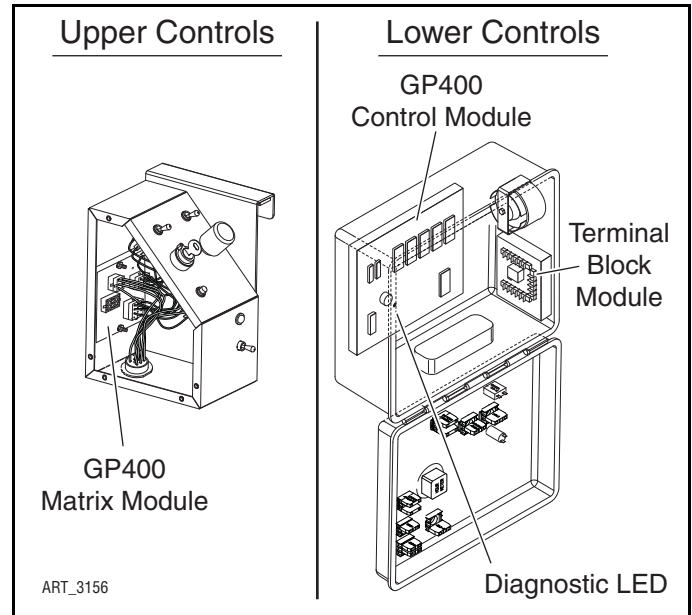
GP400 CONTROL MODULE SETUP

LOCATION

- The GP400 Control Module processor is located in the lower control box.
- The GP400 Matrix Module is located in the upper control box.

Diagnostic information *can be found in Section 4: Troubleshooting*. Wiring information can be found in *Section 5: Schematics*.

Figure 2-19: GP400 Module Locations



GENERAL DESCRIPTION

The GP400 control module uses a variety of sensors to maintain proper and safe operation of the machine. This machine may be sold into many different countries that require a variety of monitoring equipment. For example, the CE equipped machine, designed for European (and many other) countries, is equipped with a Load Sensing system that uses a Pressure Transducer to monitor oil pressure in the lift circuit and an Angle Transducer to monitor platform elevation. ANSI models use an Angle Transducer, and only monitor platform elevation.

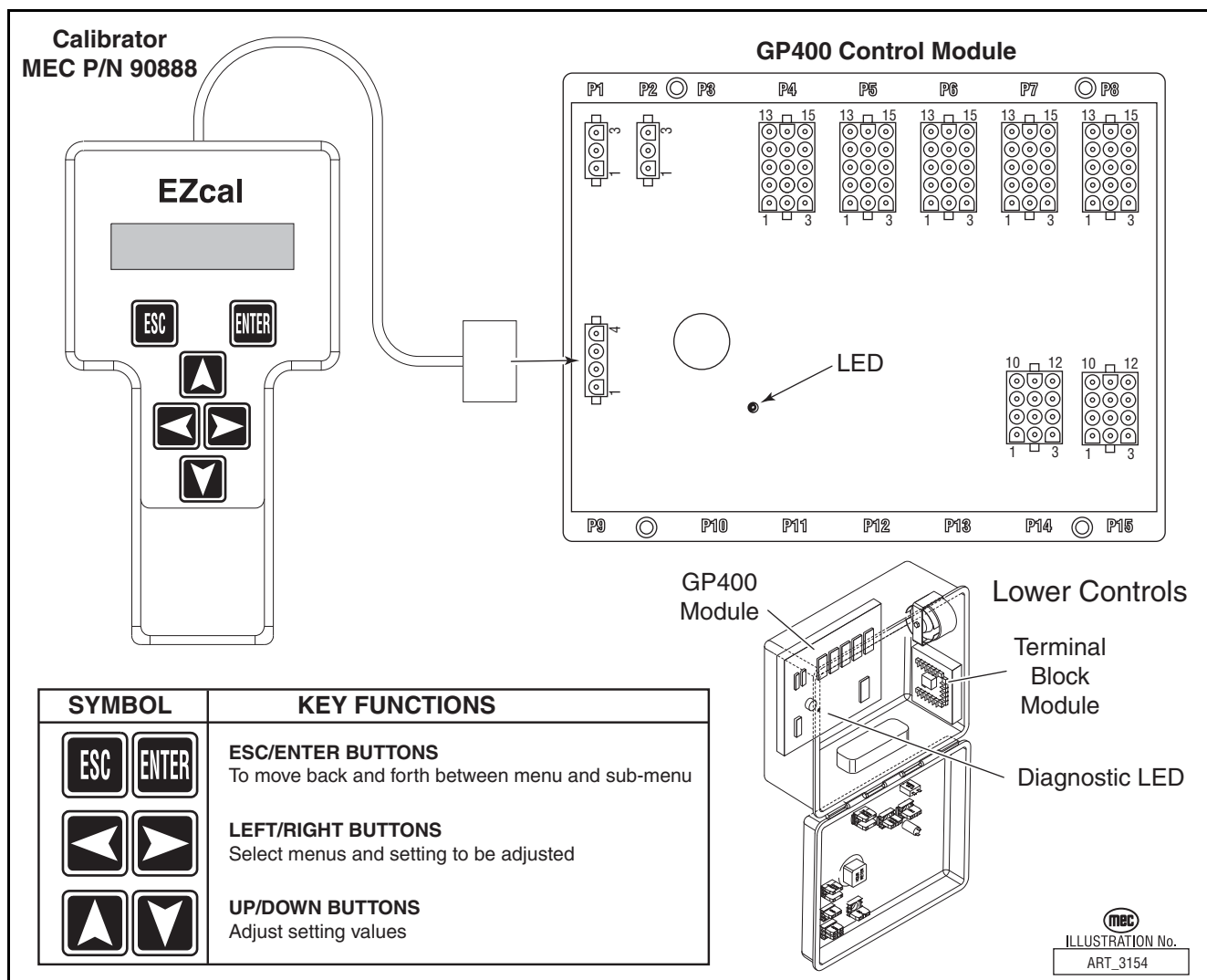
In the event the GP400 requires replacement, a calibration process must be performed before the machine can be operated.



WARNING

ONLY TRAINED AND AUTHORIZED PERSONNEL SHALL BE PERMITTED TO CALIBRATE THE PLATFORM OVERLOAD SENSING SYSTEM. READ ALL INSTRUCTIONS CLOSELY BEFORE ATTEMPTING EACH STEP OF THE CALIBRATION PROCEDURE.

Figure 2-20: EZ-Cal Connection



GP400 CALIBRATION

The EZ-Cal hand-held device (MEC part # 90888) or an on-board diagnostic display is required to access the GP400 for troubleshooting and calibration.

The GP400 processor relies on angle and pressure sensors to monitor platform elevation at all times. These sensors send varied voltages to the GP400 that relate directly to their respective position. The calibration process is the means by which the GP400 equates these voltages to actual platform elevation.

For example, the Angle Transducer, used to monitor platform elevation, varies its output between 1 and 4 volts through 140 degrees of rotation. During calibration the GP400 may learn that 1.8 volts (fictional number used for explanation) represents the fully stowed position and 3.6 volts represents the fully elevated position and therefore voltages between those figures relate to various heights in between.

All machines are calibrated at the factory and should not require calibration unless the GP400 is replaced or displays a code that alerts to the need to recalibrate.

Tilt Sensor Calibration is required on all machines regardless of installed options and must be performed first.

Height Calibration follows Tilt Sensor Calibration for machines not equipped with the optional Platform Load Sensing System and consists of only height calibration. Skip this procedure if your machine is equipped with the optional Platform Load Sensing System.

Separate calibration is required of all machines outfitted with the optional Platform Load Sensing System. All steps in the Platform Load Sensing System calibration must be performed in the proper sequence before the GP400 will recognize complete and proper calibration. Begin with the Tilt Sensor Calibration, then proceed to the Platform Load Sensing System Calibrations section.

If the calibration procedure is performed incorrectly or if there is a failure in one of the monitored circuits during the calibration, the GP400 will not allow the operator to continue with the calibration process. An error message will display on the EZ-cal indicating the reason for the interruption.

Additional details of these error messages can be found at the end of the calibration instructions.

This and other procedures can only be performed using an EZ-Cal scan tool. If you do not have an EZ-Cal, please contact MEC to obtain one.

Tilt Sensor Calibration

Correctly performing the following procedure will ensure that your machine will continue to auto-level correctly and operate safely.

The Tilt Sensor is located within the GP400 Control Module. It is used by the control system to monitor machine level status, and is used by the outrigger system for auto-leveling. Correctly performing the Tilt Sensor Calibration will ensure that the machine will operate safely and that the outriggers will continue to auto-deploy correctly.

The Axle Sensor (Axle CAN Tilt angle transducer) is mounted to the front of the oscillating axle and provides information regarding the position of the axle relative to the chassis. This information is used to allow or disallow the drive function when the platform is elevated. If the front axle is more than 3° out of parallel with the chassis, the drive function will be cut out (interlocked).

Both sensors calibrate at the same time during the Tilt Sensor Calibration procedure.

1. Park machine on a flat level surface.
2. This machine is equipped with foam-filled tires. Be sure that all tires are in good condition and that the tires are all the same size.
3. Open the lower control box and plug the EZ-cal into plug J-9 (4-pin connector) on the GP400. The display should light up and read "HELP - PRESS ENTER".
 - a. Press the right arrow to access "ACCESS LEVEL 3", press ENTER.
 - The display reads CODE 0000 with the cursor flashing.
 - b. Press the Up and Right arrows to enter code 1775, Press Enter
 - Display reads "ACCESS LEVEL 2"
 - c. Right arrow to SETUPS, Press Enter
 - Display reads 'CHANGE DEFAULTS'
 - d. Right arrow to TILT SETUPS, Press Enter
 - Display reads "CALIBRATE LEVEL".
 - e. Press Enter
 - Display reads "CALIBRATE LEVEL YES: ENTER NO: ESC"
 - f. Press Enter
 - Display reads "CALIBRATE LEVEL YES: ENTER NO: ESC" plus has actual tilt percentages.
 - g. Press Enter again.
 - The percentage numbers should be 0.0 - 0.0 (or very close).
 - h. Level calibration is complete. Unplug the EZ-Cal or press ESC ESC ESC.

Height Calibration

Height calibration must be performed if the GP400 is replaced.

Skip this procedure if your machine is equipped with the optional Platform Load Sensing System.

For this procedure it is not necessary to place any load in the platform.

1. Drive machine to level ground, in area where it can reach full elevation.
2. Turn selector switch to Base controls.
3. Plug **EZ-Cal** into connector P9 on GP400 Control Module. **EZ-Cal** display reads HELP: PRESS ENTER
4. Press right arrow to ACCESS LEVEL 3, Press Enter.
 - Display reads CODE 0000

5. Press Up and Right Arrow to enter code 1775. Press Enter.
 - Display reads ACCESS LEVEL 2.
6. Press Right Arrow to SETUPS, Press Enter.
 - Display reads CHANGE DEFAULTS
7. Press Right Arrow to HEIGHT SETUPS, Press Enter.
 - Display reads CALIBRATE HEIGHT
8. Press Enter.
 - Display reads PLATFORM DOWN? Verify that platform is fully lowered.
9. Press Enter.
 - Display reads PLEASE LIFT.
10. Hold lower controls switch in the up position until machine is fully elevated, then release switch.
 - Display reads PLEASE LOWER.
11. Hold switch in down position until platform is in the fully lowered position. Release switch.
 - Display reads FINISHED.

PLATFORM LOAD SENSING SYSTEM CALIBRATIONS

Do not perform this procedure unless your machine is equipped with the optional Platform Load Sensing System.

Platform Load Sensing System

Platform Load Calibration

Perform the Tilt Sensor Calibration outlined at the beginning of this section ("Tilt Sensor Calibration" on page 2-20).

Platform Load Calibration must be performed any time the GP400 is replaced or significant repairs are made to the elevating assembly.

During the calibration procedure the platform is fully raised and lowered three times:

1. "DYNAMIC" calibration – fully loaded platform raised & lowered in one continuous movement. DYNAMIC measurements are taken.
2. "LOADED" calibration – fully loaded platform raised & lowered with stops to take measurements. STATIC measurements are taken.
3. "EMPTY" calibration – unloaded platform raised & lowered with stops to take measurements. STATIC measurements are taken.

The following procedure must be followed **COMPLETELY** to calibrate the **Platform Load Sensing System**. If any problem is detected, the procedure stops and an Error Message will display on the EZ-Cal. Explanations of each message and suggested corrections can be found in the section of this manual following the calibration procedure.

NOTE: If the calibration procedure is interrupted, completed phases do not need to be repeated. A "REDO" prompt will appear – answer "NO" if there is no reason to repeat the phase, or "YES" if the phase must be repeated (for example because the wrong platform load was used on the previous phase).

1. Drive machine to a flat, level surface where it can reach full elevation. Choose a place where the rated load can be placed in the platform and later removed **without** moving the machine.
2. Place the rated load in platform (see platform labels or serial plate). The load must be evenly distributed on the platform.

3. Turn selector switch to Base controls.
4. Plug **EZ-Cal** into connector P9 on GP400 Control Module. **EZ-Cal** display reads
HELP: PRESS ENTER
5. Press right arrow to ACCESS LEVEL 3, Press Enter.
 - Display reads CODE 0000
6. Press up and right arrow to enter code 1775, Press Enter.
 - Display reads ACCESS LEVEL 2.
7. Press Right Arrow to SETUPS, Press Enter.
 - Display reads CHANGE DEFAULTS
8. Press Right Arrow to LOAD SETUPS. Press Enter.
 - Display reads CALIBRATE LOAD
9. Press Enter.
 - Display reads PLATFORM DOWN? Verify that platform is fully lowered.
10. Press Enter.
 - Display reads PLATFORM LOADED? Verify that rated load is evenly distributed in platform.
11. Press Enter.
 - Display reads PLEASE LIFT.
12. Hold lower controls switch in the up position until machine is fully elevated, then release switch.
 - Display reads PLEASE LOWER.
13. Hold switch in down position until platform is in the fully lowered position. Release switch.
 - Display reads PLATFORM LOADED?
14. Ensure that the rated load is distributed evenly in the platform, then press Enter.
 - Display reads PLEASE LIFT.
15. Hold lower controls switch in the up position until machine is fully elevated, then release switch.
 - Display reads TOTAL DATA #XX, then PLEASE LOWER.

NOTE: The platform will rise incrementally during this phase on the calibration. Do not release the switch until fully elevated.

16. Hold switch in down position until platform is in the fully lowered position.

NOTE: The platform will lower incrementally during this phase on the calibration. Do not release the switch until fully lowered.

17. Release switch.
 - Display reads TOTAL DATA #XX, then PLATFORM EMPTY?
18. Remove the load from the platform.

NOTE: If you must switch to platform controls to move the machine, steps 1.] through 7.] must be repeated. Steps 12.] through 20.] will generate the REDO prompt. Answer NO. If machine was not moved, proceed to step 22.].

19. Press Enter.
 - Display reads PLEASE LIFT.
20. Hold lower controls switch in the up position until machine is fully elevated, then release switch.
 - Display reads TOTAL DATA #XX, then PLEASE LOWER.

21. Hold switch in down position until platform is in the fully lowered position.
 - Display reads TOTAL DATA #XX, then BUILDING TABLES, then CALDATE mm/dd/yy.
22. Enter current date using Up, Down and Right Arrows.
 - Display reads FINISHED.
23. Disconnect **EZ-Cal**.

The Platform Overload Sensing System is now calibrated.

Platform Load Sensing System Height Calibration

For this procedure it is **not** necessary to place any load in the platform.

1. Drive machine to a flat, level surface where it can reach full elevation.
2. Turn selector switch to Base controls.
3. Plug **EZ-Cal** into connector P9 on GP400 Control Module.
 - Display reads HELP: PRESS ENTER
4. Press right arrow to ACCESS LEVEL 3. Press Enter.
 - Display reads CODE 0000
5. Press Up and Right Arrow to enter code 1775. Press Enter.
 - Display reads ACCESS LEVEL 2.
6. Press Right Arrow to SETUPS. Press Enter.
 - Display reads CHANGE DEFAULTS
7. Press Right Arrow to HEIGHT SETUPS. Press Enter.
 - Display reads CALIBRATE HEIGHT
8. Press Enter.
 - Display reads PLATFORM DOWN?
9. Verify that platform is fully lowered. Press Enter.
 - Display reads PLEASE LIFT.
10. Hold lower controls switch in the up position until machine is fully elevated, then release switch.
 - Display reads PLEASE LOWER.
11. Hold switch in down position until platform is in the fully lowered position. Release switch.
 - Display reads FINISHED.

CALIBRATION PROBLEMS

FAILURE MESSAGES

Various problems can be detected by the EZ-Cal that prevent successful calibration. These problems are reported with a flashing message including an “F” code. The following descriptions are helpful in solving the problem. References in parentheses refer to electrical schematic points.

F01:CHECK HWFS

This message is given if the startup tests have not completed.

Check HELP message for more information.

F02:NOT GROUND MODE

This message is given if the base/platform selector switch is not in ground mode (P7-2 must be high). Calibration can only be carried out in ground mode.

F03:NOT STOPPED

This message is given if any function switch is closed. Check DIAGNOSTICS / SWITCHES to see which function switch is closed.

F04:TILTED

This message is given if the machine is tilted. Calibration must be carried out with the machine level. If the machine is level, perform the Tilt Calibration procedure above.

F05:BAD HEIGHT

This message is given if the height sensor output (P8-2 and P8-6) is out of range at the start of calibration. The height sensor output must be between 1.0V and 4.0V. Check DIAGNOSTICS / SENSORS to see the output. A reading of 0V or 5V is probably due to a wiring problem.

F06:CHECK ELEV

This message is given if the elevation switch (P7-5) is open at the start of calibration, when the operator has confirmed the “PLATFORM DOWN?” question.

If the platform is down, check the elevation switch wiring.

F08:CHECK ELEV

This message is given if the elevation switch (P7-5) is closed at the end of the DYNAMIC lift, when the platform should be fully raised.

This message would occur if the UP switch was accidentally opened near the start of the DYNAMIC lift.

If the platform is fully raised, check the elevation switch wiring.

F09:BAD HEIGHT

This message is given if the height sensor output (P8-2 and P8-6) is out of range at the start of the DYNAMIC lift. The height sensor output must be between 1.0V and 4.0V. Check DIAGNOSTICS / SENSORS to see the output. This is usually due to a wiring problem.

F10:BAD HEIGHT

This message is given if the height sensor output (P8-2 and P8-6) is out of range at the end of the DYNAMIC lift. The height sensor output must be between 1.0V and 4.0V. Check DIAGNOSTICS / SENSORS to see the output. A reading of 0V or 5V is probably due to a wiring problem.

F11:NOT UP

This message occurs at the start of the DYNAMIC lift if the operator selects a function other than UP.

F12:TOO MANY

This message occurs if the DYNAMIC lift takes too long.

This message could occur if the UP switch was not released at the end of the dynamic lift.

F13:LOW HEIGHT RANGE

This message occurs at the end of the DYNAMIC lift if the height sensor output did not change sufficiently to give a reasonably accurate platform height estimate. DIAGNOSTICS / ANALOGS can be used to check the height sensor output (P8-2 and P8-6) when the platform is fully lowered and fully raised; a difference of at least 1V is to be expected.

This message could occur if the UP switch was accidentally opened too early (when the platform is not fully raised).

F14:BAD HEIGHT

This message occurs if the height sensor output (P8-2 and P8-6) is out of range during the DYNAMIC lift. The height sensor output must be between 1.0V and 4.0V. Check DIAGNOSTICS / SENSORS to see the output. A reading of 0V or 5V is probably due to a wiring problem.

F15:CHECK ELEV

This message is given if the elevation switch (P7-5) is open when the platform has been fully lowered after the DYNAMIC lift.

This message would occur if the DOWN switch was accidentally opened before the platform was fully lowered.

If the platform is fully lowered, check the elevation switch.

F16:LOW ELEV.OPEN

This message is given if the elevation switch (P7-5) opened during lift at too low of a height (below 5%). Check CALIBRATIONS / HEIGHT CALS. The "ElevUp" value shows the recorded height where the switch opened.

F17:HIGH ELEV.OPEN

This message is given if the elevation switch (P7-5) opened during lift at a too high height (above 25%).

Check CALIBRATIONS / HEIGHT CALS; the "ElevUp" value shows the recorded height where the switch opened.

F18:LOW ELEV.CLOSE

This message is given if the elevation switch (P7-5) closed during lower at a too low height (below 5%).

Check CALIBRATIONS / HEIGHT CALS; the "ElevDown" value shows the recorded height where the switch opened.

F19:HIGH ELEV.CLOSE

This message is given if the elevation switch (P7-5) closed during lower at a too high height (above 25%).

Check CALIBRATIONS / HEIGHT CALS; the "ElevUp" value shows the recorded height where the switch opened.

F20:HEIGHT<>0%**F21:HEIGHT<>0%**

This message occurs if the platform height is not 0% after the platform has been fully lowered at the end of a calibration step. The platform must return to the same height each time it is fully lowered.

Check DIAGNOSTICS / SYSTEM to check the height.



F22:HEIGHT<>100%**F23:HEIGHT<>100%**

This message occurs if the platform height is not 100% after the platform has been fully raised during a calibration step. The platform must return to the same height each time it is fully raised. Check DIAGNOSTICS / SYSTEM to check the height.

F24:TOO MANY

This message occurs if too many static measurements are taken during a calibration step. In the rare event that this occurs, please call MEC for assistance.

F25:CHECK ELEV**F26:CHECK ELEV**

This message indicates a problem with the elevation switch (P7-5) during the STATIC phases.

The switch is either staying closed to a higher height, or staying open to a lower height, than that recorded during the DYNAMIC phase.

F27:BAD HEIGHT

This message indicates a problem with the height sensor output (P8-2 and P8-6) during the STATIC calibration phases.

The height sensor output must be between 1.0V and 4.0V at all times.

Check DIAGNOSTICS / SENSORS to see the output. A reading of 0V or 5V is probably due to a wiring problem.

F30:BAD HEIGHTS

This message indicates that the recorded heights are not increasing during STATIC lift, or are not decreasing during STATIC lower.

This problem may be caused by repeatedly opening and closing the UP or DOWN switch during the STATIC phases.

F31:REJECT CURVE

The DYNAMIC pressure curve is unacceptable.

An initial pressure peak when the platform lifted cannot be found between 0% and 15% height.

Check for proper weight in the platform and check pressure sensor and lift cylinder hydraulics.

F32:REJECT CURVE

The DYNAMIC pressure curve is unacceptable.

There should be a lowest pressure about halfway through the lift (i.e.: near 50% height); the lowest pressure measured is at too low a height.

Check for proper weight in the platform and check pressure sensor and lift cylinder hydraulics.

F33:REJECT CURVE

The DYNAMIC pressure curve is unacceptable.

There should be a lowest pressure about halfway through the lift (i.e.: near 50% height); the lowest pressure measured is at too high a height.

Check for proper weight in the platform and check pressure sensor and lift cylinder hydraulics.

F34:REJECT CURVE

The DYNAMIC pressure curve is unacceptable.

There is not enough difference between the initial pressure peak and the minimum pressure.

Check for proper weight in the platform and check pressure sensor and lift cylinder hydraulics.

F40:REJECT DELTA

This message indicates that there is not enough difference between the loaded & empty pressure.

This message could occur if the platform were not properly loaded during the STATIC LOADED phase, or if the platform were not properly empty during the STATIC EMPTY phase.

This message could also occur if the wrong pressure sensor was fitted (e.g.: a 5000psi sensor when a 3000psi one is needed).

Check CALIBRATIONS / HEIGHT CALS; the "Height" indicates the first height at which there was insufficient difference and the "Up" and "Down" values show the loaded pressure (first) and the difference between loaded and empty pressure (second).

F42:LOW PRESSURE

This message indicates that the pressure is too low (0.5V or less) when the elevation switch opens during the DYNAMIC lift.

This message would occur if the pressure sensor was disconnected, or if there were some other wiring error.

Check DIAGNOSTICS / SENSORS to check the pressure.

F43:HIGH PRESSURE

This message indicates that the pressure is too high (4.5V or more) when the elevation switch opens during the DYNAMIC lift.

This message would occur if the wrong pressure sensor was fitted, or if there were some other wiring error.

Check DIAGNOSTICS / SENSORS to check the pressure.

F44:LOW PRESSURE

This message indicates that the pressure is too low (0.5V or less) at a STATIC measurement point.

This message would occur if the pressure sensor was disconnected, or if there were some other wiring error.

Check DIAGNOSTICS / SENSORS to check the pressure.

F45:HIGH PRESSURE

This message indicates that the pressure is too high (4.5V or more) at a STATIC measurement point.

This message would occur if the wrong pressure sensor was fitted, or if there were some other wiring error.

Check DIAGNOSTICS / SENSORS to check the pressure.

F46:CHECK ELEV

This message indicates that the elevation switch opened more than once during the DYNAMIC lift.

F47:CHECK ELEV

This message indicates that the elevation switch closed more than once during the DYNAMIC lower.

F48:BAD PRESSURE

This message is given if the pressure sensor output (P8-2 and P8-6) is out of range at the start of calibration.

The height sensor output must be between 0.5V and 4.5V.

Check DIAGNOSTICS / SENSORS to see the output. A reading of 0V or 5V is probably due to a wiring problem.

F52:NOT CALIBRATED

This message is a catch-all code which indicates an improper calibration sequence or that one of the phases of calibration was not completed. The skipped phase must be completed or the calibration sequence must be passed through in proper sequence before this message will clear. Re-start the calibration sequence and proceed through each sequence in the specified order.

A "Redo" prompt will appear before each sequence. Answer "NO" if there is no reason to repeat or "YES" if the phase must be completed.

INFORMATION MESSAGES

During calibration the following messages will be displayed. They are informational prompts only and do not indicate a failure.

BUILDING TABLES

This message indicates that the STATIC measurements are being used to build calibration data - the process should take no more than 5s.

CALDATE:

This message is prompting for the date to be entered; it is stored to identify when the machine was calibrated.

The last calibrate date can be viewed in DIAGNOSTICS / LOG.

Press LEFT & RIGHT to select the flashing digits.

Press UP & DOWN to change the flashing digits.

Press ENTER when the entry is complete.

IMPORTANT: The date 00/00/00 is not allowed!

FINISHED

This message confirms that calibration is complete and successful.

GO DOWN MORE!

This message occurs if the DOWN switch is released during either STATIC lowering phase, when more measurements are needed (before the platform is fully lowered).

GO UP MORE!

This message occurs if the UP switch is released during either STATIC lifting phase, when more measurements are needed (before the platform is fully raised).

LIFT EMPTY

This message is displayed during the STATIC empty phase while the platform is being raised to the next measurement height.

LIFT LOADED

This message is displayed during the STATIC loaded phase while the platform is being raised to the next measurement height.

LIFTING

This message is displayed during the DYNAMIC phase while the platform is being raised.

LOWER EMPTY

This message is displayed during the STATIC empty phase while the platform is being lowered to the next measurement height.

LOWER LOADED

This message is displayed during the STATIC loaded phase while the platform is being lowered to the next measurement height.

LOWERING

This message is displayed during the DYNAMIC phase while the platform is being lowered.

MEASURING #

This message is displayed when the platform is stopped during either STATIC phase, when the GP400 takes a measurement.

There will be a short delay while the machine is allowed to stabilize after movement is stopped.

MUST GO DOWN!

This message occurs if the wrong switch is operated when the GP400 is waiting for the platform to be lowered.

MUST GO UP!

This message occurs if the wrong switch is operated when the GP400 is waiting for the platform to be raised.

PLATFORM DOWN?

This message is prompting for confirmation that the platform is fully lowered. If necessary the DOWN switch can be activated to lower the platform.

Press ENTER to confirm when the platform is fully lowered.

PLATFORM EMPTY?

This message is prompting for confirmation that the platform is completely empty.

Press ENTER to confirm when the platform is empty.

PLATFORM LOADED?

This message is prompting for confirmation that the platform is loaded to rated load: 1500 lbs (US/CSA), 680 Kgs (CE/AU). (100% of the load rating listed on the serial plate).

Press ENTER to confirm when the platform is loaded.

PLEASE LIFT ...

This message is prompting for the platform to be raised.

The UP switch should be operated.

PLEASE LOWER ...

This message is prompting for the platform to be lowered.

The DOWN switch should be operated.

PLEASE WAIT

This message indicates that the is busy; the delay will be short (no more than 5s).

REDO DYNAMIC:

This message is displayed if the DYNAMIC phase of load calibration has previously been completed.

Press ENTER when "NO" is displayed if there is no need to redo the DYNAMIC phase.

Press UP or DOWN to display "YES" then press ENTER if it is necessary to redo the DYNAMIC phase.

If the previous DYNAMIC calibration was in error, or if the height or pressure sensor is replaced, it will be necessary to redo the DYNAMIC phase.

REDO EMPTY:

This message is displayed if the EMPTY phase of load calibration has previously been completed.

Press ENTER when "NO" is displayed if there is no need to redo the EMPTY phase.

Press UP or DOWN to display "YES" then press ENTER if it is necessary to redo the EMPTY phase.

If the previous EMPTY calibration was in error, or if the pressure sensor is replaced, it will be necessary to redo the EMPTY phase.

REDO LOADED:

This message is displayed if the LOADED phase of load calibration has previously been completed.

Press ENTER when “NO” is displayed if there is no need to redo the LOADED phase.

Press UP or DOWN to display “YES” then press ENTER if it is necessary to redo the LOADED phase.

If the previous LOADED calibration was in error, or if the pressure sensor is replaced, it will be necessary to redo the LOADED phase.

TOTAL DATA:

This message is displayed at the end of each phase, to confirm the number of measurements recorded by the GP400. No operator input is required during this process.

NOTES:



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MECHANICAL COMPONENTS

This section describes the major components of the machine and the steps required to service them.

BASE



When steam cleaning or pressure washing the base/undercarriage, cover electrical components to prevent water penetration.

Steam clean the base as necessary, and inspect all welds and brackets. Check for cylinder pins that have turned in their mounting, which may indicate sheared retaining pins.

TIRES & WHEELS

Inspect for cuts, chunking, side-wall damage, or abnormal wear. Any tire faults **MUST BE CORRECTED** before further machine operation. Refer to Parts sections for replacement tires.



FAILURE TO USE APPROVED PARTS MAY CAUSE DEATH OR SERIOUS PERSONAL INJURY.

REPLACE TIRES WITH THE CORRECT TIRES TO MAINTAIN THE RATING OF THE EQUIPMENT.

FOAM FILLED TIRES WERE FITTED AS ORIGINAL EQUIPMENT ON THIS MACHINE. TIRES MUST BE REPLACED WITH EQUIVALENT SPECIFICATION TIRES AND FOAM-FILL WEIGHT. CONTACT MEC SERVICE.

CHANGING TIRES

Refer to “Lift and Support The Machine” in the *Introduction* section for instructions and safety precautions.



Always block the wheels before lifting the machine.

1. Chock tires on the end of machine opposite the tire to be changed.
2. Break loose but **do not remove** lug nuts before raising the machine.
3. Lift the end of machine requiring a tire change and support with jackstands of adequate capacity.
4. Remove lug nuts and pull the wheel off.
5. Install the replacement wheel.
6. Install lug nuts and tighten.
7. Lower the machine.
8. Tighten lug nuts to proper torque (Refer to machine specifications).
9. Remove the chocks.

DRIVE MOTORS & GEAR HUBS

There is one hydraulic drive wheel motor and one gear hub located at each wheel.



- Clean all fittings before disconnecting hoses.
- Tag hoses for proper reassembly.
- Plug all openings immediately to prevent contamination.
- Replace any O-rings and inspect all hoses for crack and damage before reassembly.

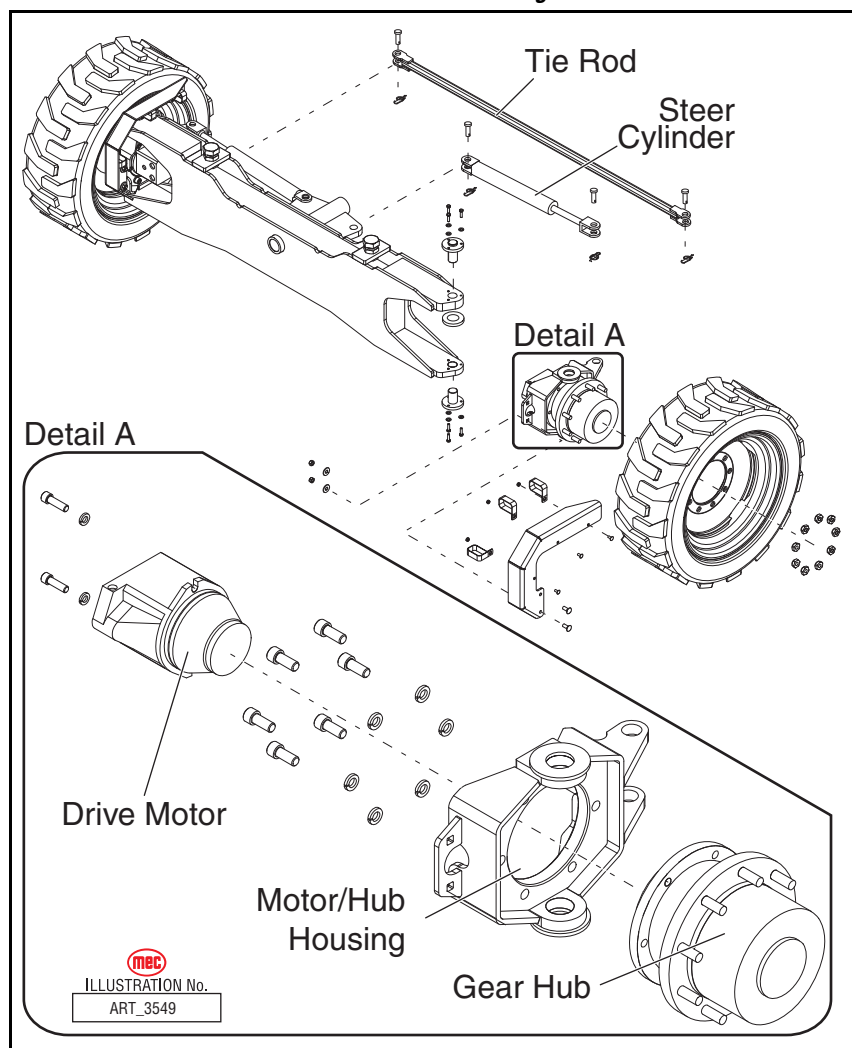
FRONT DRIVE MOTORS & GEAR HUBS

Refer to “Lift and Support The Machine” in the *Introduction* section for instructions and safety precautions.

Figure 3-1: Front Drive Motor

Removal

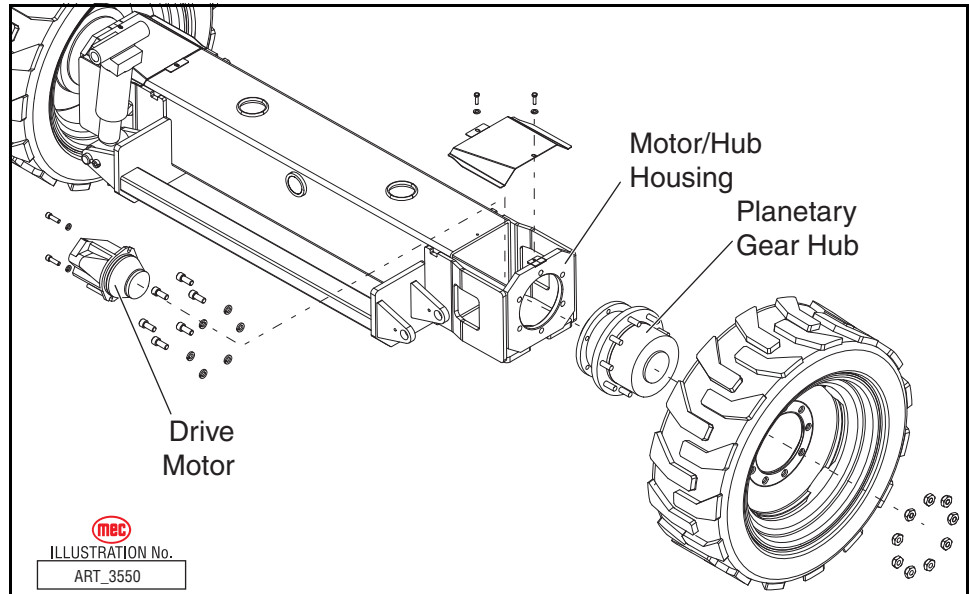
1. Raise and support the front end of machine.
2. Remove the wheel and tire assembly.
3. Remove the retaining pins that secure the steer cylinder and the tie rod to the motor/hub housing. Rotate the housing to access the drive motor.
4. Clean all hydraulic fittings, then tag all hoses for proper reassembly.
5. Disconnect all hydraulic hoses. Immediately plug all openings to prevent contamination.
6. Support the drive motor, then remove the two bolts connecting the drive motor to the gear hub. Remove the motor.
7. Support the gear hub, then remove the six bolts holding the gear hub to the motor/hub housing. Carefully remove the gear hub.
8. Installation is reverse of removal. Apply one (1) drop of Loctite® to mounting bolts. Replace the O-ring on the brake release port of the gear hub. Take great care that this O-ring is installed correctly. Use grease to hold the O-ring in place during installation.



REAR DRIVE MOTORS

Refer to “*Lift and Support The Machine*” in the *Introduction* section for instructions and safety precautions.

Figure 3-2: Rear Drive Motor



Removal

1. Raise and support the rear end of machine.
2. Remove the wheel and tire assembly.
3. Remove the motor cover.
4. Clean all hydraulic fittings, then tag all hoses for proper reassembly.
5. Disconnect all hydraulic hoses. Immediately plug all openings to prevent contamination.
6. Support the drive motor, then remove the two bolts connecting the drive motor to the gear hub. Remove the motor.
7. Support the gear hub, then remove the six bolts holding the gear hub to the motor/hub housing. Carefully remove the gear hub.
8. Installation is reverse of removal. Apply one (1) drop of Loctite® to mounting bolts. Replace the O-ring on the brake release port of the gear hub. Take great care that this O-ring is installed correctly. Use grease to hold the O-ring in place during installation.

DRIVE MOTORS

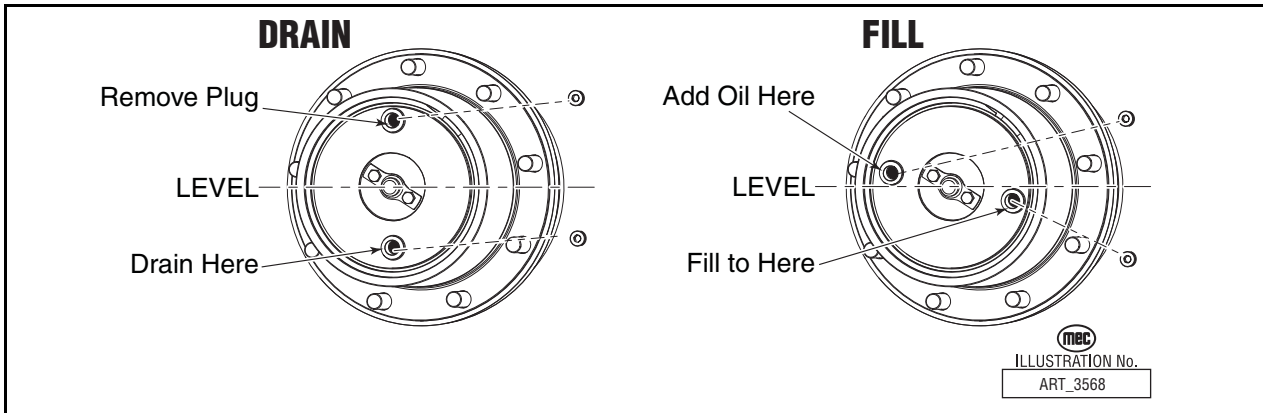
MEC does not recommend end-user maintenance or repair of the drive motors. Contact MEC for the nearest service provider.

GEAR HUBS

Lubrication

- Change the oil after the first 100 hours of operation
- Change the oil every 2500 hours or every 12 months thereafter.
- Use SAE 90 Multipurpose Hypoid Gear Oil, API Service Classification GL5

Figure 3-3: Gear Hub Oil Change

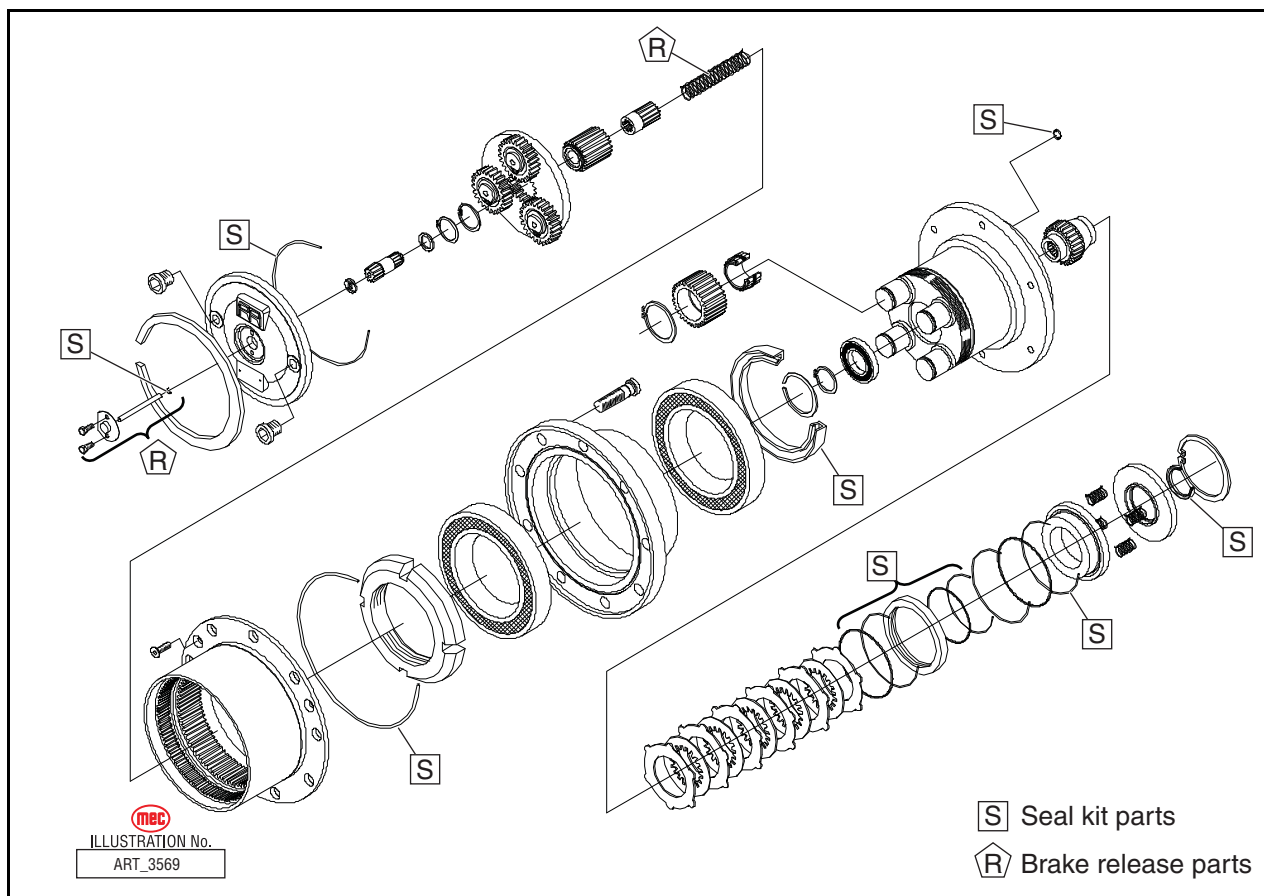


To change the oil in the gear hub:

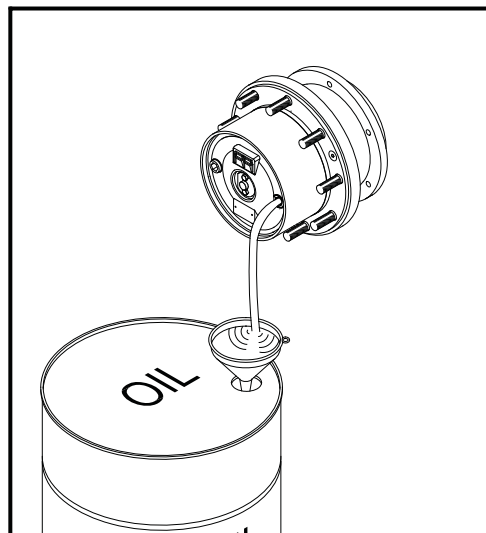
1. Position the gear hub as shown at left.
2. Loosen and remove the both plugs and allow oil to drain.
3. Position the gear hub as shown at right.
4. Fill with oil until the level reaches the lower drain hole.
5. Replace the plugs, using new seals.

R & R GEAR HUBS -- 5492RT**Disassembly**

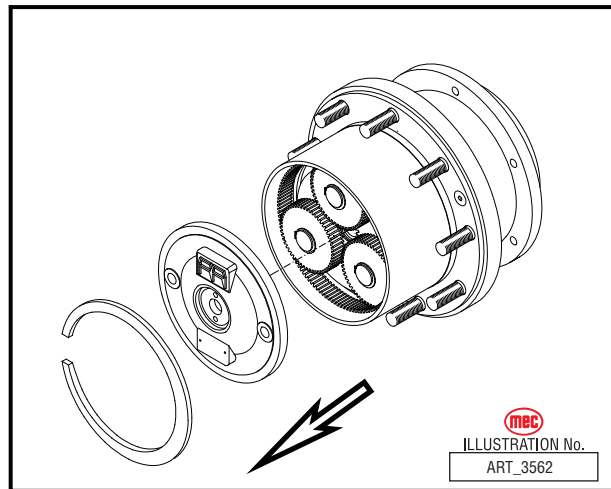
Disassembly may be necessary to replace the seals or repair the brake release mechanism.

Figure 3-4: Gear Hub, Exploded View

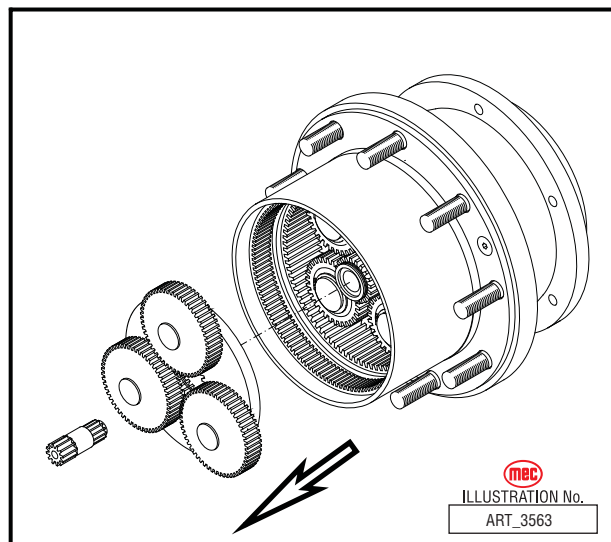
1. Unscrew the plug and drain the oil into a container. Dispose of used oil properly.



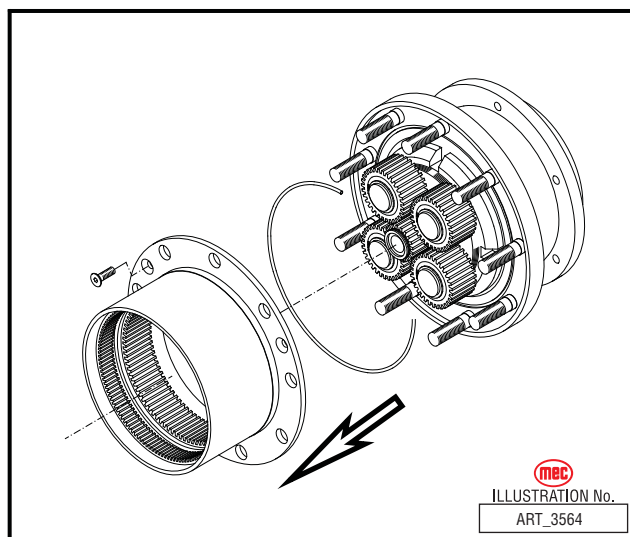
2. Remove the snap ring and cover.



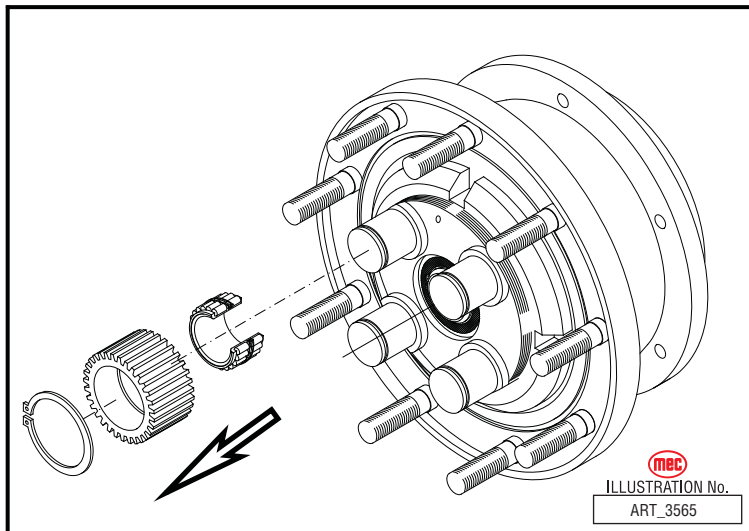
3. Pull out the pinion and the first stage reduction unit.



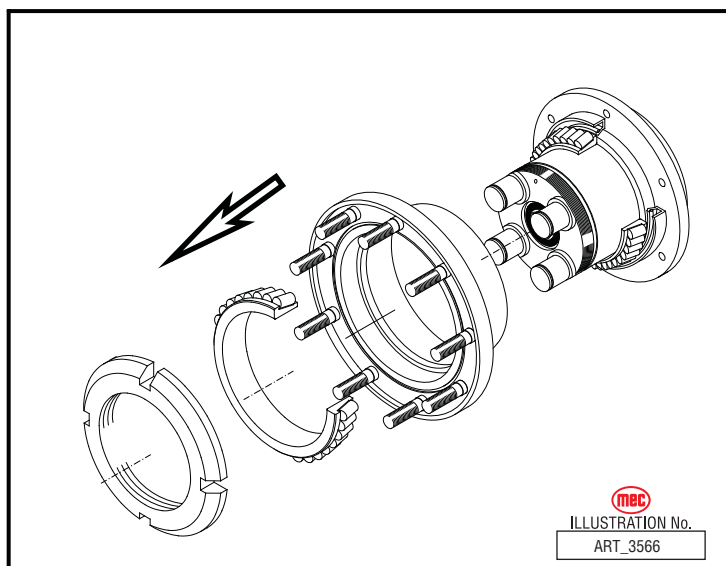
4. Remove the securing screws and remove the planetary ring.



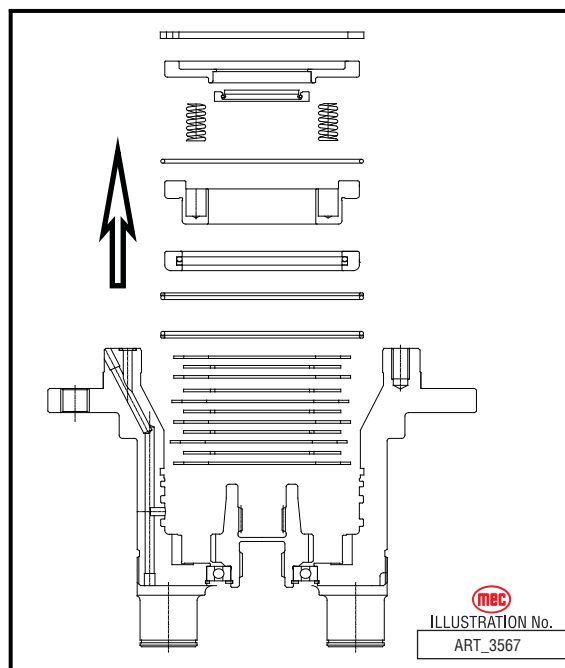
5. Remove the pinion and satellites of the second reduction unit stage.



6. Unscrew the locking ring and remove the spindle from the hub support.

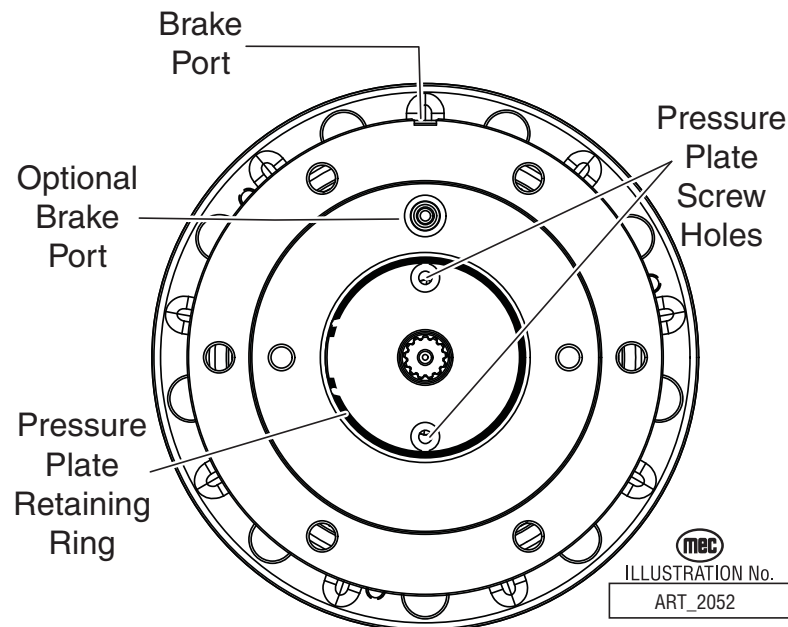


7. Turn the spindle upside down and remove the brake unit.
8. Reassemble in reverse order, replacing seal kit and/or brake release kit components as you go. Use a light petroleum-based oil to lubricate parts and seals during reassembly.



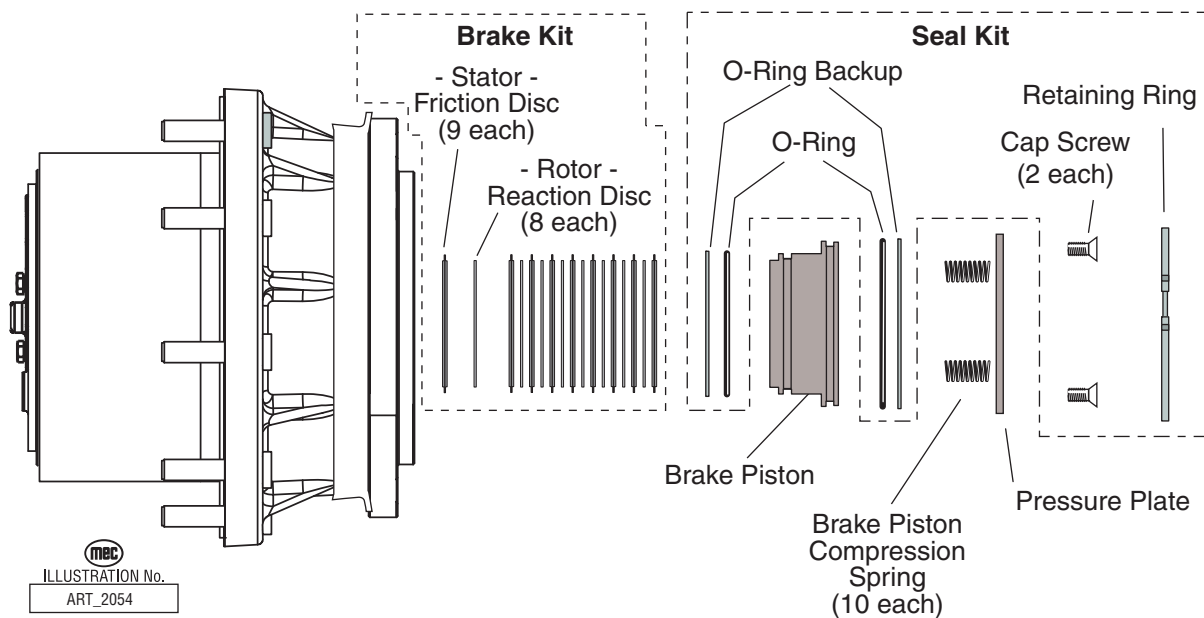
FAIRFIELD GEAR HUBS -- 3392RT-T ~#13600044**Brake Repair****Disassembly**

1. Compress the brake piston compression springs;
 - Install two (2) $\frac{1}{4}$ -20 \times $\frac{5}{8}$ " flat head cap screws (provided in brake kit) through the pressure plate and into the piston.
 - Tighten one screw, then the other, a little at a time. Alternate screws until the springs compress and there is no pressure on the retaining ring.
2. Use retaining ring pliers to remove the retaining ring.
3. Remove pressure plate;
 - Loosen one screw, then the other, a little at a time.
 - Alternate screws until the springs are loose.
 - Remove the cap screws and pressure plate.
 - Remove the compression springs.
4. Use air pressure to remove the brake piston;
 - Using an air hose, slowly and carefully pressurize the brake port until the piston is partially out of the piston bore.
 - Pull the piston the rest of the way out by hand.
5. Remove the backup rings and O-rings from the grooves in the piston.
6. Remove the reaction discs (rotors) and the friction discs (stators) from the brake cavity.



Assembly

1. Install brake kit;
 - Place a stator (friction disc) then a rotor (reaction disc) into the brake cavity, until there are nine (9) stators and eight (8) rotors (refer to illustration).
2. Install the brake piston seals;
 - Place the piston on a clean surface with the small opening facing upward.
 - Apply grease to the O-rings and backup rings.
 - Install the large diameter backup ring into the large diameter groove on the piston.
 - Install the large diameter O-ring on top of the backup ring.
 - Install and fully seat the small diameter O-ring into the small diameter groove on the piston.
 - Install the small diameter backup ring on top of the O-ring.
3. Insert the piston into the piston bore until it contacts the stator (friction disc).
4. Place the ten (10) springs into the piston.
5. Place the pressure plate on top of the springs and compress the springs (see Step 1 of Disassembly).
6. Install the retaining ring, making sure it is fully seated.
7. Remove the two (2) cap screws or the brake will not function.



End Cover

Disassembly

Remove torque hub and move to a clean work surface.

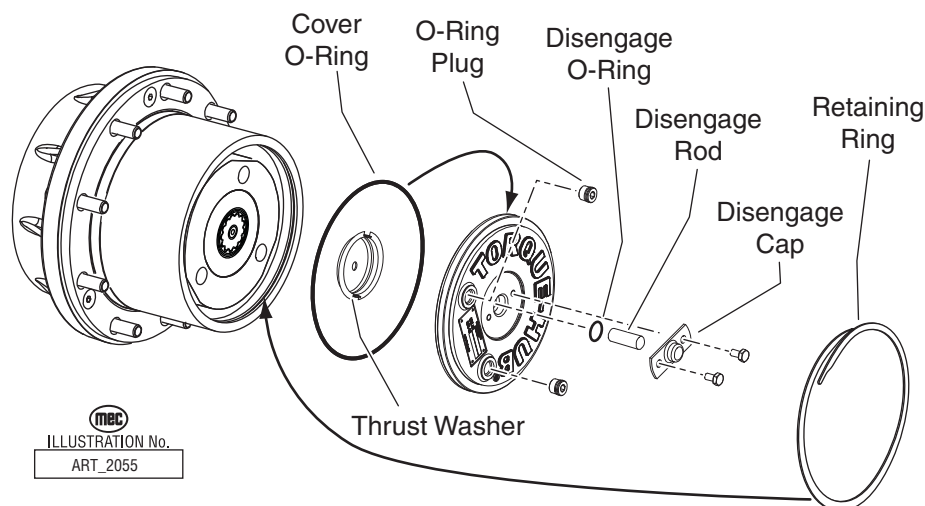


Wear eye protection.

1. Drain fluid from torque hub. Note the condition and volume of the fluid.
2. Remove the retaining ring.
 - Pry the open end of the retaining ring out of the groove with a screwdriver.
 - Use pliers to pull the retaining ring completely out of the groove.
3. Remove the cover subassembly.
 - The unit can be carefully pressurized with air to pop the cover out of the unit.
4. Remove the large diameter O-ring from the groove in the cover.
5. Remove the two (2) bolts from the disengage cap and remove the disengage cap.
6. Pull the disengage rod out from the cover.
7. Use appropriate tool to remove the disengage O-ring from the internal groove in the cover.
8. Remove the O-ring plugs from the cover.

Assembly

1. Grease the disengage O-ring and insert into the internal groove in the cover.
2. Install the disengage cap and torque bolts to 70–80 in. lbs (8–9 Nm).
3. Insert the disengage rod, either end first, into the hole in the cover until it touches the disengage cover.
4. Grease the face of the thrust washer and place in the cover making sure the tangs on the washer seat into the pockets on the cover.
5. Install the O-ring plugs into the cover. Hand tighten only.
6. Grease the cover O-ring and insert it into the groove in the cover.
7. Install the cover and the retaining ring, making sure that the retaining ring is fully seated.



Replace Bearings

Disassembly

Remove torque hub and move to a clean work surface.

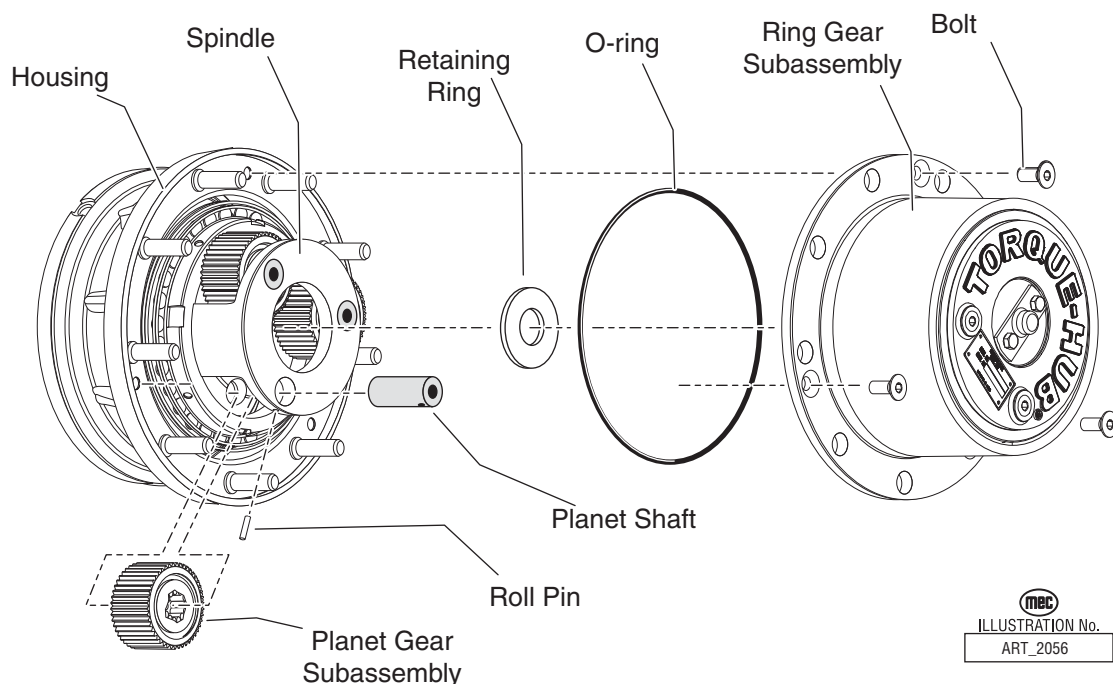


Wear eye protection.

1. Remove the Ring Gear Subassembly;
 - Remove the three (3) flathead bolts that secure the ring gear subassembly to the housing.
 - Lift the ring gear subassembly off of the housing.
 - Remove the O-ring from between the housing and ring gear subassembly.
2. Remove the planet gears;
 - Use a 1/8" diameter punch to drive the roll pin into the planet shaft until it bottoms against the spindle.
 - Using needle nosed pliers or a hooked tool, reach into the end of the planet shaft to grasp the roll pin and pull the planet shaft out of the spindle.
 - Drive the roll pin out of the planet shaft.

NOTE: Use new roll pins when reassembling the unit.

- Slide the planet gear subassembly out of the spindle being careful not to drop the needle bearings.
- Repeat for the two (2) remaining planet gears.



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3. Remove the bearing nut;

- Place the housing and spindle assembly on a clean surface with the spindle end down.
- Remove the two (2) set screws and the bearing nut.

NOTE: The set screw holes in the bearing nut were staked to prevent the set screws from backing out. It will be necessary to clean up the holes prior to removing the set screws.

4. Remove the bearing cones;

- Remove the outer bearing cone.
- Turn the unit on its side and press the spindle out of the housing.
- Remove the inner bearing cone.

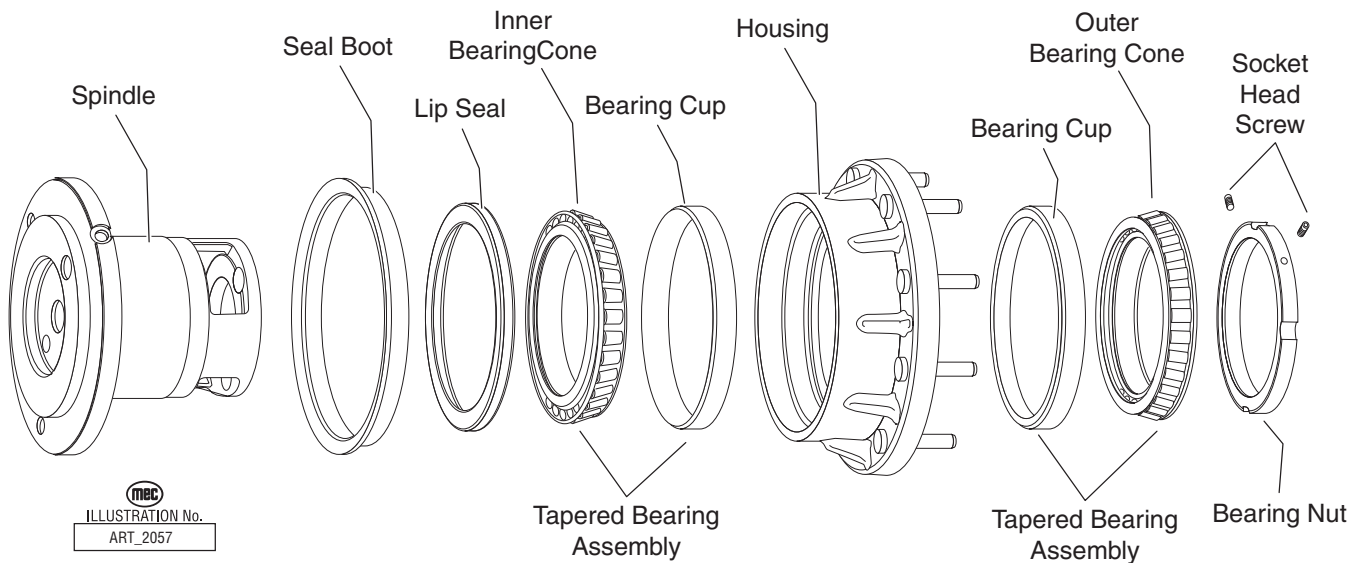
5. Remove the seal boot.

6. Remove the lip seal from the housing.

NOTE: Use a new seal when reassembling.

7. Remove the bearing cones;

- "Use a soft steel rod to knock both bearing cones out of the housing.



Assembly

NOTE: Spray a light film of oil on all component parts during assembly. Spray a generous amount of oil on bearings during installation.

1. Use a pressing tool to press both bearing cups into the housing.
2. Place the inner bearing cone into the inner bearing cup.
3. Grease the seal lip and use an appropriate tool to press the seal into the housing until it is flush with the end of the housing.
4. Place the spindle on the work surface, flange side down, and install the seal boot.
5. Lower the housing onto the spindle.
6. Place the outer bearing cone into the outer bearing cup.
7. Install the bearing nut;
 - Apply Loctite 243 on bearing nut thread and install the bearing nut.
 - Leave .003–.005 inches (.076–.127mm) end play to check the initial rolling torque with the unit tied down.
 - Torque the bearing nut until the rolling torque is 40–50 In. Lbs. (4–5 Nm) greater than initial rolling torque.

NOTE: Final torque is initial rolling torque plus 40–50 in. lbs. (4–5 Nm). E.g., if the initial rolling torque is 30 in. lbs. (3.5 Nm), the final rolling torque is 70–80 in. lbs. (8–9 Nm). Be sure the torque wrench is tangent to the housing OD.

8. Install the set screws into the bearing nut threaded holes.
 - Make sure set screw is driven into the spindle thread.
 - Tighten the set screws to damage the thread.
 - Stake the edge of the nut around the set screws so the nut will not loosen.
9. Place thrust washer into the counter-bore of the spindle.
10. Install planet gear subassemblies;
 - Place a planet gear subassembly into the spindle and align the planet gear bore with a planet shaft hole.
 - Insert a planet shaft (roll pin hole up) into the planet shaft hole and through the planet gear subassembly with.
 - Use a punch or similar tool to align the roll pin holes on the shaft and spindle.
 - Being careful not to strike the planet gears, drive the roll pin into the roll pin holes until the pin is flush with the OD of the spindle.
 - Repeat for the remaining planet gear subassemblies.
11. Grease the O-ring and place it into the groove on the housing.
12. Place the ring gear subassembly onto the housing and spindle assembly.
 - Align the three (3) cap screw holes.

Install the cap screws and torque to 15–20 ft. lbs. (20–27 Nm).

OMNIGEAR GEAR HUBS -- 6092RT, 3392RT-T #13600045~

For information regarding the OmniGear hubs used on 6092RT and later 3392RT-T models, please contact MEC Customer Service at 1-877-632-5438.

HOSES & CABLES

NOTE: Refer to *Parts Section E* for detailed hydraulic hose diagrams.



- Clean all fittings before disconnecting hoses.
- Tag hoses for proper reassembly.
- Plug all openings to prevent contamination.
- Replace any O-rings and inspect all hoses for crack and damage before reassembly.

Inspect all hoses and electrical cables for security and damage. Hoses and cables should be examined for rubbing and chafing.

Check all ties and clamps that keep hoses secure.

Check for leaks at fittings. Replace any damaged hose or cable.

1. Tag hoses for proper reassembly.
2. Disconnect hydraulic hoses. Immediately cap and plug all openings to prevent contamination.
3. Torque hose fittings according to the Hydraulic Torque Specification Table located in the Introduction section of this manual.

STEER CYLINDERS

There are two (2) double acting type steer cylinders on this machine. During operation, cylinder(s) should not leak, but a slight damping at the rod seal is acceptable.

Check the pins periodically for wear.

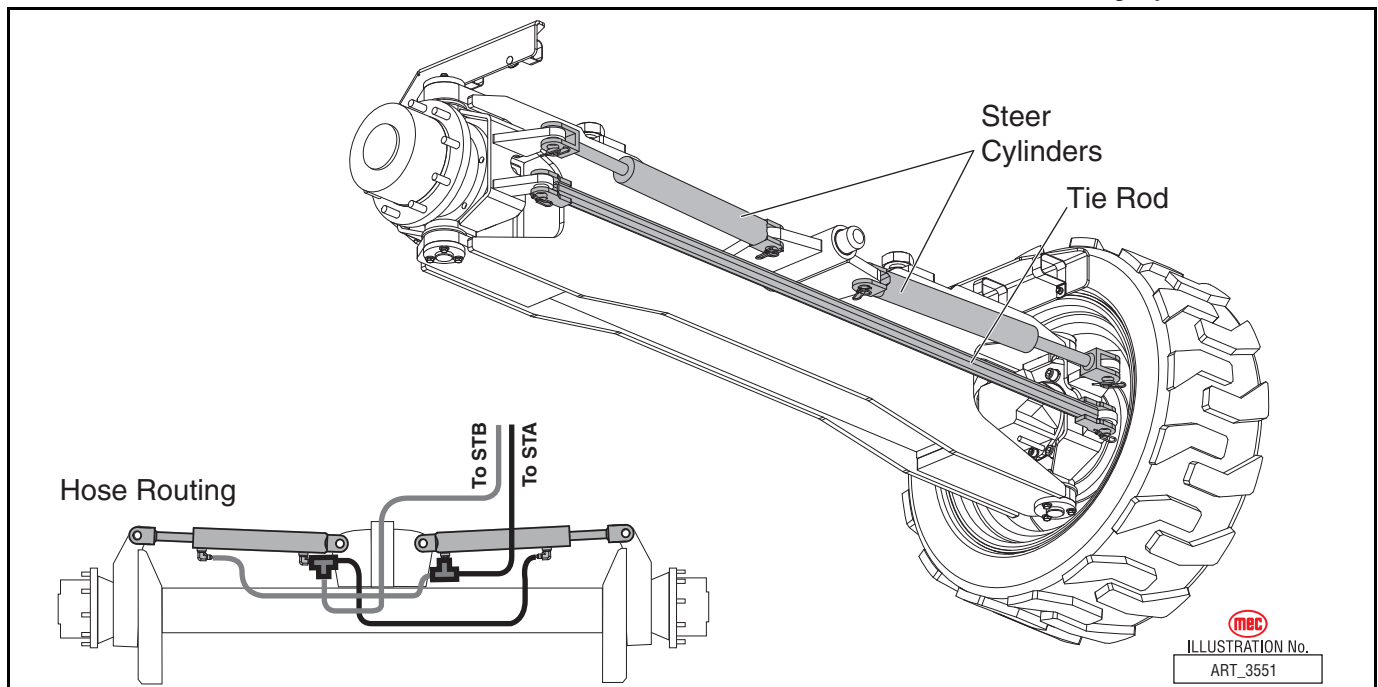
Refer to “*Lift and Support The Machine*” in the *Introduction* section for instructions and safety precautions.



- Clean all fittings before disconnecting hoses.
- Tag hoses for proper reassembly.
- Plug all openings to prevent contamination.
- Replace any O-rings and inspect all hoses for crack and damage before reassembly.

1. Raise and support the front end of machine.
2. Clean all hydraulic fittings, then tag all hoses for proper reassembly.
3. Disconnect all hydraulic hoses. Immediately plug all openings to prevent contamination.
4. Remove the spring pin and retaining pin holding the steer cylinder to the motor/hub housing.
5. Remove the spring pin and retaining pin holding the steer cylinder to the front axle.
6. Carefully lift off the steer cylinder.
7. Installation is reverse of removal.
8. To purge air from cylinder, cycle the steering system fully left and right 5-6 times.

Figure 3-5: Steering Cylinder Installation



AXLE LOCK CYLINDERS

There are two Axle Lock Cylinders located at the rear axle of the machine.

Figure 3-6: Axle Lock Cylinders

REMOVE

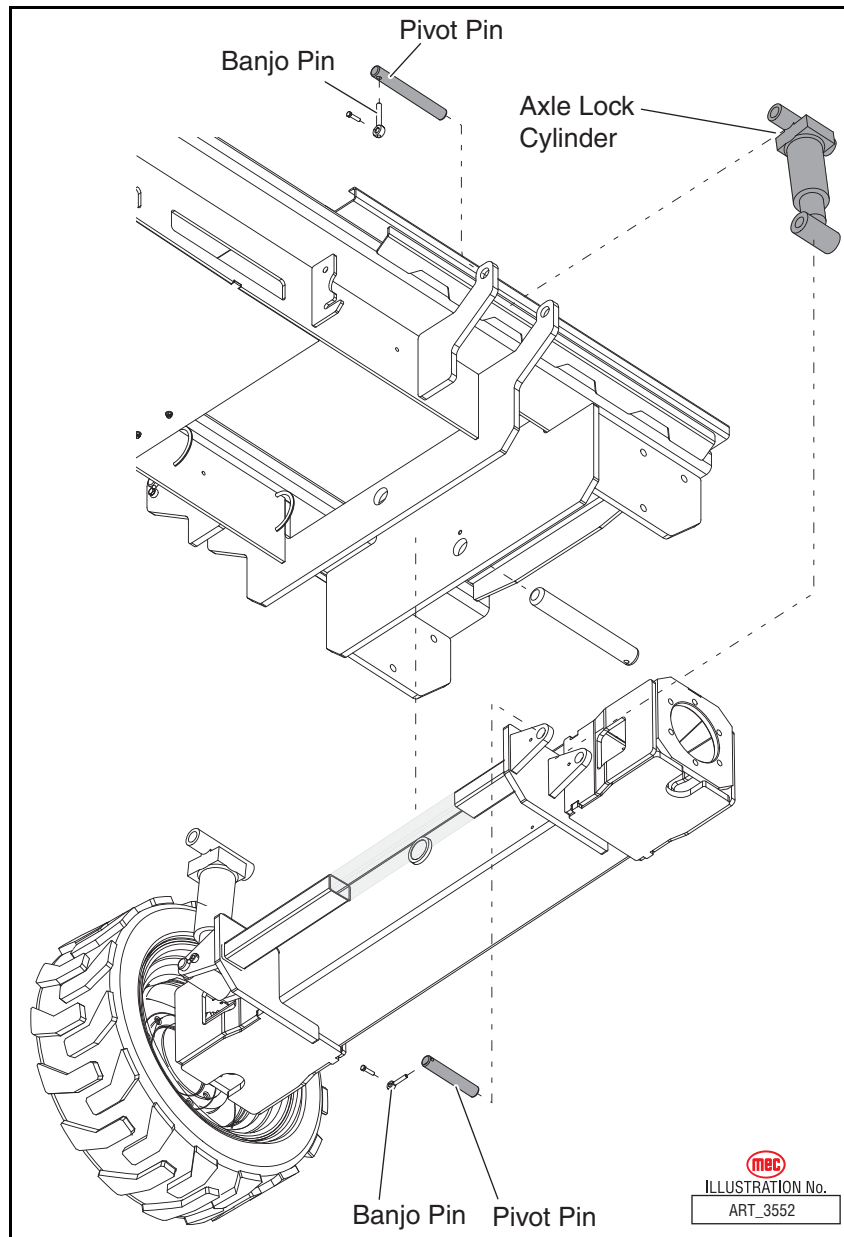
1. Raise and support the rear end of machine.
2. Clean all hydraulic fittings, then tag all hoses for proper reassembly.
3. Disconnect all hydraulic hoses. Immediately plug all openings to prevent contamination.
4. Remove the bolt and banjo pin that secures the pivot pin to the chassis and remove the pivot pin.
5. Remove the bolt and banjo pin that secures the pivot pin to the floating axle. Support the cylinder, then remove the pivot pin.
6. Carefully remove the cylinder.
7. Installation is reverse of removal. Apply one (1) drop of Loctite® to the bolts that secure the banjo pins.

BLEED PROCEDURE

1. Start engine.
2. Loosen the bleed screw located on the top rear side of the cylinder.
3. Watch as air escapes from valve.
4. Once a steady stream of fluid runs from the valve, tighten the valve.
5. Repeat on opposite side.

TEST LOCKING AND CENTER POSITION

1. Place a block approximately 4 inches (10 cm) high behind one of the rear tires.
2. Elevate the platform to 10-11 feet (3-3.4 m).
3. Slowly drive the tire onto the block.
 - The axle lock cylinders should be locked (no movement).
 - The opposite tire should be off the ground.



4. Lower the platform.
 - The axle lock cylinders should release.
 - The suspended tire should lower to the ground.

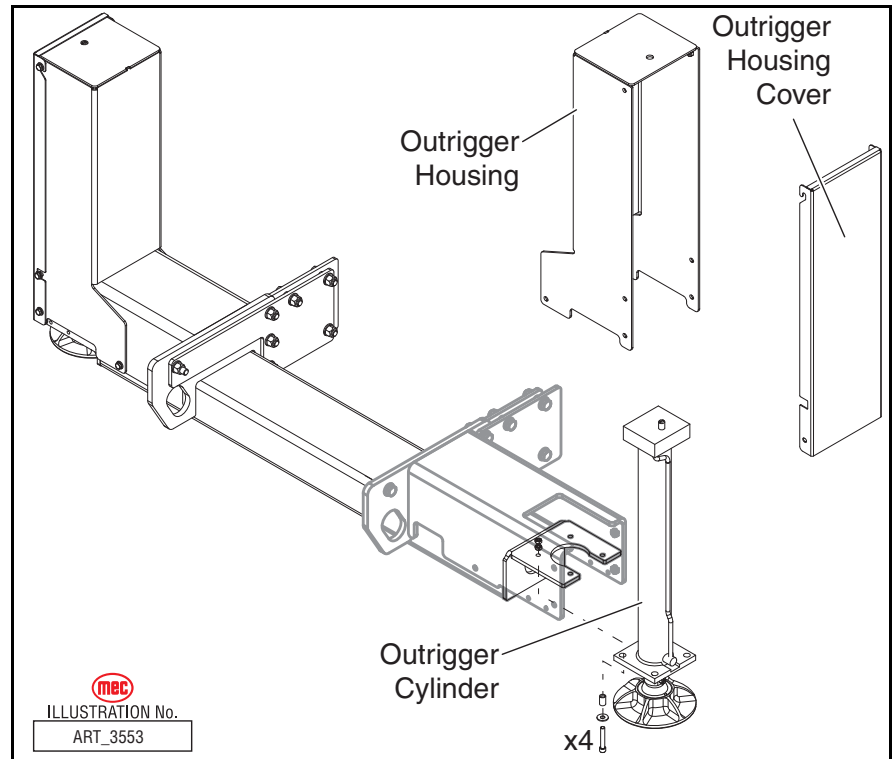
OUTRIGGER CYLINDERS

There are four Outrigger Cylinders, each located at one of the corners of the machine.

Figure 3-7: Outrigger Cylinders

REMOVAL & INSTALLATION

1. Return the Outriggers to the stowed position.
2. Remove the outrigger housing cover.
3. Remove the outrigger housing.
4. Clean all hydraulic fittings, then tag all hoses for proper reassembly.
5. Disconnect all hydraulic hoses. Immediately plug all openings to prevent contamination.
6. Support the cylinder, then remove the bolts, washers and spacers that connect the cylinder to the chassis.
7. Carefully remove the cylinder using a suitable lifting device.
8. Installation is reverse of removal.
9. To purge air from the outrigger cylinders, lower the platform completely. Take the platform control box down from the platform so that it can be used from ground level.
10. Using the manual extend/retract switches, fully extend and retract all outrigger cylinders 5-6 times.



WARNING

KEEP FEET AWAY FROM OUTRIGGER PADS WHEN OPERATING THE OUTRIGGERS FROM GROUND LEVEL

OUTRIGGER LIMIT SWITCH ADJUSTMENT

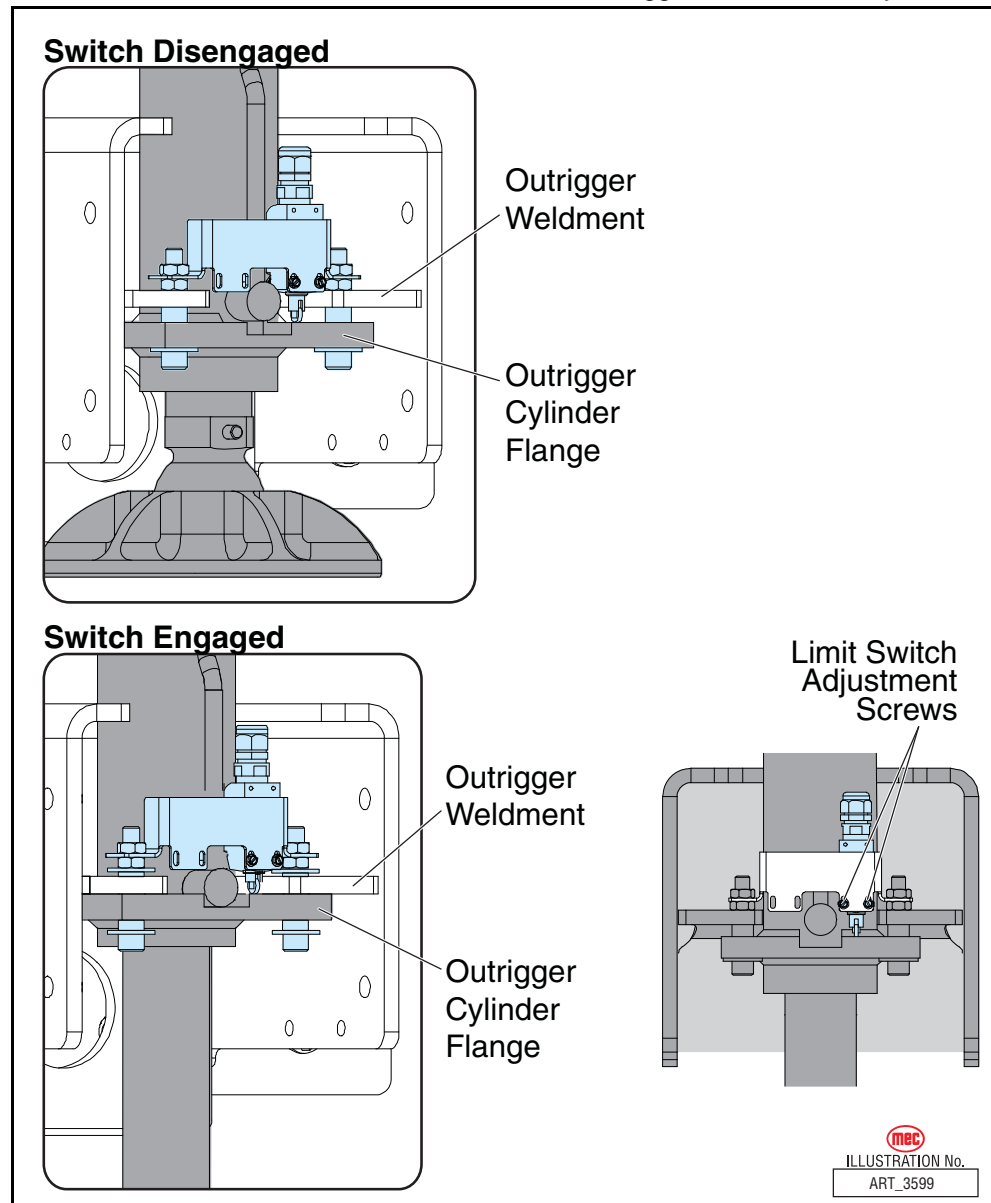
Each Outrigger Cylinder is mounted using four sleeves that allow the cylinder to float. When the cylinders extend, the cylinder base flange slides up these sleeves and pushes against the outrigger weldment to stabilize the machine. This floating action causes the cylinder base to engage the Outrigger Limit Switch. These switches must be properly adjusted to ensure correct operation and to prevent damage to the switch. The switch should be disengaged when the outrigger cylinder flange is separated from the outrigger weldment. The switch should be engaged when the outrigger cylinder flange is touching the outrigger weldment.

Figure 3-8: Outrigger Limit Switch Adjustment

To adjust:

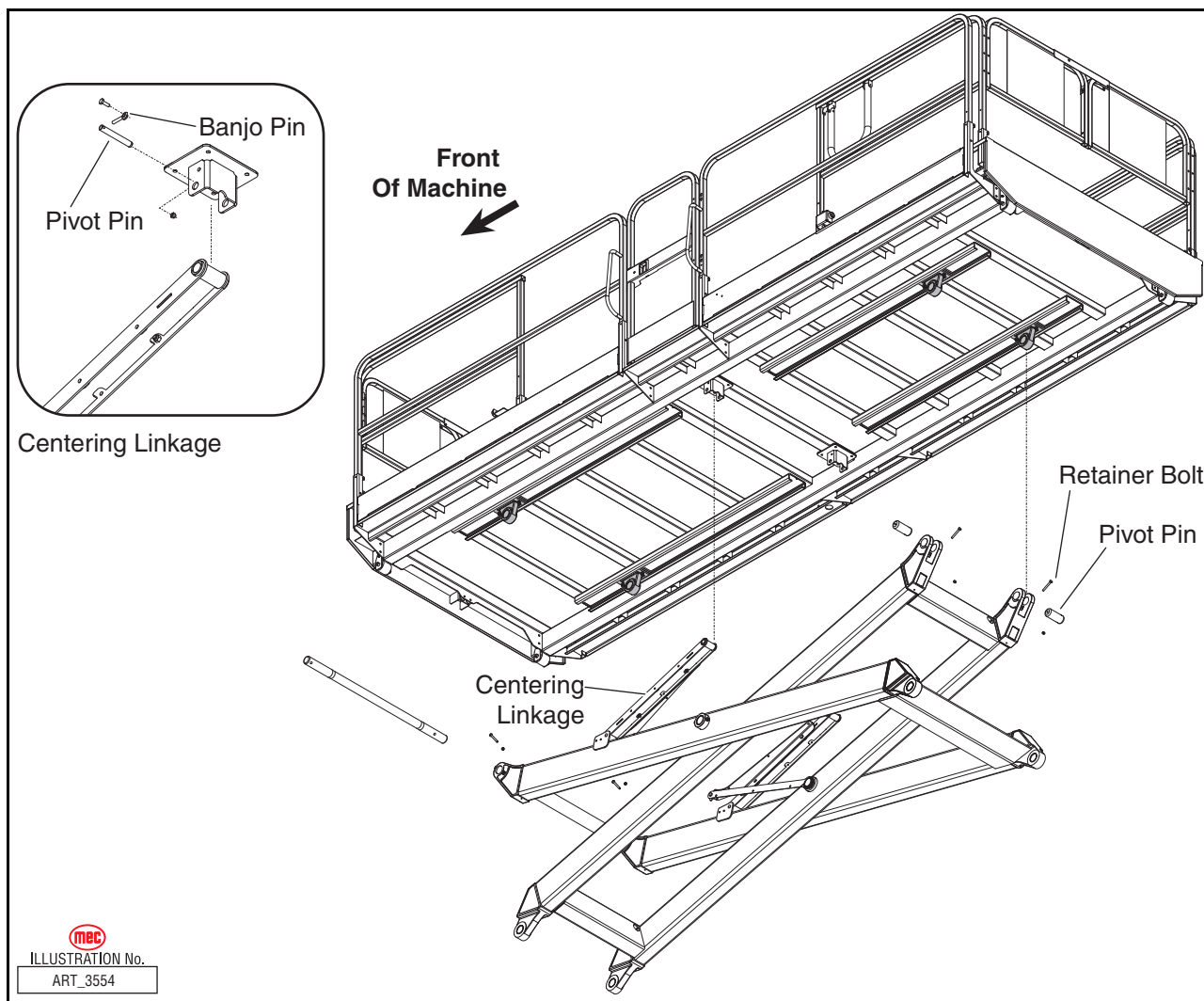
1. Remove the outrigger cover.
2. Loosen the limit switch adjustment screws.
3. Place a jack underneath the outrigger footpad. Lift the outrigger cylinder until the cylinder flange comes into solid contact with the outrigger weldment.
4. Slide the switch down until the switch just clicks, then move the switch down an additional 1/8 inch (3.2mm).
5. Hold the switch firmly in place, then tighten the adjustment screws.
6. Lower the jack and allow the outrigger cylinder to drop. You should hear the switch click as it disengages. If the switch does not disengage, repeat the adjustment procedure.

Repeat as needed on other outrigger cylinders.



PLATFORM REMOVAL

Figure 3-9: Platform Removal

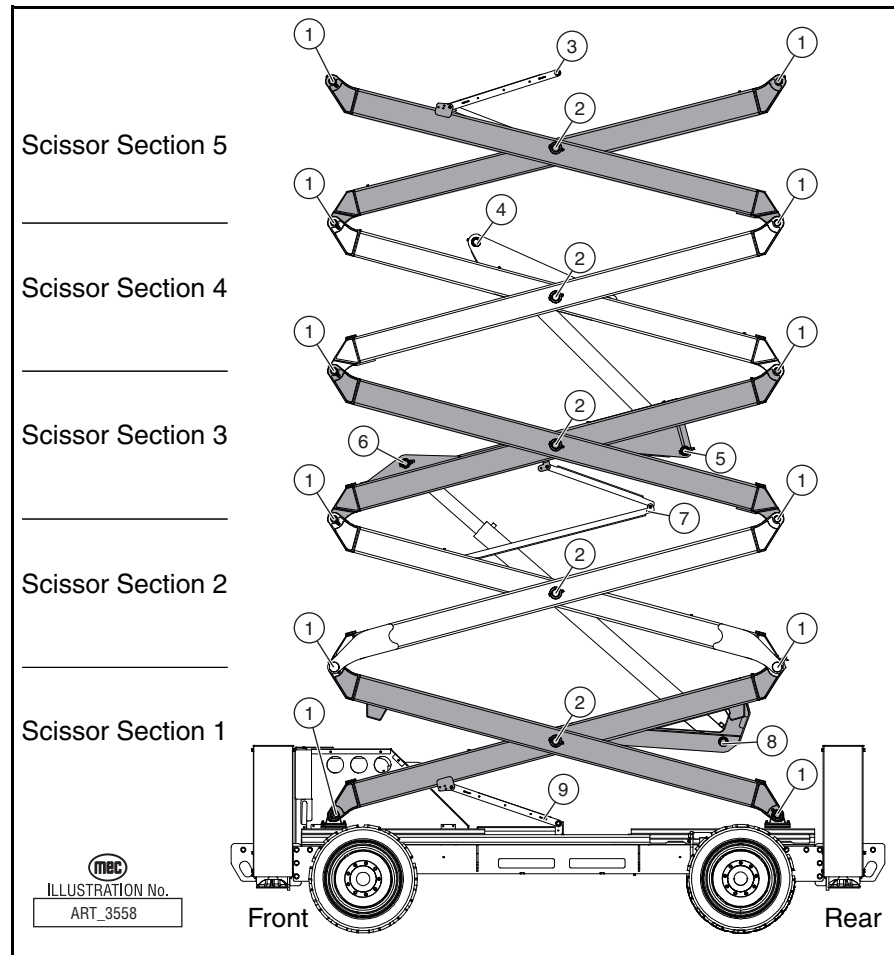


1. Connect overhead crane or appropriate lifting device to the platform. Do not lift at this time.
2. Tag all cables that go to the platform for proper reassembly, then disconnect the cables.
3. Disconnect the centering linkage arms on each side of the machine.
4. Apply slight lifting pressure.
5. Remove the pin-retainer bolts from end pivot pins that connect the scissor linkage to the upper scissor slides, then use a slide hammer to remove the pivot pins.
6. Carefully lift the platform away from the scissor assembly.
7. Installation is reverse of removal.

SCISSOR LINKAGE/LIFT CYLINDERS

Figure 3-10: Scissor Linkage Components

1. End Pivot Pins
2. Center Pivot Pins
3. Upper Centering Linkage
4. Rod-end pin of upper lift cylinder
5. Barrel-end pin of upper lift cylinder
6. Rod-end pin of lower lift cylinder
7. Cable/Hose Guides
8. Barrel-end pin of lower lift cylinder
9. Lower Centering Linkage



SCISSOR LINKAGE DISASSEMBLY/LIFT CYLINDER REMOVAL**WARNING**

THIS PROCESS REQUIRES SPECIFIC REPAIR SKILLS AND EXPERIENCE, APPROPRIATE LIFTING EQUIPMENT AND A PROPER WORKPLACE. DEATH, SERIOUS INJURY OR SIGNIFICANT MACHINE DAMAGE COULD OCCUR IF YOU ATTEMPT THIS PROCESS WITHOUT THE APPROPRIATE SKILLS AND EQUIPMENT.

**CAUTION**

- **Clean all fittings before disconnecting hoses.**
- **Tag 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.**

This procedure covers the disassembly of the scissor linkage and the removal of the lift cylinders.

Clean all hydraulic fittings before disassembly. Immediately plug all hydraulic hoses and components after disassembly. Tag all wiring and hoses for proper reassembly. Replace all O-rings and inspect all hoses for cracks or damage before reassembly.

Refer to Figure 3-10: “Scissor Linkage Components,” on page 3-22.

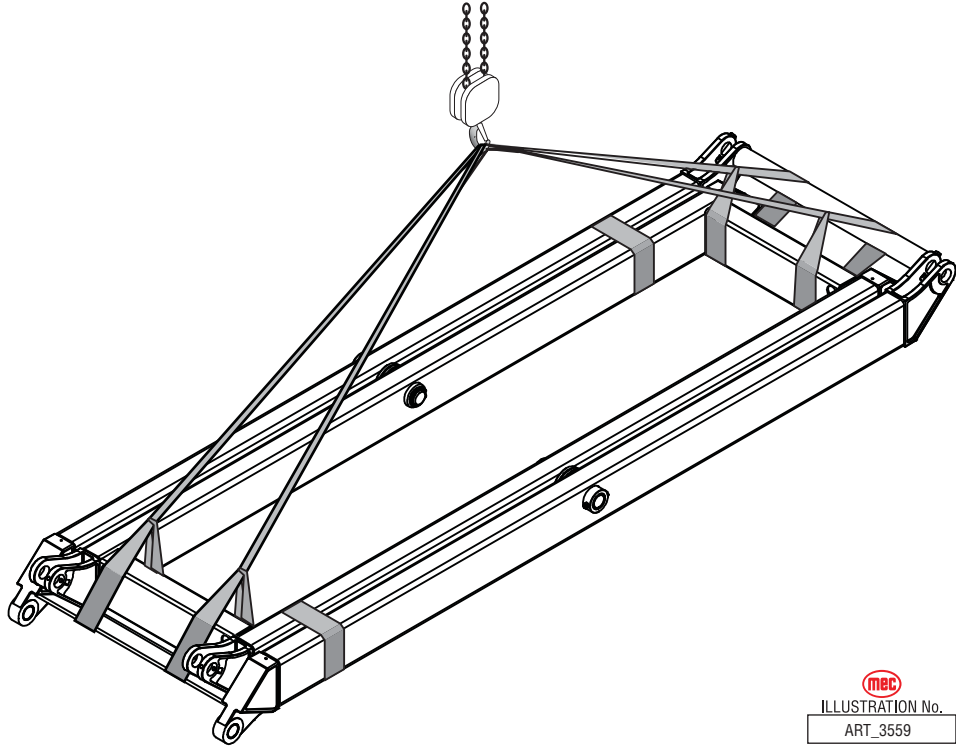
1. Lower the platform completely.
2. Remove the platform. See “Platform Removal,” on page 3-21.

SCISSOR SECTION 5

3. Remove the platform cables from Scissor Section 5 and lay them out of the way inside the scissor linkage.

Figure 3-11: Typical Scissor Section

4. Secure both ends of Scissor Section 5 inner and outer links together with suitable straps.
5. Attach two lifting straps from an overhead crane to each end of the Scissor Section 5, using a total of four lifting straps. Go around both inner and outer scissor arms. Do not lift yet.



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6. Remove the pin-retainer bolts from end pivot pins that connect Scissor Section 5 to the section below it, then use a slide hammer to remove the pins from each end of Scissor Section 5.
7. Carefully lift Scissor Section 5 away from the machine with the overhead crane.



DURING REMOVAL, SCISSOR SECTIONS MAY SHIFT AND SWING OUT OF CONTROL IF NOT SUPPORTED PROPERLY BY THE OVERHEAD CRANE.

SCISSOR SECTION 4

8. Remove the pin-retaining bolts from the rod-end pin of the Upper Lift Cylinder. Do not remove the pin.
9. Attach a lifting strap from the overhead crane to the upper end of the Upper Lift Cylinder barrel. Apply slight lifting pressure.



THE UPPER LIFT CYLINDER COULD FALL WHEN THE PIN IS REMOVED IF IT IS NOT SUPPORTED PROPERLY.

10. Remove the rod-end pin from the Upper Lift Cylinder using a soft metal drift.
11. Lower the Upper Lift Cylinder down until it contact the scissor section below it.
12. Remove the platform cables from Scissor Section 4 and lay them out of the way inside the scissor linkage.

13. Secure both ends of Scissor Section 4 inner and outer links together with suitable straps.
14. Attach two lifting straps from an overhead crane to each end of the Scissor Section 4, using a total of four lifting straps. Go around both inner and outer scissor arms. Do not lift yet.
15. Remove the pin-retainer bolts from end pivot pins that connect Scissor Section 4 to the section below it, then use a slide hammer to remove the pins from each end of Scissor Section 4.
16. Support the rod end of the Upper Lift Cylinder with a suitable lifting device.
17. Carefully lift Scissor Section 4 away from the machine with the overhead crane.



DURING REMOVAL, SCISSOR SECTIONS MAY SHIFT AND SWING OUT OF CONTROL IF NOT SUPPORTED PROPERLY BY THE OVERHEAD CRANE. THE UPPER LIFT CYLINDER MAY FALL IF NOT PROPERLY SUPPORTED WHEN SCISSOR SECTION 4 IS REMOVED.

18. Lower the rod end of the Upper Lift Cylinder onto the cross tube of Scissor Section 3 below it.

SCISSOR SECTION 3 & UPPER LIFT CYLINDER

19. Clean, tag, disconnect and plug all hydraulic hoses going to the upper cylinder. Cap the fittings on the cylinder.



PRESSURIZED OIL CAN BURN OR PENETRATE SKIN. LOOSEN THE HOSE CONNECTIONS SLOWLY TO ALLOW ANY OIL PRESSURE TO DISSIPATE GRADUALLY. DO NOT ALLOW THE OIL TO SQUIRT OR SPRAY.

20. Remove any attachments holding the hoses to the Upper Lift Cylinder.
21. Remove the pin-retaining bolts from the rod-end pin of the **Lower** Lift Cylinder. Do not remove the pin.
22. Attach a lifting strap from the overhead crane to the upper end of the **Lower** Lift Cylinder barrel. Apply slight lifting pressure



THE LOWER LIFT CYLINDER COULD FALL WHEN THE PIN IS REMOVED IF IT IS NOT SUPPORTED PROPERLY.

23. Remove the rod-end pin from the **Lower** Lift Cylinder using a soft metal drift.
24. Lower the **Lower** Lift Cylinder down until it contacts the engine cover below it.
25. Remove the cables and hydraulic hoses from the Scissor Section 3 and lay them out of the way inside the scissor linkage.
26. Remove the banjo pin retainers from the Cable/Hose Guide pivot pins at the Scissor Section 3 inner arm.
27. Remove the Cable/Hose Guide pivot pins. Lower the Cable/Hose Guides down.
28. Secure both ends of Scissor Section 3 with suitable straps. Secure the upper Lift Cylinder to Scissor Section 3.

29. Attach two lifting straps from an overhead crane to each end of the Scissor Section 3, using a total of four lifting straps. Go around both inner and outer scissor arms. Do not lift yet.
30. Remove the pin-retainer bolts from end pivot pins that connect Scissor Section 3 to the section below it, then use a slide hammer to remove the pins from each end of Scissor Section 3.
31. Support the rod end of the upper lift cylinder with a suitable lifting device.
32. Carefully lift Scissor Section 3 away from the machine with the overhead crane.



DURING REMOVAL, SCISSOR SECTIONS MAY SHIFT AND SWING OUT OF CONTROL IF NOT SUPPORTED PROPERLY BY THE OVERHEAD CRANE.

33. Place a 6 x 6 x 32 inch (15 x 15 x 80 cm) wood block beneath the rear end of Scissor Section 3.
34. Lower the rear end of Scissor Section 3 onto the block. Lower the front end of Scissor Section 3 for the ground.
35. Attach lifting straps from the overhead crane to both ends of the upper lift cylinder. Apply slight lifting pressure.
36. Remove the pivot pin retaining bolts from the barrel-end pivot pin, then use a soft metal drift to remove the pivot pin.
37. Carefully remove the upper lift cylinder from the Scissor Section 3.

LOWER LIFT CYLINDER

38. Secure the rear ends of Scissor Section 1 & Scissor Section 2 with suitable straps.
39. Attach a lifting strap from the overhead crane to the rear end of Scissor Section 1. Do not lift yet.
40. Remove the pin retaining bolts from the pivot pins that connect Scissor Section 1 to the scissor slides at the rear end of the machine, then use a slide hammer to remove the pivot pins from the scissor slides at the rear end of the machine.
41. Use the overhead crane to lift the rear end of the remaining scissor sections approximately 15 inches (40cm).
42. Place a 6 x 6 x 32 inch (15 x 15 x 80 cm) wood block beneath the barrel end of the lift cylinder and across both sides of the chassis.
43. Lower the rear end of the remaining scissor sections onto the block.



KEEP HANDS CLEAR OF MOVING PARTS WHEN LOWERING SCISSOR ARMS

44. Attach lifting straps from the overhead crane to the lower lift cylinder. Apply slight lifting pressure.
45. Remove the pivot pin retaining bolts from the barrel-end pivot pin, then use a soft metal drift to remove the pivot pin.
46. Carefully remove the Lower Lift Cylinder from the machine.

SCISSOR SECTION 2

47. Use the overhead crane to lift the rear end of the remaining scissor sections 2 inches (5 cm), then remove the block.
48. Remove the straps holding Scissor Section 1 and Scissor Section 2 together.
49. Remove the Cable/Hose Guides.
50. Secure both ends of Scissor Section 2 with suitable straps.
51. Attach two lifting straps from an overhead crane to each end of the Scissor Section 2, using a total of four lifting straps. Go around both inner and outer scissor arms. Do not lift yet.
52. Remove the pin-retainer bolts from end pivot pins that connect Scissor Section 2 to the section below it, then use a slide hammer to remove the pins from each end of Scissor Section 2.
53. Carefully lift Scissor Section 2 away from the machine with the overhead crane.



DURING REMOVAL, SCISSOR SECTIONS MAY SHIFT AND SWING OUT OF CONTROL IF NOT SUPPORTED PROPERLY BY THE OVERHEAD CRANE.

SCISSOR SECTION 1

54. Disconnect all cables and hoses from Scissor Section 1 and lay them out of the way inside the scissor linkage.
55. Secure both ends of Scissor Section 1 with suitable straps.
56. Attach two lifting straps from an overhead crane to each end of the Scissor Section 1, using a total of four lifting straps. Go around both inner and outer scissor arms. Do not lift yet.
57. Remove the pin-retainer bolts from end pivot pins that connect Scissor Section 1 to the scissor slides at the front of the machine, then use a slide hammer to remove the pins from each end of Scissor Section 1.
58. Carefully lift Scissor Section 1 away from the machine with the overhead crane.



DURING REMOVAL, SCISSOR SECTIONS MAY SHIFT AND SWING OUT OF CONTROL IF NOT SUPPORTED PROPERLY BY THE OVERHEAD CRANE.

Installation is reverse of removal. Use Loctite® on all retaining bolts.

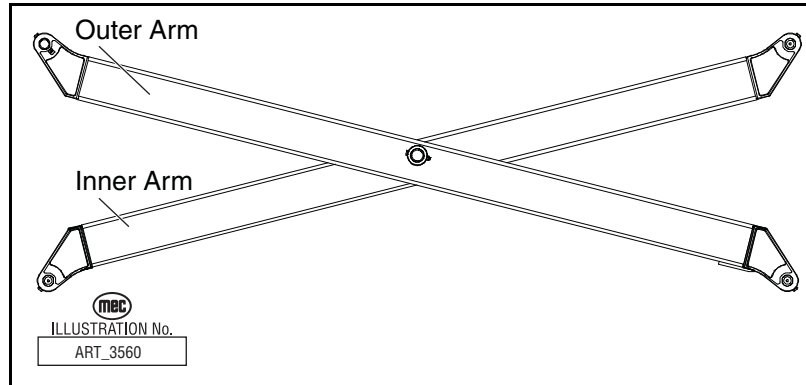
Lift cylinders are self-purging. Fully elevate and lower the scissor assembly 5-6 times to purge air from the cylinders.

SCISSOR SECTION DISASSEMBLY**WARNING**

THIS PROCESS REQUIRES SPECIFIC REPAIR SKILLS AND EXPERIENCE, APPROPRIATE LIFTING EQUIPMENT AND A PROPER WORKPLACE. DEATH, SERIOUS INJURY OR SIGNIFICANT MACHINE DAMAGE COULD OCCUR IF YOU ATTEMPT THIS PROCESS WITHOUT THE APPROPRIATE SKILLS AND EQUIPMENT.

Figure 3-12: Scissor Section Disassembly

1. Attach one lifting strap from an overhead crane to each end of the scissor section, using a total of two lifting straps. Attach the straps to the scissor ends that point upwards.
2. Raise the scissor arms approximately 18 inches (45 cm), then place a 12-inch (30 cm) block under the center of the scissor section and lower the scissor section onto it.
3. Remove the pin-retainer bolts from center pivot pins that connect scissor section arms, then use a slide hammer to remove the pivot pins.
4. Separate the scissor section arms carefully.

**WARNING**

SCISSOR SECTION ARMS MAY SHIFT AND MOVE OUT OF CONTROL IF NOT SUPPORTED PROPERLY BY THE OVERHEAD CRANE.

ENGINE MAINTENANCE

For complete service information consult the engine manual that came with the machine.



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.

OIL AND OIL FILTER

Dispose of used oil and filters properly.

Use only oil with lubrication classifications CF, CF-4, CG-4, CH-4 and CI-4.

Oil used with this engine must have proper API and SAE Engine Oil classification according to ambient temperatures as shown below:

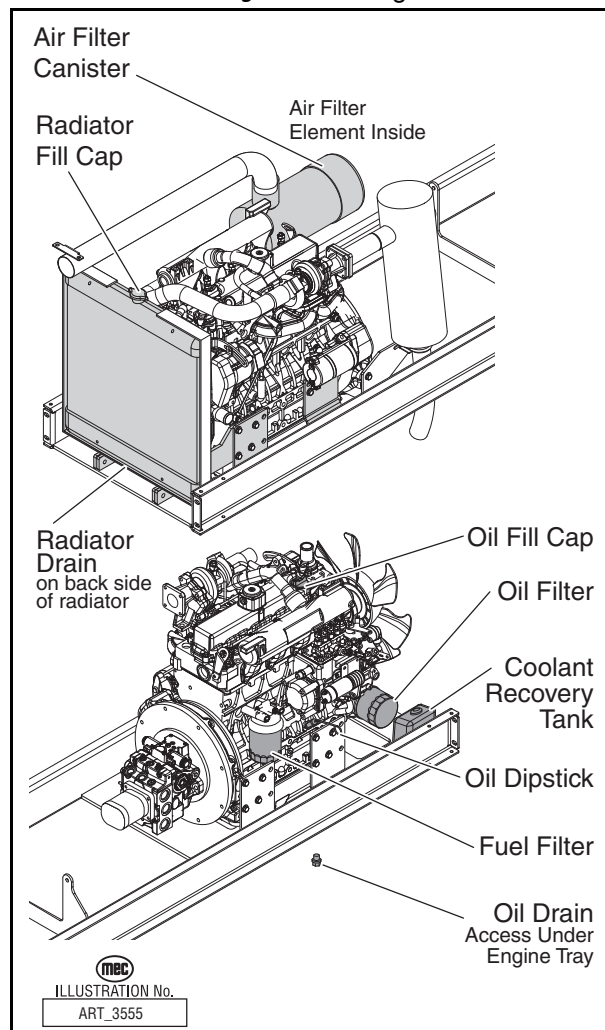
Above 77° F (25° C)	SAE30, SAE10W-30 or SAE15-40
32° ~ 77° F (0 ~ 25° C)	SAE20, SAE10W-30 or SAE15-40
Below 32° F (0° C)	SAE10W, SAE10W-30 or SAE15-40

1. Use a suitable container to catch drained oil. Remove the drain plug. After oil has drained, replace the drain plug.
2. Remove the old filter and wipe the filter seal contact surface with a clean towel.
3. Coat the seal on the new filter with clean oil, then install and tighten by hand.
4. Fill engine with 10w-30 motor oil until the dipstick indicates FULL. Capacity is 10 US quarts (9,5 l).
5. Recheck dipstick after running engine. Fill as necessary.

AIR FILTER ELEMENT

1. Clean the air filter canister before opening.
2. Remove the cap to the air filter canister.
3. Remove old filter and replace with a new filter.
4. Replace the cap to the air filter canister.

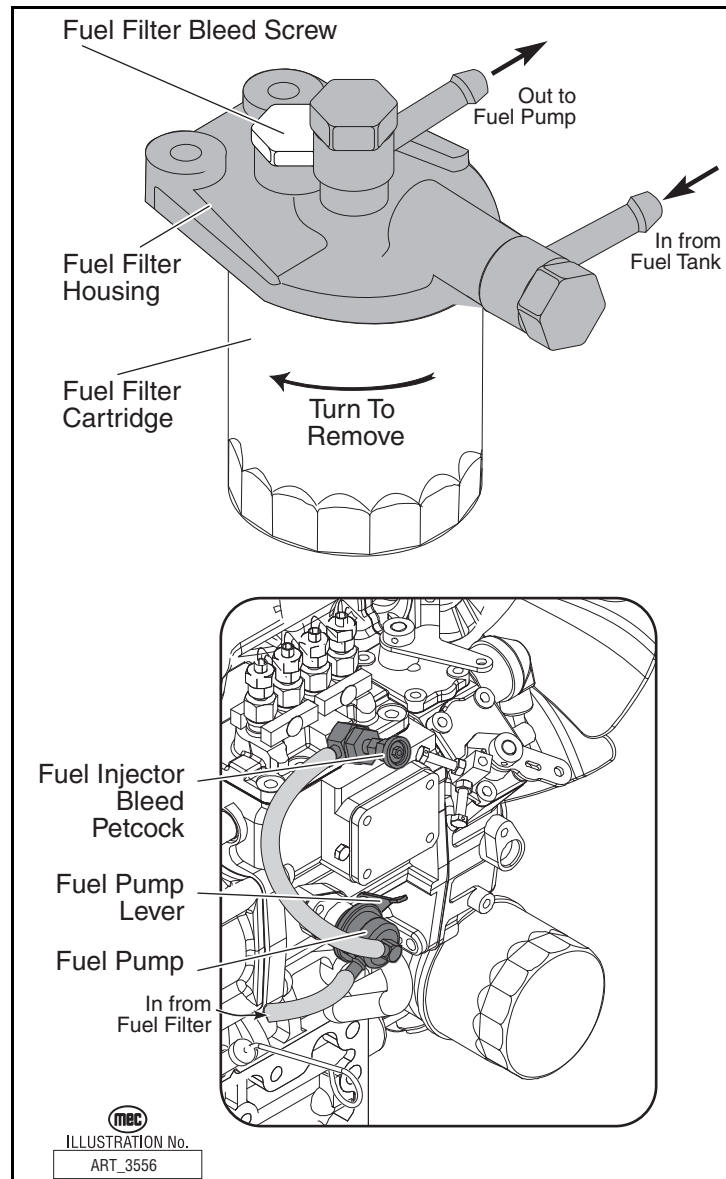
Figure 3-13: Engine Maintenance



FUEL FILTER

1. Turn OFF valve on bottom of fuel tank and clean the filter area before removing the filter.
2. Place a suitable container beneath the fuel filter assembly to catch spilled fuel.
3. Turn filter cartridge counter-clockwise to remove. Wipe the filter seal contact surface with a clean towel
4. Coat the seal on the new filter with clean oil, then install and tighten by hand.
5. Open valve at fuel tank and check for leaks.
6. Purge the air from the fuel system as follows;
 - Fill fuel tank to the fullest extent. Open valve on bottom of fuel tank.
 - Loosen Fuel Filter Bleed Screw on top of fuel filter housing a few turns. Close the bleed screw when fuel flows steadily and there are no more bubbles.
 - Open the Fuel Injector Bleed Petcock on the fuel injector pump.
 - Crank the engine for about 10 seconds, then stop it, **or** move the fuel feed pump lever by hand.
 - Start the engine. Close the Fuel Injector Bleed Petcock when the engine idles smoothly.

Figure 3-14: Fuel Filter & Fuel Pump



NOTE: The engine will crank for up to 10 seconds before the starter is cut out for a mandatory 30-second starter cool-down cycle. A red light will illuminate on the Base Control Station during the cool-down cycle.

THROTTLE ADJUSTMENT

Figure 3-15: Throttle Linkage

IDLE SPEED ADJUSTMENT

1. Bring engine to operating temperature.
2. Slow engine to complete idle.
3. Adjust the Idle Speed Screw until the RPM is 950. Adjust slightly up or down to avoid vibrations.
4. Hold the Idle Speed Screw while tightening the jam nut to prevent change in adjustment.

HIGH SPEED ADJUSTMENT

IMPORTANT: – In order to prevent electrical system damage, check the Throttle Solenoid Adjustment after this procedure.

1. Bring engine to operating temperature.
2. Disconnect the Throttle Solenoid linkage at the clevis.
3. Manually pull the Throttle Lever until it contacts the High Speed Screw.
4. Adjust the High Speed Screw until the RPM is 3000 with the Throttle Lever against the High Speed Screw.
5. Hold the High Speed Stop Screw while tightening the jam nut to prevent change in adjustment.
6. Turn off the engine and reconnect the Throttle Solenoid linkage at the clevis.

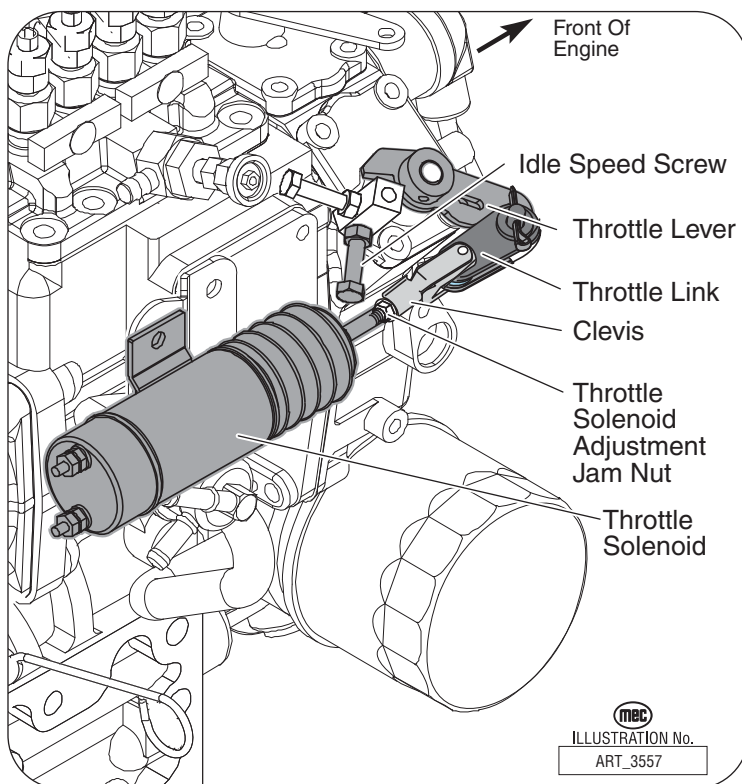
THROTTLE SOLENOID ADJUSTMENT

IMPORTANT: – This final adjustment must be made after all other throttle speed adjustments. The solenoid must be free to retract fully in order to turn OFF the High Amperage Pull Circuit. Improper adjustment will result in solenoid failure and may damage the electrical system.

1. With the engine OFF, manually retract the solenoid by grasping the piston, just ahead of the boot, and pull to the fully retracted position.

NOTE: The solenoid must retract and extend smoothly. If movement is impaired it may be necessary to reposition the solenoid to improvement alignment.

2. With the solenoid piston fully retracted measure the distance between the High Speed Stop Screw and the Throttle linkage using a .020 inch (.5 mm) feeler gauge.
3. Adjust clearance at the Throttle Solenoid linkage only.
Do not adjust the High Speed Stop Screw.
 - Disconnect the linkage at the clevis and turn the clevis to lengthen or shorten as necessary.
 - Reconnect the clevis and measure again. Repeat until the measurement is correct.



NOTES:



Section 4

TROUBLESHOOTING

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GENERAL TROUBLESHOOTING TIPS

HYDRAULIC FLUID PUMP

The Hydraulic Drive Pump used in this model is a Variable Displacement, Axial Piston type pump. Proper adjustment is critical for normal operation of the machine. Refer to "Never use a vehicle in factory override; this state is ONLY intended for use during manufacture! While factory override is active, the LED is rapidly flashed on/off." on page 4-31.

The Functions/Lift pump is a fixed-displacement gear-type pump attached to the rear of the Drive Pump.

Common Causes of Electrical System Malfunctions:

- Battery switch is turned OFF (located to the left of lower controls).
- Battery connections are loose or corroded
- Battery is not fully charged.
- Emergency Stop buttons are pushed (OFF position).
- Circuit breaker is tripped (OFF position).

Common Causes of Hydraulic System Malfunctions:

- Hydraulic fluid level is too low.
- Incompatible hydraulic fluids mixed, destroying the additives and causing varnish build up, resulting in the valves sticking.
- Water in the hydraulic fluid due to a damp climate.
- Improper hydraulic fluid used. Viscosity too high in cold climates. Viscosity too low in warm climates.
- Hydraulic fluid contaminated with debris - filter change interval neglected.

NOTE: MEC uses a multiple viscosity fluid that is light enough for cold climates and resists thinning in warm climates. Use only the recommended hydraulic fluid. Substituting with a lower grade fluid will result in pump and drive motor failure. Refer to "Lubrication" in the *INTRODUCTION* Section

NOTE: Contamination always causes failure in any hydraulic system. It is very important to be careful not to introduce any contamination into hydraulic system during the assembly procedures. Please make sure all ports and cavities of the manifold and cylinders are properly covered/plugged during maintenance activities.

ELECTRICAL SYSTEM TROUBLESHOOTING

The electronic control system used on this machine was designed for low maintenance and long, trouble-free operation. The system consists of two microprocessor based modules: the Matrix Module and the GP400 Processor. They communicate through a low voltage digital signal called CAN-Bus communication.

To protect against part failure or incorrect plug connections, the modules are fully short circuit and reverse polarity protected. All electrical plug connections are waterproof to promote longer trouble free operation and to increase terminal life.



NEVER ATTEMPT TO SUPPLY BATTERY POWER, OR VOLTAGE HIGHER THAN 12 VOLTS TO ANY PART OR MODULE IN THIS SYSTEM, AS CATASTROPHIC FAILURE OF THE MODULES MAY RESULT.

USE OF HIGH PRESSURE WASHING EQUIPMENT DIRECTLY ON THE MODULES CAN FORCE WATER INTO SEALED CONNECTION AND CAN CAUSE A TEMPORARY SYSTEM SHUT-DOWN. HIGH PRESSURE WASHING WITHIN THE VICINITY OF THE MODULES IS HIGHLY DISCOURAGED.

GP400 MODULE

The GP400 module is “the brains” of the system. It receives and processes a variety of inputs both from the machine and the operator, then controls all the operative functions of the machine. It also has a feature that allows the technician to access and monitor all functionality of the system, along with a technician-friendly series of fault messages that can be accessed through the use of the EZ-Cal scan tool. Flash codes are also provided in case an EZ-Cal scan tool is not available.

Such information can be used for preventative maintenance and troubleshooting should a problem arise. A comprehensive list of EZ-Cal accessible information can be found later in this section.

The GP400 operates on 12 volts DC and should never be probed or operated with voltage higher than 14 volts DC

Figure 4-1: GP400 Module, 5492RT

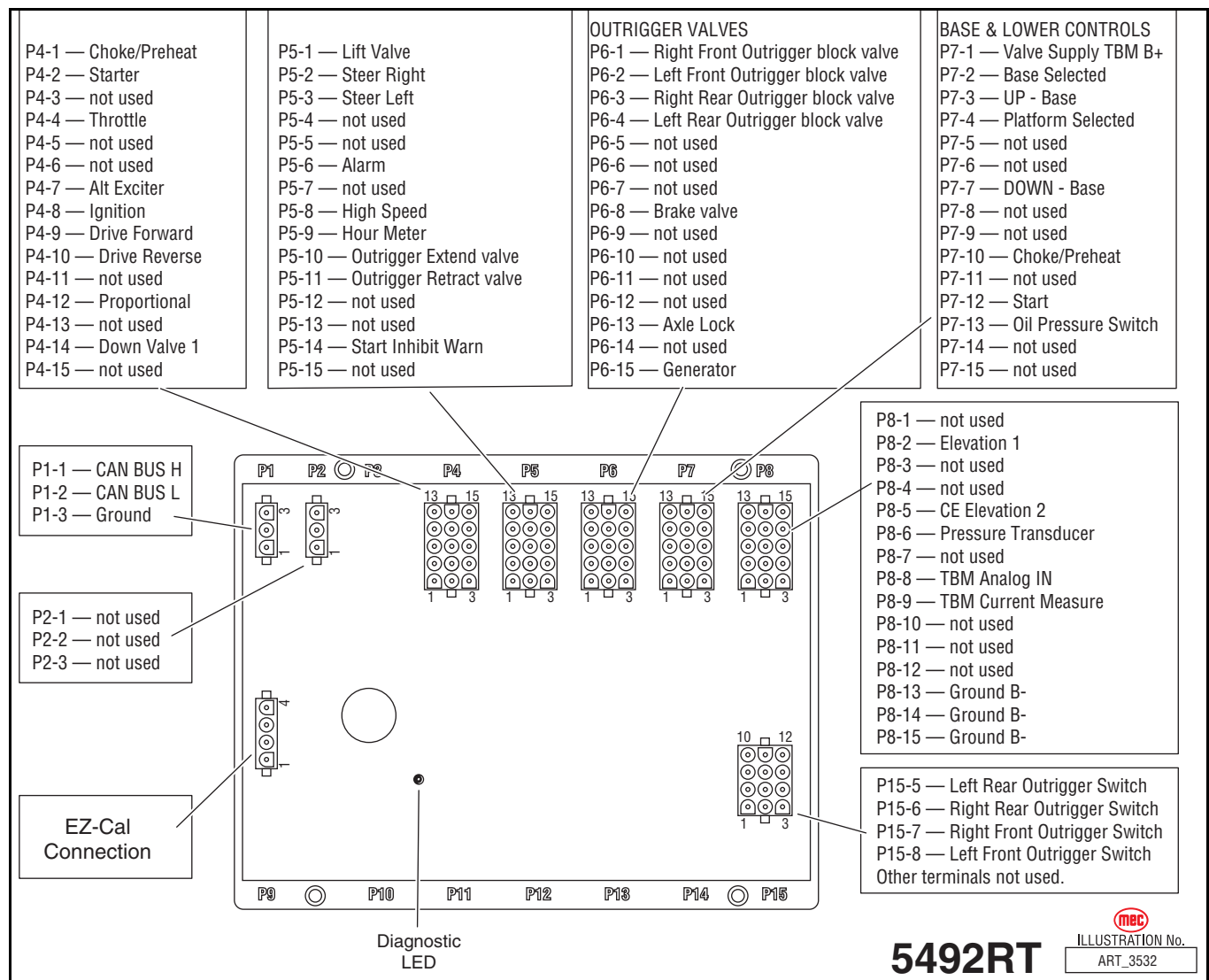
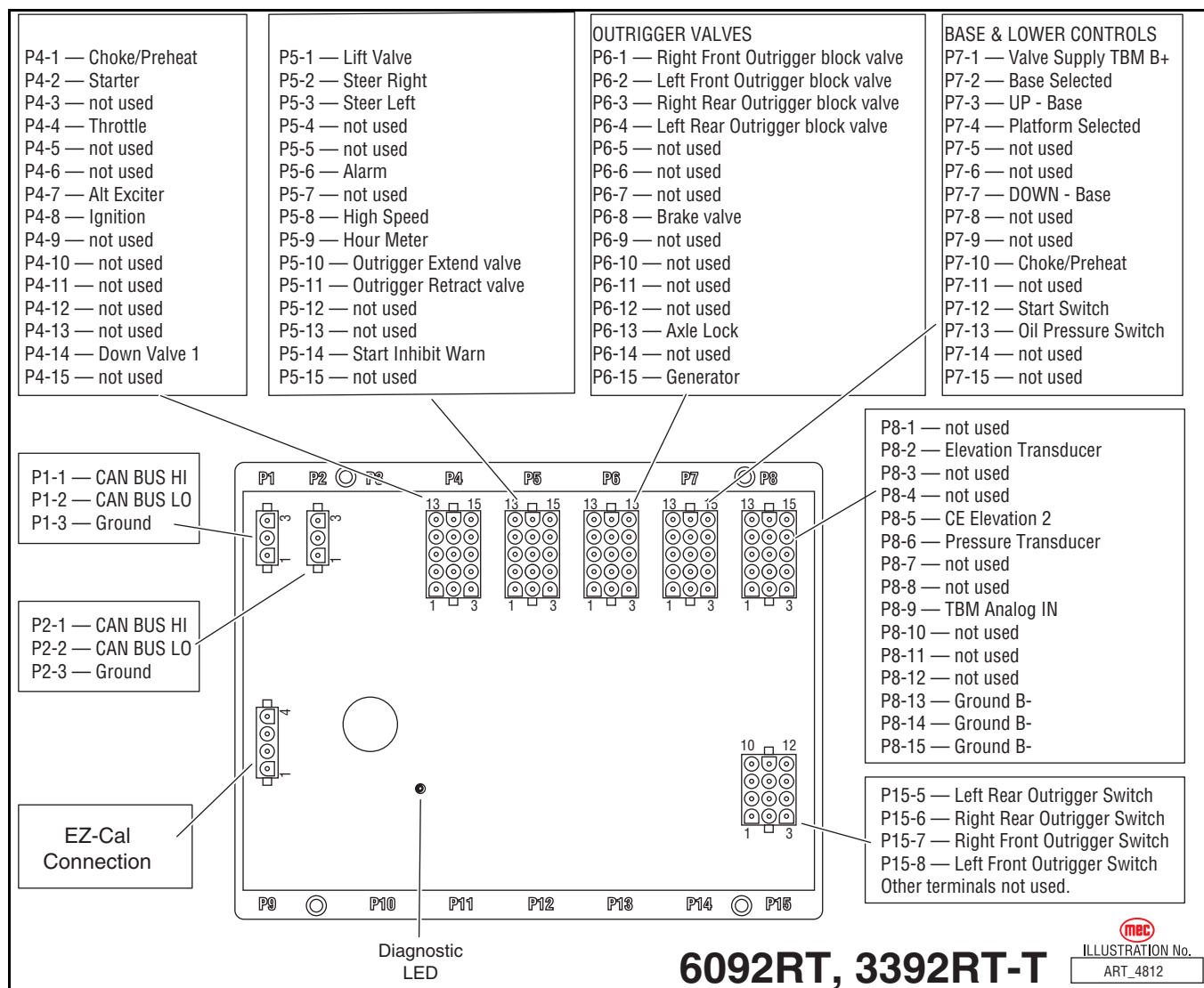


Figure 4-2: GP400 Module, 6092RT, 3392RT-T



MATRIX MODULE

The Matrix Module is the remote module located inside the upper control box. It received inputs from the operator and relays them to the GP400.

Figure 4-3: Matrix Module

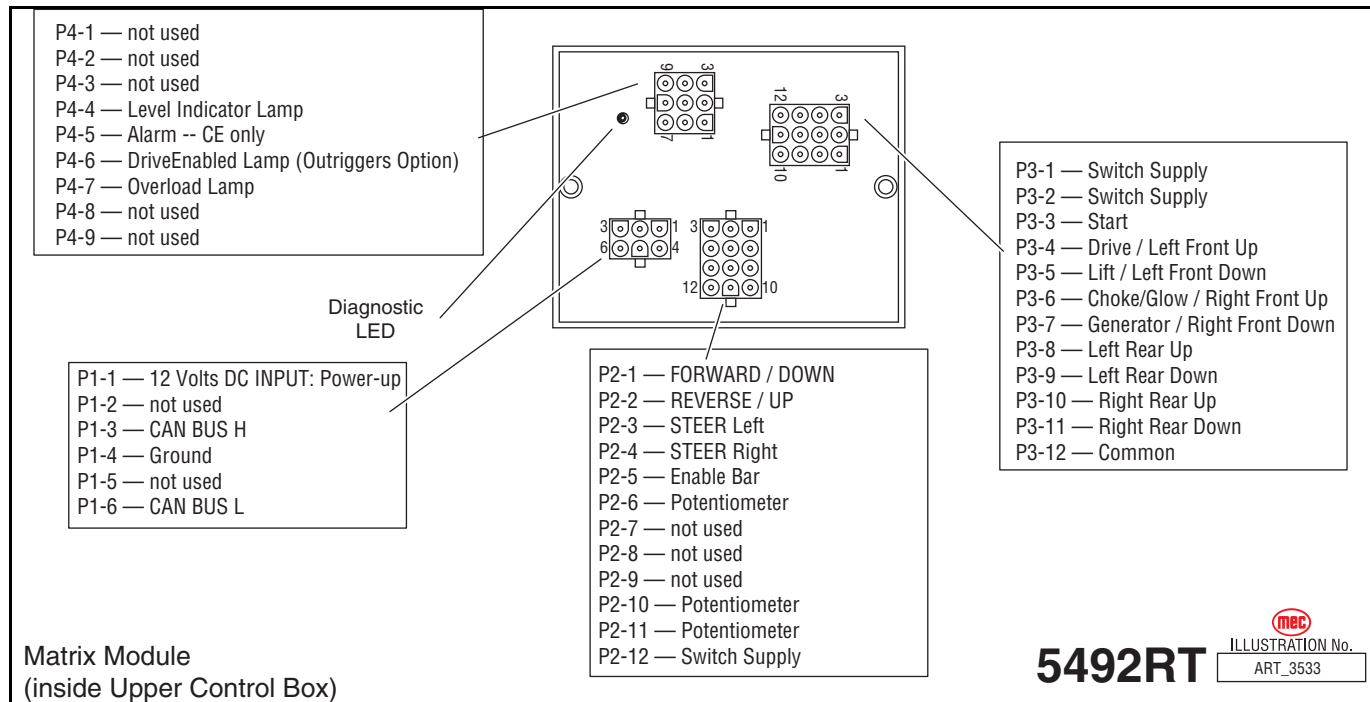
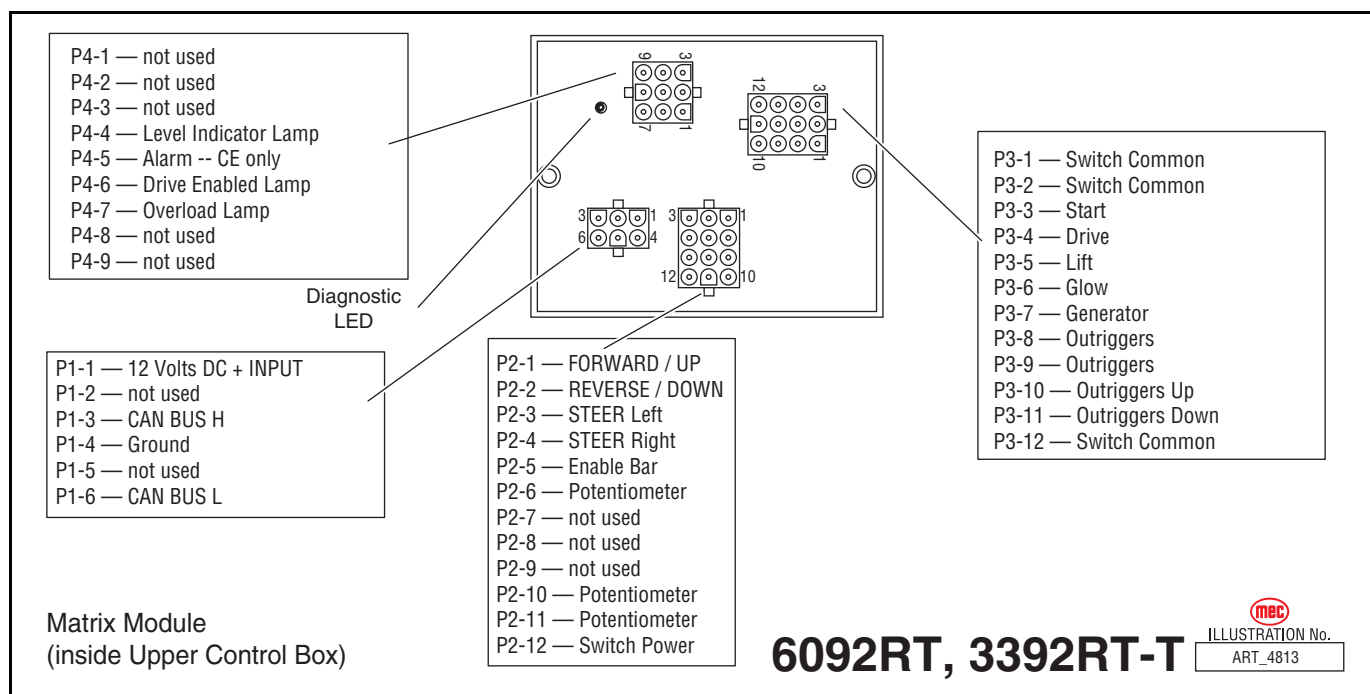


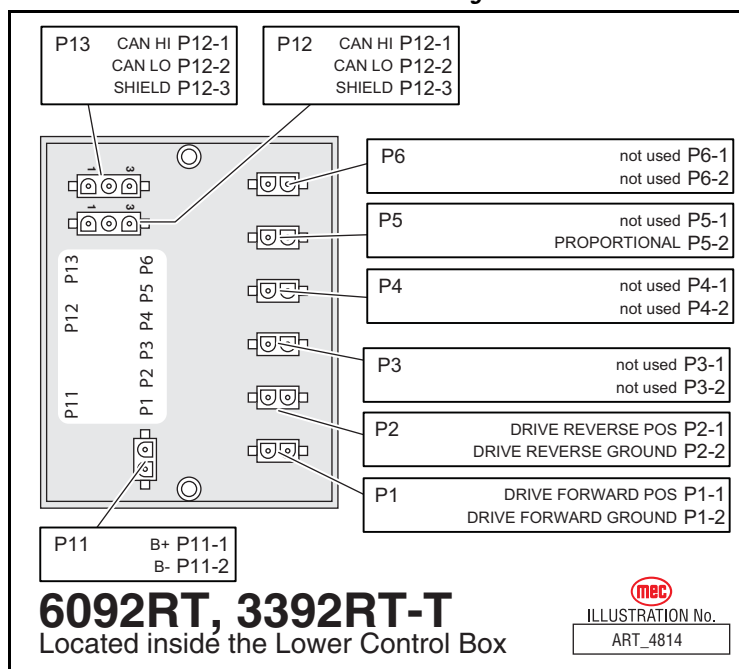
Figure 4-4: Matrix Module, 6092RT, 3392RT-T



VALVE CONSTANT CURRENT MODULES (VCCM)

The Valve Constant Current Module is an auxiliary module located inside the lower control box of 6092RT and 3392RT-T models. This module controls the proportional drive functions of the machine.

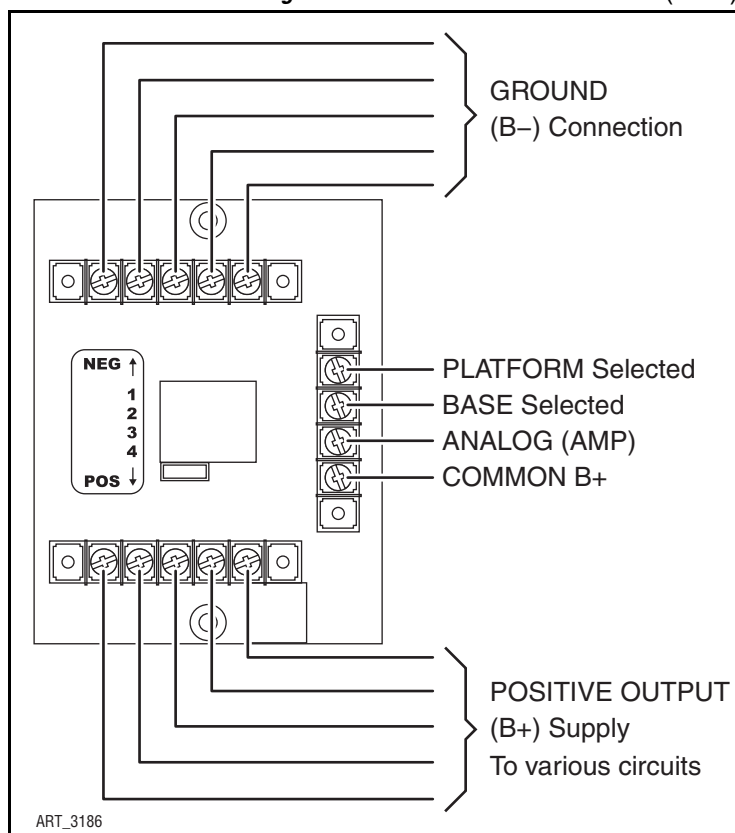
Figure 4-5: Matrix Module



TERMINAL BLOCK MODULE (TBM)

There is a module inside the lower control box called a TBM (Terminal Block Module) that provides terminal point connections for both positive and ground circuits. A signal from the Emergency Stop circuit activates a load-reduction relay within the TBM that provides ample power to the B+ (positive) terminal strip. This arrangement protects the system against voltage drop conditions that can be detrimental to the electrical system.

Figure 4-6: Terminal Block Module (TBM)



EZ-CAL SCAN TOOL

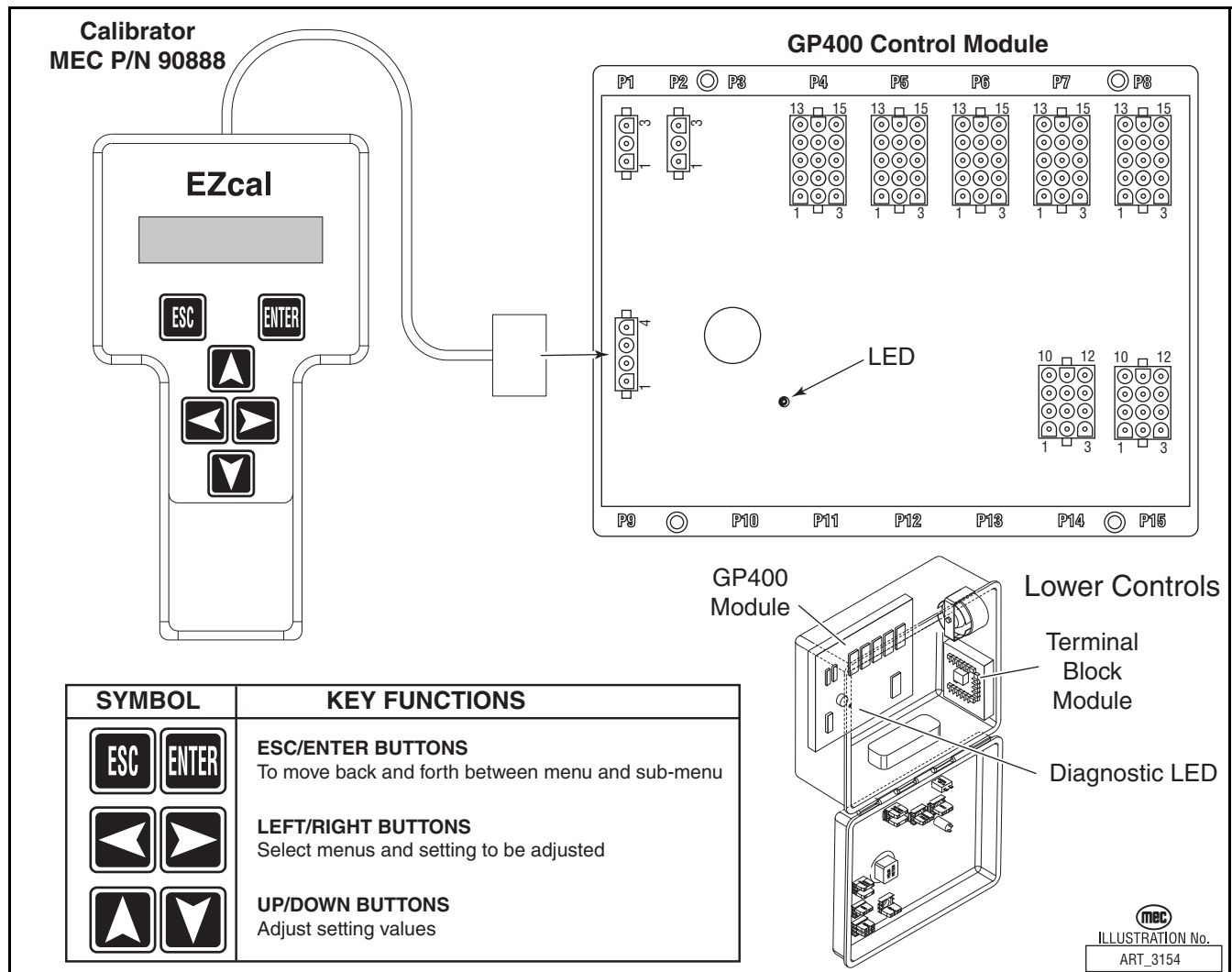
The EZ-Cal (MEC part # 90888; not part of the machine) is a hand-held scan tool that interfaces with the system to provide various information and adjustments. The EZ-cal receives its power from the GP400 when connected. The system must be powered up by closing the Battery disconnect switch and pulling out both emergency stop switches. You must also select Base or Platform depending on the station you will operate from.

USING THE EZ-CAL SCAN TOOL

To operate the EZ-cal, plug the cable into the 4-terminal receptacle P9 on the GP400 and power the system up.

- The EZ-Cal display will illuminate and read "HELP: PRESS ENTER". From this point, use the right and left arrows to scroll through the base menus.
- Once the desired base menu is obtained (i.e. *ADJUSTMENTS*) press Enter to access sub menus.
- Use the right and left arrows to scroll through sub menus, press Enter again.
- The up/down arrows are used to change settings only.
- Press ESC to back up one level.

Figure 4-7: EZ-Cal Scan Tool Connections - GP400 Module

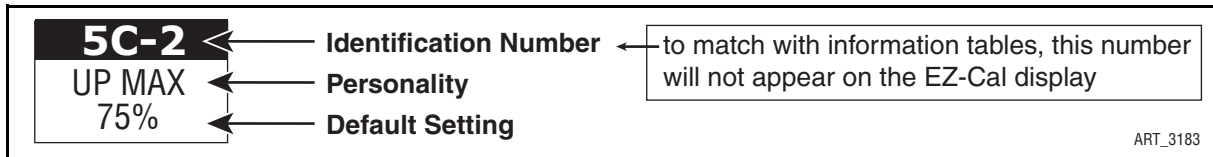


ADJUSTMENTS, SETUP & DIAGNOSTICS FLOWCHARTS

USING THE EZ-CAL WITH THE FLOW CHARTS

Use the EZ-cal Flow Charts as a guide to locate diagnostic information and make adjustments. Each box in the flow chart will have 3 bits of information.

Figure 4-8: EZ-Cal Display Example



The IDENTIFIER (5c2): – Used to locate this specific personality in the informational charts. Here you can obtain specific information on the individual personalities.

The PERSONALITY (Up Max): – Identifies the individual personalities.

The DEFAULT SETTING: – The factory setting. If adjustments are made, they must be returned to default setting.



WARNING

ACCESS LEVEL 1 PROVIDES ACCESS TO CHANGE PERSONALITIES NORMALLY PRESET AT THE FACTORY TO PROVIDE PROPER MACHINE MOVEMENT AT SAFE SPEEDS. PERSONALITIES MUST NOT BE CHANGED WITHOUT PRIOR AUTHORIZATION FROM MEC AND MAY ONLY BE RETURNED TO FACTORY SPECIFICATION AS LISTED IN THE FOLLOWING TABLES.

ERROR MESSAGES

To obtain error messages from the EZ-cal Connect the EZ-cal as mentioned above. The display will read, "HELP:PRESS ENTER". Press Enter to display the current error message. Use the following list of error messages to better understand the fault. Pressing Enter twice will provide a scrolling message of the current error followed by a log of previous errors that may have occurred within recent operation.

FLASH CODES

Flash Codes, provided from the GP400 red LED, will also assist in the event an EZ-cal is not available. However, the EZ-cal yields considerably more relevant information. Refer to "EZ-Cal HELP Messages" on page 4-25 for flash coded error messages.

ADJUSTMENTS & SETUP FLOW CHARTS

Following are the Adjustments & Setup flow charts for the machine models covered by this manual.

Figure 4-9: Adjustments and Setup Flow Chart, 5492RT ANSI

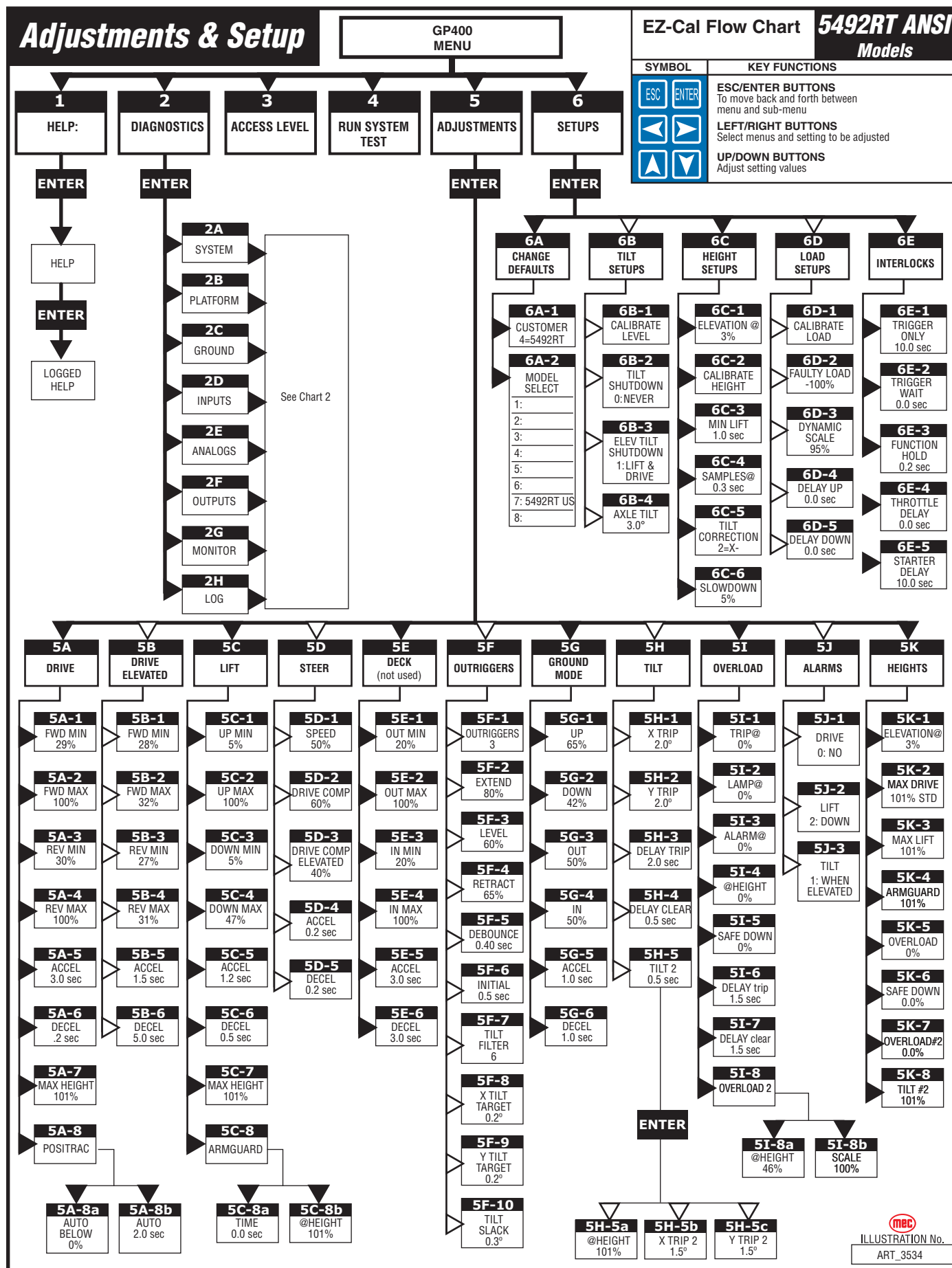


Figure 4-10: Adjustments and Setup Flow Chart, 5492RT w/ Optional Load Sensing System

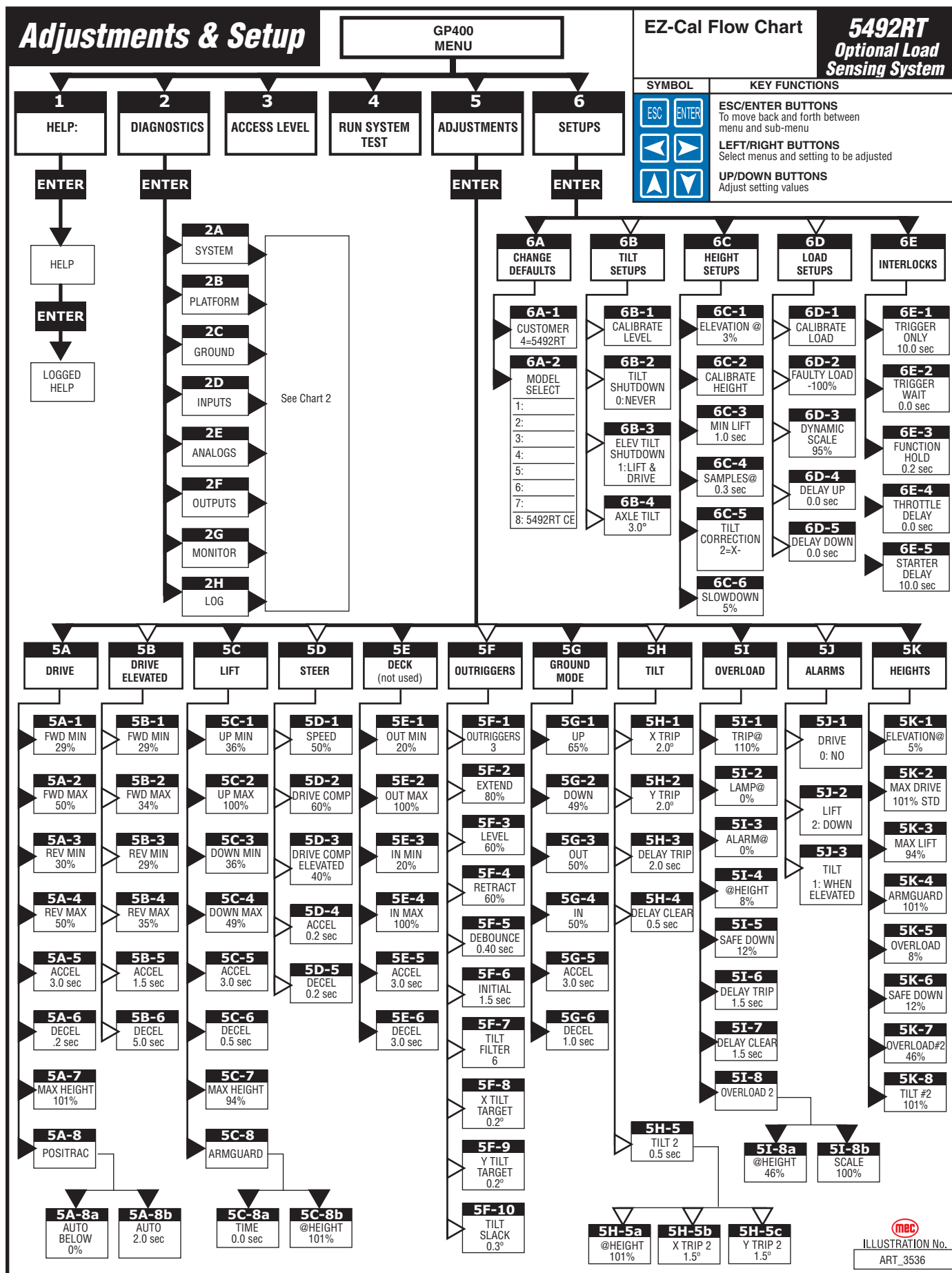


Figure 4-11: Adjustments and Setup Flow Chart, 6092RT ANSI Models ~#12900032

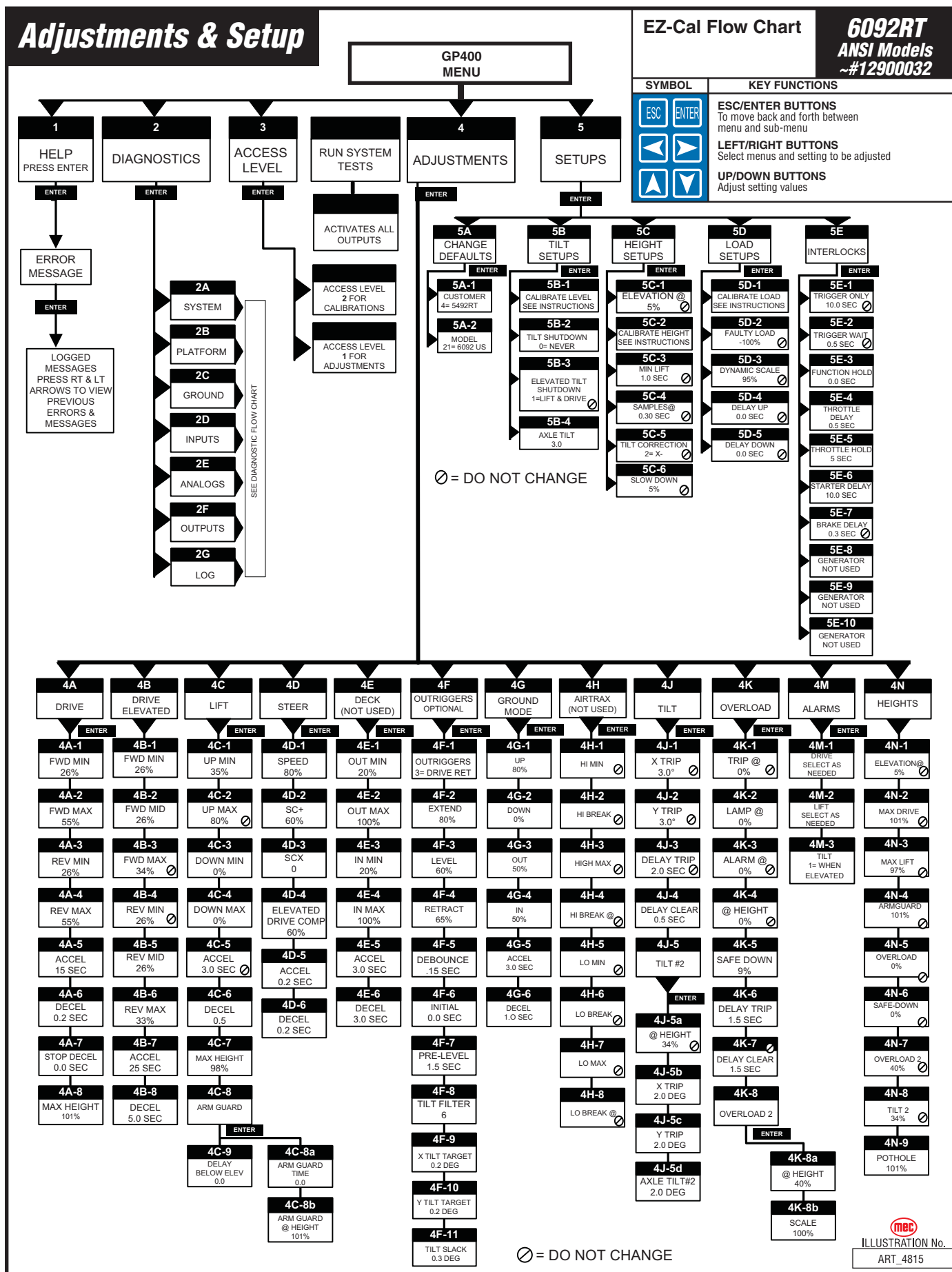
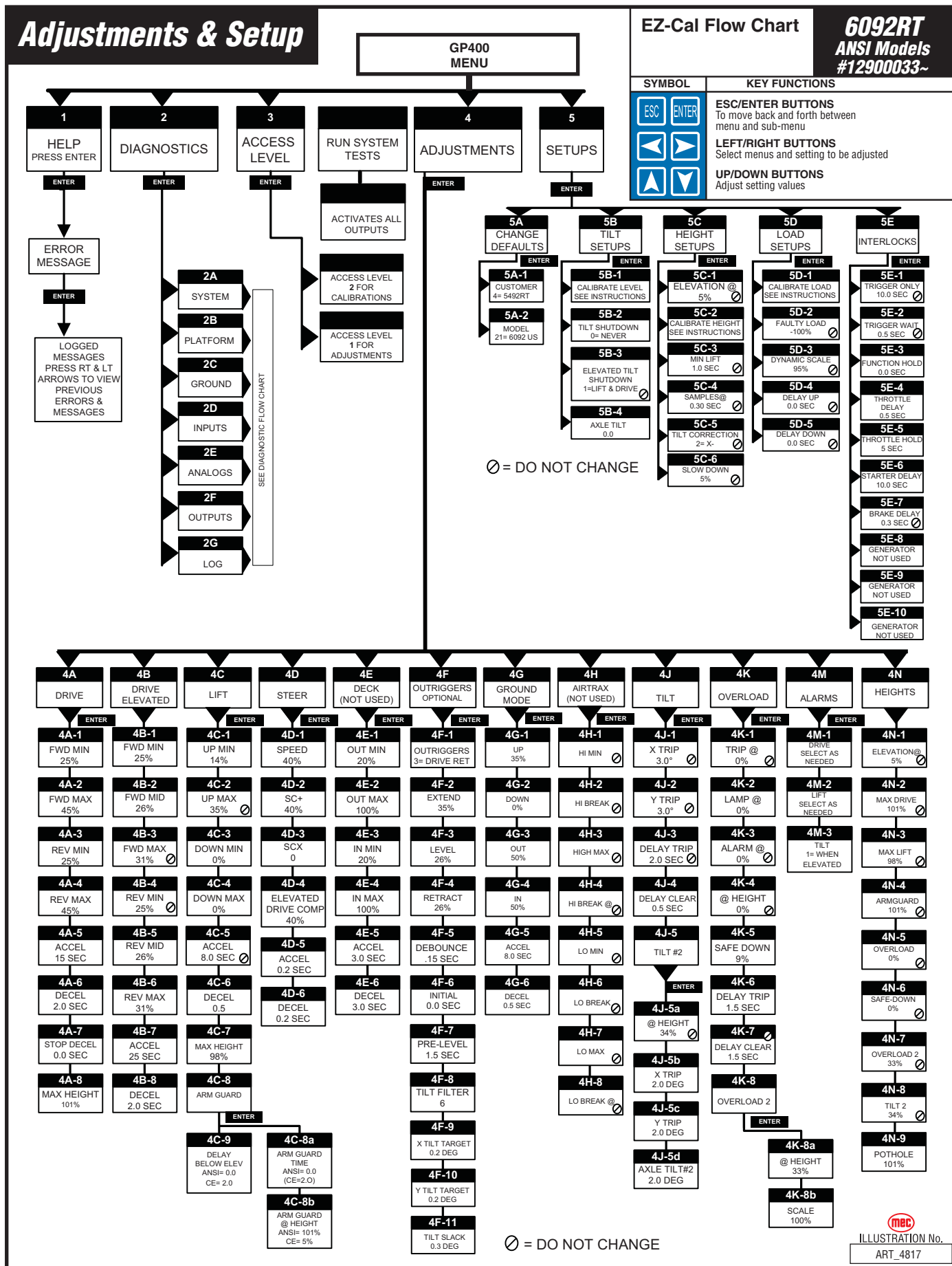


Figure 4-12: Adjustments and Setup Flow Chart, 6092RT ANSI Models #12900033~



GP400 MENU

4A
DRIVE

ENTER

4A-1 FWD MIN 25%

4A-2 FWD MAX 45%

4A-3 REV MIN 25%

4A-4 REV MAX 45%

4A-5 ACCEL 15 SEC

4A-6 DECEL 2.0 SEC

4A-7 STOP DECEL 0.0 SEC

4A-8 MAX HEIGHT 101%

4B
DRIVE ELEVATED

ENTER

4B-1 FWD MIN 25%

4B-2 FWD MID 26%

4B-3 FWD MAX 31%

4B-4 REV MIN 25%

4B-5 REV MID 26%

4B-6 REV MAX 31%

4B-7 ACCEL 25 SEC

4B-8 DECEL 2.0 SEC

4C
LIFT

ENTER

4C-1 UP MIN 14%

4C-2 UP MAX 35%

4C-3 DOWN MIN 0%

4C-4 DOWN MAX 0%

4C-5 ACCEL 8.0 SEC

4C-6 DECEL 0.5

4C-7 MAX HEIGHT 98%

4C-8 ARM GUARD

4C-9 DELAY BELOW ELEV ANSI= 0.0 CE= 2.0

4C-8a ARM GUARD TIME ANSI= 0.0 CE= 5%

4C-8b ARM GUARD @ HEIGHT ANSI= 101% CE= 5%

4D
STEER

ENTER

4D-1 SPEED 40%

4D-2 SC+ 40%

4D-3 SCX 0

4D-4 ELEVATED DRIVE COMP 40%

4D-5 ACCEL 3.0 SEC

4D-6 DECEL 0.2 SEC

4E
DECK (NOT USED)

ENTER

4E-1 OUT MIN 20%

4E-2 OUT MAX 100%

4E-3 IN MIN 20%

4E-4 IN MAX 100%

4E-5 ACCEL 3.0 SEC

4E-6 DECEL 3.0 SEC

4F
OUTRIGGERS OPTIONAL

ENTER

4F-1 OUTRIGGERS 3= DRIVE RET

4F-2 EXTEND 35%

4F-3 LEVEL 26%

4F-4 RETRACT 26%

4F-5 DEBOUNCE .15 SEC

4F-6 INITIAL 0.0 SEC

4F-7 PRE-LEVEL 1.5 SEC

4F-8 TILT FILTER 6

4F-9 X TILT TARGET 0.2 DEG

4F-10 Y TILT TARGET 0.2 DEG

4F-11 TILT SLACK 0.3 DEG

4G
GROUND MODE

ENTER

4G-1 UP 35%

4G-2 DOWN 0%

4G-3 OUT 50%

4G-4 IN 50%

4G-5 ACCEL 8.0 SEC

4G-6 DECEL 0.5 SEC

4H
AIRTRAX (NOT USED)

ENTER

4H-1 HI MIN

4H-2 HI BREAK

4H-3 HIGH MAX

4H-4 HI BREAK @

4H-5 LO MIN

4H-6 LO BREAK

4H-7 LO MAX

4H-8 LO BREAK @

4J
TILT

ENTER

4J-1 X TRIP 3.0"

4J-2 Y TRIP 3.0"

4J-3 DELAY TRIP 2.0 SEC

4J-4 DELAY CLEAR 0.5 SEC

4J-5 TILT #2

4J-5a @ HEIGHT 34%

4J-5b X TRIP 2.0 DEG

4J-5c Y TRIP 2.0 DEG

4J-5d AXLE TILT#2 2.0 DEG

4K
OVERLOAD

ENTER

4K-1 TRIP @ 0%

4K-2 LAMP @ 0%

4K-3 ALARM @ 0%

4K-4 @ HEIGHT 0%

4K-5 SAFE DOWN 9%

4K-6 DELAY TRIP 1.5 SEC

4K-7 DELAY CLEAR 1.5 SEC

4K-8 OVERLOAD 2

4K-8a @ HEIGHT 33%

4K-8b SCALE 100%

4M
ALARMS

ENTER

4M-1 DRIVE SELECT AS NEEDED

4M-2 LIFT SELECT AS NEEDED

4M-3 TILT 1= WHEN ELEVATED

4N
HEIGHTS

ENTER

4N-1 ELEVATION@ 5%

4N-2 MAX DRIVE 101%

4N-3 MAX LIFT 98%

4N-4 ARM GUARD 101%

4N-5 OVERLOAD 0%

4N-6 SAFE-DOWN 0%

4N-7 OVERLOAD 2 33%

4N-8 TILT 2 34%

4N-9 POT HOLE 101%

⊘ = DO NOT CHANGE

ILLUSTRATION No. ART_4817

Figure 4-13: Adjustments and Setup Flow Chart, 6092RT w/ Optional Load Sensing System

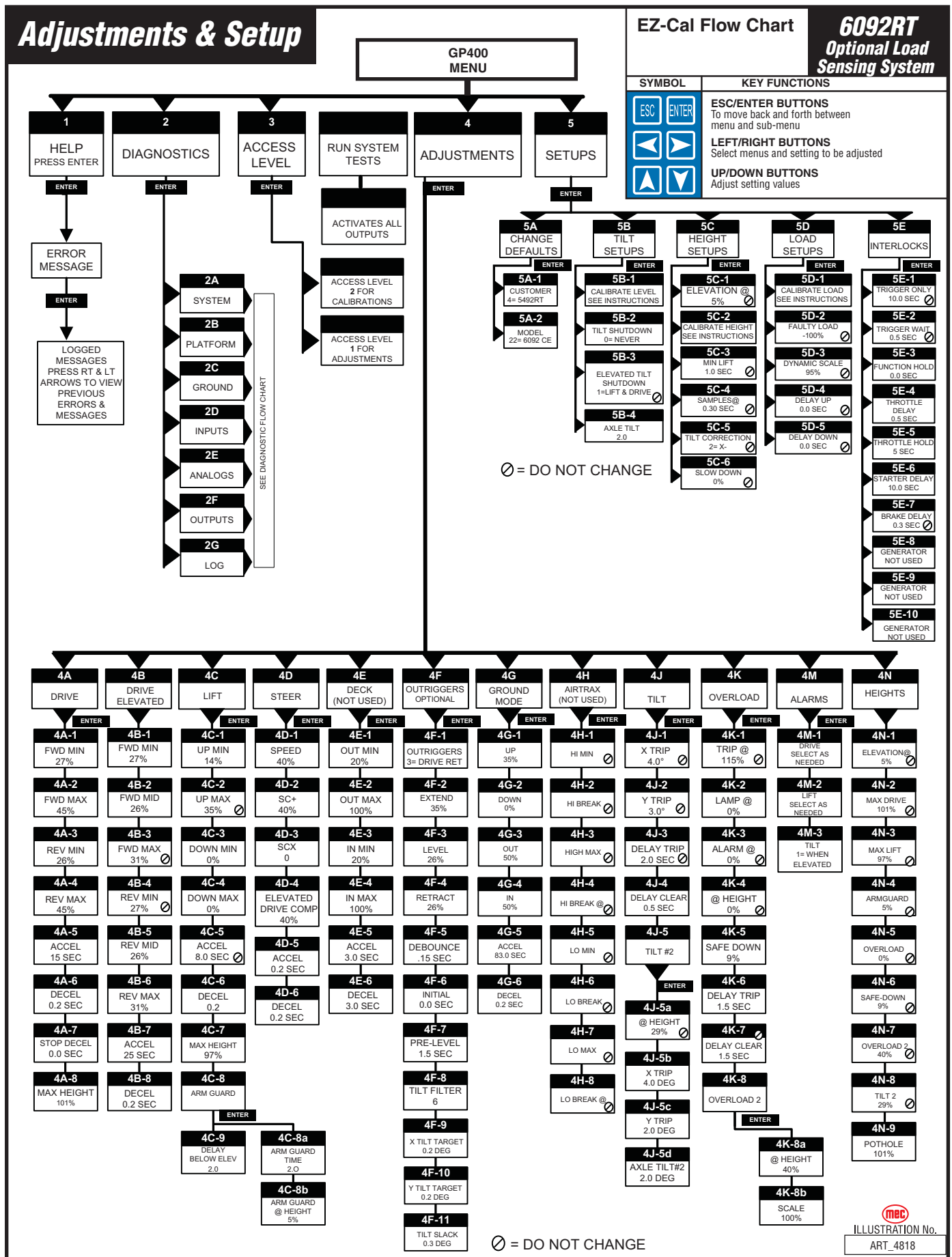


ILLUSTRATION No.
ART_4818



Figure 4-14: Adjustments and Setup Flow Chart, 3392RT-T Models ~#13600044

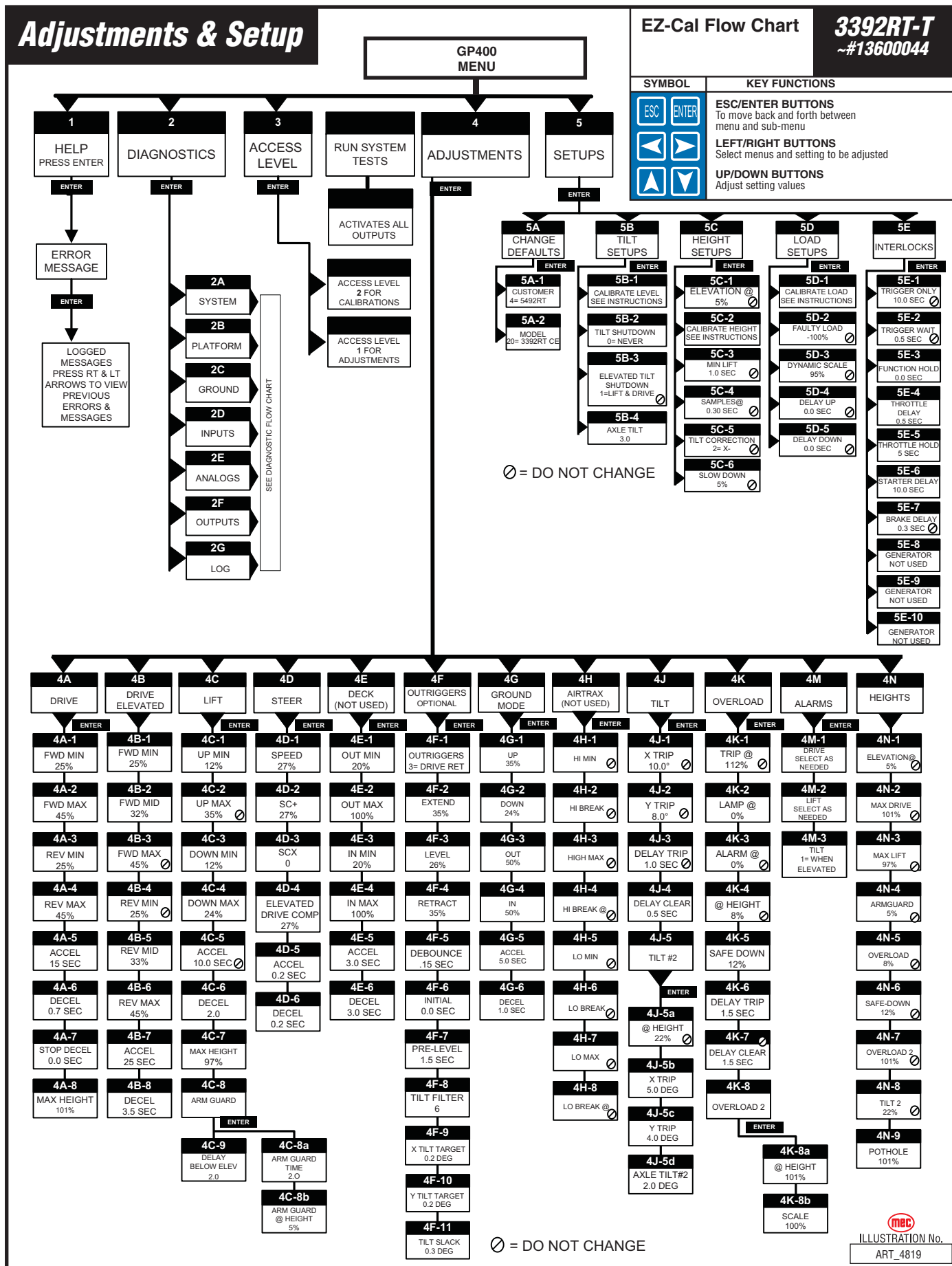


Figure 4-15: Adjustments and Setup Flow Chart, 3392RT-T Models #13600045~

For information regarding the
Adjustments & Setup Flow Chart for
later 3392RT-T models, please contact
MEC Customer Service at
1-877-632-5438.

DIAGNOSTIC FLOW CHARTS

Following are the Diagnostic flow charts for the machine models covered by this manual.

Figure 4-16: Diagnostic Flow Chart, 5492RTANSI

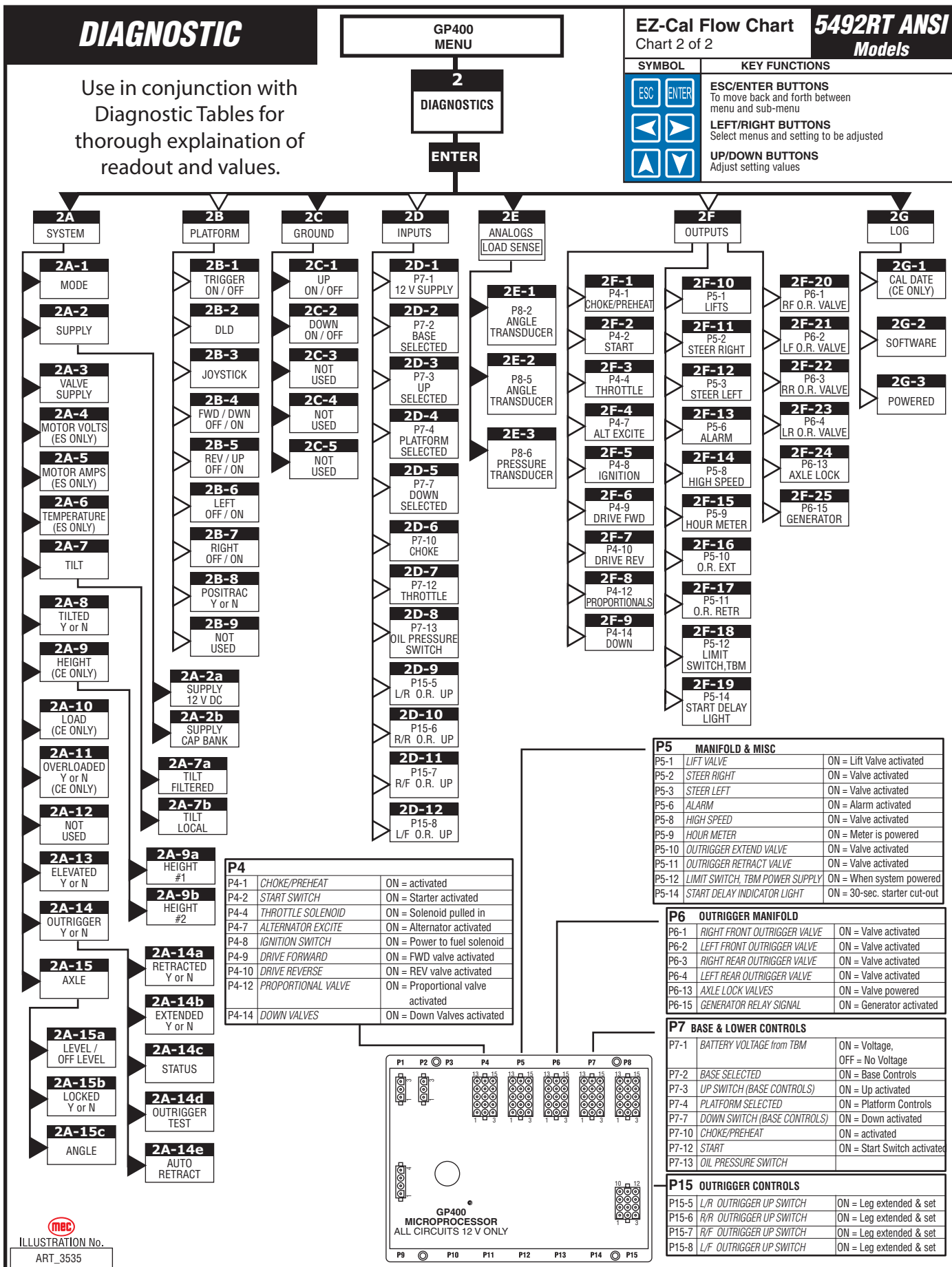


Figure 4-17: Diagnostic Flow Chart, 5492RT w/ Optional Load Sensing System

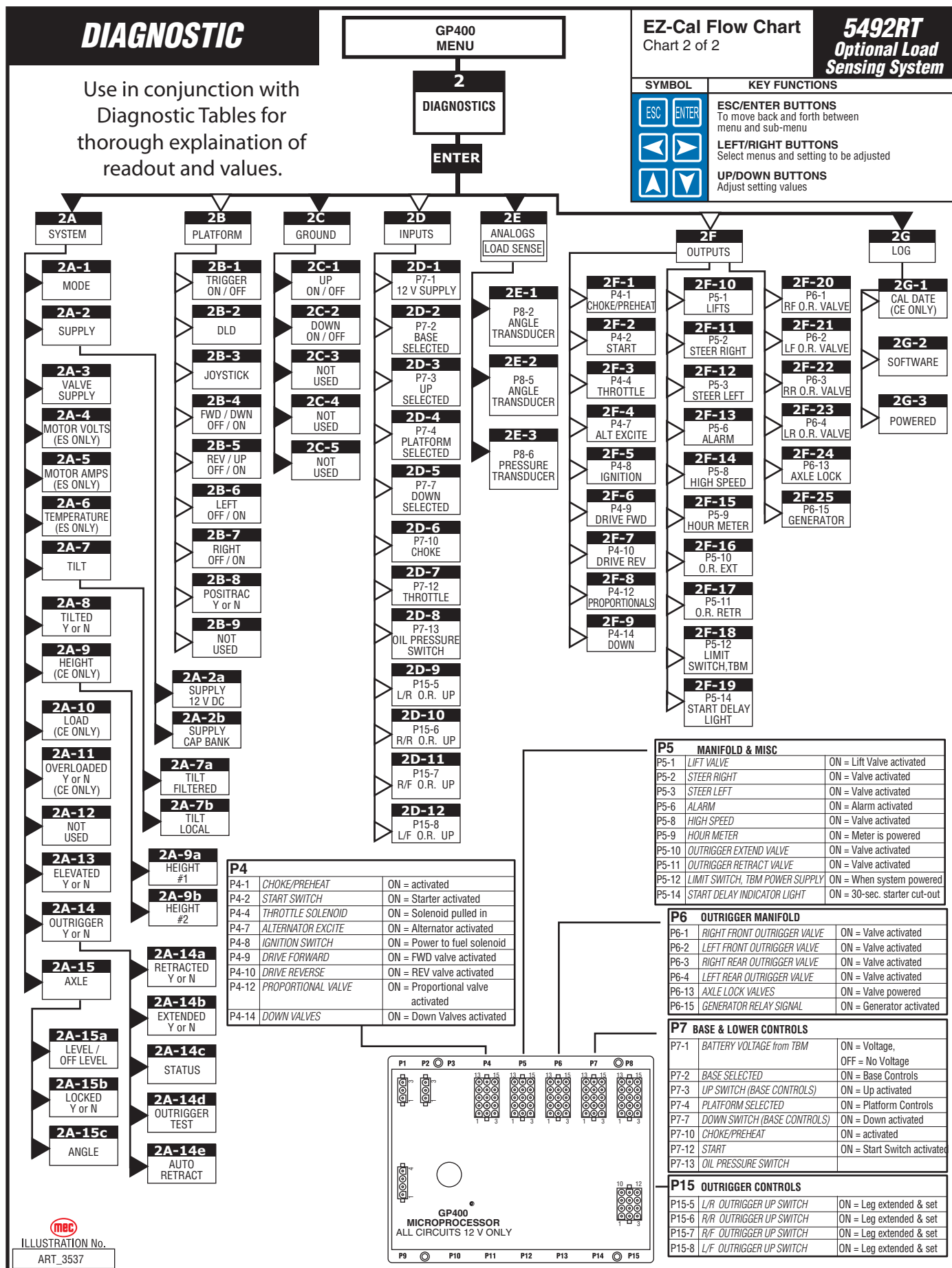
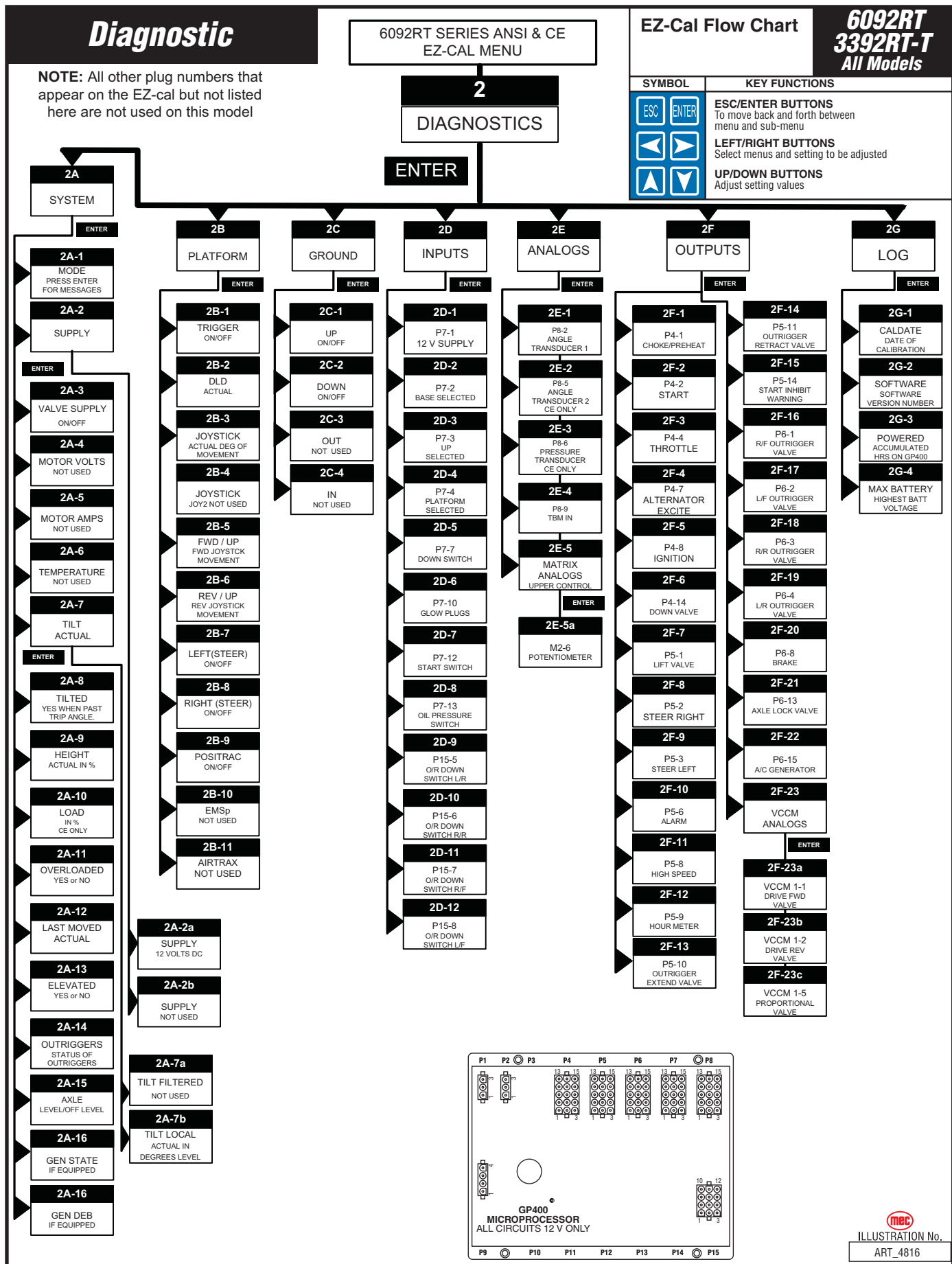


Figure 4-18: Diagnostic Flow Chart, 3392RT-T & 6092RT Models



EZ-CAL ADJUSTMENT

Refer to "Using the EZ-cal Scan Tool" on page 4-9.

Adjustments are possible in Access Level 1 Only.

Before changing personalities, ensure that the correct customer and model have been selected in the SETUPS menu. Any changes to settings will be lost when the model or customer is changed.

To reach ADJUSTMENTS, first access Level 1, then press --> for ADJUSTMENTS.

Press Enter, then press --> to scroll through the sub-menus.

Once the desired sub-menu is found, press Enter again, then --> to scroll through the personalities. Press the Up or Down arrows to change the personality. Press ESC to go back one or more levels to reach other sub-menus.

EZ-CAL DIAGNOSTICS

The EZ-Cal Diagnostics menu provides the ability to view and test individual circuits for irregularities. Whether diagnosing a failure or testing functions during preventative maintenance, the *Diagnostics Menu* provides a quick view at the inputs and outputs as registered by the GP400 Control Module **in real time**. Using the EZ-Cal Flow Chart, compare ID number to this menu for circuit identification and result.

To reach DIAGNOSTICS menu from HELP;

- Press the right arrow and scroll to DIAGNOSTICS and press ENTER.
- Locate the desired sub menu and press ENTER.
- Press the right arrow to scroll through the test points.

NOTE: The ID number will not appear on the EZ-Cal display. It is shown in the *Diagnostics Menu* for reference only.

Using the ID number, match specific personalities from the Diagnostic Flow Charts with this table for additional information.

Press **ESC** to go back one level (necessary to change selection).

EZ-CAL RETRIEVE MODE AND HELP MESSAGES

NOTE: *It is important to understand that an error message will only be available if the red Diagnostic LED is flashing. If the machine is not operating properly and the red Diagnostic LED is not flashing, the trouble may lie with something not monitored by the electronic control system, i.e. a switch, hydraulic valve or wiring damage.*

There are two different menus that you can access for message retrieval; MODE and HELP.

MODE MENU

Allows the technician to see the current state of the controller with a short description. Go to, DIAGNOSTICS/SYSTEM/MODE (EZ-Cal Flow Chart 2, ID# 2a-1). Pressing ENTER a second time will provide additional information with certain messages.

HELP MENU

Provides various HELP messages to identify failure modes.

Some error messages may also be identified by counting the number of times the red LED flashes on the controller so that even without access to an EZ-Cal, some simple diagnostics are possible. However, it is recommended to use an EZ-Cal to diagnose problems, and not rely on the LED! The EZ-Cal provides a much higher detail of information.

HELP MESSAGE

- Connect the EZ-Cal (see illustration).
The display will read, "HELP: PRESS ENTER".
- Press Enter to display the current message.
- Refer to the following list of HELP messages to better understand the nature of the message or fault.
- If the GP400 does not register a fault, the display will read EVERYTHING OK.

Pressing ENTER twice will provide a scrolling message of the current message (if one exists).

Pressing RT and LT arrows provides access to a log of previous operations and/or errors that occurred immediately prior, starting with most recent. **All messages are cleared whenever the system is powered down.**

Other helpful menus available include **DIAGNOSTICS** which allows the technician to monitor specific plug input/output information. Refer to EZ-Cal Flow Chart 2 – Diagnostics (ANSI - Page 4-18; Optional Load Sensing System - Page 4-19).

MODE MESSAGES

The purpose of **MODE** is to indicate, in real time, the current state of the controller with a short description.

INITIALIZING

- The system is preparing to operate, immediately after power-on.

SHUTDOWN!

- The system cannot operate – for example both the PLATFORM & GROUND inputs are active together.

CHECK CANBUS

- The system cannot operate – CANBUS communications is not successful (for example wire damage to the platform)

PLATFORM, GROUND

- The system is ready to operate, from the upper or lower controls as indicated (selected by the Base/Platform selector switch)

GROUND UP, GROUND DOWN,

- A ground function is operating normally

GROUND UP LOCKED, GROUND DOWN LOCKED,

- A ground function is selected but not allowed (for example, the function switch was closed at power-on)

GROUND FAULTY

- Multiple ground function inputs are active at the same time

WAITING FOR TRIGGER

- A platform function is selected, but the joystick trigger switch is not closed (close the trigger switch to proceed)

TRIGGER CLOSED

- The joystick trigger switch is closed, but no function is selected (select a function to proceed)

TRIGGER LOCKED

- The joystick trigger switch was closed at power-on, or closed for too long with no function selected (check trigger switch)

FORWARD, REVERSE

- A platform drive function is operating normally

FORWARD (LEFT), FORWARD (RIGHT), REVERSE (LEFT), REVERSE (RIGHT)

- A platform drive function is operating normally, with steer also active

STEER LEFT, STEER RIGHT

- A platform steer function is operating normally (without drive)

UP, DOWN

- A platform lift/lower function is operating normally

FORWARD LOCKED, REVERSE LOCKED

- A platform drive function is selected but not allowed (for example, the switch was closed at power-on)

LEFT LOCKED, RIGHT LOCKED

- A platform steer function is selected but not allowed (for example, the switch was closed at power-on)

UP LOCKED, DOWN LOCKED

- A platform lift/lower function is selected but not allowed (for example, the switch was closed at power-on)

CHECK DRIVE/LIFT

- Neither platform drive nor platform lift select is active, or both are active at the same time

CHECK JOYSTICK

- Both platform joystick directions are active at the same time

STEER FAULTY

- Both platform steer directions are active at the same time

EXTENDING LEGS

- Outrigger legs are extending normally

RETRACTING LEGS

- Outrigger legs are extending normally

OUTRIGGERS LOCKED

- An outrigger function is selected but not allowed (for example, the switch was closed at power-ON)

INTERLOCKED**

- An interlock shutdown is active, preventing one or more functions. The interlock can be due to many different causes ...

Press <ENTER> from the **MODE display to see the precise cause of the interlock (listed below) – press <ESC> from that display to return to the **MODE** display:

TEST MODE

- The system test mode is active – switch power off and on again to clear

TILTED

- The vehicle is tilted beyond limits, descend, then move vehicle to a more level location

OVERLOADED

- The vehicle platform is overloaded, reduce platform load.
(Optional Load Sensing System option only)

TOO HIGH

- The vehicle platform is too high to allow some functions – descend first

ARMGUARD

- During descent, the system is configured to stop movement to provide an armguard delay – release and re-select DOWN to continue lowering
(Optional Load Sensing System only)

TOO HOT

- The EZLIFT heatsink has reached 75°C, preventing all functions except lowering. Functions will be allowed again when the heatsink cools to below 70°C.
- The heatsink temperature can be viewed in the DIAGNOSTICS/SYSTEM/ TEMPERATURE display, ID # 2a5.
- The heatsink must be bolted to a significant metal panel of the vehicle, capable of dissipating heat to the environment.

UNCALIBRATED

- The height and/or pressure sensors have not been calibrated see CALIBRATION OF OVERLOAD SYSTEM (Optional Load Sensing System only).
- If machine is not equipped with Overload system, refer to SETUPS table and change those personalities that do not match the figure listed in the table.

EXTERNAL ALL, EXTERNAL DRIVE, EXTERNAL LIFT

- An external cutout input is preventing functions – determine the cause of the external cutout (for example, a limit switch)

EZ-CAL HELP MESSAGES

In addition to the **MODE** messages detailed above, the GP400 provides a **HELP** message to identify failure modes. Some error messages may also be identified by counting the number of times the red LED flashes on the controller so that even without access to an EZ-Cal, some simple diagnostics are possible. However, it is recommended to use an EZ-Cal to diagnose problems, and not rely on the LED! The EZ-Cal provides a much higher detail of information.

- Connect the EZ-Cal (see illustration).
The display will read, "HELP: PRESS ENTER".
- Press Enter to display the current message.
- Refer to the following list of HELP messages to better understand the nature of the message or fault.
- If the GP400 does not register a fault, the display will read EVERYTHING OK.

Pressing ENTER twice will provide a scrolling message of the current message (if one exists).

Pressing RT and LT arrows provides access to a log of previous operations and/or errors that occurred immediately prior, starting with most recent. **All messages are cleared whenever the system is powered down.**

NOTE: When using the LED to attempt diagnosis, please note that a **DUAL FLASH** code is indicated. The LED will flash on/off a certain number of times, pause off for a short delay, then flash on/off a second certain number of times, followed by a much longer pause off. The sequence will then repeat.

INFORMATION ONLY MESSAGES

The following are "information only" HELP messages which are not indicative of any possible problem – there is no LED flash code (the LED remains on steady):

STARTUP! _____ (no flash code)

- The system has just been powered on and is carrying out some initialization steps prior to being ready to operate. If you select a function during this time, it may be locked out until you release then re-select it.

EVERYTHING OK _____ (no flash code)

- There is no problem with the system – it is ready to operate in platform mode when a function is selected.

NOTE: If this is the HELP message when a function is selected, check for open-circuit switches or wiring.

GROUND MODE ACTIVE! _____ (no flash code)

- There is no problem with the GP400 – it is ready to operate in ground mode when a function is selected.

CLOSE TRIGGER _____ (no flash code)

- A platform function is selected but the trigger switch is not closed.

VEHICLE TILTED _____ (no flash code)

- The vehicle is tilted beyond the limits, some functions may be prevented.

FUNCTION ACTIVE MESSAGES

The following **HELP** messages indicate that there is no problem with the GP400 but that a function is active – the vehicle should be moving as requested by the operator.

DRIVING! _____ (no flash code)

LIFTING! _____ (no flash code)

LOWERING! _____ (no flash code)

STEERING! _____ (no flash code)

EXTENDING OUTRIGGERS! _____ (no flash code)

RETRACTING OUTRIGGERS! _____ (no flash code)

CALIBRATION MESSAGES

The following are “calibration” HELP messages – until the machine is properly calibrated for height and/or pressure (as required), many functions will not be available.

NOT CALIBRATED _____ **Flash Code: 1/1**

FUNCTIONS LOCKED - NOT CALIBRATED _____ **Flash Code: 1/1**

- The height and/or pressure sensors have not been calibrated and are required because of the setup of the GP400.
- Calibration procedures are accessible from the **SETUPS/HEIGHT SETUPS** and **SETUPS/LOAD SETUPS** menus.

FAULT: CUSTOMER _____ **Flash Code: 1/1**

- The system must be configured to the customer requirements – with the EZ-Cal in **SETUPS/CHANGE DEFAULTS** menu, scroll to the correct machine from this menu, the press Right Arrow to select the appropriate model.

NOTE: Selecting the incorrect customer or model will cause the machine to operate incorrectly or go into fault mode.

SHUTDOWN HELP MESSAGES

This section lists “shutdown” HELP messages – functions can be shut down to prevent them being used:

SHUTDOWN - CHECK EMS SWITCHES! _____ Flash Code: 2/1

- The Base/Platform selector switch position indicates the mode in which the system must operate if both are active together; the system does not know how to function

FUNCTIONS LOCKED - TEST MODE SELECTED _____ Flash Code: 2/2

- Test mode is not accessible with this system. Switch power off/on to reset to normal operation

FUNCTIONS LOCKED - ARMGUARD (optional Load Sensing System only)

Flash Code: 2/2

- During descent, the System can stop movement for a configurable time, to allow a safety check that no-one is close to the machine. The operator must release and re-select DOWN to continue lowering (after the delay time-out).

FUNCTIONS LOCKED – OVERLOADED (optional Load Sensing System only)

Flash Code: 2/2

- System overload features are active, and the platform is excessively loaded to allow operation – the platform load must be reduced.

FUNCTIONS LOCKED – UNDERLOADED (optional Load Sensing System only)

Flash Code: 2/2

- System overload features are active, and the platform load is too low to be valid – this could be caused by erroneous calibration, a sensor fault, or a change in the vehicle mechanics/hydraulics.

FUNCTIONS LOCKED - TOO HIGH _____ Flash Code: 2/2

- The platform is raised too high to allow some functions. Certain functions may not be allowed above certain elevations.
- Check operator’s manual or ADJUSTMENTS/HEIGHTS/MAX DRIVE and MAX LIFT to see if drive and/or lift is allowed at all heights.

FUNCTIONS LOCKED - TILTED _____ Flash Code: 2/2

- The vehicle is tilted too much to allow some functions.
- Check operator’s manual or ADJUSTMENTS/TILT/Xtrip and Ytrip, which determine the maximum allowed vehicle tilt.
- Refer to EZ-Cal Flow Chart 1 – Adjustments and Setup.

FUNCTIONS LOCKED - EXTERNAL SHUTDOWN _____ Flash Code: 2/2

- An external shutdown is preventing functions – check DIAGNOSTICS/SYSTEM/ MODE/INTER-LOCK to see which external interlock is active.

CHECK GROUND INPUT SWITCHES! _____ Flash Code: 2/2

- There is a problem with the ground function select switches – more than one is active at the same time.

SELECT DRIVE/LIFT MODE! _____ Flash Code: 2/2

- There is a problem with the platform drive/lift select switch – neither mode is selected.

CHECK DRIVE/LIFT SELECT SWITCH! _____ Flash Code: 2/2

- There is a problem with the platform drive/lift select switch – both modes are selected together.

CHECK JOYSTICK SWITCHES! _____ Flash Code: 2/2

- There is a problem with the platform joystick switches – both directions are selected together.

RELEASE TRIGGER! _____ Flash Code: 2/2

- The trigger was closed at power-on, or closed for too long with no function selected.

RELEASE GROUND SWITCHES! _____ Flash Code: 2/2

- Ground function switches were closed at power-on.

RELEASE JOYSTICK SWITCHES! _____ Flash Code: 2/2

- Platform joystick switches were closed at power-on, or closed for too long without trigger switch (see **SETUPS/INTERLOCKS/TRIGGERwait**).

RELEASE OUTRIGGER SWITCHES! _____ Flash Code: 2/2

- Outrigger switches were closed at power-on.

WIRING MESSAGES

The following are “wiring” HELP messages – problems have been detected which are likely due to vehicle wiring issues:

FAULT: ENERGIZED VALVE - CHECK P5 WIRING! _____ Flash Code: 3/2**FAULT: VALVE FEEDBACK HIGH - CHECK VALVE WIRING! _____ Flash Code: 3/2**

- There is a voltage on one or more valve outputs, when all outputs are off.
- Check each valve output to trace where the invalid supply is coming from.

FAULT: CAPBANK VOLTAGE TOO HIGH - CHECK LINE CONT! _____ Flash Code: 3/3

- The voltage on the B+ stud of the controller (connected to an internal voltage stabilization capacitor bank) is too high when the line contactor is off. B+ stud voltage should be approximately 32 volts at idle.
- Check the line contactor tips are not welded, and check the power wiring for errors.

FAULT: ENERGIZED LINE CONTACTOR - CHECK P5 WIRING! _____ Flash Code: 3/4

- There is a voltage on the line contactor coil output, when it is off.
- Check wiring to the line contactor coil to trace where the invalid supply is coming from.

FAULT: MOTOR OVERLOAD! _____ Flash Code: 3/5

- The power protection circuits in the controller have activated to protect from extreme overload.
- Check for short-circuit power wiring; check for a seized or shorted motor.

SUPPLY MESSAGES

The following are “supply” HELP messages – problems have been detected which are likely due to supply issues:

FAULT: LOW OIL PRESSURE! _____ Flash Code: 4/1

- Engine oil pressure switch open after start sequence initiated or engine stalled or unable to start.

FAULT: BAD INTERNAL 5V! _____ Flash Code: 4/2

- The internal “5V slave” supply is out of range; if the fault remains, the controller may have to be replaced.

FAULT: BAD INTERNAL SLAVE! _____ Flash Code: 4/2

- The internal “slave” is not operating correctly; if the fault remains, the controller may have to be replaced.

FAULT: BAD INTERNAL 12V! _____ Flash Code: 4/3

- The internal “12V” supply is out of range;
- 12V Supply is generated by the Motor control module and supplied to the GP400. Check for wiring errors between the two modules. If the fault remains, the Motor Controller may have to be replaced.

FAULT: BATTERY VOLTAGE TOO LOW! _____ Flash Code: 4/4

- The battery supply is too low – the batteries must be re-charged.

FAULT: BATTERY VOLTAGE TOO HIGH! _____ Flash Code: 4/4

- The battery supply is too high – check that the correct battery and charger are installed.

FAULT: BAD 5V SENSOR SUPPLY - CHECK P2-1 WIRING! _____ Flash Code: 4/5

- The “5V sensor” supply is out of range; this supply is available to power external 5V-powered sensors – check that it has not been overloaded or short-circuited to other wiring (Optional Load Sensing System only).

SENSOR MESSAGES - OPTIONAL LOAD SENSING SYSTEM

The following are “sensor” HELP messages – problems have been detected which are likely due to sensor issues (optional Load Sensing System).

FAULT: CHECK HEIGHT1 SENSOR _____ **Flash Code: 6/1**

FAULT: CHECK HEIGHT2 SENSOR _____ **Flash Code: 6/1**

- A height sensor is giving an out-of-range voltage (below 0.5V or above 4.5V).

FAULT: CHECK HEIGHT SENSORS _____ **Flash Code: 6/1**

- When two height sensors are fitted, both should read the same height at all times; this message indicates that the sensors are reading different heights. Check for loose sensors and/or re-calibrate.

FAULT: CHECK PRESSURE SENSOR _____ **Flash Code: 6/2**

- A pressure sensor is giving an out-of-range voltage (below 0.5V or above 4.5V).

FAULT: CHECK ELEVATION SWITCH _____ **Flash Code: 6/3**

- The elevation switch is in disagreement with the height sensor(s).
- During calibration, the height at which the elevation switch opens (while lifting) and closes (while lowering), is recorded. Subsequently, height and these calibration points are continuously checked – any significant difference generates this error.

CANBUS MESSAGES

This section lists “CANBUS” HELP messages – problems have been detected with CANBUS communications between different modules (of course, only applicable if more than one module is connected together via CANBUS):

FAULT: CANBUS! _____ **Flash Code: 6/6**

- There are problems with CANBUS communications between the different modules; messages expected from one or more module are not being received, or messages intended to one or more module cannot be transmitted.
- Check for open- and short- circuit problems with CANBUS wiring; ensure that the CANBUS is wired correctly pin-to-pin; ensure that the vehicle chassis is not erroneously shorted to the chassis (for example, due to insulator breakdown in the motor).

POWER WIRING MESSAGES

The following are “power wiring” HELP messages – problems have been detected which are likely due to power wiring errors:

FAULT: CAPBANK VOLTAGE TOO LOW - CHECK STUD WIRING! **Flash Code: 7/7**

- The voltage on the B+ stud of the controller (connected to an internal voltage stabilization capacitor bank) is too low when the line contactor is off (a pre-charge circuit in the module normally applies approximately 32 volts to the capacitor bank).
- Check the 300 amp fuse, line contactor or power wiring for errors. Also check DC motor for internal grounding.

OTHER MESSAGES

The following are other HELP messages:

SOME BIG BAD PROBLEM! _____ **Flash Code: 9/9**

- This message should not occur!

FACTORY OVERRIDE _____ **Flash Code: (fast flashing)**

- When the controller is first shipped, prior to initial calibration, it is configured in a special “factory override” state. In this state, none of the normal shutdowns or interlocks will occur – the vehicle can be freely lifted/lowered and driven irrespective of any calibration needs, vehicle tilt, etc.
- As soon as an EZ-Cal is connected to the controller, the factory override state is ended.
- If calibration does not occur, then the factory override state will recur if the EZ-Cal is disconnected and power is switched off/on.

IMPORTANT: – Never use a vehicle in factory override; this state is **ONLY** intended for use during manufacture! While factory override is active, the LED is rapidly flashed on/off.

NOTES:



Section 5

SCHEMATICS

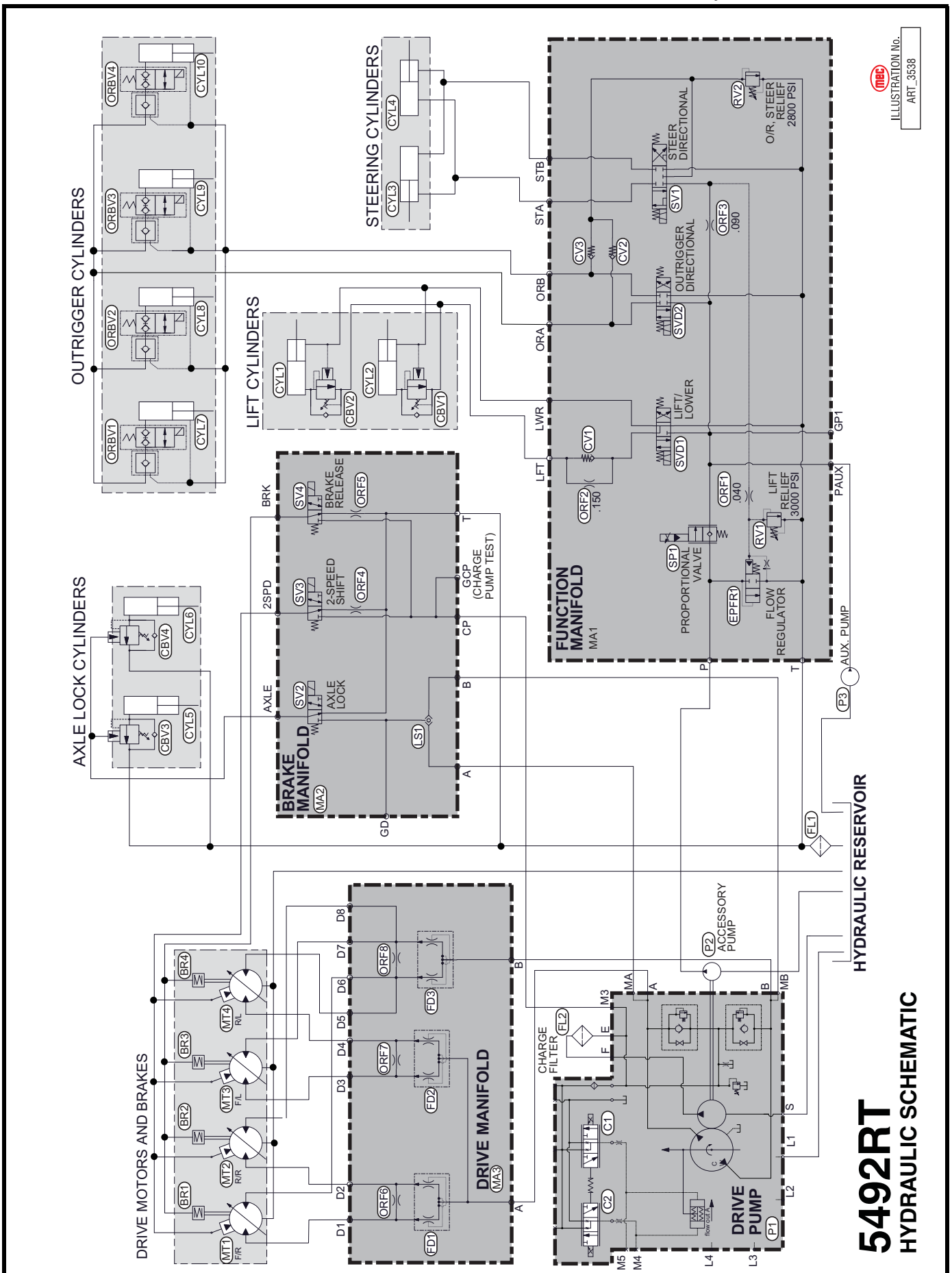
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HYDRAULIC SCHEMATICS

The following table applies to Figure 5-1 through Figure 5-7. Not all callouts are used on every drawing.

Callout	Description
BR1 - BR4	Brake, Integral to the torque hubs
C1	Valve, Drive directional
C2	Valve, Drive directional
CBV1, CBV2	Counterbalance Valve, Lift cylinder hold
CBV3, CBV4	Counterbalance Valve, Axle lock cylinders
CYL1	Cylinder, Hydraulic lift
CYL2	Cylinder, Hydraulic lift
CYL3, CYL4	Cylinder, Steer
CYL5, CYL6	Cylinder, Axle lock
CYL7 - CYL10	Cylinder, Outrigger
EPFR1	Flow Regulator, Diverts unused oil to tank
FD1 - FD3	Flow Divide Valve, drive traction control
FL1	Filter, Hydraulic oil return
FL2	Filter, Charge pump
HS1	Oil Shuttle Valve
LS1	Check Valve, Drive signal for Axle Lock
MA1	Manifold, Main
MA2	Manifold, axle lock, 2-speed, brake
MA3	Manifold, Drive
MT1 - MT4	Wheel Drive Motor
ORB1 - ORB4	Outrigger Blocking Valve, O/R control
ORF1	Orifice, Flow regulator control
ORF2	Orifice, Lower max speed control
ORF3	Orifice, Steer max speed control
ORF4	Orifice, Brake apply control
ORF5	Orifice, 2-speed shift control
ORF6 - ORF8	Orifice, Drive flow-divide bypass
ORF 9	Orifice, Drive Manifold
P1	Pump, Drive hydrastatic
P2	Pump, Lift, steer and outriggers
P3	Pump, Emerg power unit
PD1	Pilot-Operated Valve
PD2	Pilot-Operated Valve
RV1	Relief Valve, Lift, Lower max pressure
RV2	Relief Valve, Outrigger, steer max pressure
RV3	Relief Valve, Drive Manifold
RV4-RV5	Relief Valve, Lift Cylinder
SP1	Proportional Valve, Speed control
SV1	Solenoid Valve 5-way, 3 pos, Steer directional
SV2	Solenoid Valve 2-way, 2 pos, Axle Lock
SV3	Solenoid Valve 2-way, 2 pos, 2-speed shift
SV4	Solenoid Valve 2-way, 2 pos, Brake release
SV5-SV6	Solenoid Valve, Lift Cylinder
SVD1	Solenoid Valve 4-way, 3 pos, Lift, Lower
SVD2	Solenoid Valve 4-way, 3 pos, Outrigger directional

Figure 5-1: Hydraulic Schematic, 5492RT

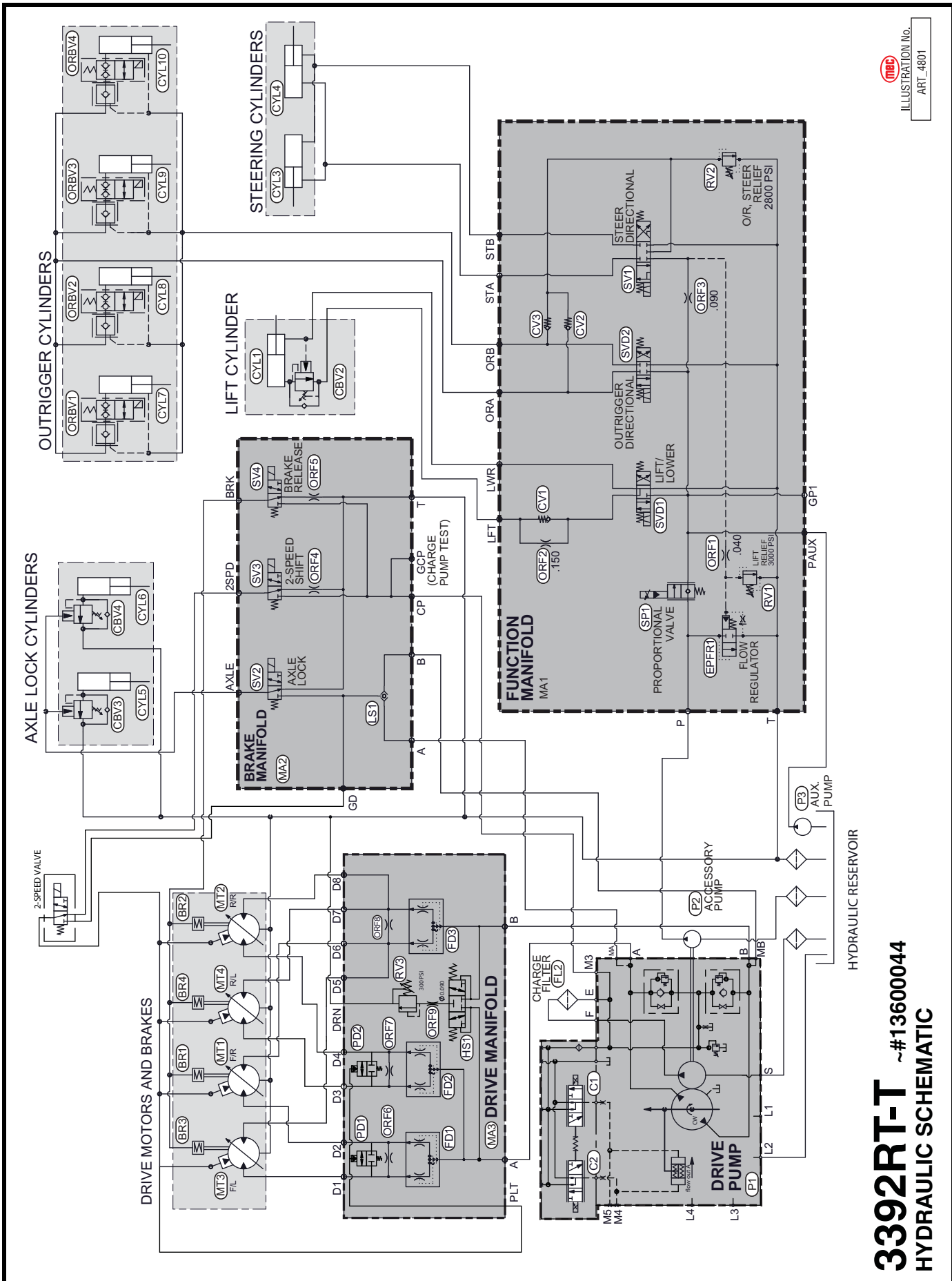


5492RT

HYDRAULIC SCHEMATIC

ILLUSTRATION No.
ART_3538

Figure 5-2: Hydraulic Schematic, 3392RT-T ~#13600044



mec
ILLUSTRATION No.
ART_4801

3392RT-T ~#13600044
HYDRAULIC SCHEMATIC

Figure 5-3: Hydraulic Schematic, 3392RT-T #13600045~

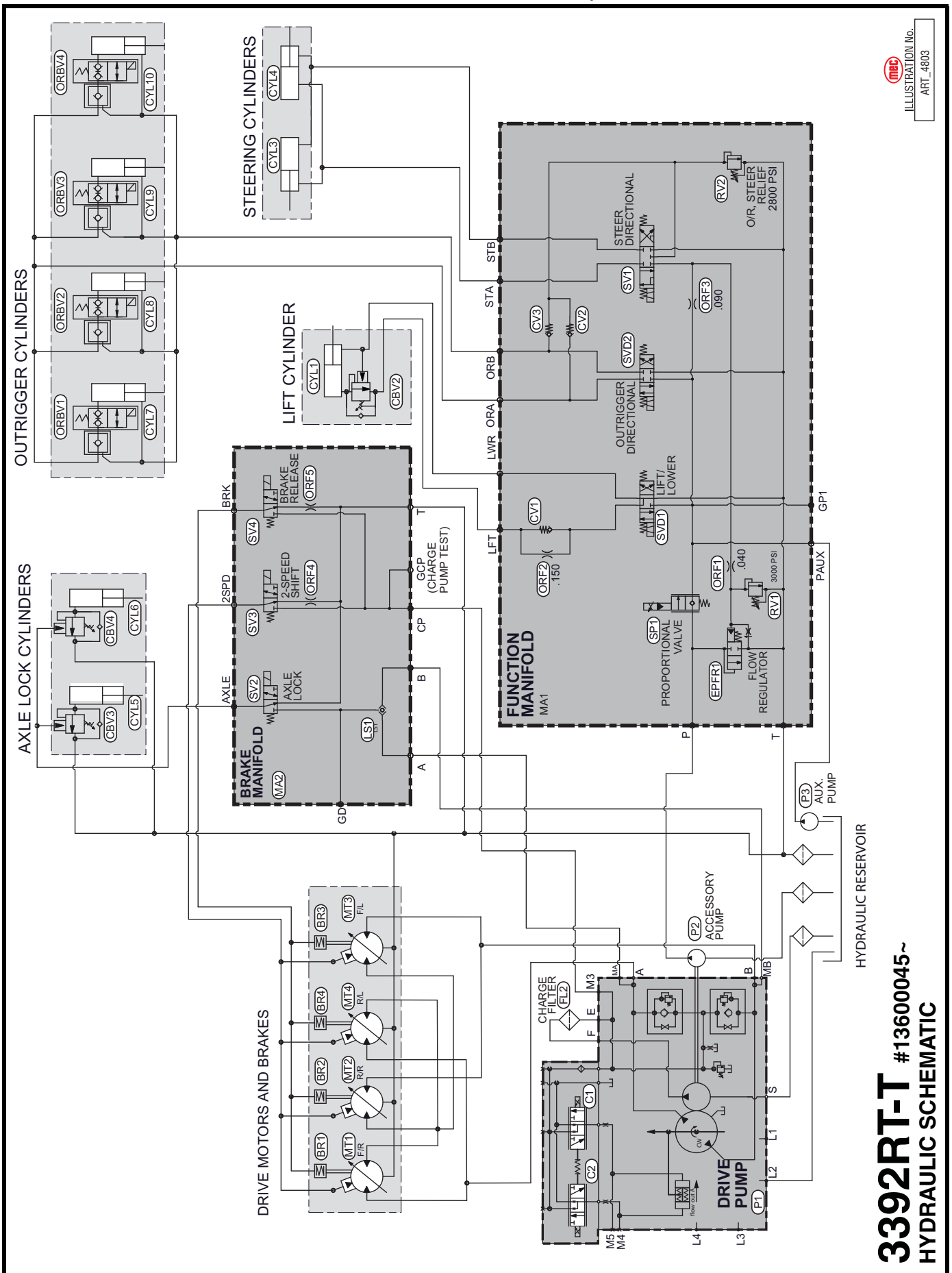
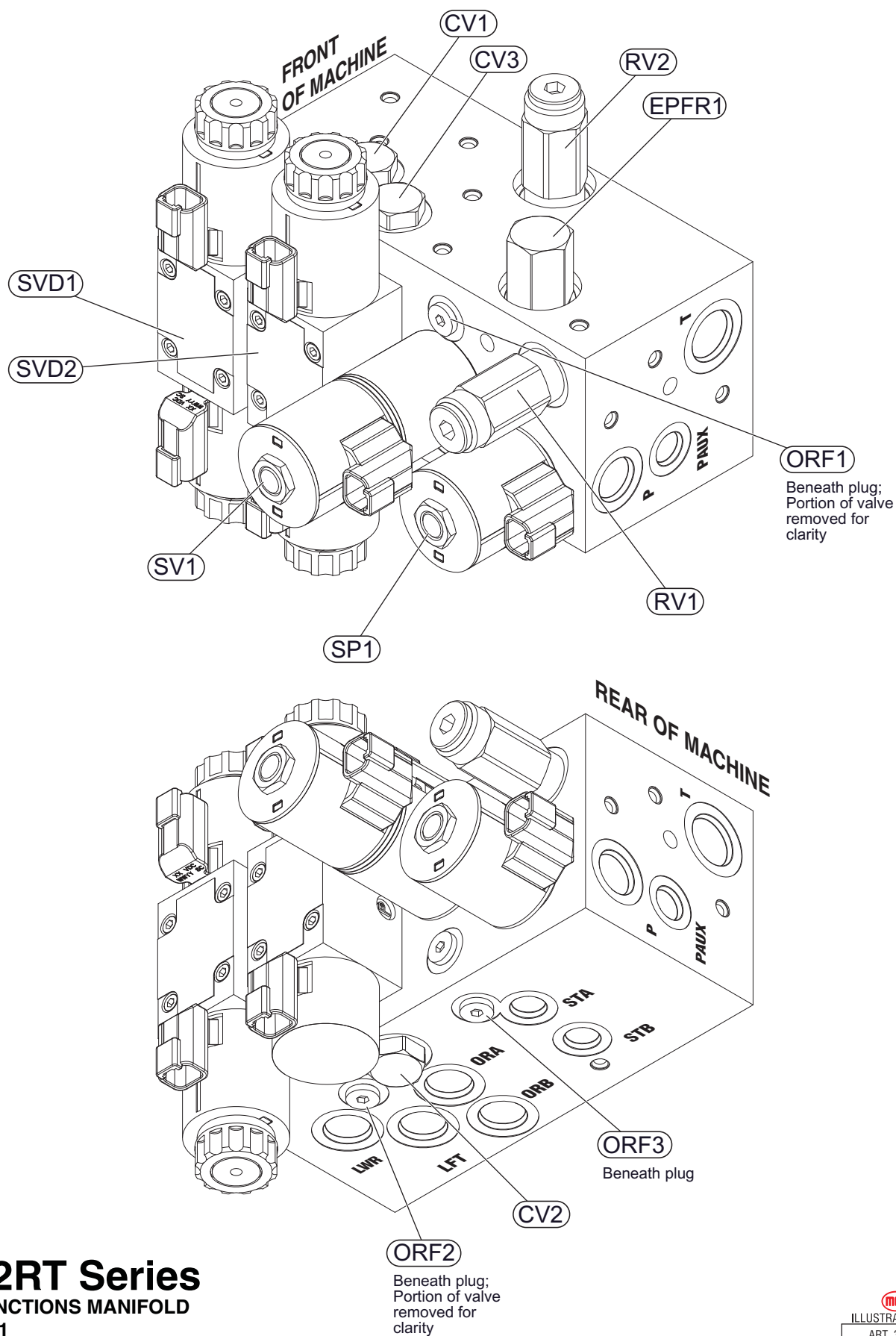




Figure 5-5: Function Manifold, MA1

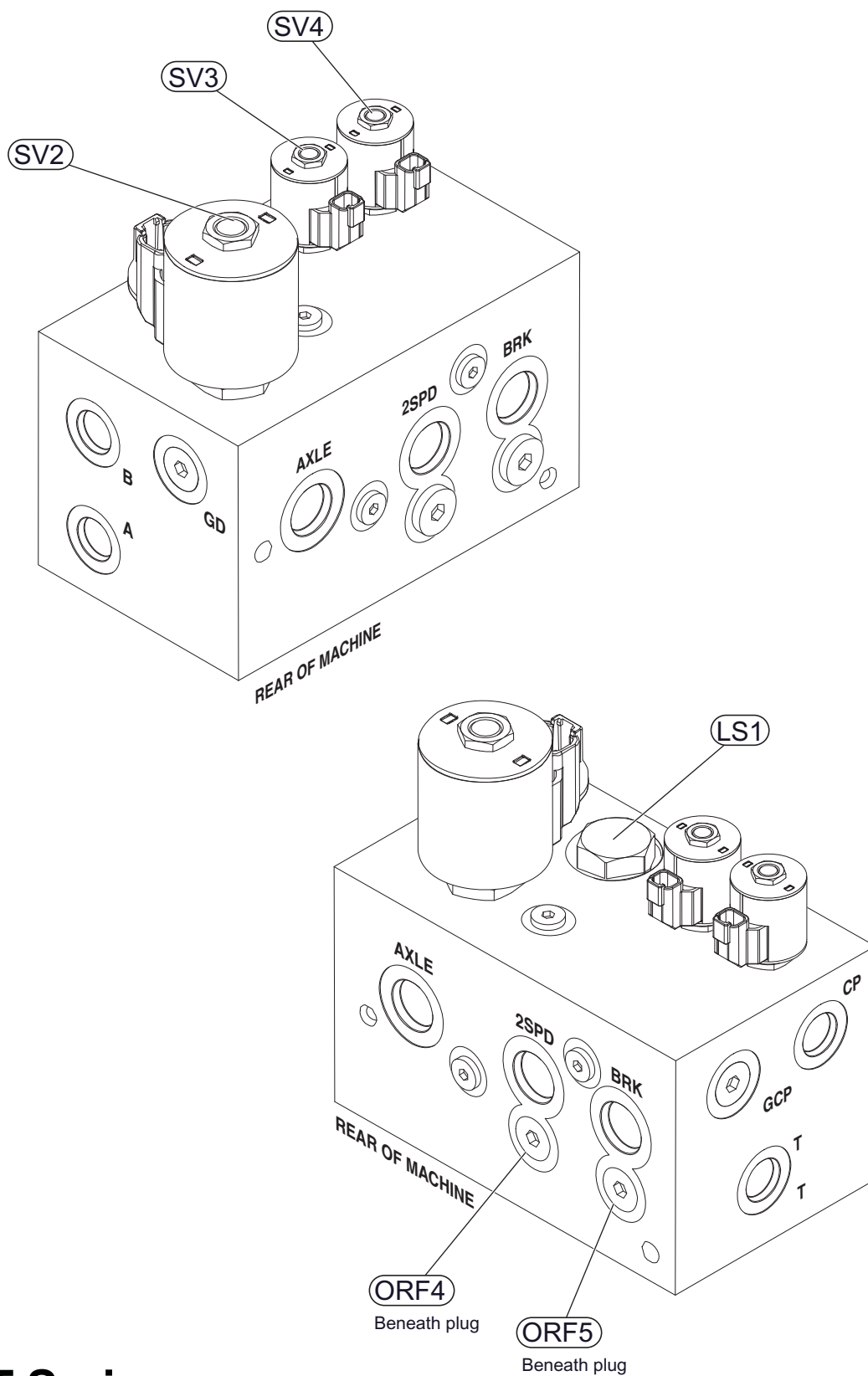
92RT Series

FUNCTIONS MANIFOLD

MA1

MEC
ILLUSTRATION No.
ART_3539





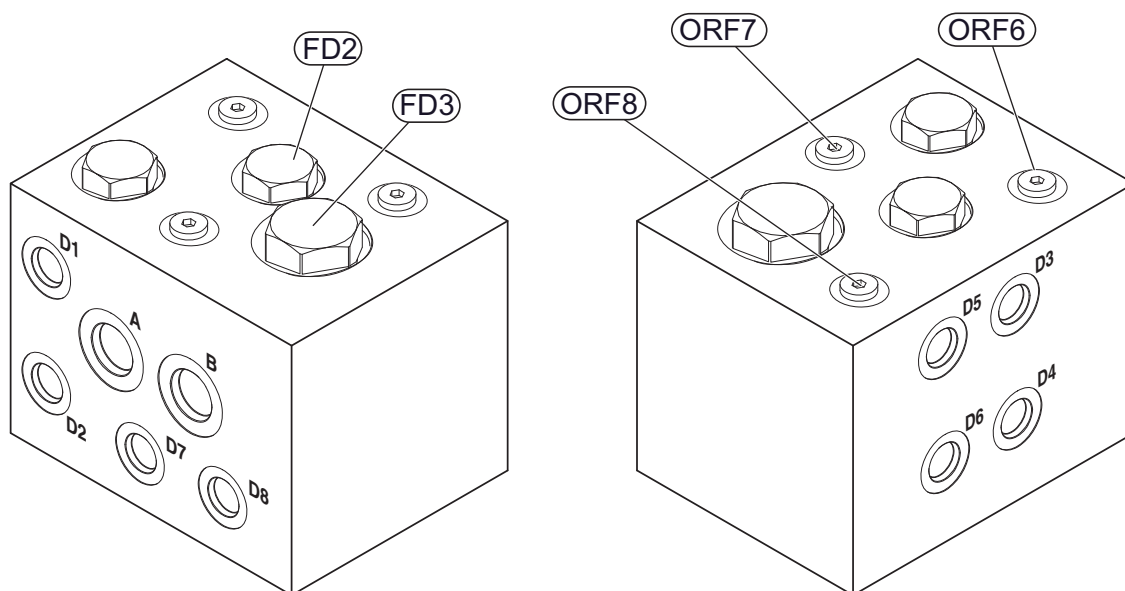
92RT Series

BRAKE MANIFOLD

MA2

mec
ILLUSTRATION No.
ART_3540

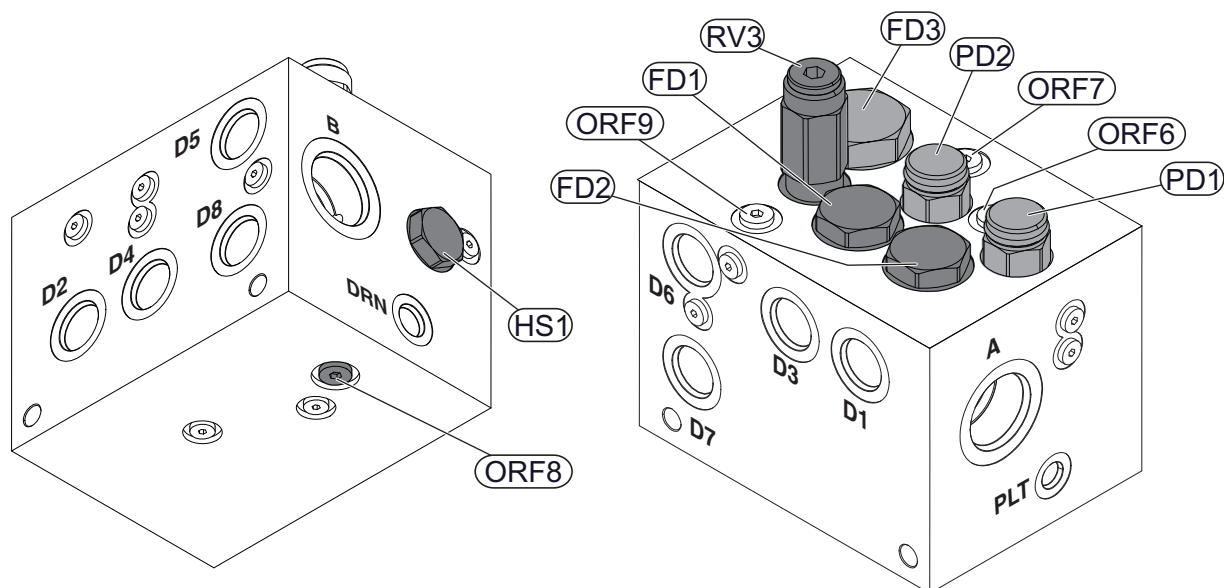
Figure 5-7: Drive Manifold, MA3



5492RT

3392RT-T

~#13600044



DRIVE MANIFOLD

MA3

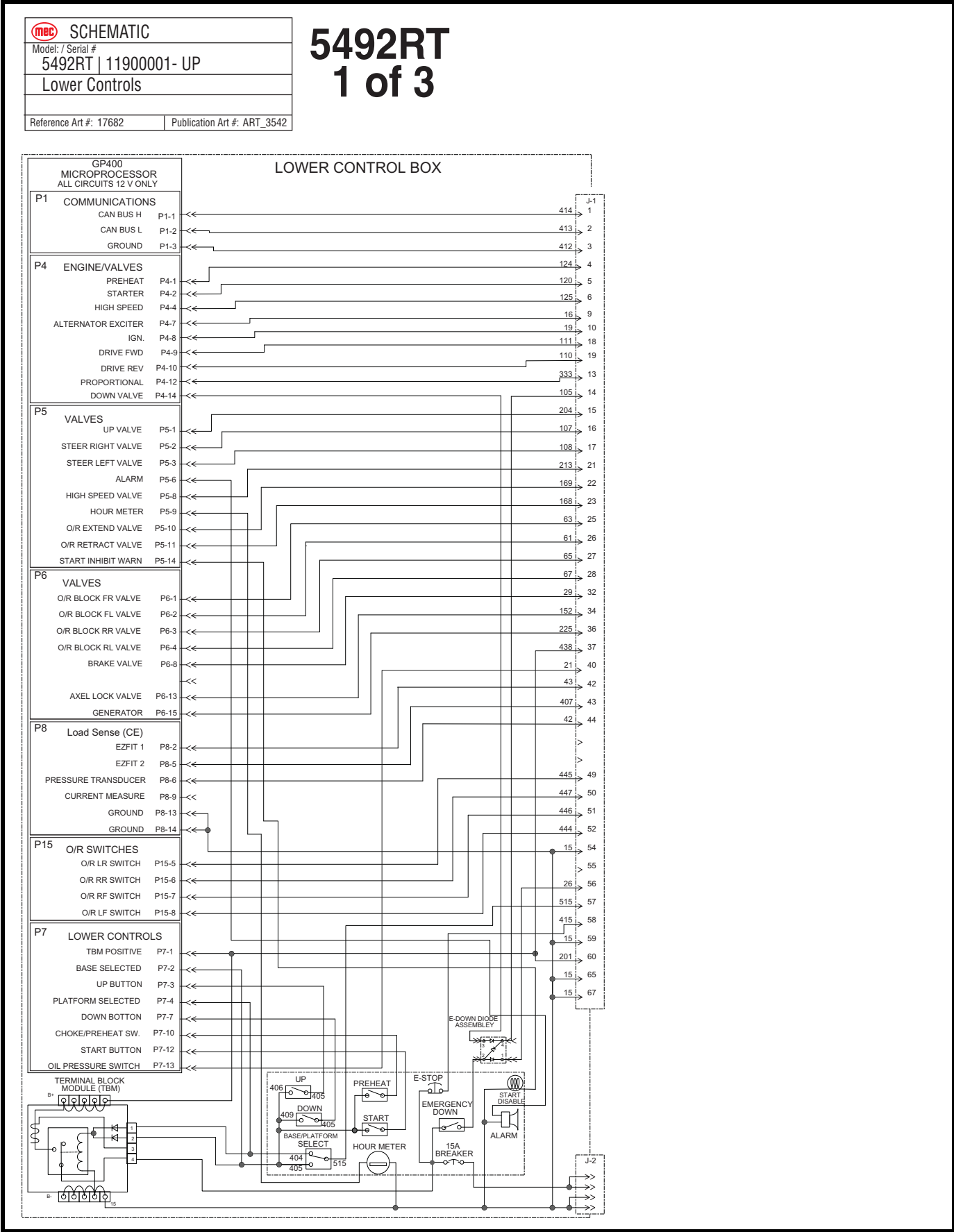
Not used on later 3392RT-T or 6092RT models

mec
ILLUSTRATION No.
ART_3541



ELECTRICAL SCHEMATICS

Figure 5-8: Electric Schematic, 5492RT, 1 of 3





MEC SCHEMATIC
Model: / Serial #
5492RT 11900001- UP
Upper Controls
Reference Art #: 17682
Publication Art #: ART_3544

5492RT

3 of 3

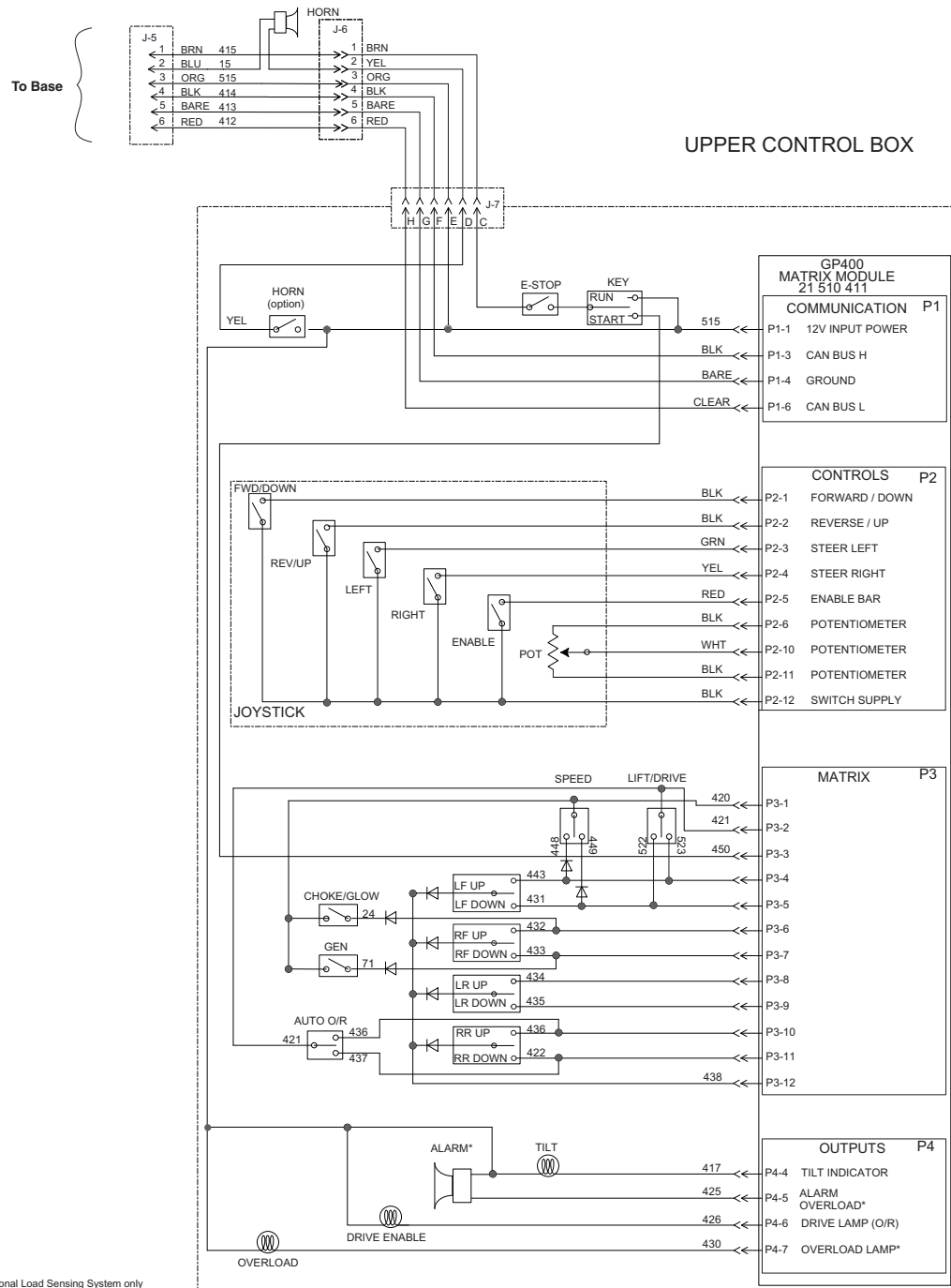
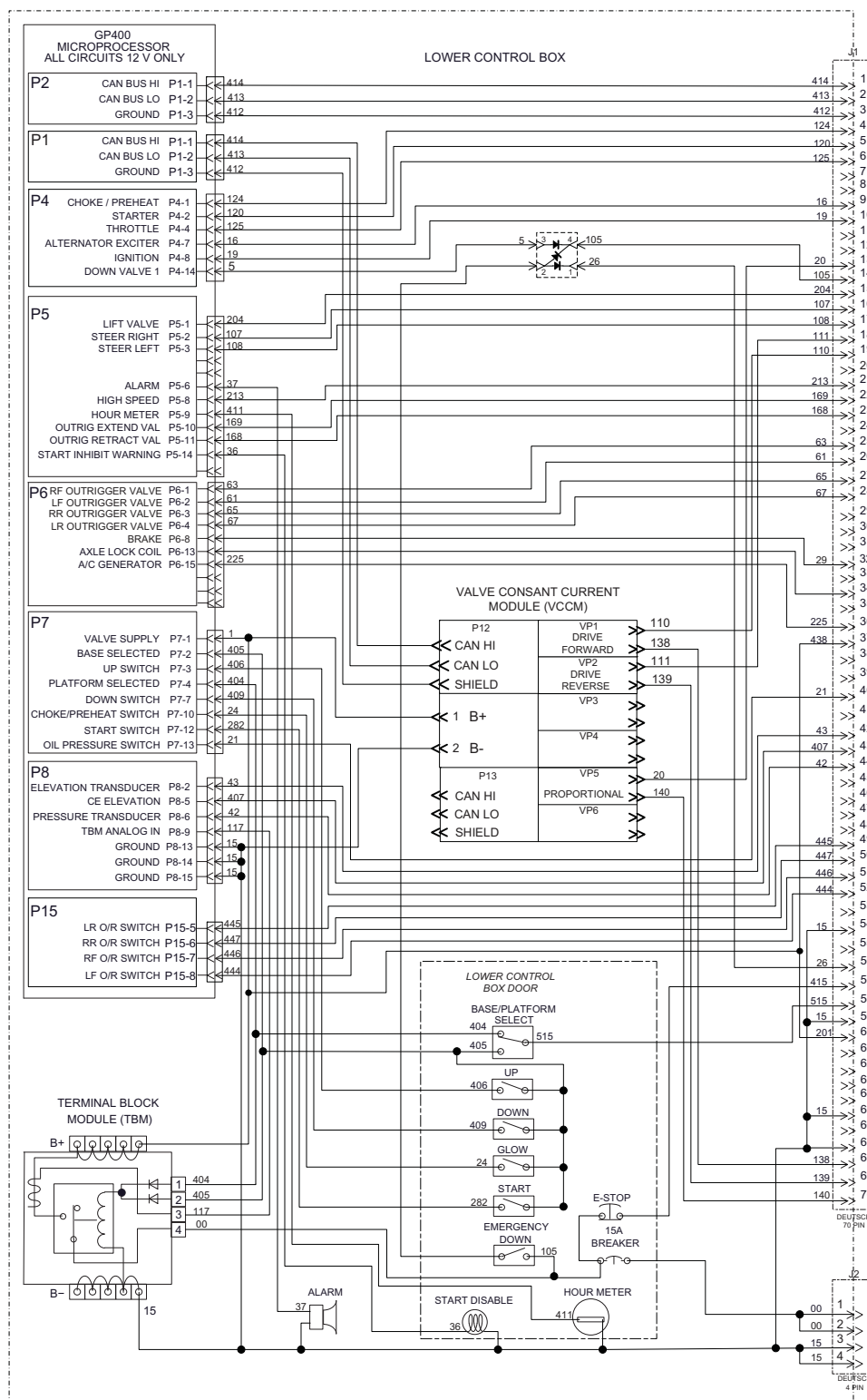


Figure 5-11: Electric Schematic, 3392RT-T, 1 of 3

MEC SCHEMATIC	
Model / Serial #	
3392RT-T 13600001- UP	
Lower Controls	
Reference Art #: 17578	
Publication Art #: ART_4804	

3392RT-T

1 of 3



mec SCHEMATIC	
Model: / Serial #	
3392RT-T 13600001- UP	
Chassis	
Reference Art #: 17578	Publication Art #: ART_4805

3392RT-T

2 of 3

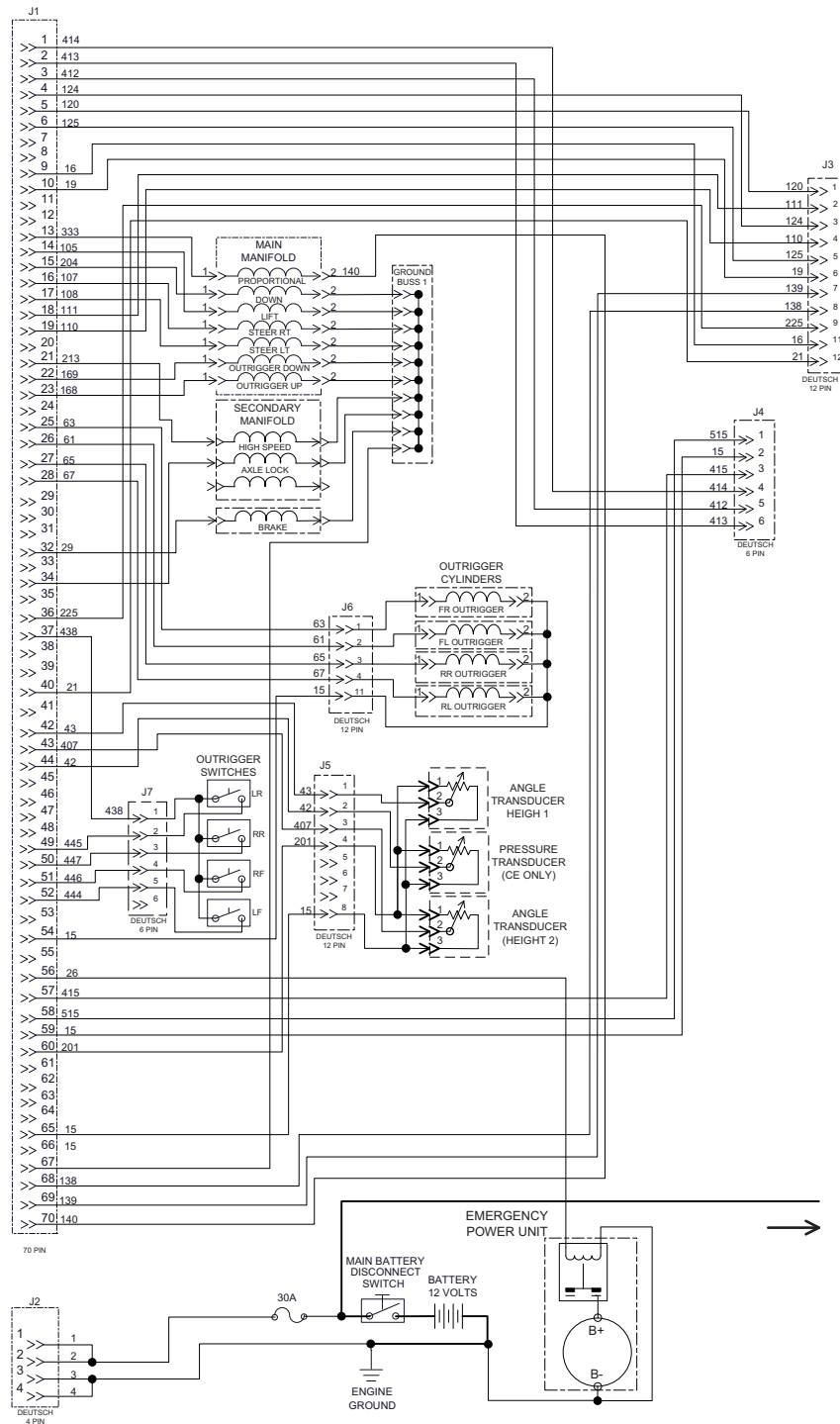


Figure 5-13: Electric Schematic, 3392RT-T, 3 of 3

MEC SCHEMATIC	
Model: / Serial #	
3392RT-T 13600001- UP	
Upper Controls	
Reference Art #: 17578	Publication Art #: ART_4806

3392RT-T

3 of 3

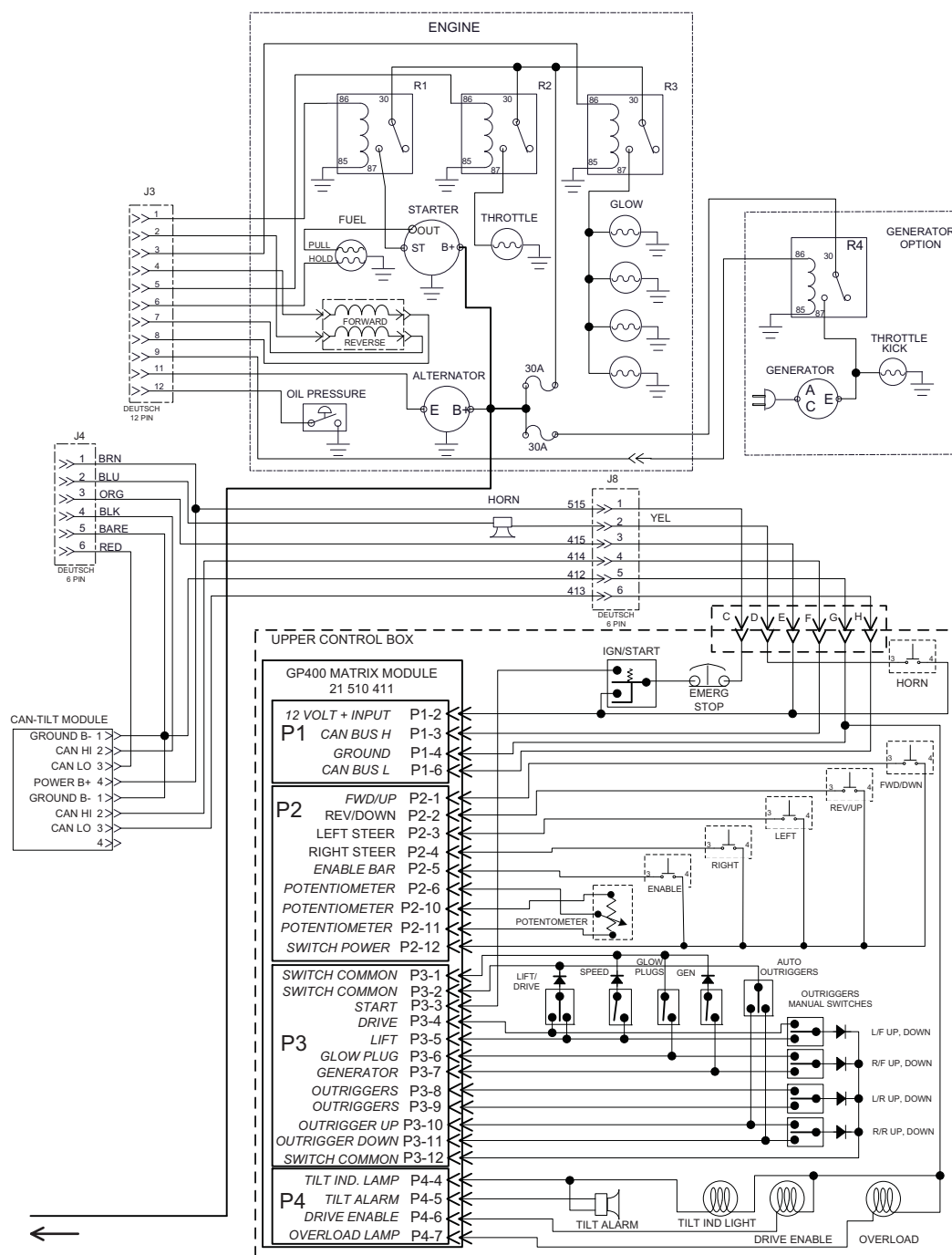


Figure 5-14: Electric Schematic, 6092RT, 1 of 3

MEC SCHEMATIC
Model: / Serial #
6092RT-T 12900001-UP
Lower Controls
Reference Art #: 17577
Publication Art #: ART_4807

6092RT

1 of 3

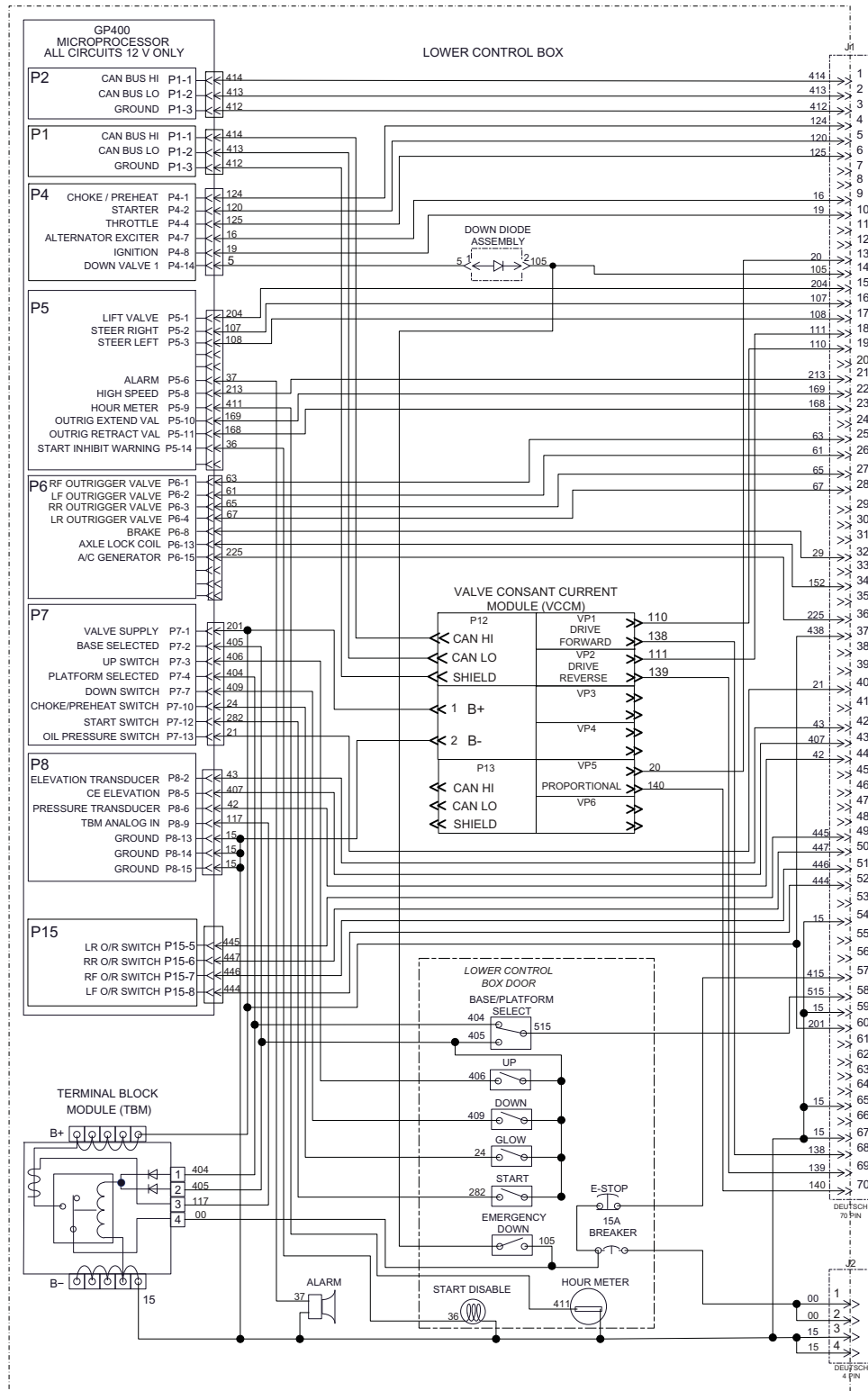


Figure 5-15: Electric Schematic, 6092RT, 2 of 3

MEC SCHEMATIC	
Model: / Serial #	
6092RT 12900001- UP	
Chassis	
Reference Art #: 17577	
Publication Art #: ART_4808	

6092RT

2 of 3

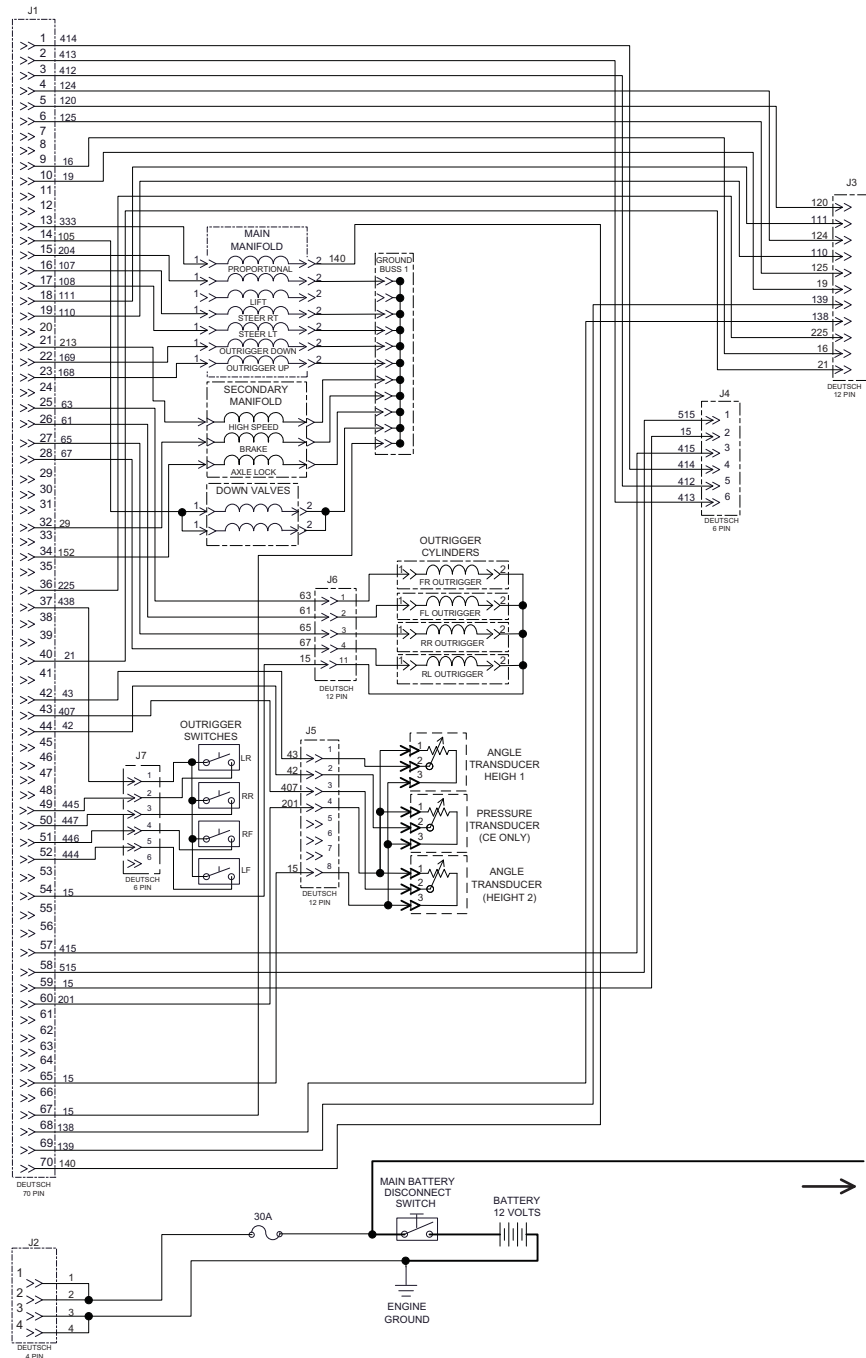


Figure 5-16: Electric Schematic, 6092RT, 3 of 3

MEC SCHEMATIC
Model: / Serial #
6092RT 12900001- UP
Upper Controls
Reference Art #: 17577
Publication Art #: ART_4809

6092RT

3 of 3

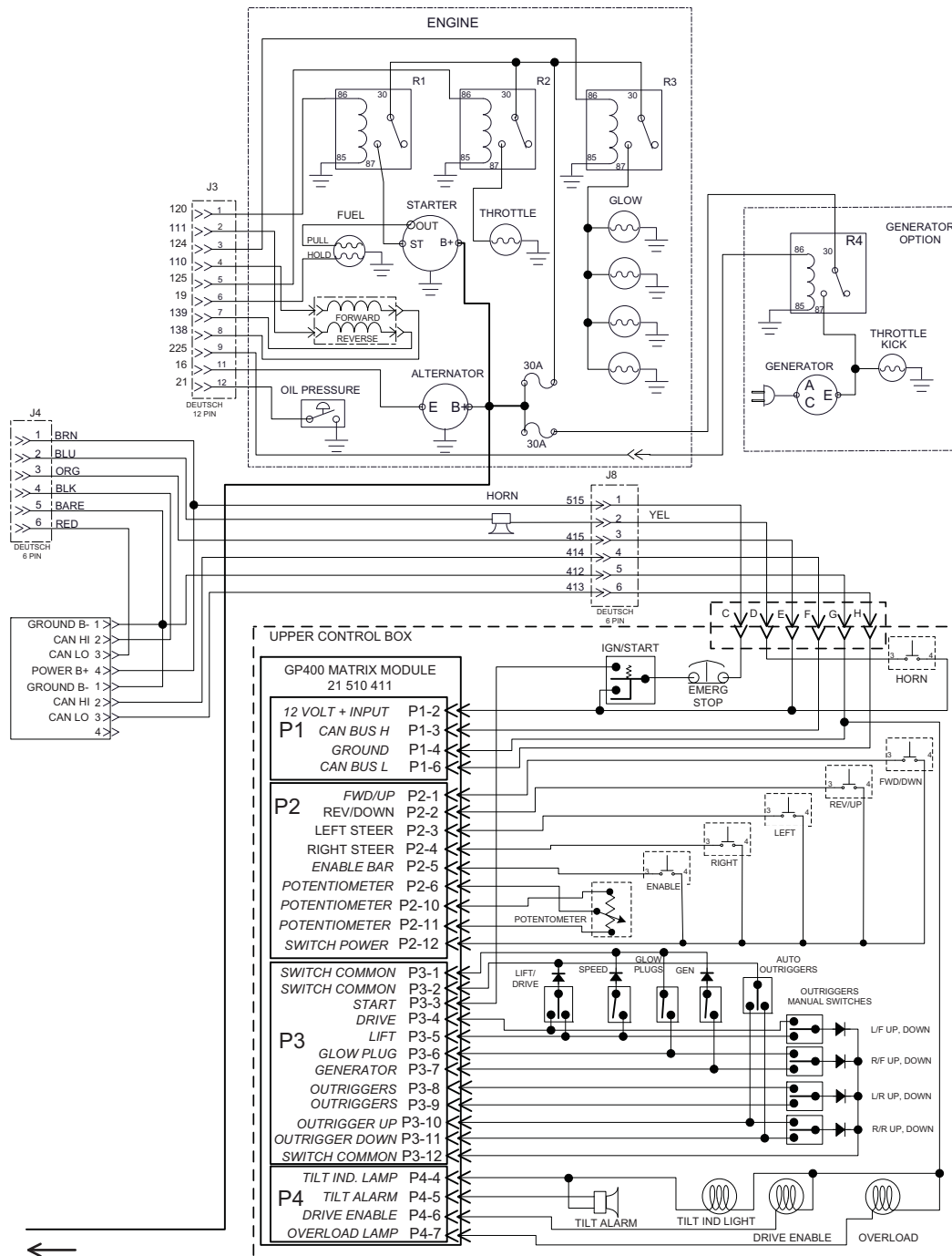


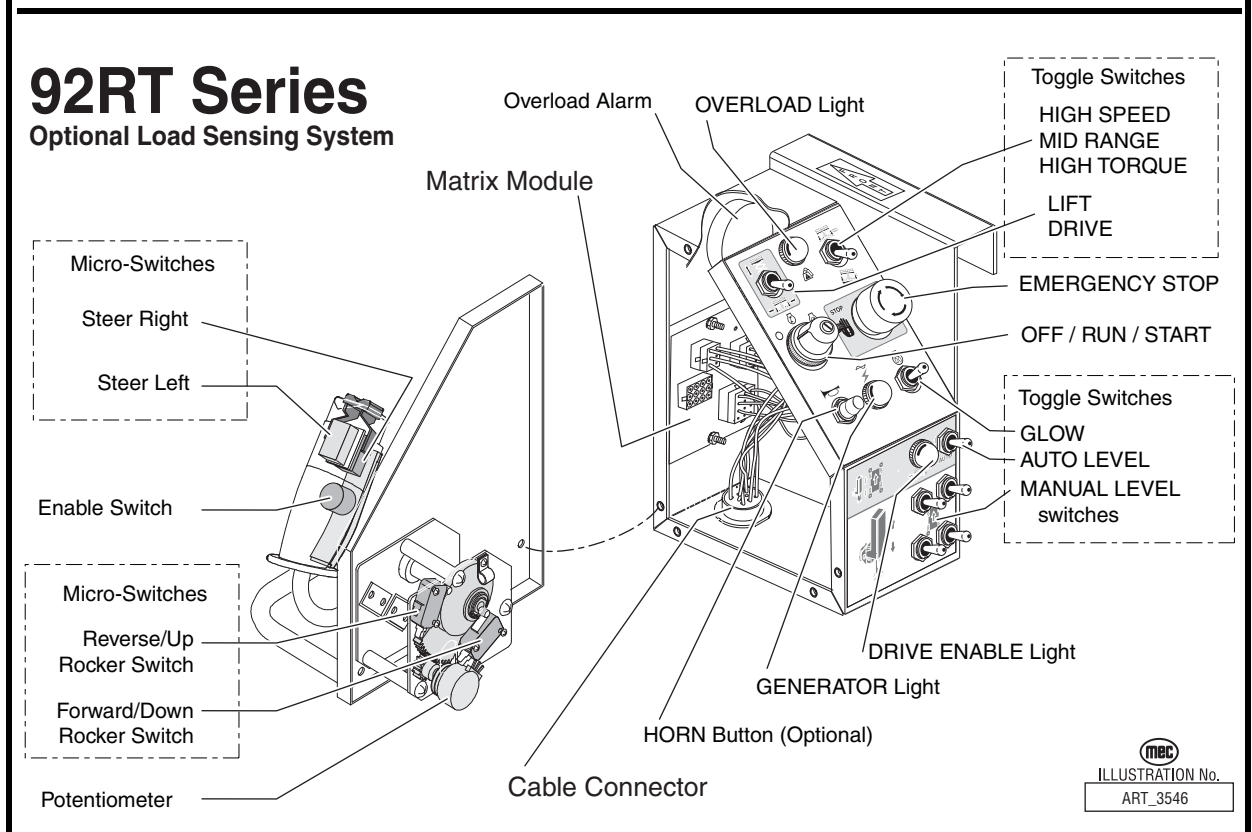
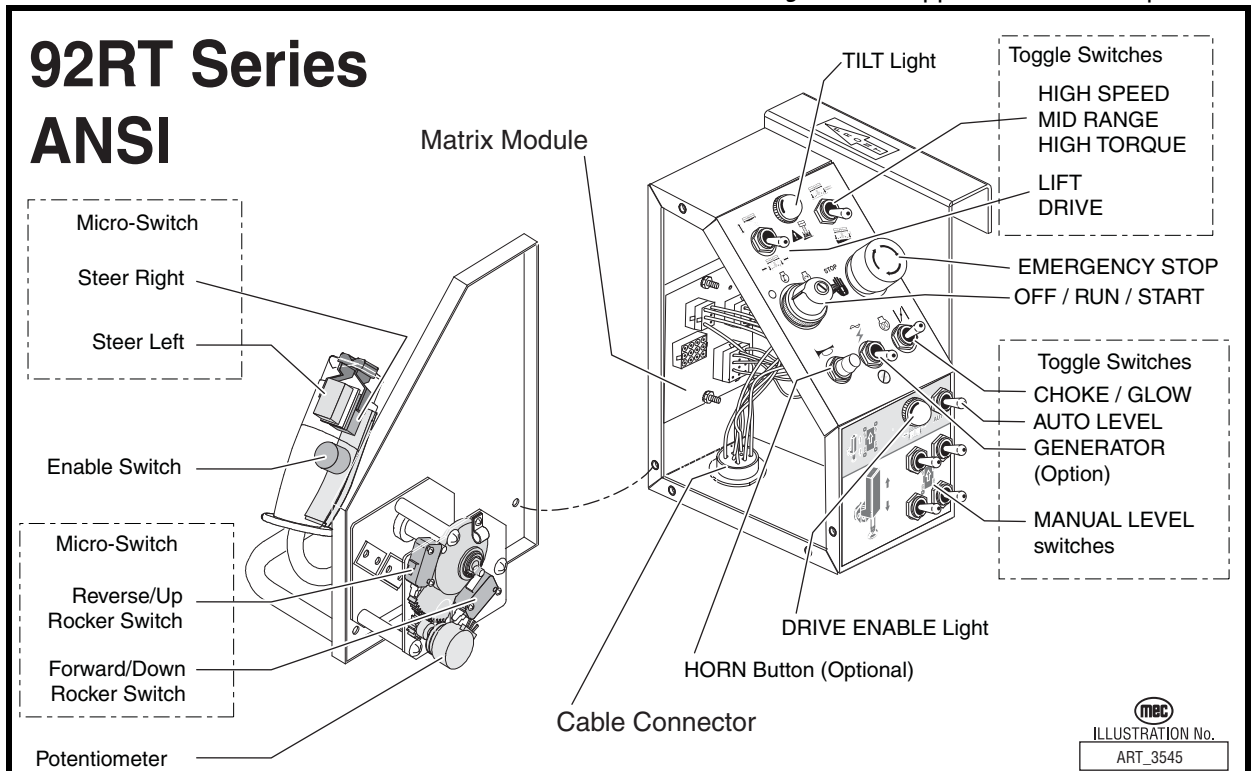
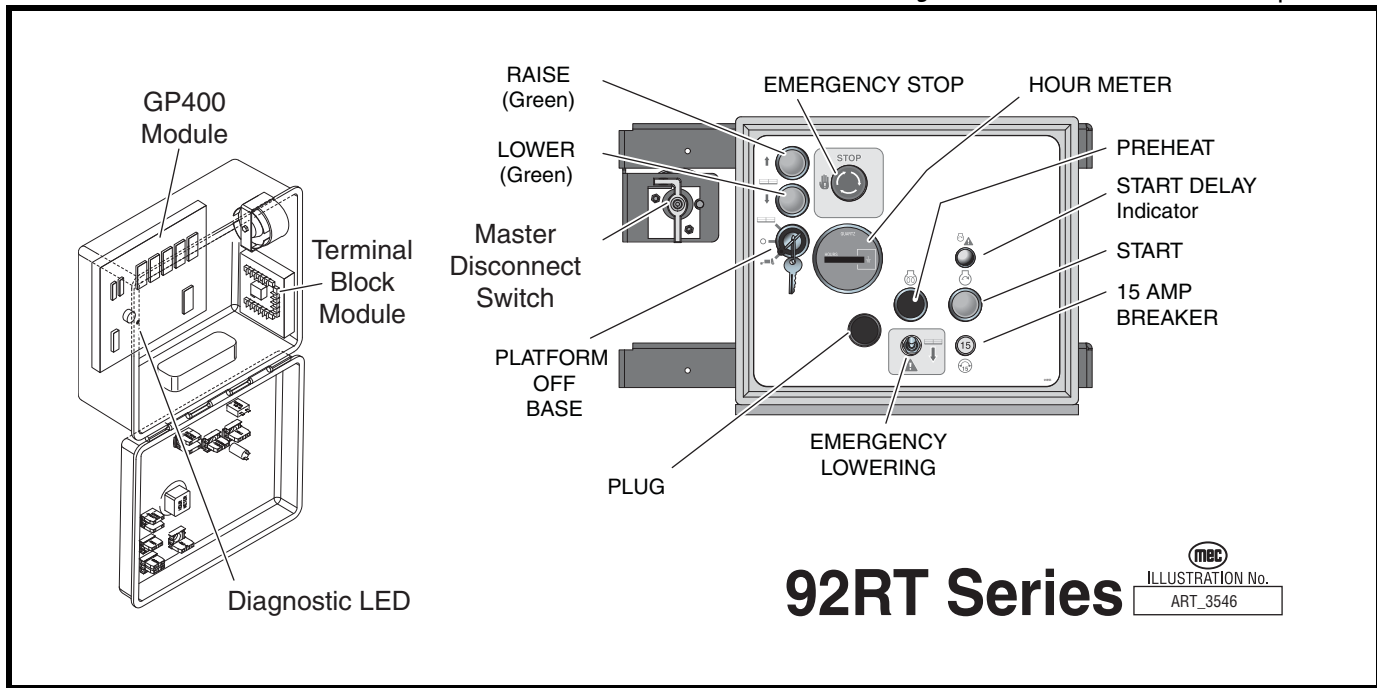
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Figure 5-18: Lower Controls Components

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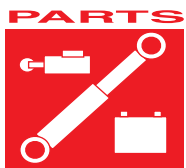
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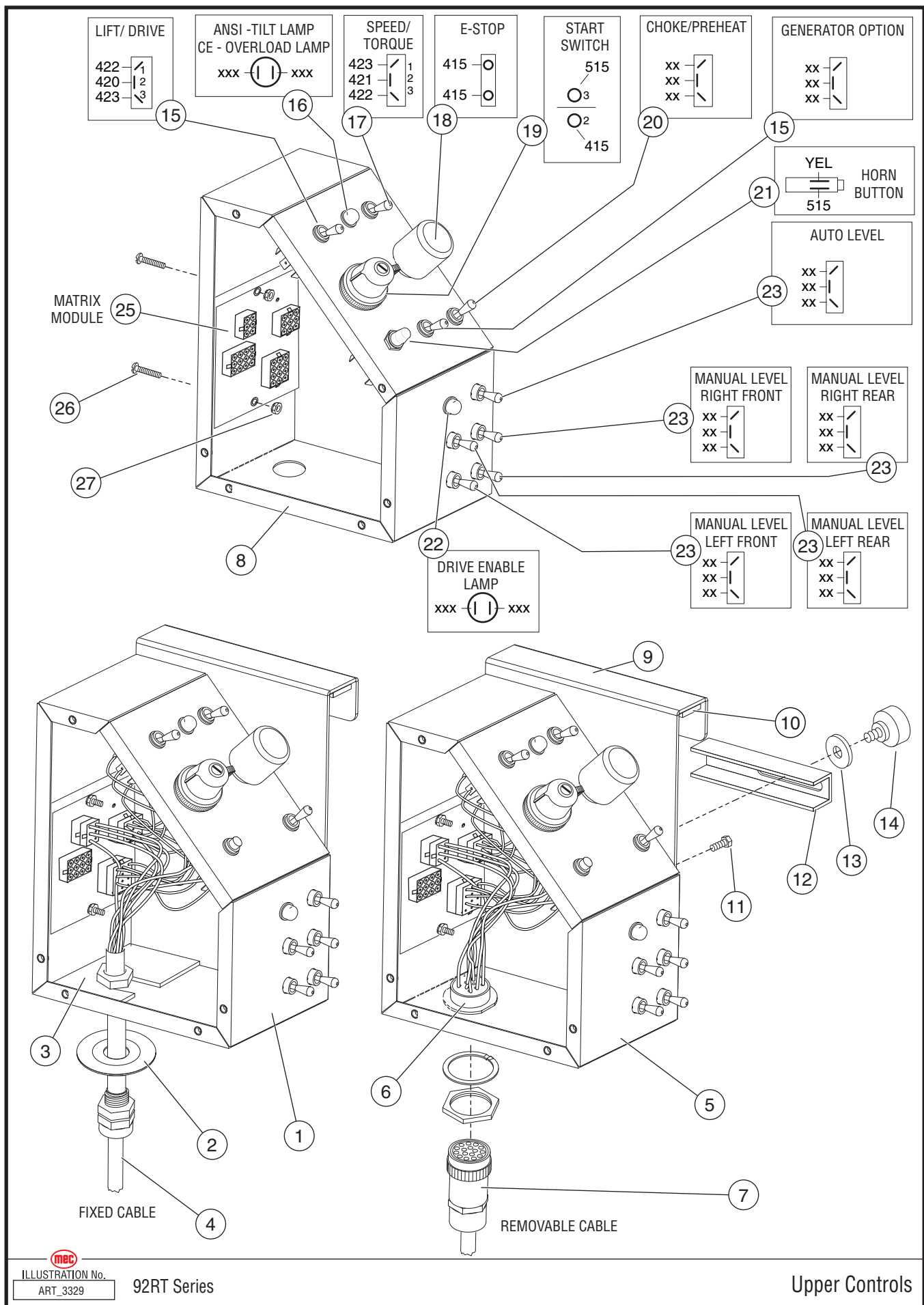
CONTROLS

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Upper Controls

ITEM	PART NO.	QTY	DESCRIPTION
Fixed Control Box Assembly			
1	83099	1	Assembly With Fixed Cable
2	16079	1	Strain Relief Washer
3	16120	1	Mounting Plate
4	92434	1	Cable, Fixed (see Wire Harness, Section F)
Removable Control Box Assembly			
5	83100	1	Assembly With Removable Cable
6	REF	1	Harness, Removable (see Wire Harness, Section F)
7	91780	1	Cable, Removable (see Wire Harness, Section F)
All Models			
8	16242	1	Weldment, Control Box
9	13865	1	Bracket, Control Box Holder
10	6350	.5 FT	Tape, Foam
11	50109	1	Screw, 5/16-18
12	13864	1	Bracket, Control Box Holder
13	50234	1	Washer, 5/16 Fender
14	8826	1	Thumb Screw, 5/16-18, Flower
15	6234	1	Switch, Toggle, Lft/Drive
16	9184	1	Lens, Amber
	9188	1	Light, Bayonet, 14 Volt
	9179	1	Socket, Indicator Light
17	6905	1	Switch, Toggle, Speed/Torque
18	7800	1	Switch, Emergency Stop
19	91619	1	Switch, Start
20	5630	1	Switch, 2-Position Momentary Single Pole
21	8044	1	Switch, Button (Horn option)
22	--	1	Lens, Green
	9188	1	Light, Bayonet, 14 Volt
	9179	1	Socket, Indicator Light
23	91954	5	Switch, 3-Position Momentary
24	--	--	--
25	91663	1	Matrix Module
26	50229	2	Screw, 10-24 x 1.00
27	50230	2	Nut, 10-24 Nylock

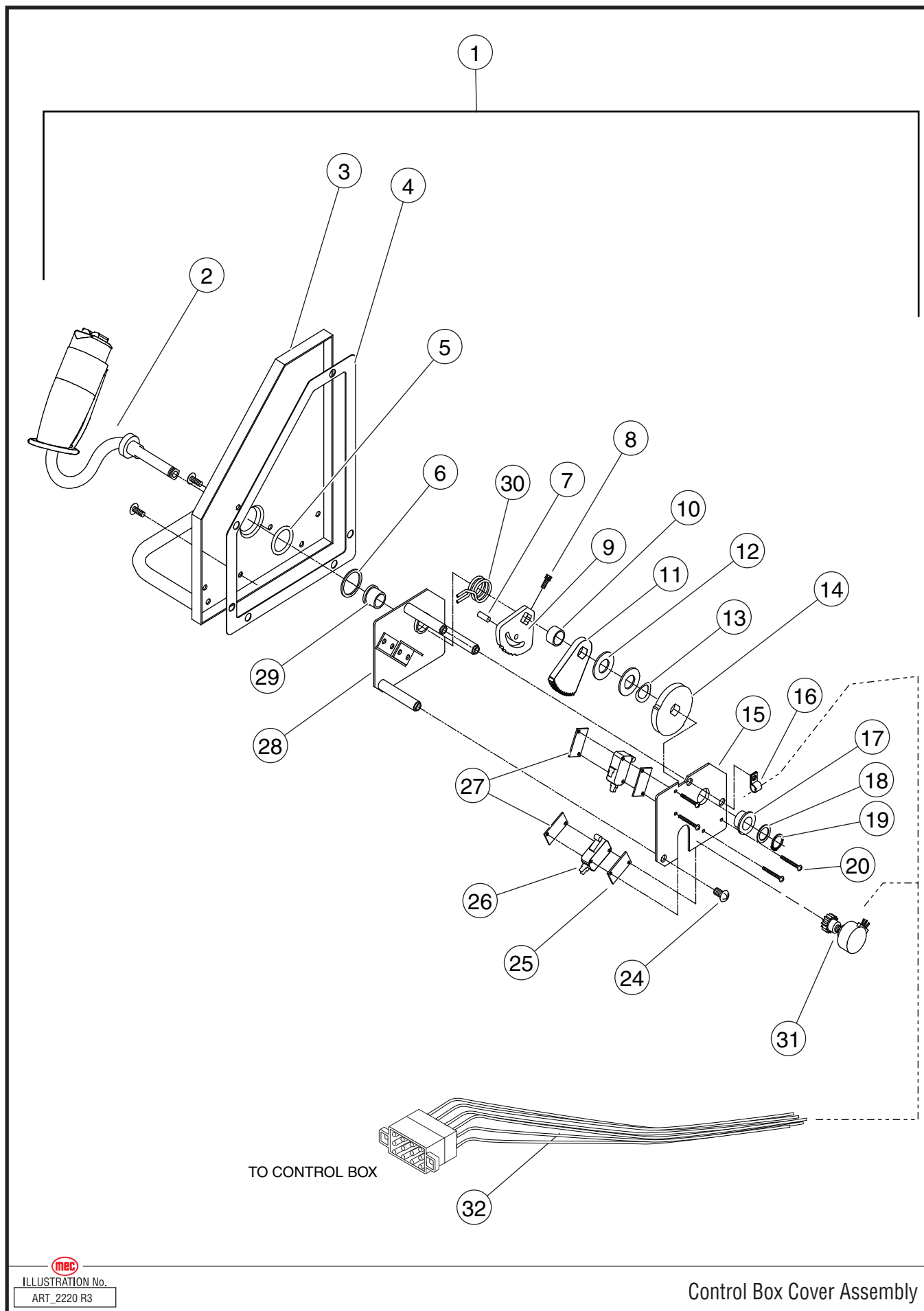
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• NS: Not a Stock item

• REF: Reference only





Upper Control Box Cover Assembly

ITEM	PART NO.	QTY	DESCRIPTION
1	83076	1	Control Box Cover Assembly
2	13647	1	Joystick Assembly
3	3772	1	Cover
4	7875	1	Gasket
5	7882	1	O-Ring
6	HDW3768	1	Washer, Flat
7	1008348	1	Pin, Hold Down
8	50155	1	Screw, 6-32 x 1/2 inch
9	13502	1	Bracket, Centering
10	3763	1	Spacer, Step
11	13402	1	Gear, large
12	HDW8531	2	Washer, Flat
13	HDW7881	1	Washer, Bevel
14	3782	1	Cam, Directional
15	13403	1	Plate, Bottom
16	6917	1	Clamp, Cable, 1/4 inch
17	7818	1	Bearing, Bronze, Flanged
18	HDW3771	1	Washer, Flat
19	5736	1	Ring, Retaining, 1/2 inch
20	50139	4	Screw, 4-40 x 5/8 inch
21	--	--	--
22	--	--	--
23	--	--	--
24	50191	12	Screw, 10-32 x 1/2 inch
25	3764	2	Plate, Spacer
26	8696	2	Switch, Limit, Micro V7
27	3765	2	Plate, Strap
28	3766	1	Plate, Top
29	7819	1	Bearing, Bornze, Flanged
30	8435	1	Spring, Joystick Centering
31	91824	1	Potentiometer Assembly (includes items 21, 22 & 23)
32	REF	1	Wire Harness, (see Wire Harness, Section F)

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• NS: Not a Stock item

• REF: Reference only



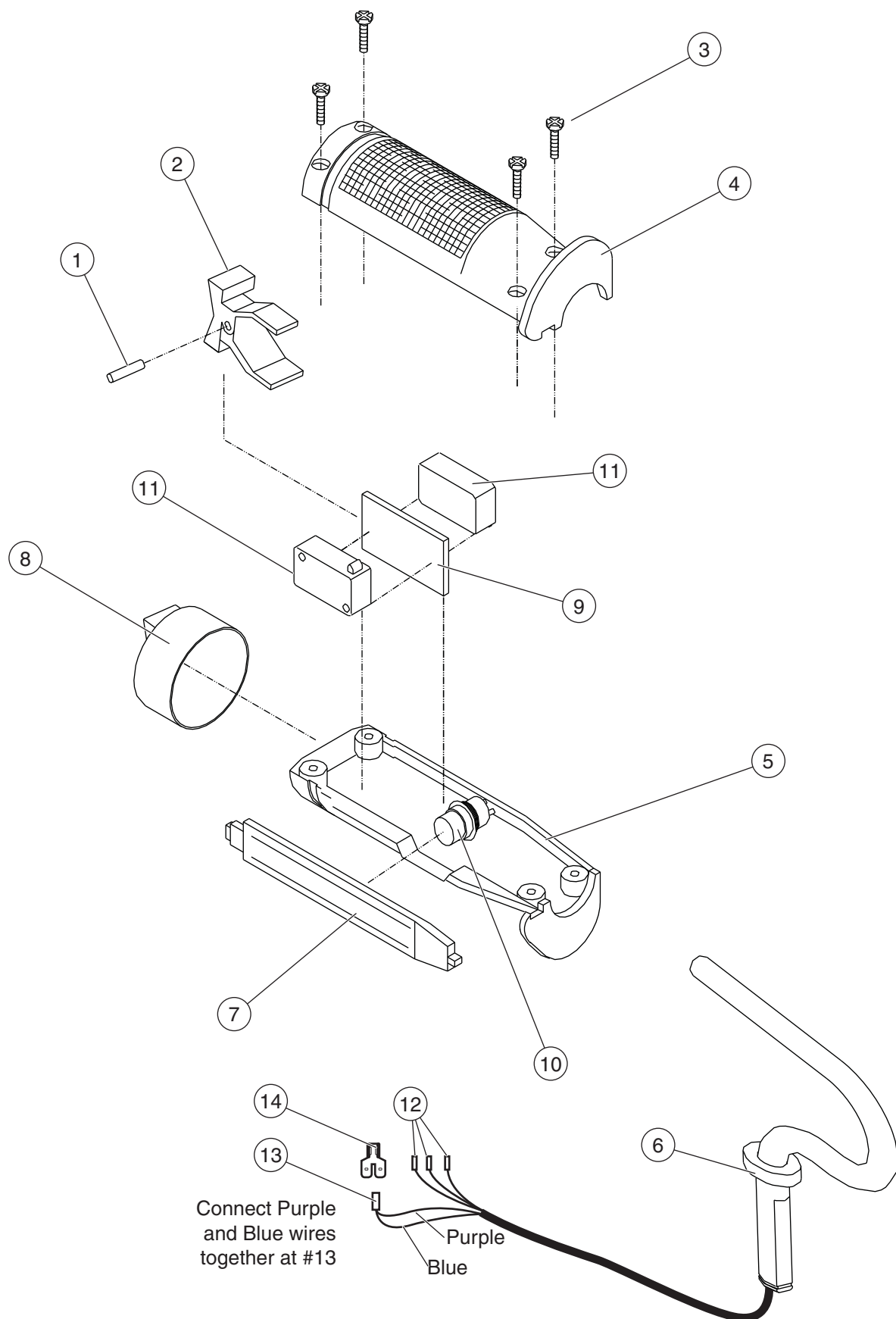


ILLUSTRATION No.
ART_2221 R1

Reference: ART_188

Control Arm (Joystick)

Upper Control Joystick

ITEM	PART NO.	QTY	DESCRIPTION
--	92199	--	Joystick Assembly
1	8750	1	Pin (Service Only)
2	8453	1	Switch Actuator (Service Only)
3	HDW8455	4	Screw (Service Only)
4	8752	1	Grip, Top Half (Service Only)
5	8751	1	Grip, Bottom Half (Service Only)
6	13638	1	Control Arm without wire
7	8748	1	Trigger (Service Only)
8	8456	1	Rocker Boot (Service Only)
9	8447	1	Switch Seperator (Service Only)
10	8753	1	Motion Switch, OFF-ON (Service Only)
11	8448	2	Switch (Service Only)
12	91839	3	Amp Socket (not shown)
13	92194	1	Push Connector
14	92198	1	Terminal, Piggyback Connector
--	8761	--	Switch Assembly (not shown) -- includes item #9, item #11 (x2), wire and connectors

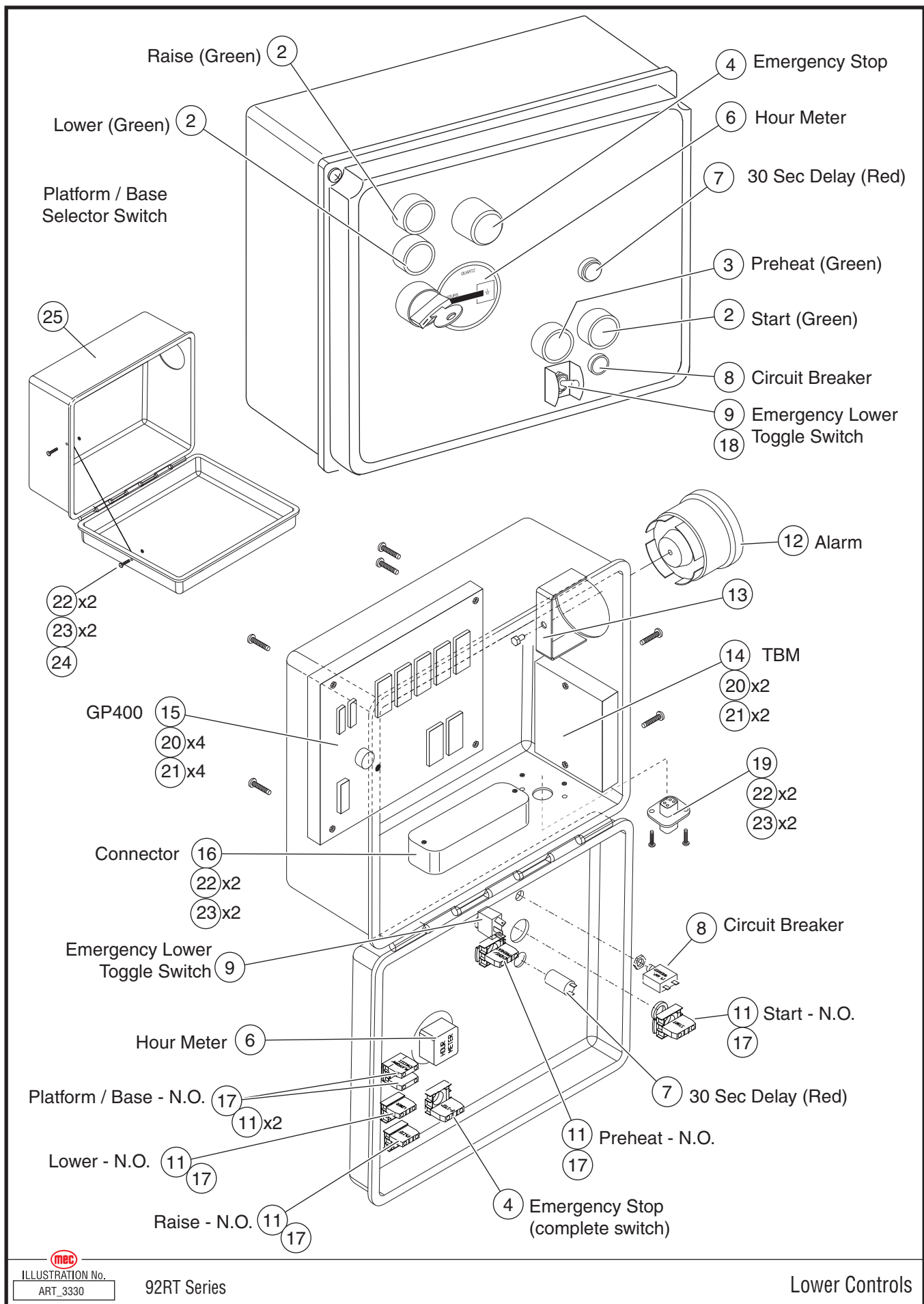


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• NS: Not a Stock item

• REF: Reference only



Lower Controls

ITEM	PART NO.	QTY	DESCRIPTION
–	91179	1	Lower Control Box Assembly
1	9549	1	Switch, 3-Position, Keyed
2	91667	4	Switch, Button, Green
3	--	--	--
4	7800	1	Switch, Emergency Stop
5	--	--	--
6	91704	1	Hour Meter
7	9183	1	Lens, Red
	9188	1	Light, Bayonet, 14 Volt
	9179	1	Socket, Indicator Light
8	7235	1	Circuit Breaker
9	5630	1	Switch, Toggle, 1 Pole 2 Position, Emergency Down
10	--	--	--
11	8082	7	Contact Block, N. O.
12	91711	1	Alarm, 107dB
13	17082	1	Bracket, Alarm Mount
14	91838	1	Terminal Block Module (TBM)
15	91659	1	System Controller, GP400
16	91887	1	Deutsch Connector, DRC 12 70P
17	90714	6	Contact Base
18	1313	1	Switch Guard
19	91290	1	Deutsch Connection, DT4-4P-L012
20	50229	6	Screw, 10-24 x 1.00
21	50230	6	Nut, 10-24 Nylock
22	50233	6	Screw, 8-32 x 1.00
23	50231	6	Nut, 8-32 Nylock
24	91921	1	Lanyard
25		1	Control Box
--	REF	--	Harness -- See Section F



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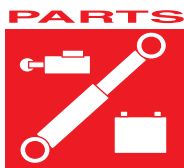
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**Indicate Early 5492RT
With Curved Guardrails
When Ordering Parts**

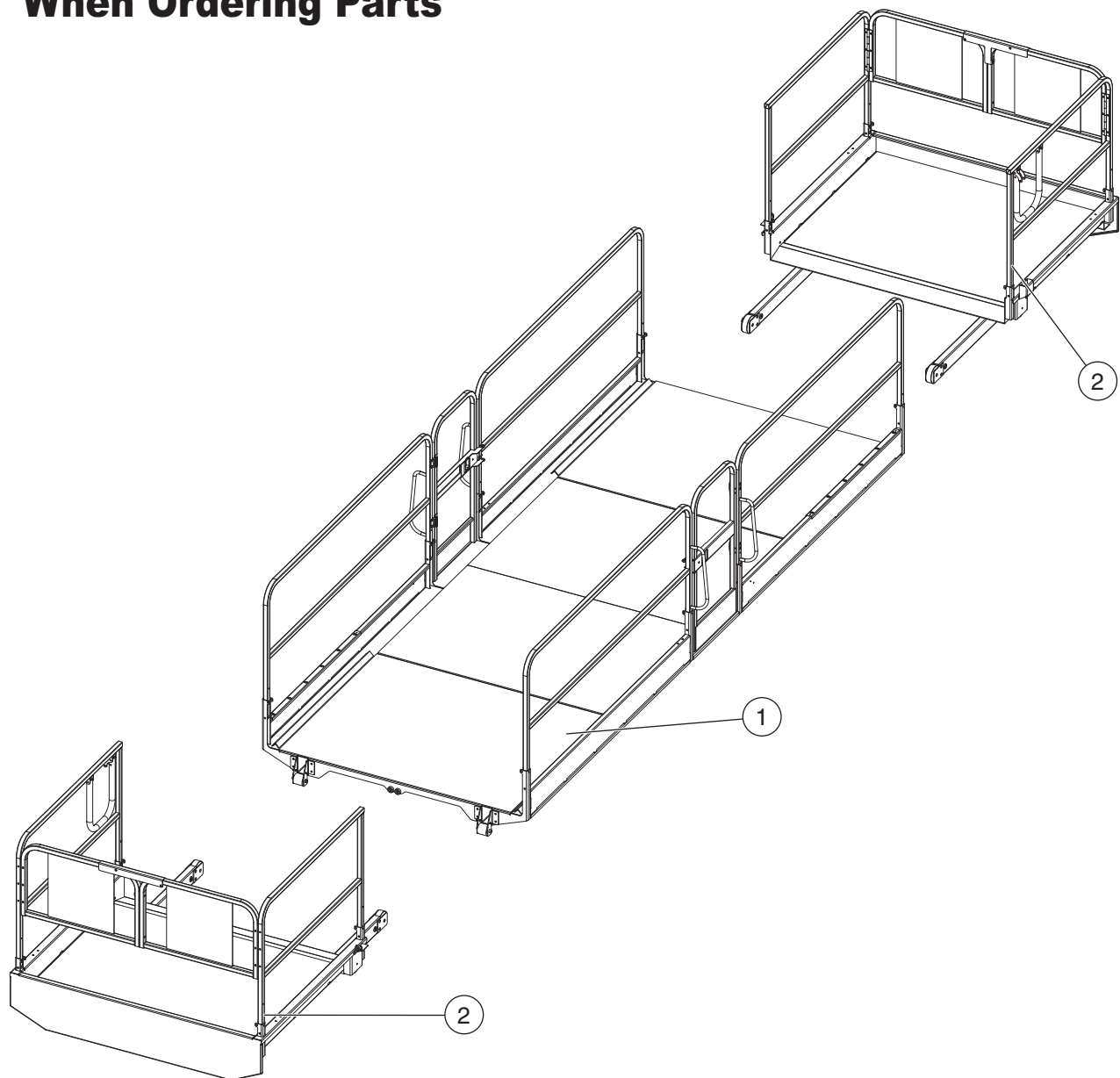


ILLUSTRATION No.
ART_3319

5492RT

PLATFORM, BASIC ASSEMBLY

Platform, Basic Assembly, Early 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
--	84120	1	Platform/Guardrail Assembly
1	84122	1	Main Platform Assembly
2	84124	2	Platform Extension Assembly



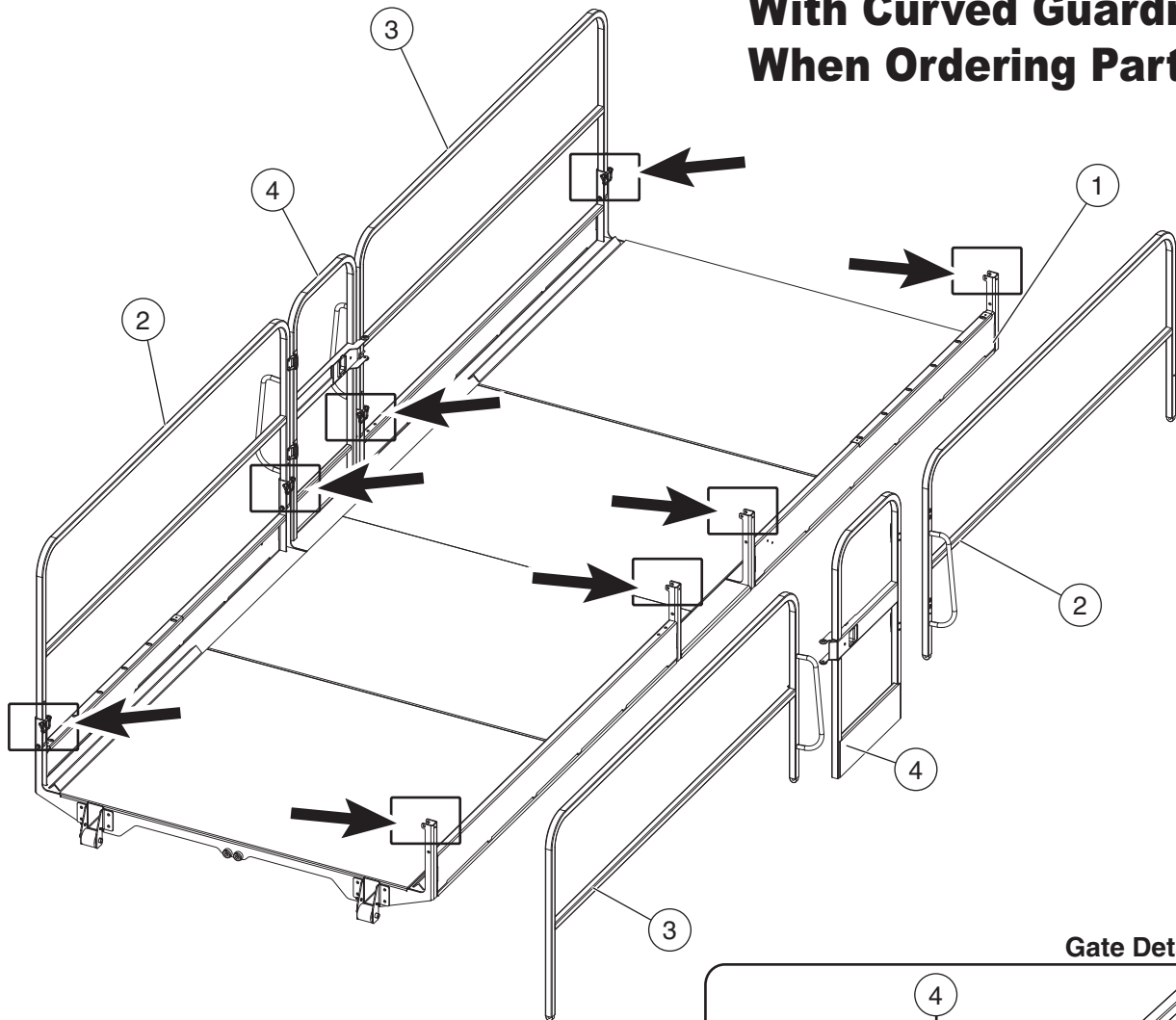
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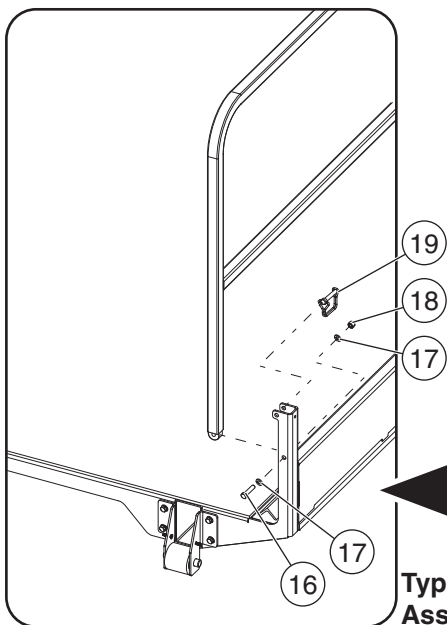
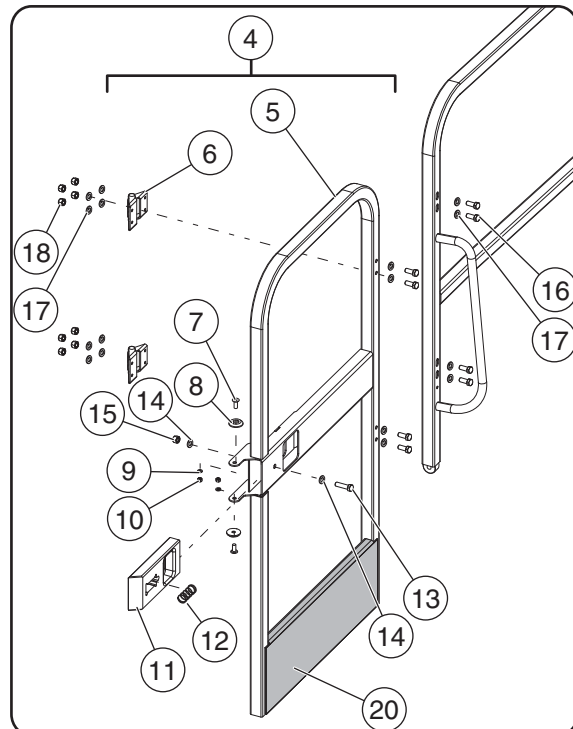
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**Indicate Early 5492RT
With Curved Guardrails
When Ordering Parts**



Gate Detail



**Typical
Assembly x8**

mecc
ILLUSTRATION No.
ART_3321

5492RT

MAIN PLATFORM, #1 of 3

Platform, Drawing 1 of 3, Early 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
--	84122	--	Main Platform Assembly
1	17750	1	Platform Weldment
2	17759	2	Side Rail Weldment
3	17757	2	Side Rail Weldment
4	84125	2	Gate Assembly
Quantities for items #5 through #15 indicate the number needed per Gate Assembly (item #4).			
5	17758	1	Gate Weldment, 23.25" -- MEASURE BEFORE ORDERING
	16810	1	Gate Weldment, 22.5" -- MEASURE BEFORE ORDERING
6	91629	2	Gate Hinge
--	17767	2	Spacer (not shown)
7	50306	2	Bolt, Taper Head 1/4-20 x .75
8	16788	2	Slide Bumper
9	--	--	--
10	50166	2	Nut, 1/4-20 Nylock
11	16799	1	Gate Latch
12	7408	1	Spring, Gate Latch
13	50036	1	Bolt, M10 x 50
14	50000	10	Washer, M10
15	50048	1	Nut, M8 Nylock
16	50021	16	Bolt, HHCS M10 x 55
17	50002	32	Washer, M10 Std
18	50053	16	Nut, M10 Nylock
19	50182	8	Clip Fastener, 3/8 X 2
20	17767	2	Gate Toe Board
21	--	--	--
22	--	--	--



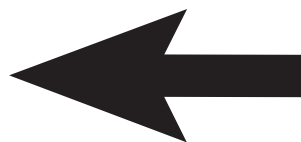
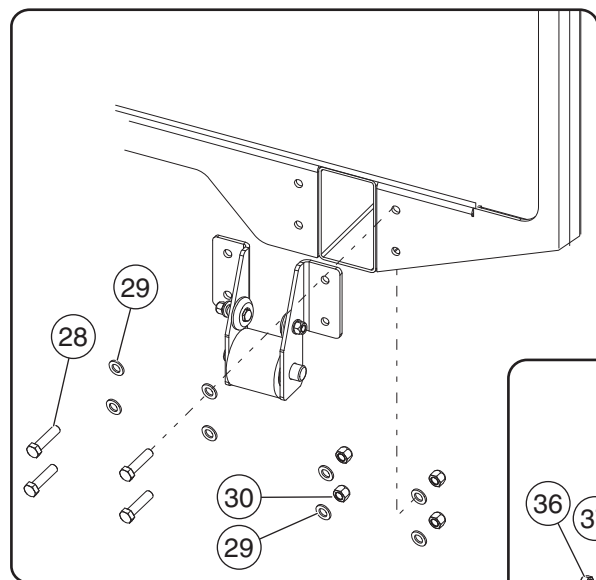
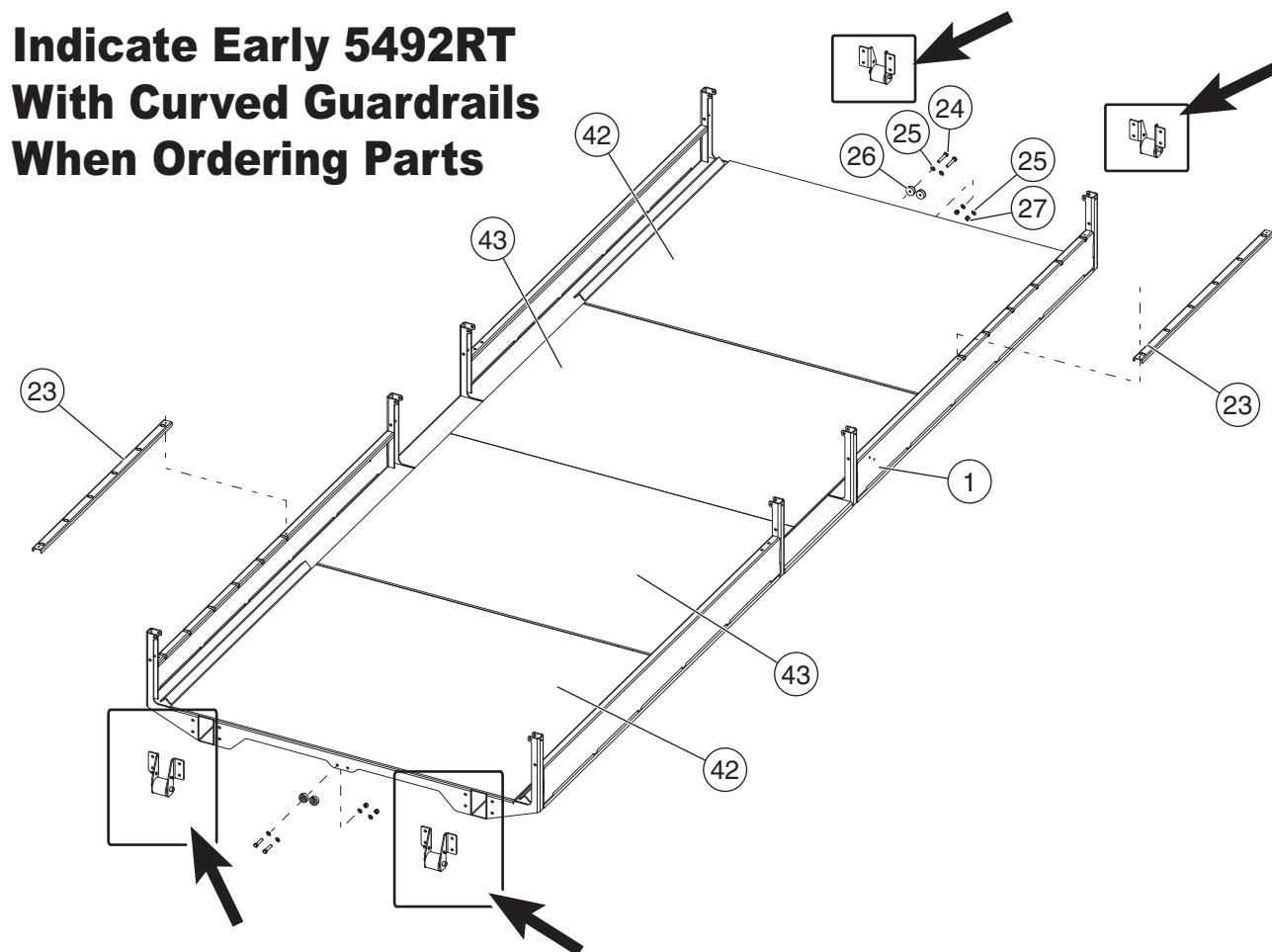
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Indicate Early 5492RT With Curved Guardrails When Ordering Parts



Typical
Assembly x4

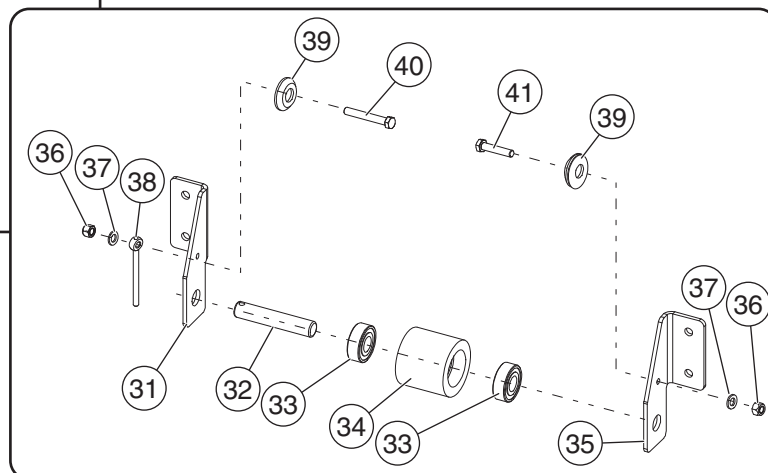


ILLUSTRATION No.
ART_3320

5492RT

MAIN PLATFORM, #2 of 3

Platform, Drawing 2 of 3, Early 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
–	84122	--	Main Platform Assembly
23	17907	2	Cap, Extension Deck Stop
24	50214	4	Bolt, M6 x 30
25	50000	8	Washer, M6 Std
26	17400	4	Recess Bumper, 5/16" Bore
27	50047	4	Nut, M6 Nylock
28	50031	16	Bolt, M8-1.25 x 25
29	50001	32	Washer, M8 Std
30	50048	16	Nut, M8 Nylock
31	16794	4	Roller Bracket, Left
32	16797	4	Roller Shaft, Main Deck
33	91593	8	Bearing, .75 id x 1.7813 od x .6094 w
34	16798	4	Deck Roller - Main Deck
35	16796	4	Roller Bracket, Right
36	50166	8	Nut, 1/4-20 Nylock
37	50001	4	Washer, M8
38	92270	4	Pin Keeper
39	18165	8	Slide Bumper
40	50194	4	Bolt, Taper Head 1/4-20 x 1
41	50306	4	Bolt, Taper Head 1/4-20 x .75
42	17340	2	Deck Plate, Slide
43	17339	2	Deck Plate, Center



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

Indicate Early 5492RT With Curved Guardrails When Ordering Parts

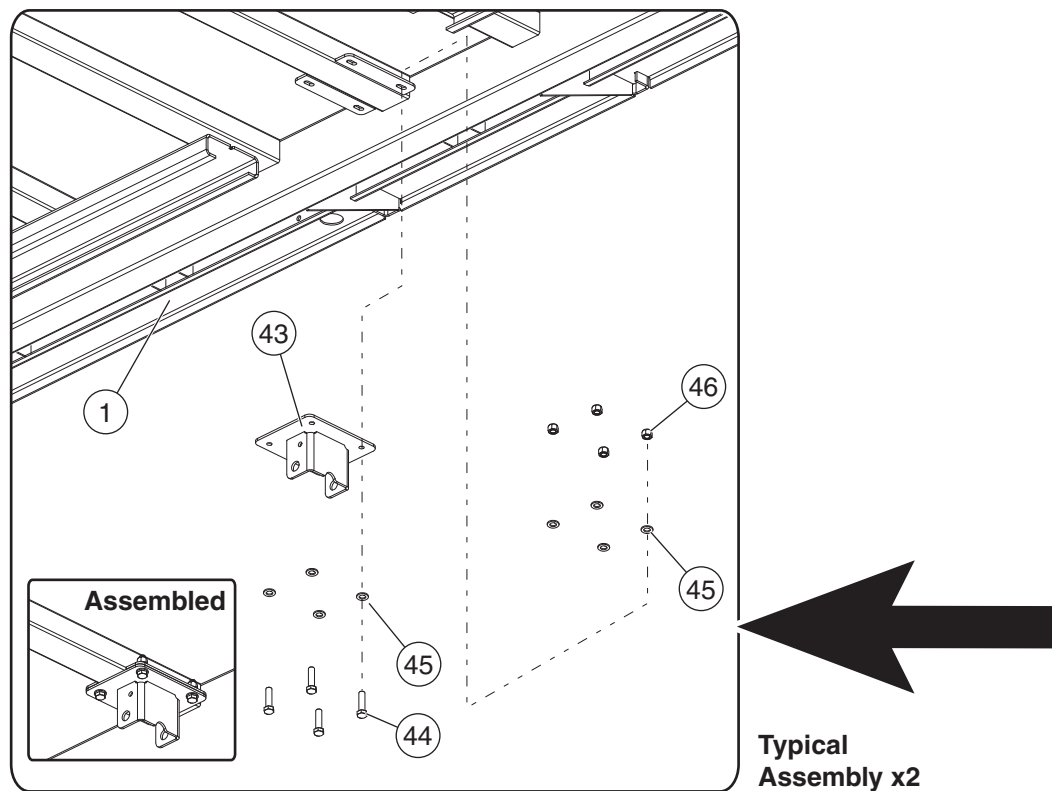
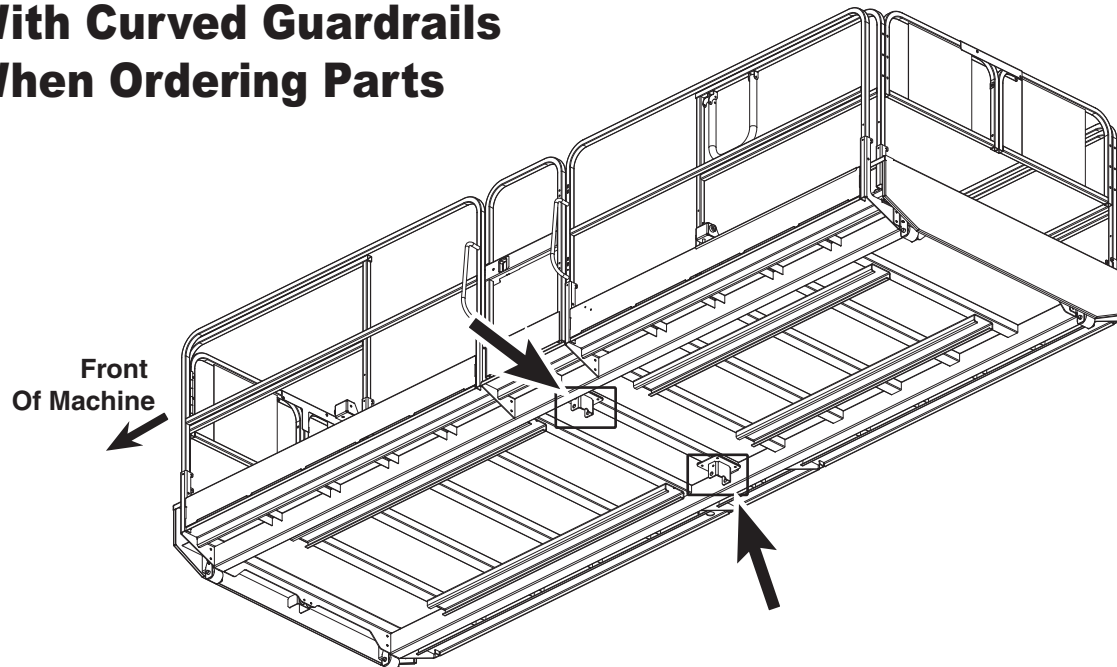


ILLUSTRATION No.
ART_3327

5492RT

MAIN PLATFORM, #3 of 3

Platform, Drawing 3 of 3, Early 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
—	84122	--	Main Platform Assembly
43	17755	2	Centering Bracket
44	50116	8	Bolt, M10 x 25
45	50002	16	Washer, M10 Standard
46	50053	8	Nut, M10 Nylock

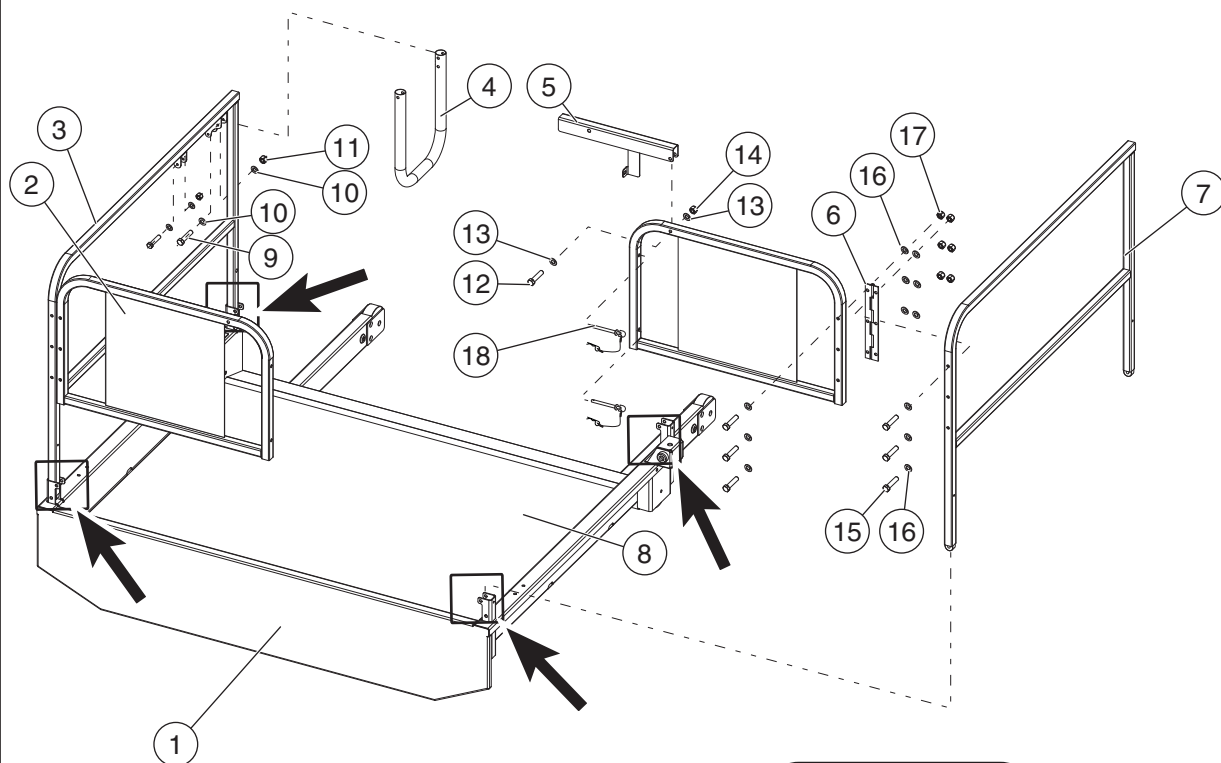


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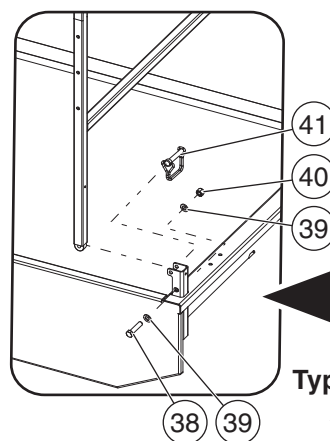
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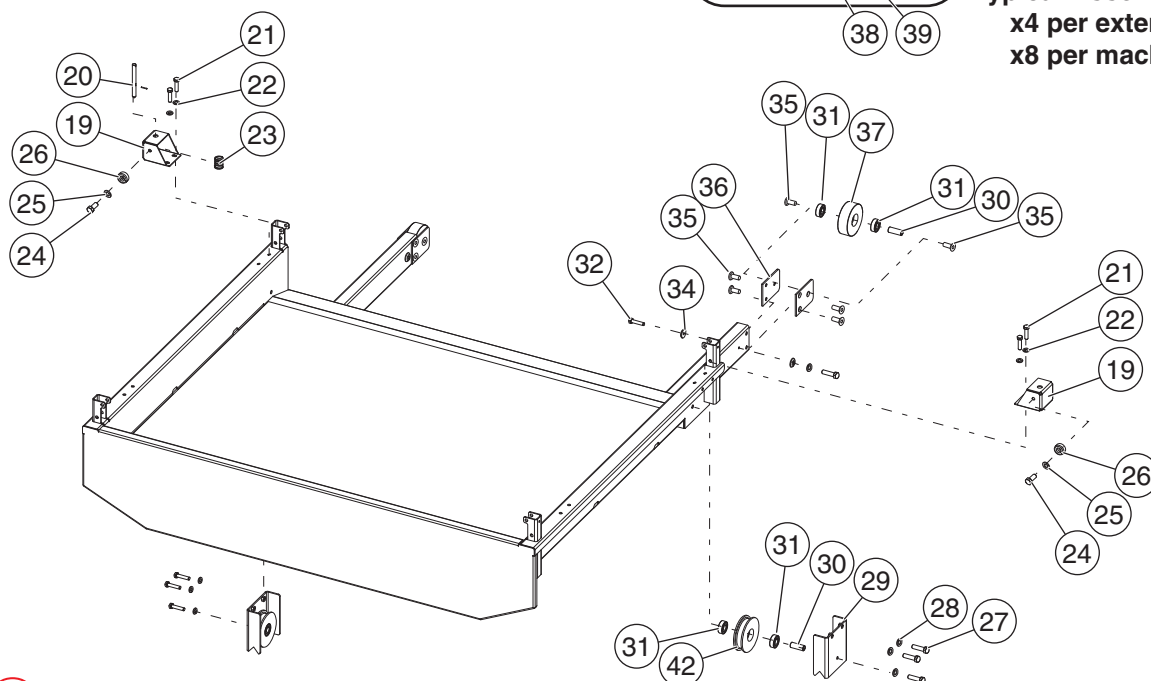
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**Indicate Early 5492RT
With Curved Guardrails
When Ordering Parts**



**Typical Assembly
x4 per extension
x8 per machine**



mecc
ILLUSTRATION No.
ART_XXXX

5492RT

PLATFORM EXTENSION

Platform Extension, Early 5492RT

ITEM	PART NO.	QTY PER ASSEMBLY	QTY PER MACHINE	DESCRIPTION
--	84124	--		Platform Extension Assembly
1	16786	1	2	Extension Deck
2	17762	2	4	End Rail
3	17760	1	2	Side Rail
4	17364	4	8	Tube Handle, Extension Deck
--	7184	4.5 ft	9 ft	Cable, Coated and Rolled
--	8814	2	4	Sleeve, Aluminum Oval
--	50125	1	2	Bolt, M6 x 55
--	50047	1	2	Nut, N6 Nylock
5	17341	1	2	Gate Bracket
6	17830	2	4	Hinge
7	17761	1	2	Side Rail
8	16795	1	2	Deck Plate, Extension Deck, 50" x 65.5" -- MEASURE BEFORE ORDERING
	17778	1	2	Deck Plate, Extension Deck, 48" x 64" -- MEASURE BEFORE ORDERING
9	50125	2	4	Bolt, M6 x 55
10	50000	4	8	Washer, M6 Std
11	50047	2	4	Nut, N6 Nylock
12	50020	1	2	Bolt, M10 x 50
13	50002	2	4	Washer, M10
14	50049	1	2	Nut, M10 Nylock
15	50015	12	24	Bolt, M8 x 50
16	50001	24	48	Washer, M8 Std
17	50048	12	24	Nut, M8 Nylock
18	91284	2	4	Pin, Gate Closure
19	17693	2	4	Deck Stop
20	17414	1	2	Pin, Deck Extension Lock
21	50033	2	4	Bolt, HHCS M10 x 25
22	50002	2	4	Washer, M10 Std
23	92218	1	2	Spring,
24	50214	2	4	Bolt, M6 x 30
25	50000	2	4	Washer, M6 Std
26	17400	2	4	Recess Bumper, 5/16" Bore
27	50219	6	12	Bolt, 3/8-16 x .75
28	50002	6	12	Washer, M10 Std
29	17756	2	4	Roller Bracket
30	16791	4	8	Roller Shaft
31	91593	8	16	Bearing .75id 1.7813od .6094w
32	50306	4	8	Bolt, FSCS 1/4-20 x .75
33	--	--	--	--
34	16788	4	8	Slide Bumper
35	HDW91607	12	24	Bolt, FHSCS 3/8-16 x .75
36	16779	4	8	Roller Mount
37	16792	2	4	End Roller, Extension Deck
38	50021	4	8	Bolt, HHCS M10 x 55
39	50002	8	16	Washer, M10 Std
40	50053	4	8	Nut, M10 Nylock
41	50182	4	8	Clip Fastener, 3/8 X 2
42	17815	2	4	Track Roller, Extension Deck

• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



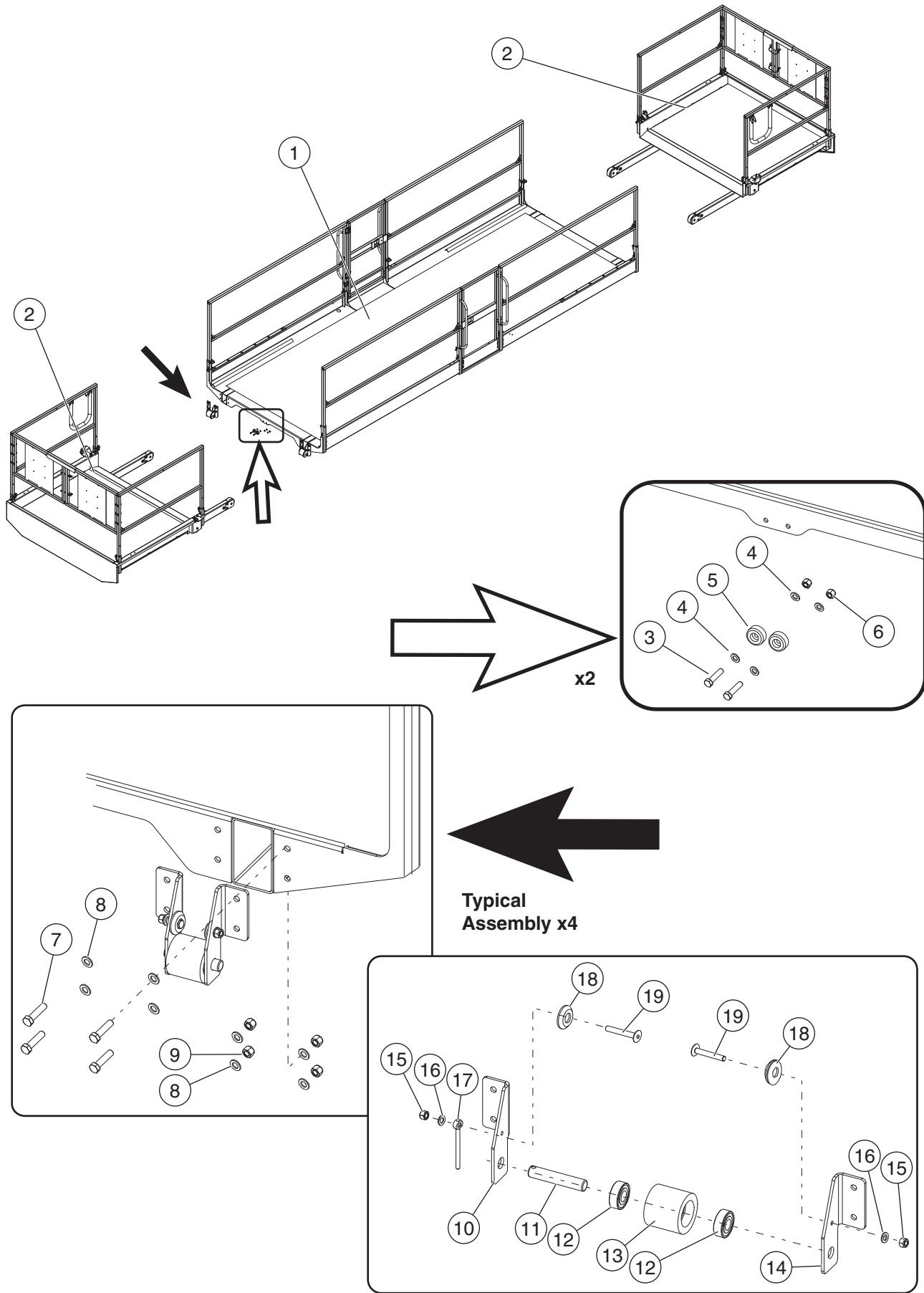


ILLUSTRATION No.
ART_4768

92RT Series

Platform, Basic Assembly, Later 5492RT, 3392RT-T, 6092RT

ITEM	PART NO.	QTY	DESCRIPTION
1	REF	1	Main Platform Assembly
2	84124	2	Extension Deck Assembly
3	50214	4	Bolt, M6 x 30
4	50000	8	Washer, M6 Std
5	17400	4	Recess Bumper, 5/16" Bore
6	50047	4	Nut, M6 Nylock
7	50031	16	Bolt, M8-1.25 x 25
8	50001	32	Washer, M8 Std
9	50048	16	Nut, M8 Nylock
10	16794	4	Roller Bracket, Left
11	16797	4	Roller Shaft, Main Deck
12	91593	8	Bearing, .75 id x 1.7813 od x .6094 w
13	16798	4	Deck Roller - Main Deck
14	16796	4	Roller Bracket, Right
15	50166	8	Nut, 1/4-20 Nylock
16	50001	4	Washer, M8
17	92270	4	Pin Keeper
18	17688	8	Slide Bumper
19	50194	4	Bolt, Taper Head 1/4-20 x 1

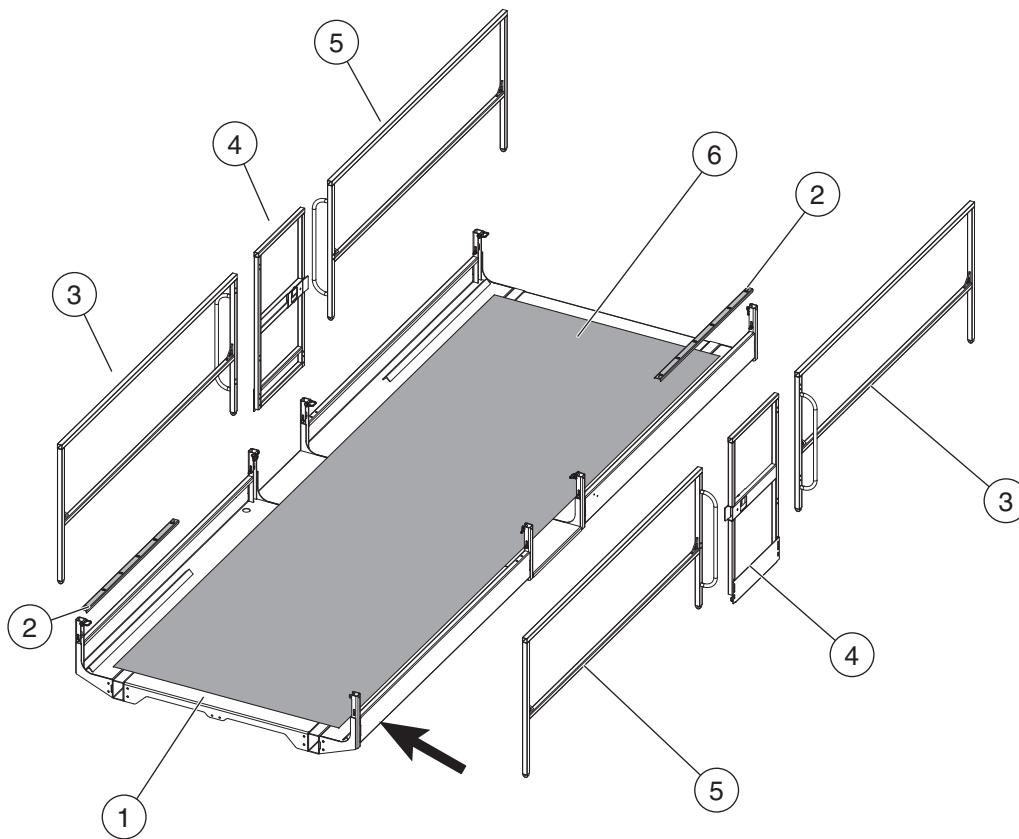


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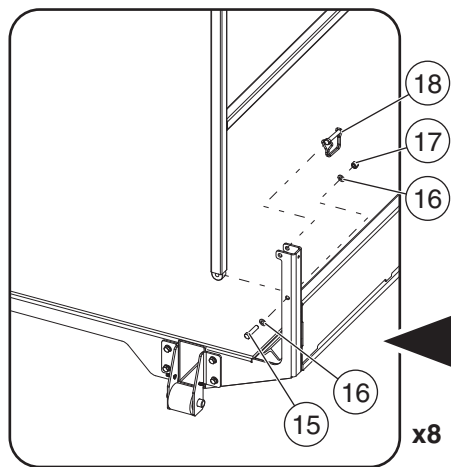
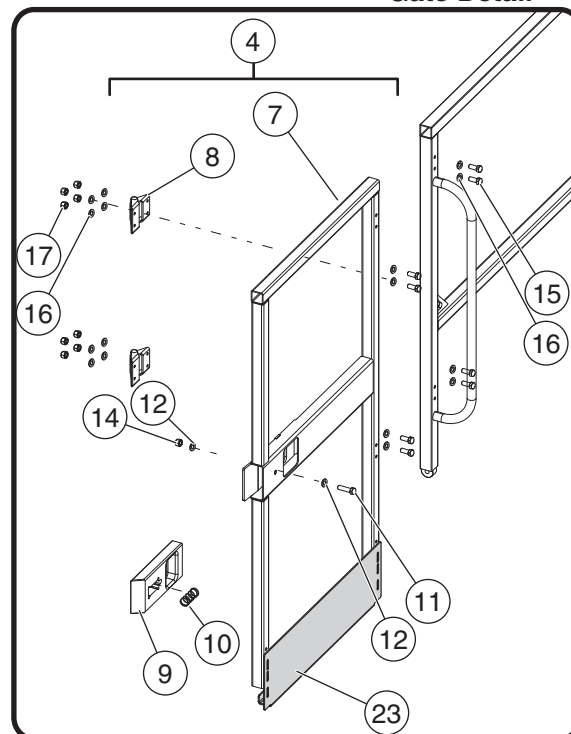
• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



Gate Detail



x8

MAIN PLATFORM

mc
ILLUSTRATION No.
ART_4769

92RT Series

Main Platform, Later 5492RT, 3392RT-T, 6092RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17772	1	Main Platform Weldment
2	17907	2	Cap, Extension Deck Stop
3	17759	2	Side Rail Weldment
4	--	2	Gate Assembly
5	17757	2	Side Rail Weldment
6	17769	1	Deck Plate
Quantities for following item indicate the number needed per location.			
7	22366	1	Gate Weldment
8	91629	2	Gate Hinge
	17767	2	Spacer (not shown)
9	16799	1	Gate Latch
10	16800	1	Spring, Gate Latch
11	50015	1	Bolt, M8 x 50
12	50001	10	Washer, M8
13	--	--	--
14	50048	1	Nut, M8 Nylock
15	50021	16	Bolt, HHCS M10 x 55
16	50002	32	Washer, M10 Std
17	50053	16	Nut, M10 Nylock
18	50182	8	Clip Fastener, 3/8 X 2
19	22349	2	Gate Toe Board

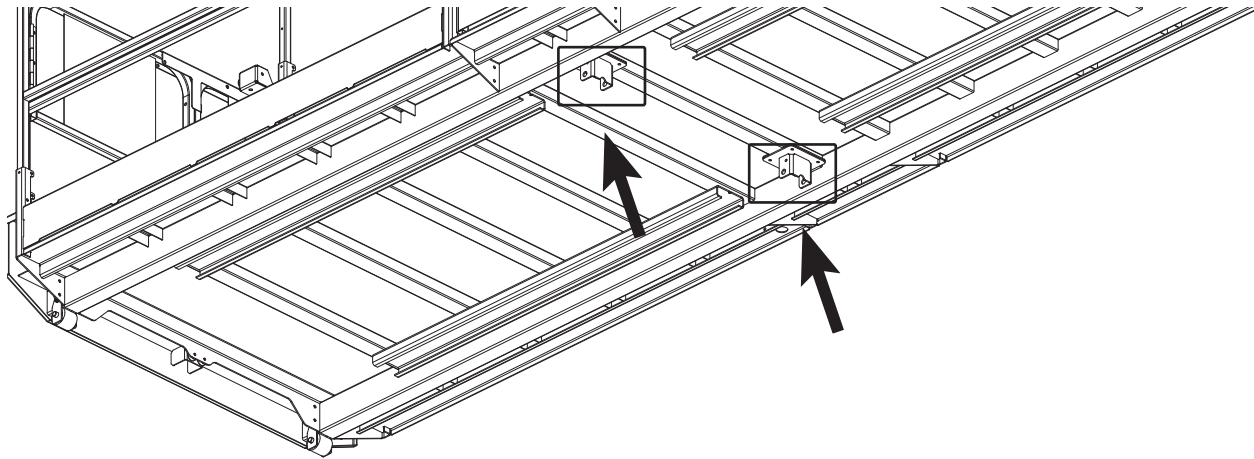


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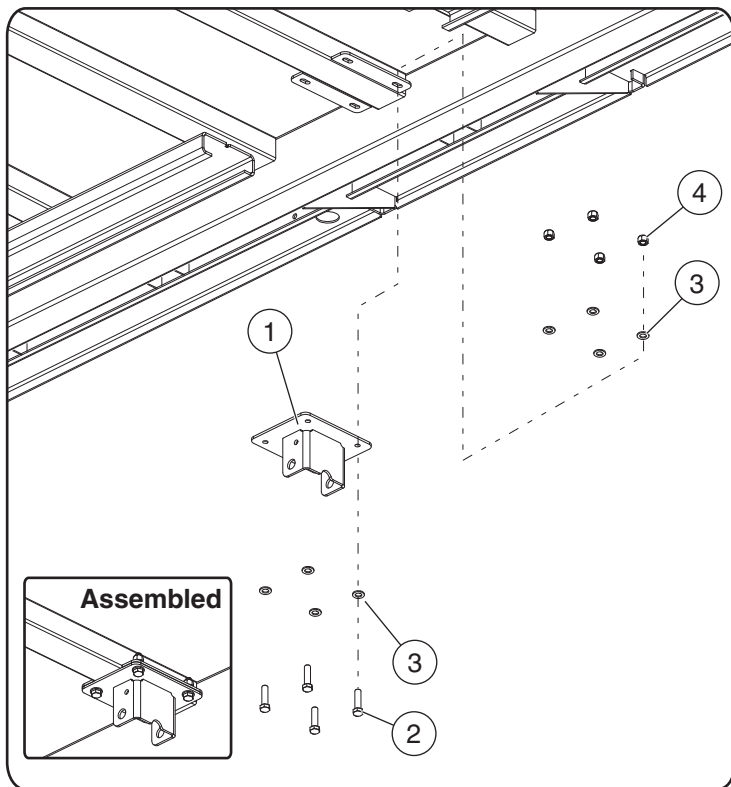
• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



**Front
Of Machine**

**Typical
Assembly x2**




ILLUSTRATION No.
ART_4770

92RT Series

Platform Centering Brackets

Platform Centering Brackets, Later 5492RT, 3392RT-T, 6092RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17755	2	Centering Bracket
2	50116	8	Bolt, M10 x 25
3	50002	16	Washer, M10 Standard
4	50053	8	Nut, M10 Nylock



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

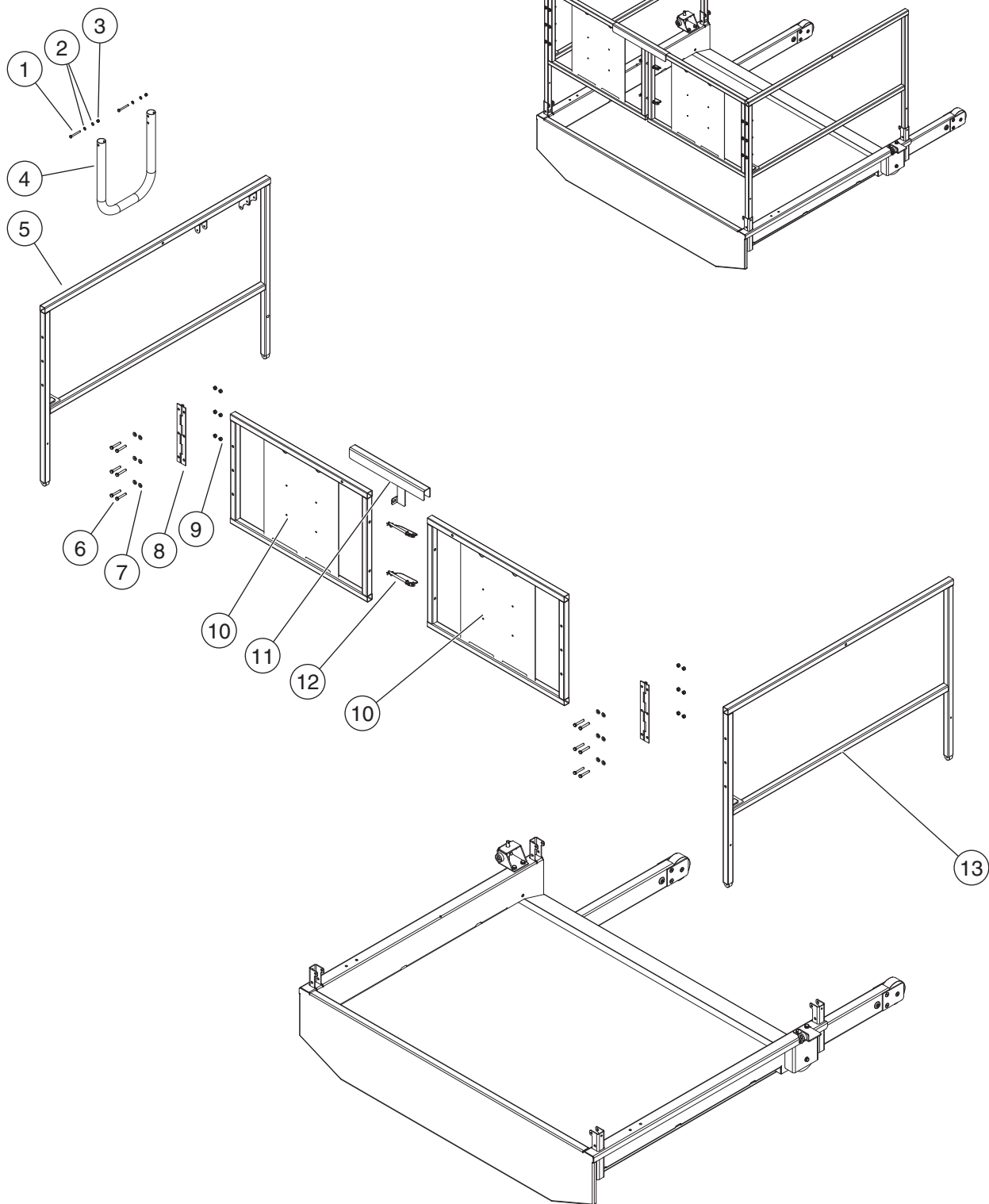


ILLUSTRATION No.
ART_4771

92RT Series

PLATFORM EXTENSION, 1 of 2

Platform Extension, 1 of 2, Later 5492RT, 3392RT-T, 6092RT

ITEM	PART NO.	QTY	DESCRIPTION
	Quantities listed are per extension; 2 extensions per machine.		
1	50125	2	Bolt, M6 x 55
2	50000	4	Washer, M6 Std.
3	50047	2	Nut, M6 Nylock
4	17364	1	Extension Handle
5	17760	1	Guardrail, Right
6	50015	12	Bolt, M8 x 50
7	50001	12	Washer, M8 Std.
8	17830	2	Hinge
9	50048	12	Nut, M8 Nylock
10	16786	2	End Panel
11	17341	1	Gate Bracket
12	91284	2	Hitch Pin
13	17761	1	Guardrail, Left



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

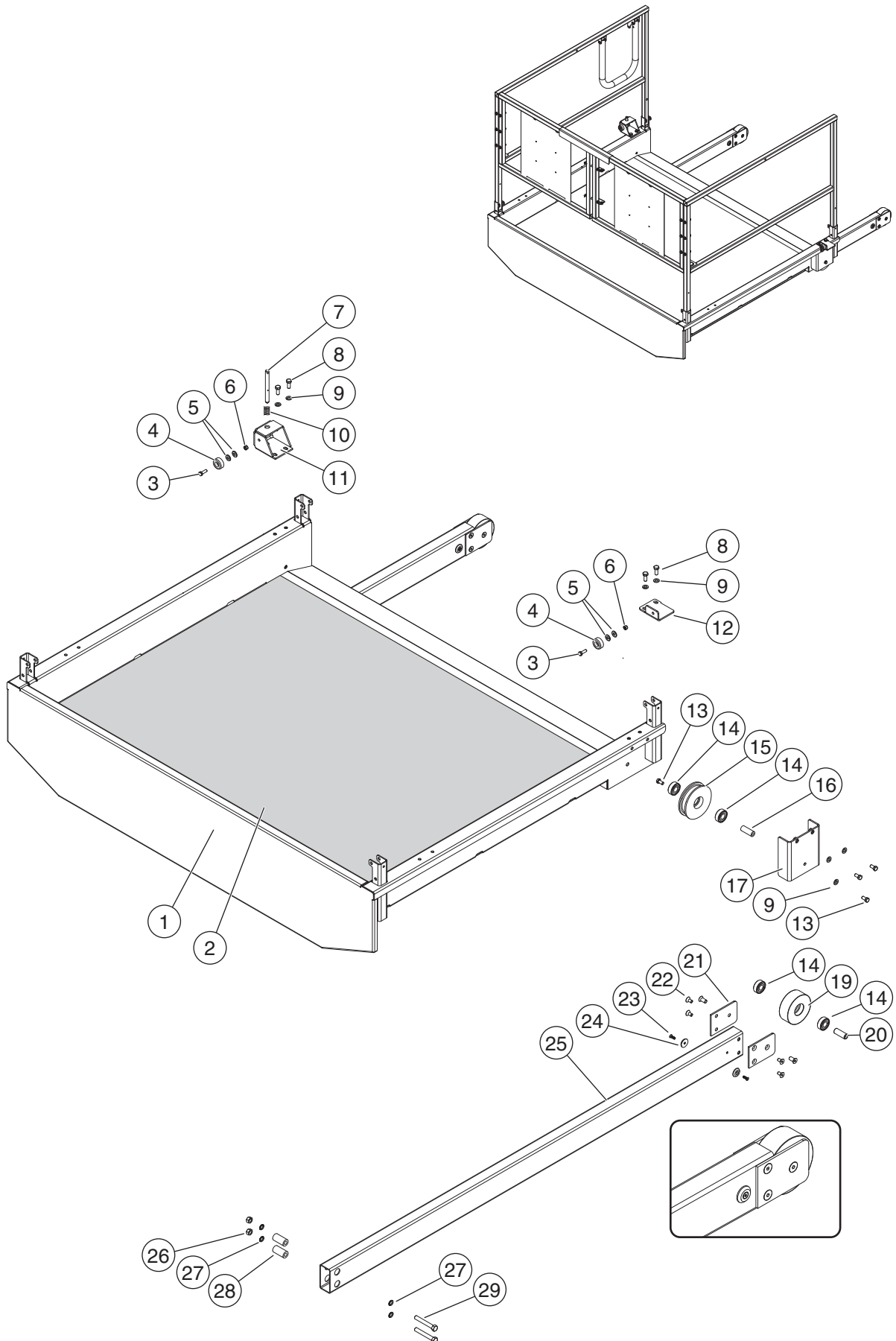


ILLUSTRATION No.
ART_4772

92RT Series

PLATFORM EXTENSION, 2 of 2

Platform Extension, 1 of 2, Later 5492RT, 3392RT-T, 6092RT

ITEM	PART NO.	QTY	DESCRIPTION
	Quantities listed are per extension; 2 extensions per machine.		
1	17752	1	Platform Extension Weldment
2	16795	1	Deck Plate
3	50031	2	Bolt, M8 x 25
4	17400	2	Bumper
5	50218	4	Washer, M8 Std.
6	50048	2	Nut, M8 Nylock
7	17414	1	Pin
8	50033	4	Bolt, M10 x 25
9	50002	4	Washer, M10 Std.
10	92218	1	Spring
11	17692	1	Bracket
12	17159	1	Bracket
13	50219	8	Bolt, 3/8 x .75
14	91593	8	Bearing
15	17815	2	Roller
16	21475	2	Axle
17	17814	2	Bracket
18	--	--	--
19	16792	2	Roller
20	16791	2	Axle
21	16779	4	Roller Plate
22	50400	12	Bolt, Flat Socket M12 x 25
23	50450	4	Bolt, Flat Socket M6 x 20
24	16788	4	Slide Bumper
25	17792	2	Slide Tube
26	50201	4	Nut, 1/2 Nylock
27	50004	8	Washer, M16
28	17834	4	Tube Slider
29	50074	4	Bolt, 1/2 x 3.5



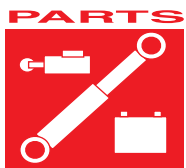
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• NS: Not a Stock item

• REF: Reference only

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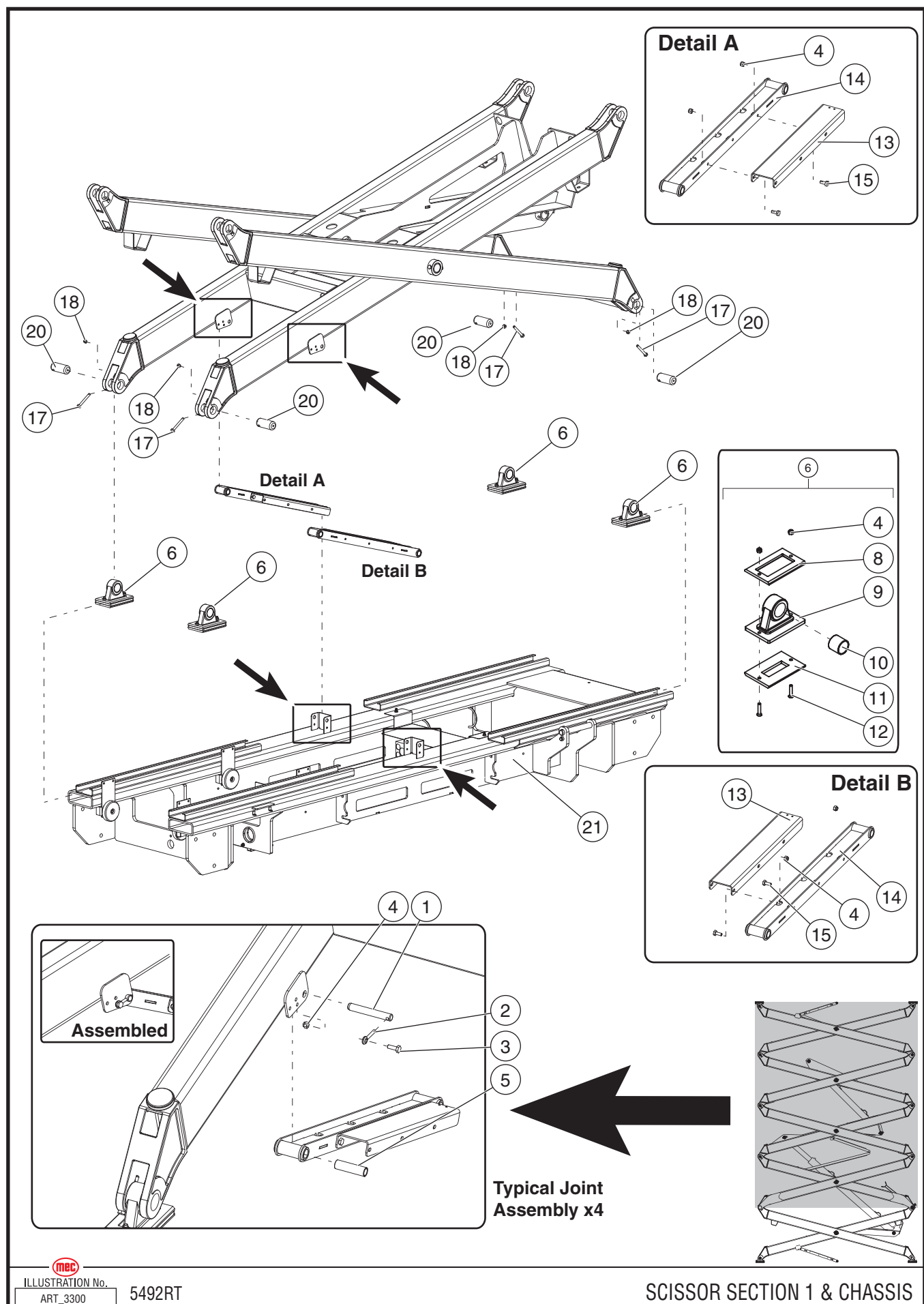


SECTION C

SCISSOR ASSEMBLY

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Scissor Section 2, 5492RT	C-7
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Scissor End Connections, 6092RT-T	C-27
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Lift Cylinder Mounting	C-33





Scissor Section 1 & Chassis, 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17905	4	Pin, Centering Linkage
2	18151	4	Banjo Pin
3	50034	4	Bolt, M10 x 30
4	50053	16	Nut, M10 Nylock
5	17920	4	Sleeve
6	17924	4	Assembly, Scissor Slide
7	--	--	--
8	17903	4	Pad, Inner Scissor Slide
9	17902	4	Casting, Scissor Slide
10	17921	4	Bearing
11	17904	4	Pad, Outer, Scissor Slide
12	50322	8	Screw, FSCS Tapered, M10 x 50
13	17906	2	Arm Component, Lower Centering Linkage
14	17922	2	Weldment, Centering Linkage
15	50031	4	Bolt, M10 x 25
16	--	--	--
17	50323	4	Bolt, HHCS M12 x 100 GR10.9
18	50050	4	Nut, M12 Nylock
19	--	--	--
20	17901	4	Pin, Scissor End
21	REF	--	Chassis



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

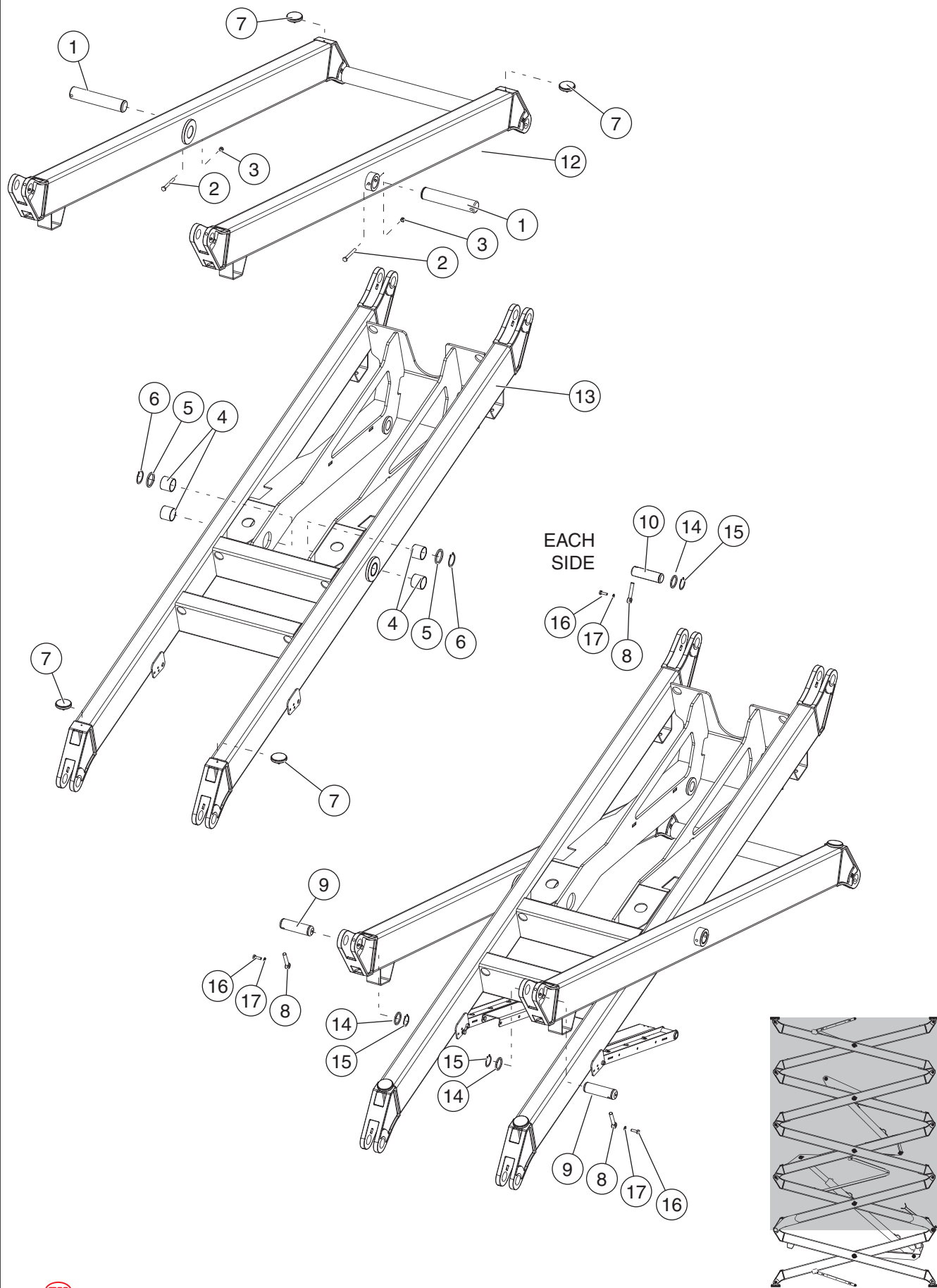


ILLUSTRATION No.
ART_3302

5492RT

SCISSOR SECTION 1

Scissor Section 1, 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17900	2	Pin, Scissor Center
2	50324	2	Bolt, M12 x 110 GR10.9
3	50050	2	Nut, M12 Nylock
4	17916	4	Bearing
5	17917	2	Spacer
6	93734	2	Snap Ring
7	17926	4	Pad, Scissor
8	17928	3	Pin Retainer
9	17929	2	Pin
10	17564	2	Pin
11	--	--	--
12	17501	1	Outside Beam Weldment, Scissor Section 1
13	17502	1	Inside Beam Weldment, Scissor Section 1
14	17931	4	Spacer
15	93731	4	Snap Ring
16	50325	3	Bolt, M10-1.5 x 30 GR10.9
17	50006	3	Washer, M10 Nordlock



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

Scissor Section 2, 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17900	2	Pin, Scissor Center
2	50324	2	Bolt, M12 x 110 GR10.9
3	50050	6	Nut, M12 Nylock
4	17916	4	Bearing
5	17917	2	Spacer
6	93734	2	Snap Ring
7	17926	4	Pad, Scissor
8	17921	4	Bearing
9	17901	2	Pin, Scissor End
10	50323	4	Bolt, M12 x 100 GR10.9
11	17901	2	Pin, Scissor End
12	17503	1	Outside Beam Weldment, Scissor Section 2
13	17504	1	Inside Beam Weldment, Scissor Section 2
14	17925	1	Spring Pin Assembly
15	17923	1	Weldment, Maintenance Stand
16	50053	4	Nut, M10 Nylock
17	50213	4	Bolt, M10 x 90
18	17909	6	Mount, Maintenance Stand
19	17934	8	Sleeve Bearing



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

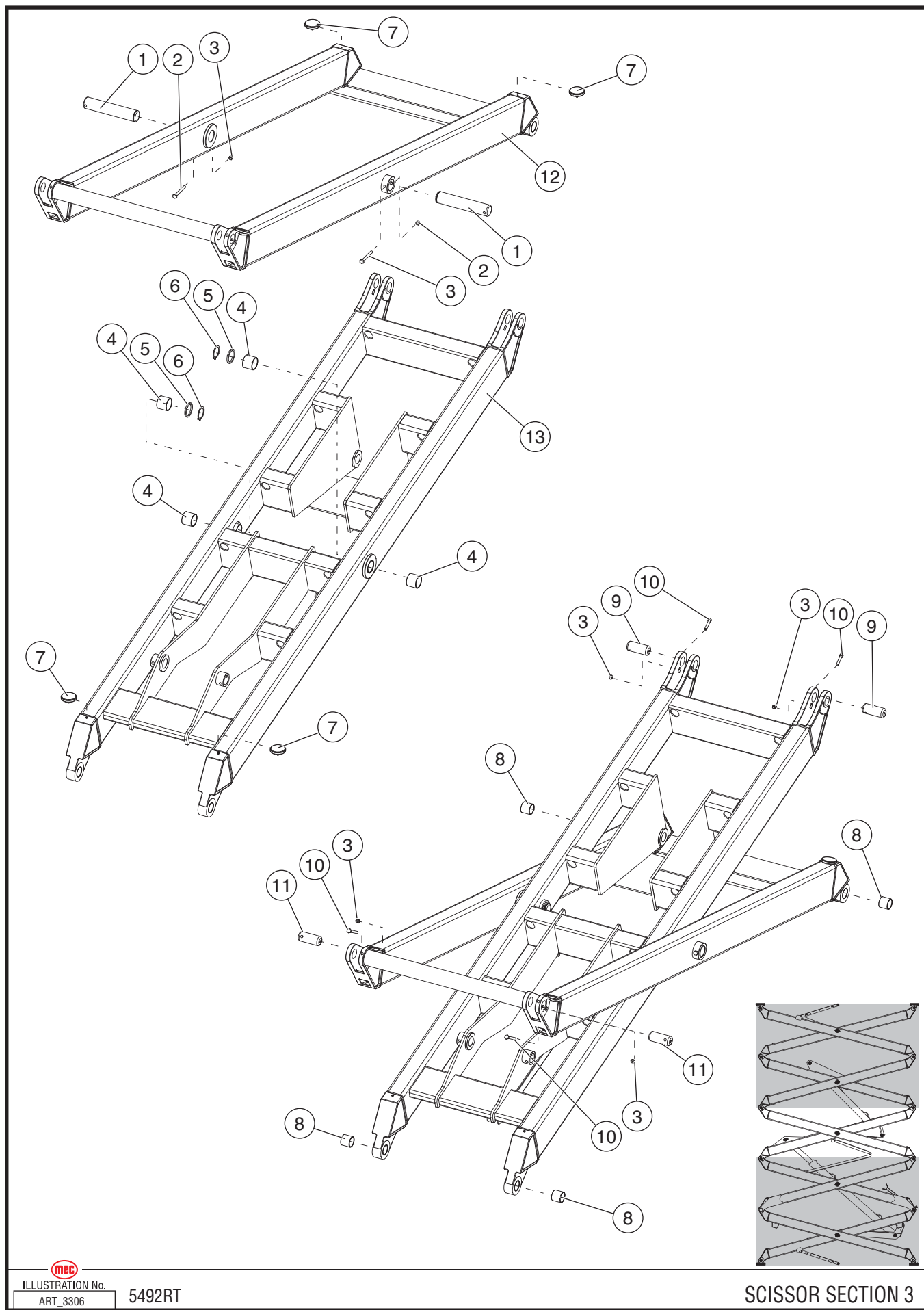


ILLUSTRATION No.
ART_3306

5492RT

SCISSOR SECTION 3



Scissor Section 3, 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17900	2	Pin, Scissor Center
2	50324	2	Bolt, M12 x 110 GR10.9
3	50050	6	Nut, M12 Nylock
4	17916	4	Bearing
5	17917	2	Spacer
6	93734	2	Snap Ring
7	17926	4	Pad, Scissor
8	17921	4	Bearing
9	17901	4	Pin, Scissor End
10	50323	4	Bolt, M12 x 100 GR10.9
11	17918	1	Pin, Scissor End
12	17505	1	Outside Beam Weldment, Scissor Section 3
13	17506	1	Inside Beam Weldment, Scissor Section 3



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

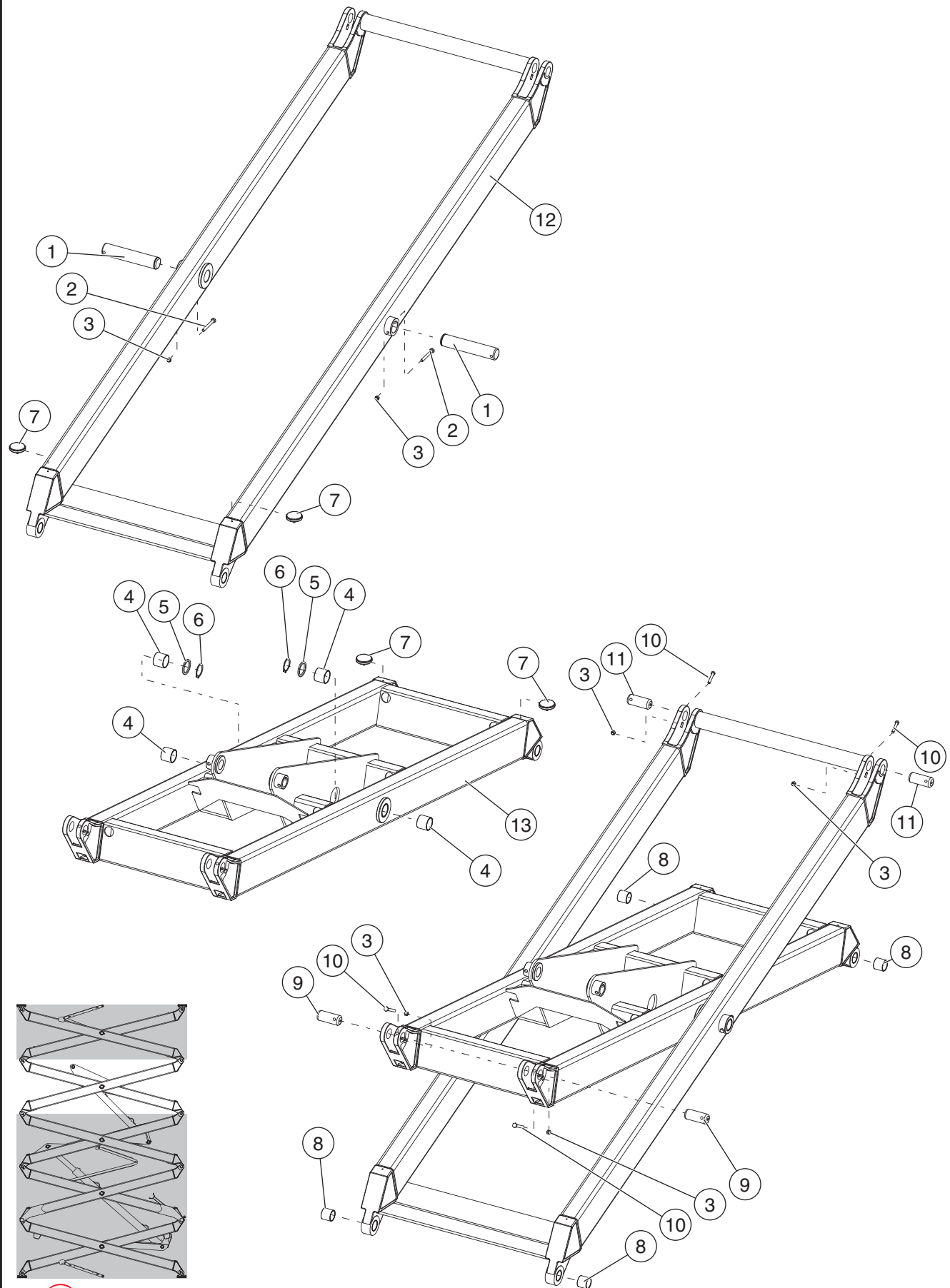



 ILLUSTRATION No.
 ART_3308

5492RT

SCISSOR SECTION 4

Scissor Section 4, 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17900	2	Pin, Scissor Center
2	50324	2	Bolt, M12 x 110 GR10.9
3	50050	6	Nut, M12 Nylock
4	17916	4	Bearing
5	17917	2	Spacer
6	93734	2	Snap Ring
7	17926	4	Pad, Scissor
8	17921	4	Bearing
9	17901	2	Pin, Scissor End
10	50323	4	Bolt, M12 x 100 GR10.9
11	17901	2	Pin, Scissor End
12	17507	1	Outside Beam Weldment, Scissor Section 4
13	17508	1	Inside Beam Weldment, Scissor Section 4



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

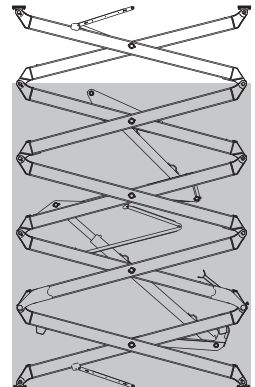
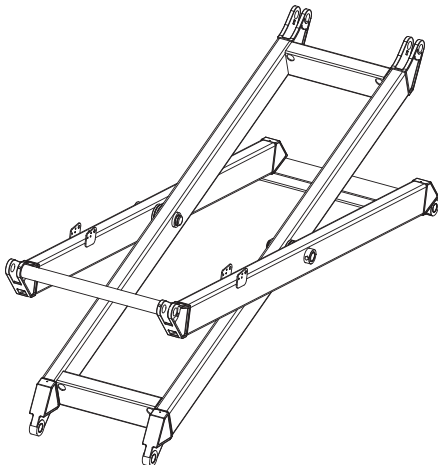
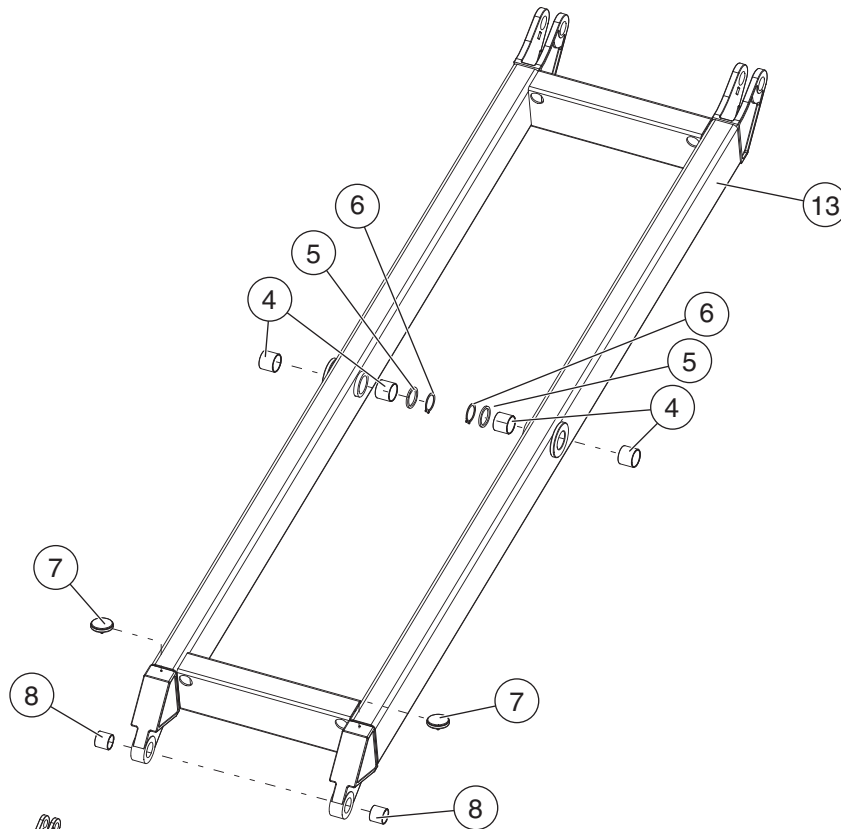
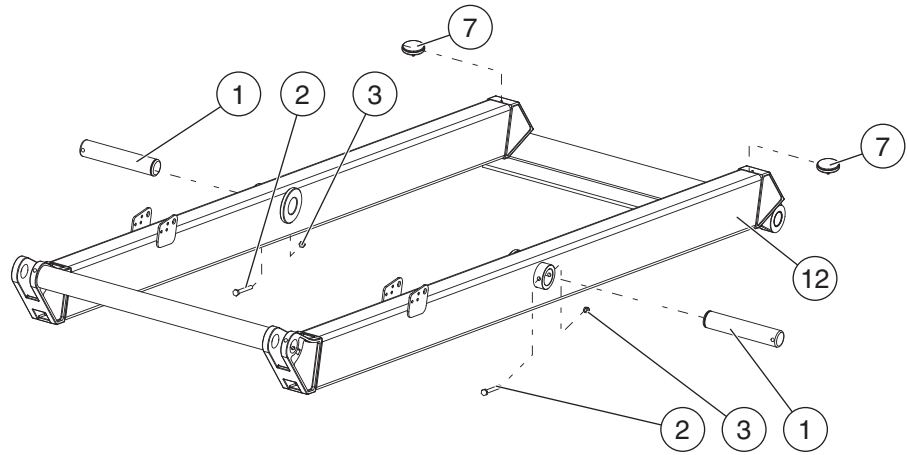



 ILLUSTRATION No. 5492RT
 ART_3309

SCISSOR SECTION 5

Scissor Section 5, 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17900	2	Pin, Scissor Center
2	50324	2	Bolt, M12 x 110 GR10.9
3	50050	6	Nut, M12 Nylock
4	17916	4	Bearing
5	17917	2	Spacer
6	93734	2	Snap Ring
7	17926	4	Pad, Scissor
8	17921	4	Bearing
9	--	--	--
10	--	--	--
11	--	--	--
12	17509	1	Outside Beam Weldment, Scissor Section 5
13	17510	1	Inside Beam Weldment, Scissor Section 5



• as req: as required

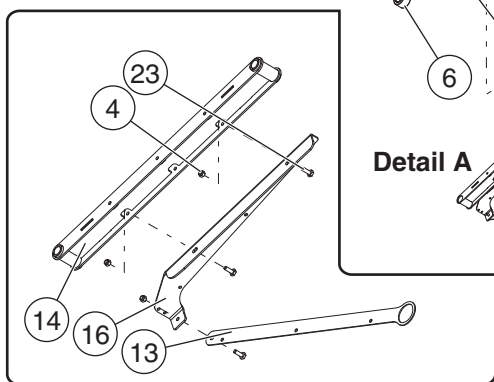
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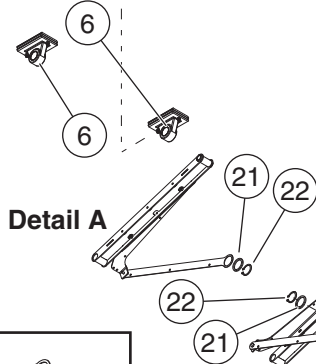
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Front
Of Machine

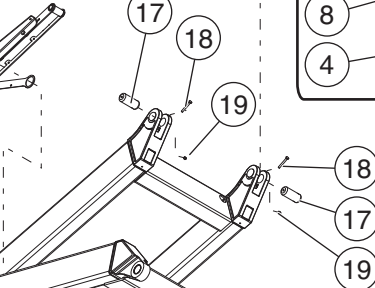
Detail A



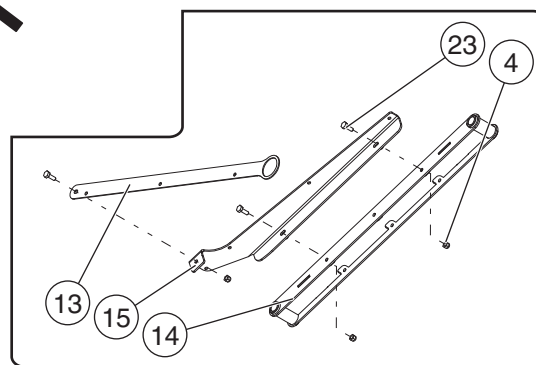
Detail A



Detail B



Detail B



Assembled

Typical Joint
Assembly x4

SCISSOR SECTION 5 & PLATFORM

Scissor Section 5 & Platform, 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17905	4	Pin, Centering Linkage
2	18151	4	Banjo Pin
3	50034	4	Bolt, M10 x 30
4	50053	16	Nut, M10 Nylock
5	17920	4	Sleeve
6	17924	4	Assembly, Scissor Slide
7	--	--	--
8	17903	4	Pad, Inner Scissor Slide
9	17902	4	Casting, Scissor Slide
10	17921	4	Bearing
11	17904	4	Pad, Outer, Scissor Slide
12	50322	8	Screw, Tapered, M10 x 50
13	17915	2	Arm Component, Upper Centering Linkage
14	17922	2	M905231
15	17914	1	Arm Component, Upper Centering Linkage
16	17913	1	Arm Component, Upper Centering Linkage
17	17901	2	Pin, Scissor End
18	50323	4	Bolt, M12 x 100 GR10.9
19	50050	4	Nut, M12 Nylock
20	17918	1	Pin, Scissor End
21	17917	2	Spacer
22	92412	2	Snap Ring
23	50031	4	Bolt, M10 x 25
24	--	--	--
25	REF	--	Platform Assembly



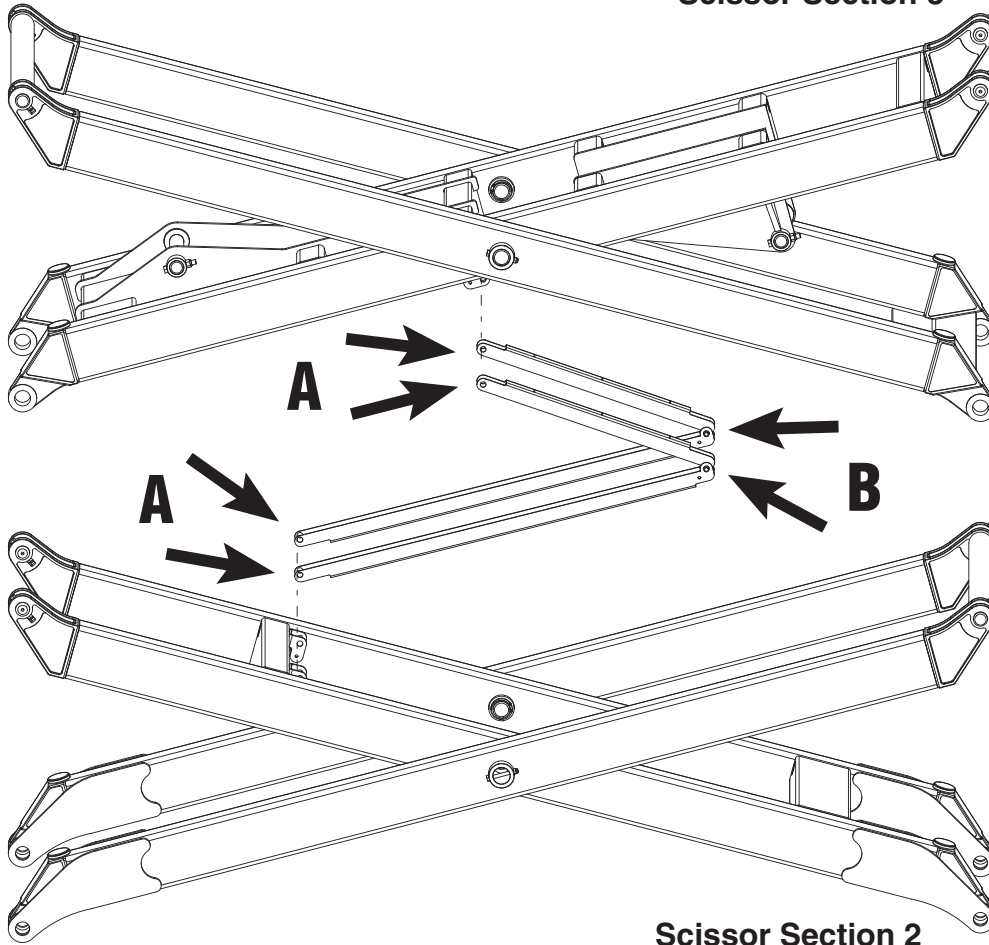
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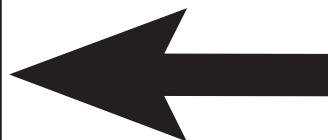
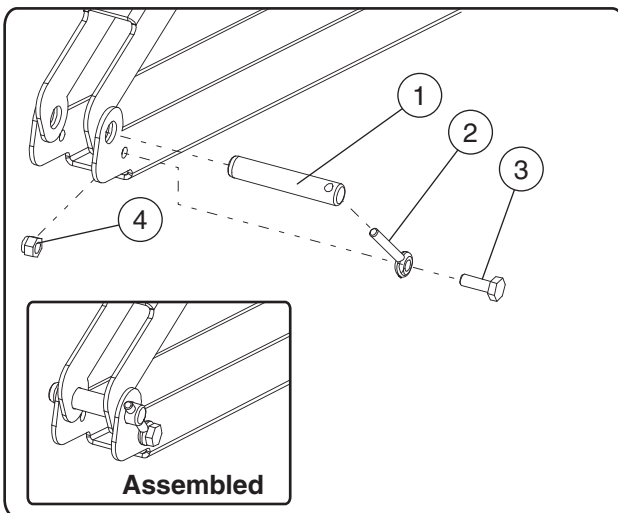
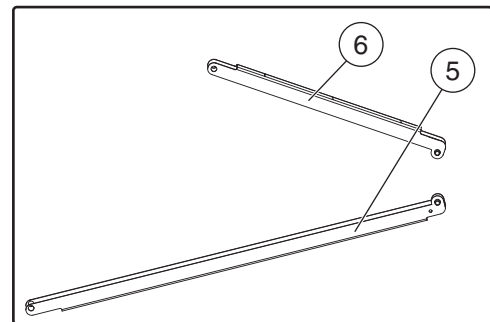
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• REF: Reference only

Scissor Section 3



Scissor Section 2



**Typical Joint
Assembly**

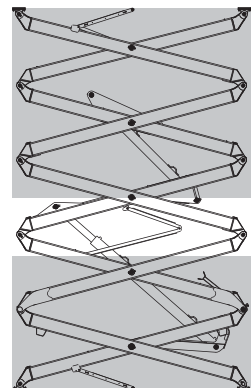


ILLUSTRATION No.
ART_3311

5492RT

SCISSOR SECTION 2 & 3 - CABLE GUIDE

Cable Guide, 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17911	4	A -- Pin, Cable Guide End Joint
	17919	2	B -- Pin, Cable Guide Center Joint
2	18151	6	M9052064 Banjo Pin
3	50034	6	Bolt, M10 x 30
4	50053	6	Nut, M10 Nylock
5	17566	2	Arm, Upper, Cable Guide
6	17567	2	Arm, Lower, Cable Guide



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

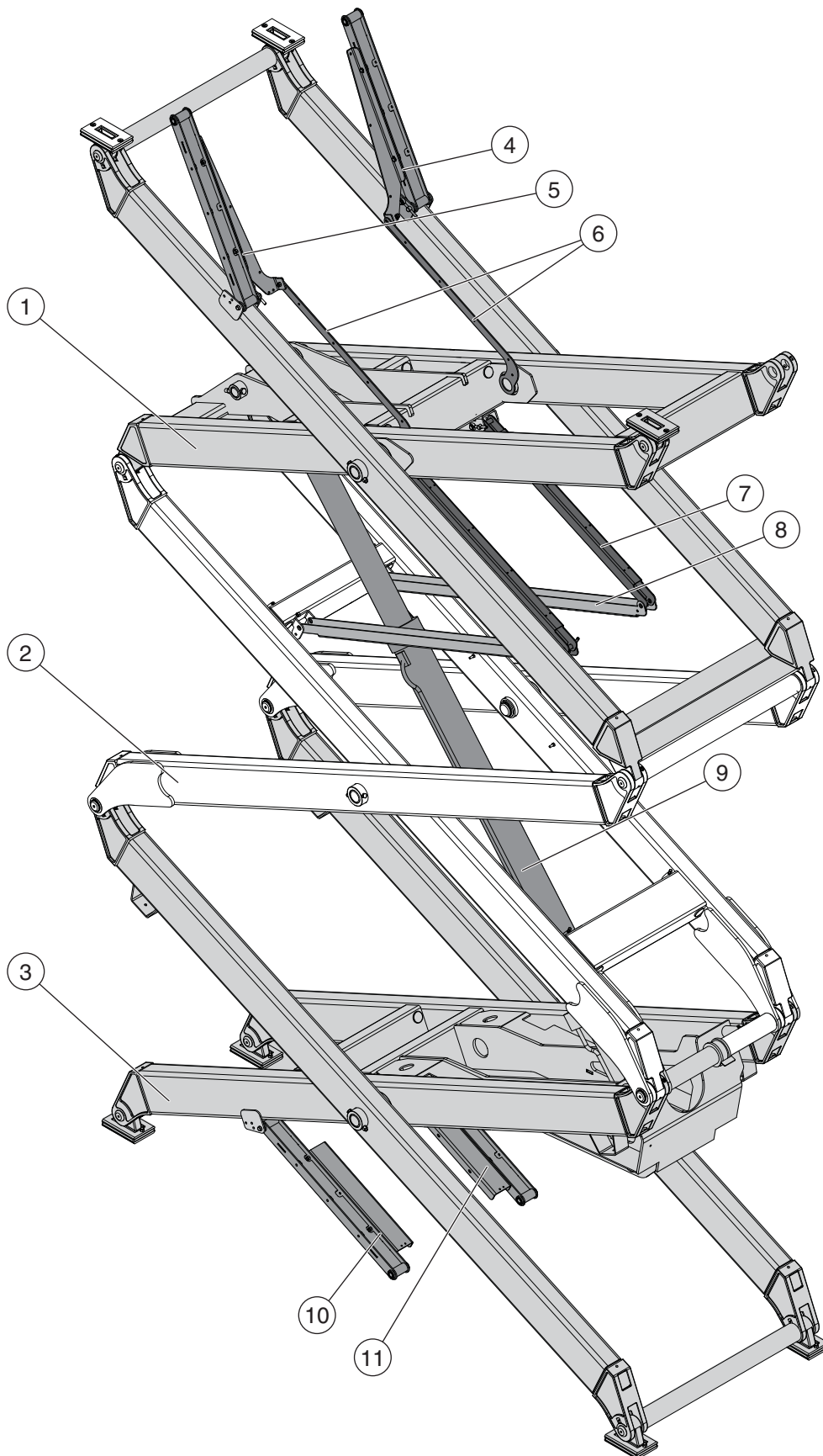


ILLUSTRATION No.
ART_4761

92RT Series

3392RT-T Scissor Structural Components

Scissor Structural Components, 3392RT-T

ITEM	PART NO.	QTY	DESCRIPTION
1	17555	1	Scissor Section, Top
2	17552	1	Scissor Section, Center
3	17551	1	Scissor Section, Bottom
4	17557	1	Upper Centering Bar Assembly
5	17556	1	Upper Centering Bar Assembly
6	17560	2	Upper Cable Guide
7	17566	2	Cable Guide, Upper Arm
8	17567	2	Cable Guide, Lower Arm
9	REF	1	Lift Cylinder -- See Section E
10	17558	1	Lower Centering Bar Assembly
11	17559	1	Lower Centering Bar Assembly

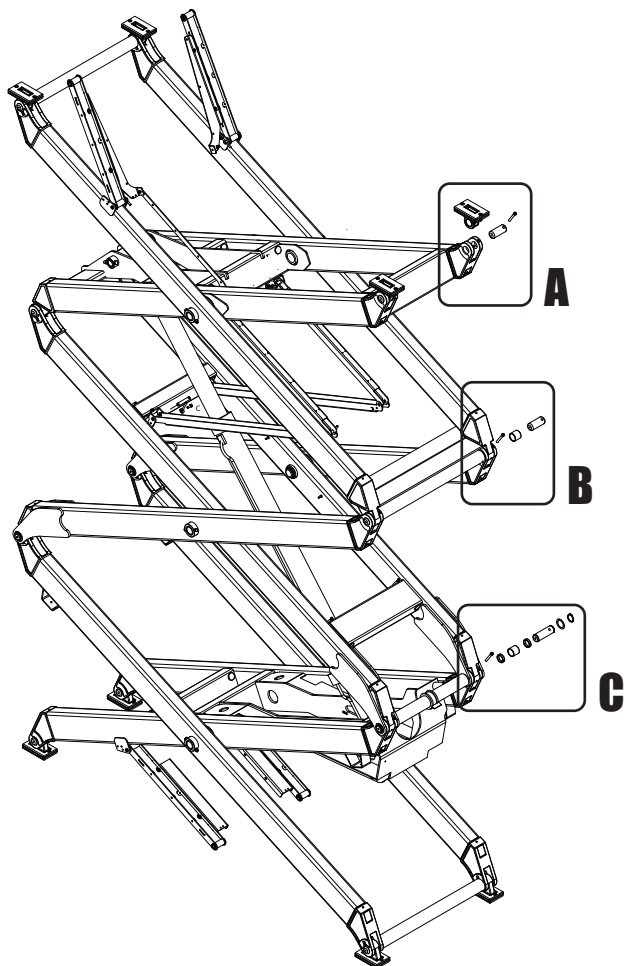


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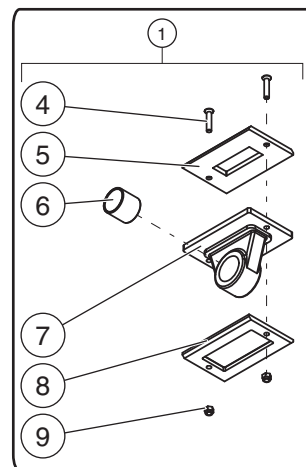
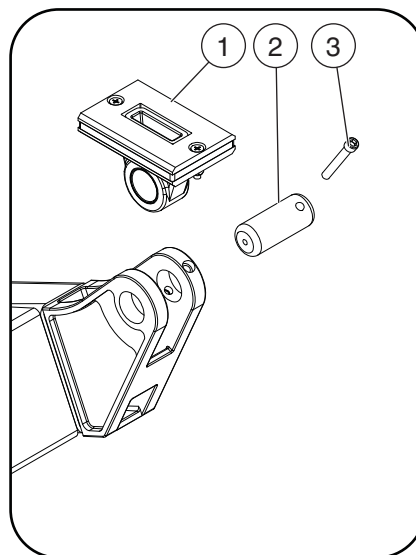
• INCL: Included with assembly

• NS: Not a Stock item

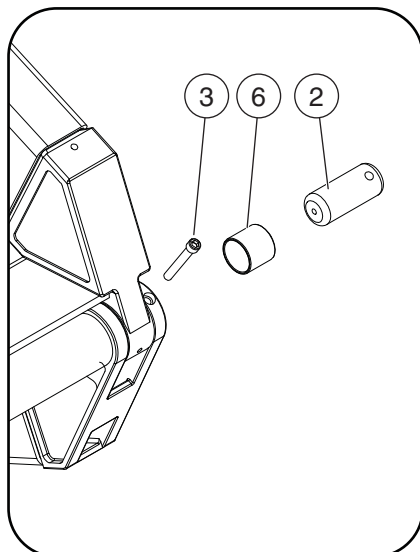
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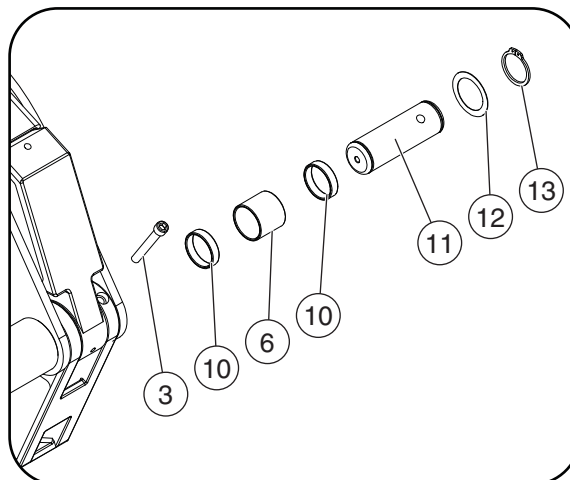
A
8 places



B
4 places



C
4 places



Scissor End Connections, 3392RT-T

ITEM	PART NO.	QTY	DESCRIPTION
1	17924	8	Slide Assembly
2	17901	12	Pin, Scissor End
3	50105	16	Bolt, Socket Head M12 x 90
4	50322	16	Screw, Tapered, M10 x 50
5	17904	8	Pad, Outer, Scissor Slide
6	17921	16	Bearing
7	17902	8	Casting, Scissor Slide
8	17903	8	Pad, Inner Scissor Slide
9	50053	16	Nut, M10 Nylock
10	17917	8	Spacer
11	17564	4	Pin, Scissor End
12	93029	4	Shim
13	93731	4	Snap Ring

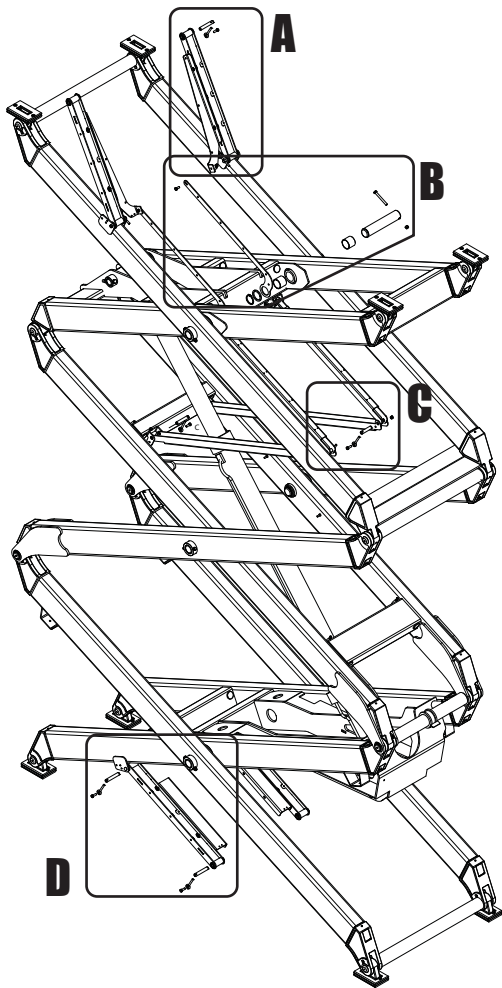


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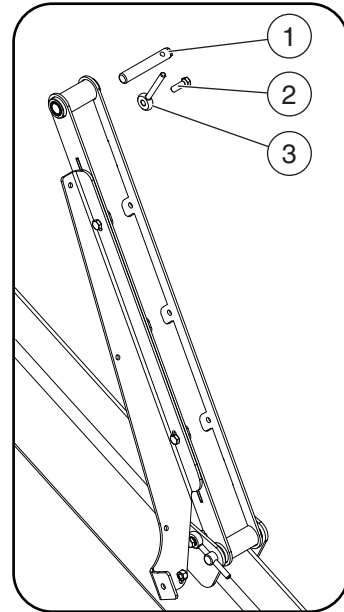
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• NS: Not a Stock item

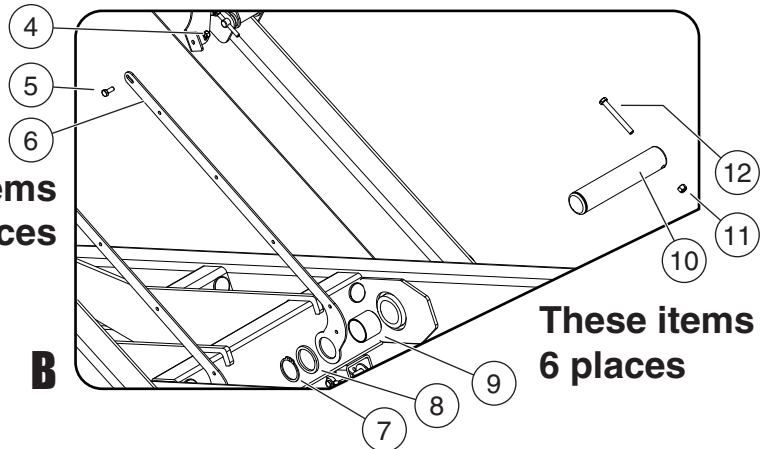
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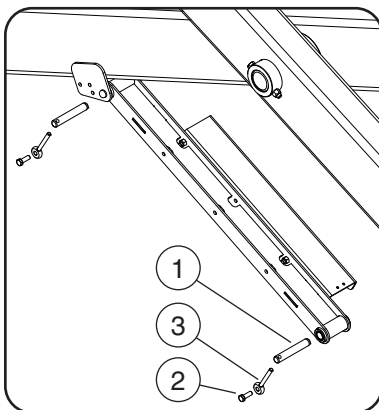
A
4 places



B
These items
2 places

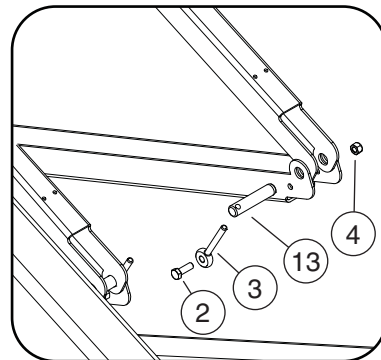


C
These items
6 places



D
4 places

C
8 places



Scissor Center Connections, 3392RT-T

ITEM	PART NO.	QTY	DESCRIPTION
1	17905	8	Pin, Centering Linkage
--	17920	8	Sleeve (not shown)
2	50034	10	Bolt, M10 x 30
3	18151	10	Pin Keeper
4	50053	8	Nut, M10 Nylock
5	50033	2	Bolt, M10 x 25
6	17560	2	Upper Cable Guide
7	93734	6	Snap Ring
8	17917	6	Spacer
9	17916	6	Bearing
10	17900	6	Pin, Scissor Center
11	50567	6	Nut, M12 Nylock
12	50566	6	Bolt, M12 x 110
13	17919	2	Pin, Cable Guide Center Joint
	17911	4	Pin, Cable Guide End Joint



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

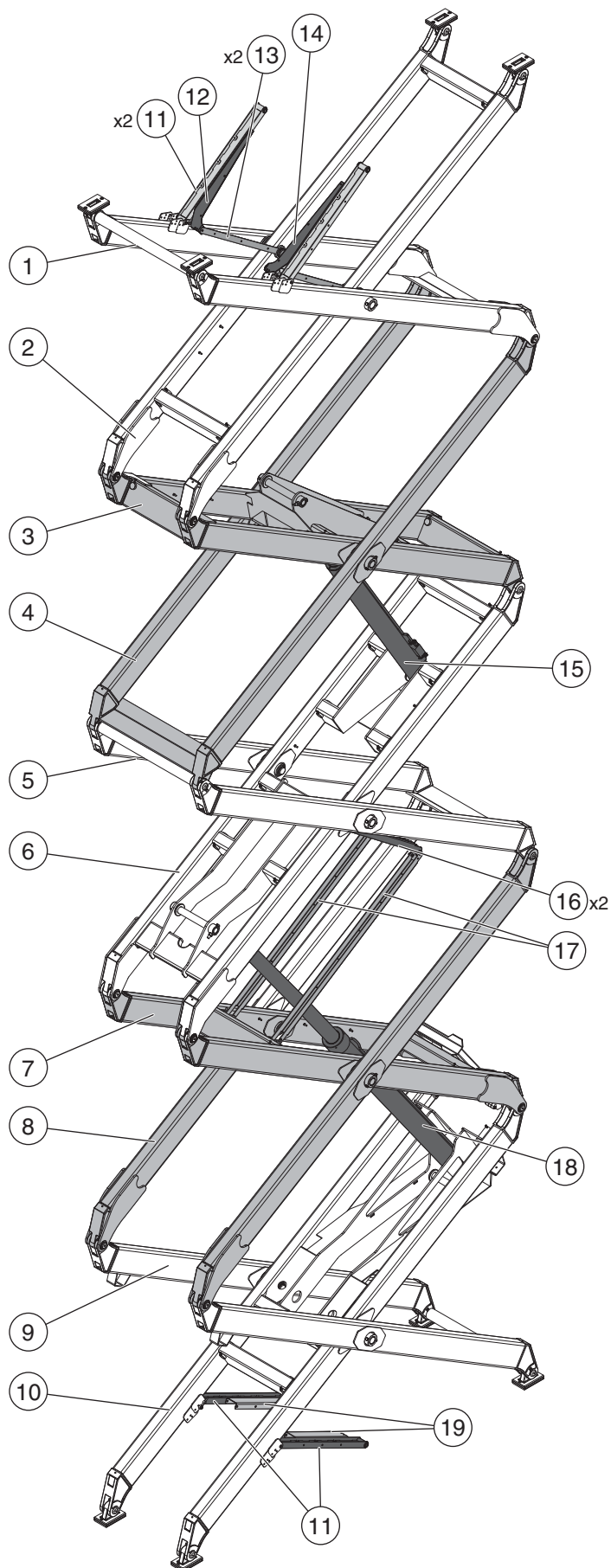


ILLUSTRATION No.
ART_4764

92RT Series

6092RT Scissor Structural Components

Scissor Structural Components, 6092RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17989	1	Outer Weldment, Scissor Section 5
2	17988	1	Inner Weldment, Scissor Section 5
3	17987	1	Inner Weldment, Scissor Section 4
4	17986	1	Outer Weldment, Scissor Section 4
5	17985	1	Outer Weldment, Scissor Section 3
6	17984	1	Inner Weldment, Scissor Section 3
7	17983	1	Inner Weldment, Scissor Section 2
8	17982	1	Outer Weldment, Scissor Section 2
9	17981	1	Outer Weldment, Scissor Section 1
10	17980	1	Inner Weldment, Scissor Section 1
11	17878	4	Centering Bar Assembly
12	17895	1	Cable Track Bracket, Right
13	17879	2	Cable Track Arm
14	17896	1	Cable Track Bracket, Left
15	REF	1	Upper Lift Cylinder -- See Section E
16	17908	2	Cable Guide Channel
17	17978	2	Cable Guide Channel
18	REF	1	Lower Lift Cylinder -- See Section E
19	17906	2	Centering Arm Channel

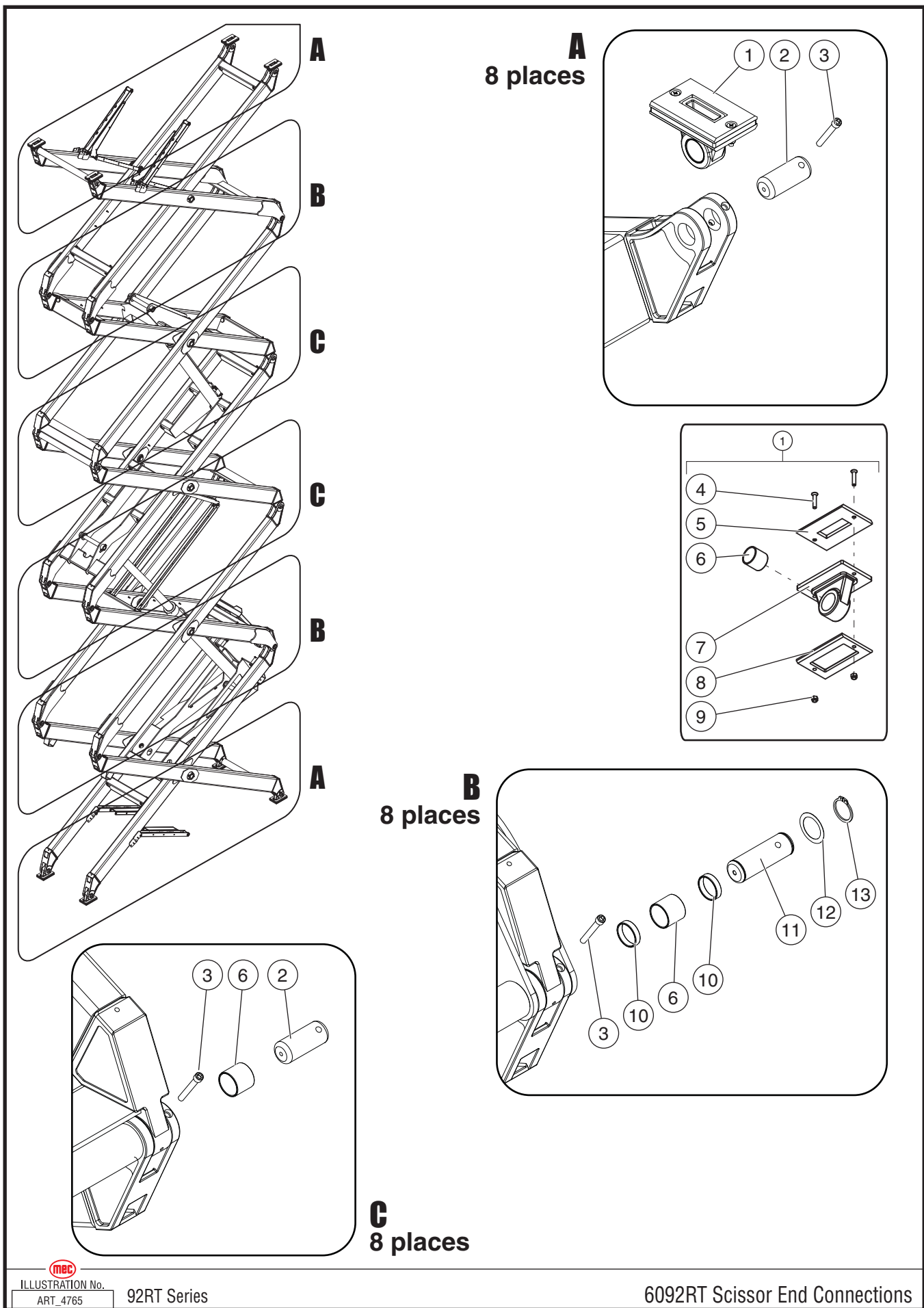


• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



Scissor End Connections, 6092RT-T

ITEM	PART NO.	QTY	DESCRIPTION
1	17924	8	Slide Assembly
2	17901	16	Pin, Scissor End
3	50105	24	Bolt, Socket Head M12 x 90
4	50322	16	Screw, Tapered, M10 x 50
5	17904	8	Pad, Outer, Scissor Slide
6	17921	24	Bearing
7	17902	8	Casting, Scissor Slide
8	17903	8	Pad, Inner Scissor Slide
9	50053	16	Nut, M10 Nylock
10	17917	16	Spacer
11	17564	8	Pin, Scissor End
12	93029	8	Shim
13	93731	8	Snap Ring

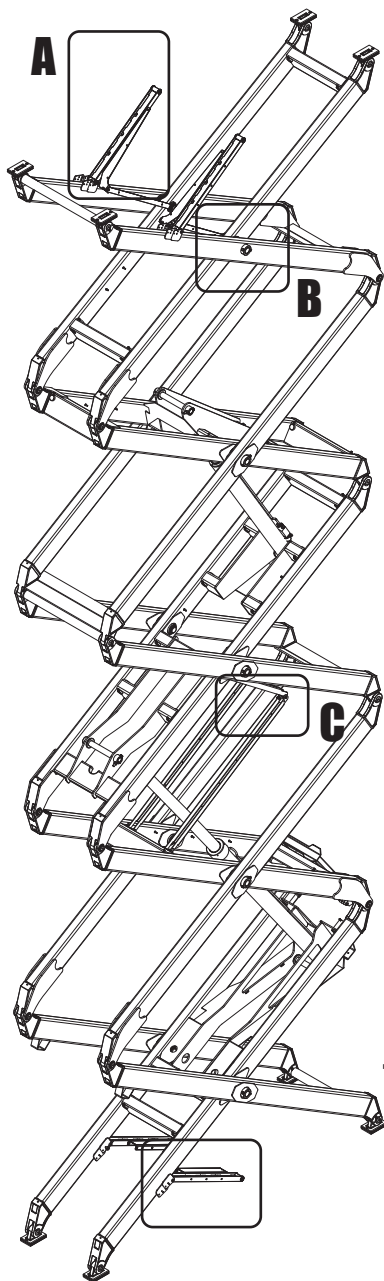


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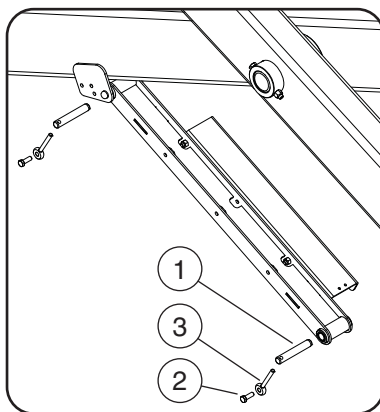
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• NS: Not a Stock item

• REF: Reference only

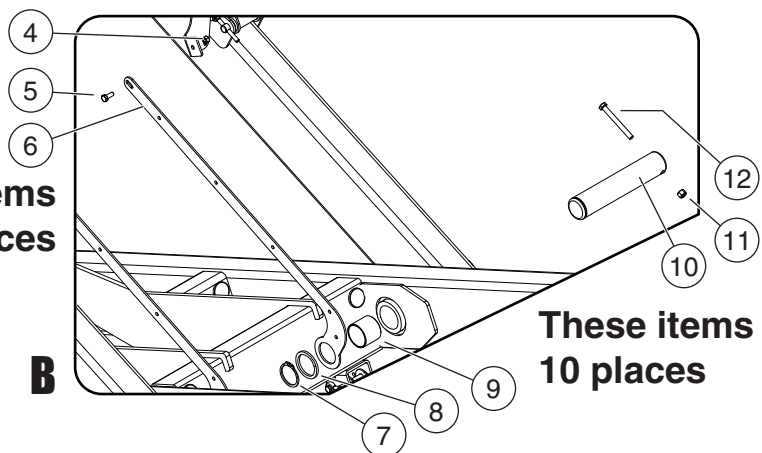
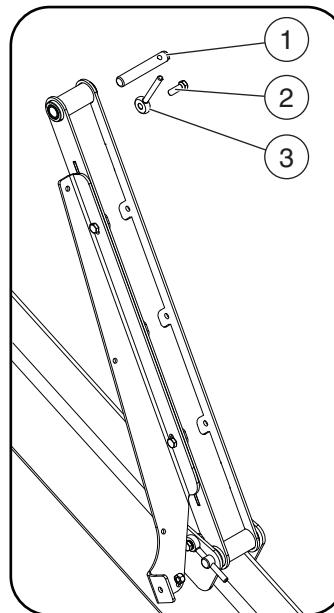


These items
2 places



D
4 places

A
4 places



These items
10 places

C
8 places

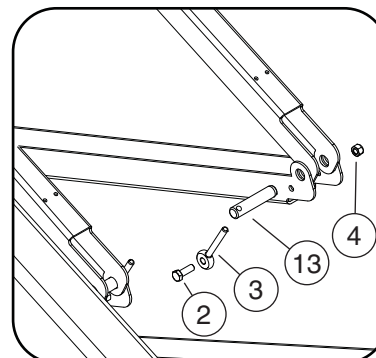


ILLUSTRATION No.
ART_4766

92RT Series

6092RT Scissor Center Connections

Scissor Center Connections, 6092RT-T

ITEM	PART NO.	QTY	DESCRIPTION
1	17905	8	Pin, Centering Linkage
--	17920	8	Sleeve (not shown)
2	50034	16	Bolt, M10 x 30
3	18151	16	Pin Keeper
4	50053	8	Nut, M10 Nylock
5	50033	2	Bolt, M10 x 25
6	17560	2	Upper Cable Guide
7	93734	10	Snap Ring
8	17917	10	Spacer
9	17916	10	Bearing
10	17900	10	Pin, Scissor Center
11	50567	10	Nut, M12 Nylock
12	50566	10	Bolt, M12 x 110
13	17919	2	Pin, Cable Guide Center Joint
	17911	4	Pin, Cable Guide End Joint



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

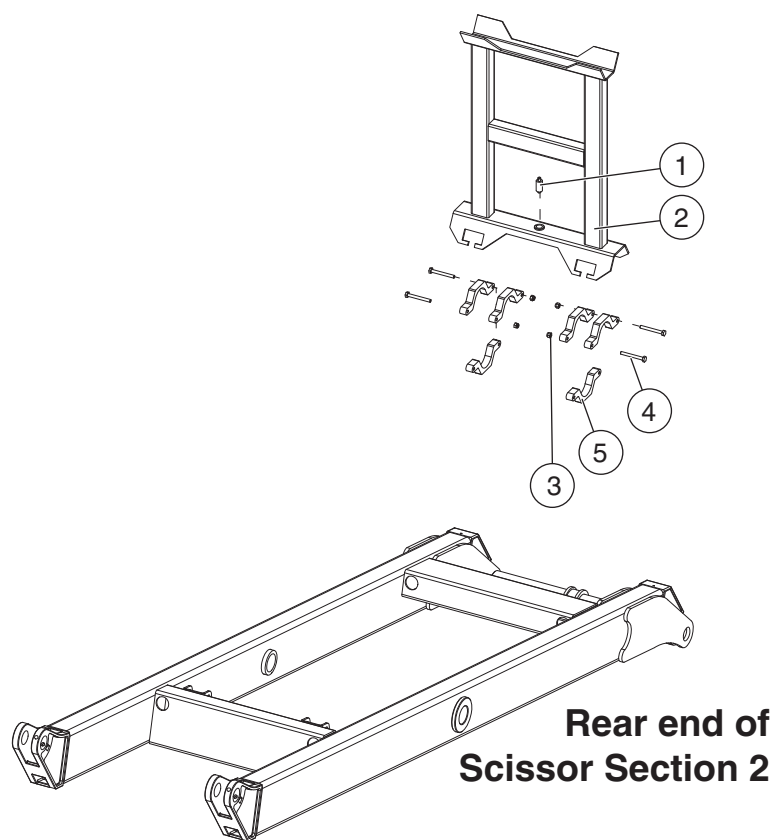


ILLUSTRATION No.
ART_4767

92RT Series

Maintenance Stand

Maintenance Stand

ITEM	PART NO.	QTY	DESCRIPTION
1	17925	1	Spring Pin Assembly
2	17923	1	Weldment, Maintenance Stand
3	50053	4	Nut, M10 Nylock
4	50213	4	Bolt, M10 x 90
5	17909	6	Mount, Maintenance Stand

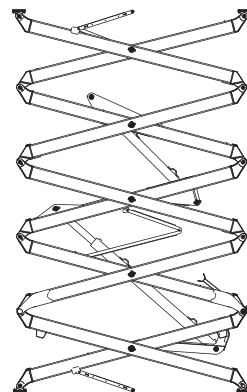
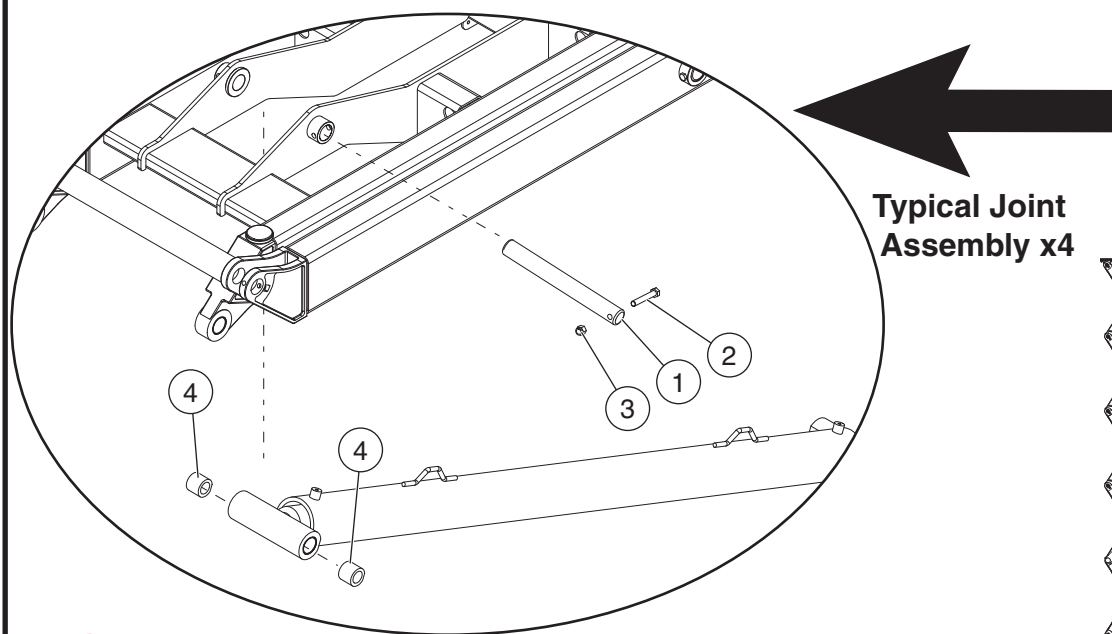
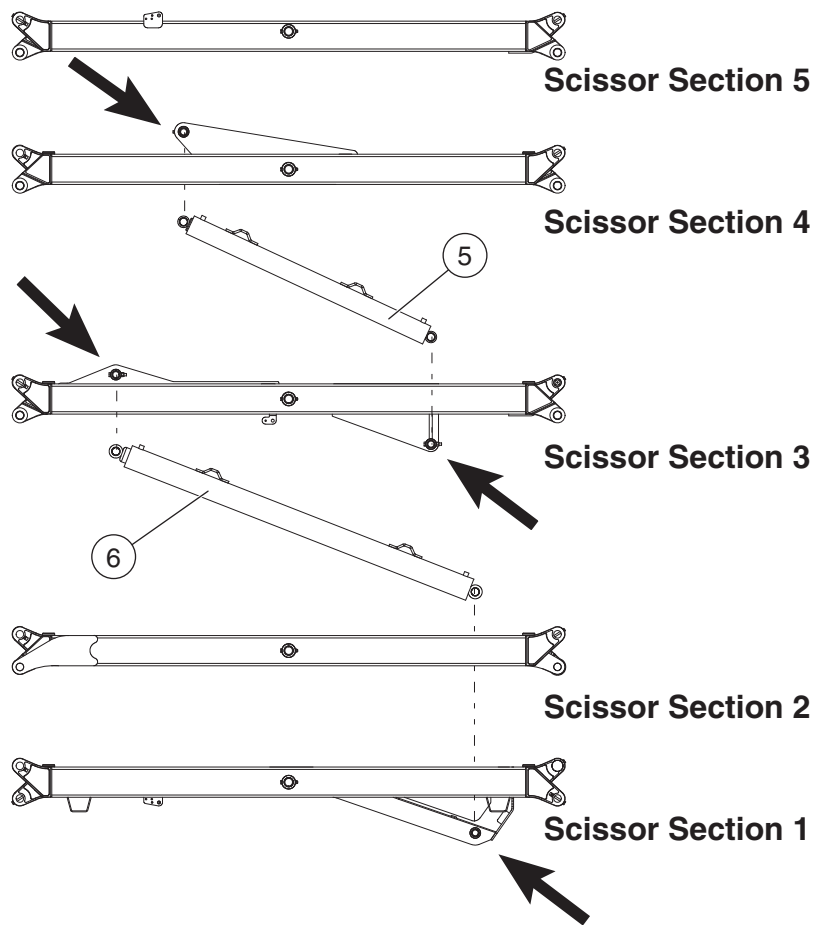


• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



LIFT CYLINDERS

Lift Cylinder Mounting

ITEM	PART NO.	QTY	DESCRIPTION
1	17910	4	Pin, Cylinder End
2	50199	4	Bolt, M16 x 110
3	50051	4	Nut, M16 Nylock
4	17927	8	Bearing
5	REF	--	Upper Lift Cylinder, 5492RT & 6092RT only -- See Section E
6	REF	--	Lower Lift Cylinder -- See Section E



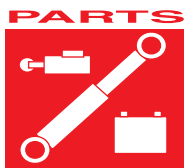
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• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

NOTES:



SECTION D

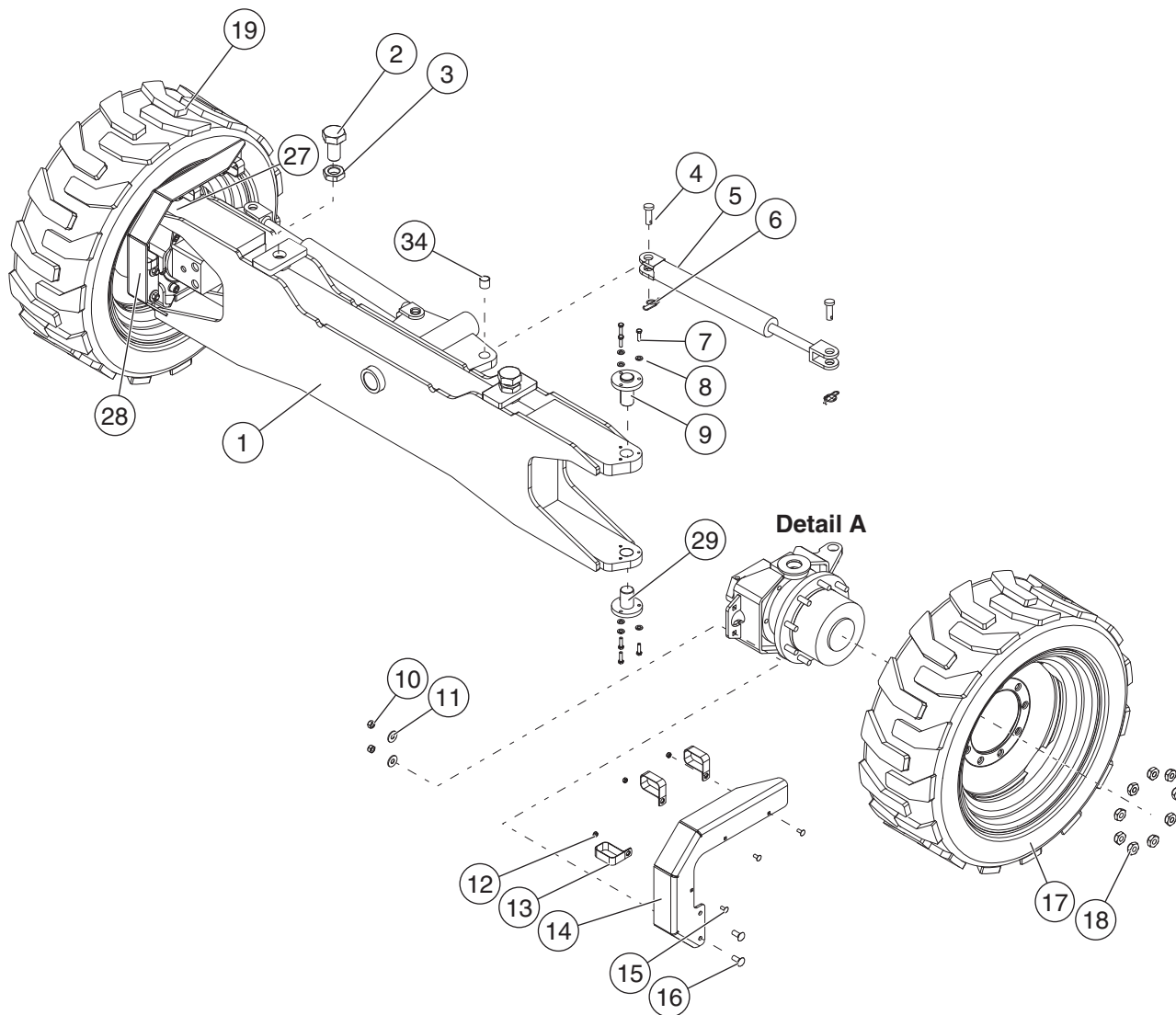
AXLES

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Detail A

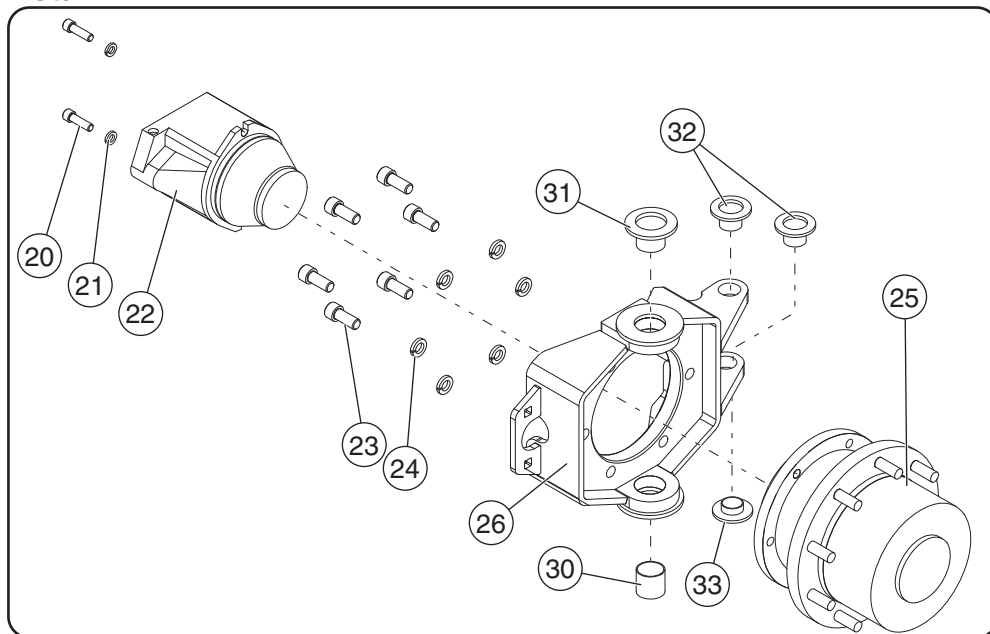


ILLUSTRATION No.
ART_3313

5492RT

Pinned Front Axle, #1 of 2

Front Axle Assembly, 1 of 2, Early 5492RT Models w/ Pinned Front Axle

ITEM	PART NO.	QTY	DESCRIPTION
--	84106	1	Front Axle Assembly
1	17383	1	Front Axle Weldment
2	50041	2	Bolt, HHCS M36-4.0 x 70mm
3	50046	2	Nut, M36-4.0 Jam
4	17491	6	Pin, 1" x 2.5"
5	REF	2	Steering Cylinder -- See Section E
6	17492	6	Pin Retainer
7	50032	12	Bolt, M8-1.25 x 30 ZP
8	50001	12	Washer, M8 Std
9	17482	2	Axle, Top Trunion Pin
10	50201	4	Nut, 1/2-13 Nylock
11	50207	4	Washer, 1/2 Std
12	50203	6	Nut, 5/16-18 Nylock
13	92262	6	Hose Clamp
14	17643	1	Hose Guard, Left
15	50423	6	Bolt, Carriage 5/16-18 x 1
16	17724	4	Bolt, Carriage 1/2-13 x 1.25
17	17953	1	Wheel & Tire LSW Left
	91902	1	Wheel & Tire LSW Left Non-Marking
18	91420	18	Nut, Lug 5/8-18 UNF
19	17954	1	Wheel & Tire LSW Right
	91903	1	Wheel & Tire LSW Right Non-Marking
20	50055	4	Bolt, SHCS 7/16-14 x 1.5 Gr8
21	50252	4	Washer, 7/16 Spring Lock
22	REF	2	Wheel Motor -- See Section E
23	50056	12	Bolt, SHCS 5/8-11 x 1.5 Gr8
24	50253	12	Washer, 5/8 Spring Lock
25	17958	2	Hub, Planetary Drive w/ Brake
--	92528	--	Seal Kit
--	92529	--	Brake Release Parts Kit
26	17385	1	Steering Yoke, Left Hand
27	17384	1	Steering Yoke, Right Hand -- shown assembled
28	17642	1	Hose Guard, Right
29	17483	2	Axle, Bottom Trunion Pin
30	17487	2	Sleeve Bearing
31	17488	2	Flange Bearing
32	17489	2	Flange Bearing
33	17932	2	Flange Bearing
34	17933	2	Sleeve Bearing

• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



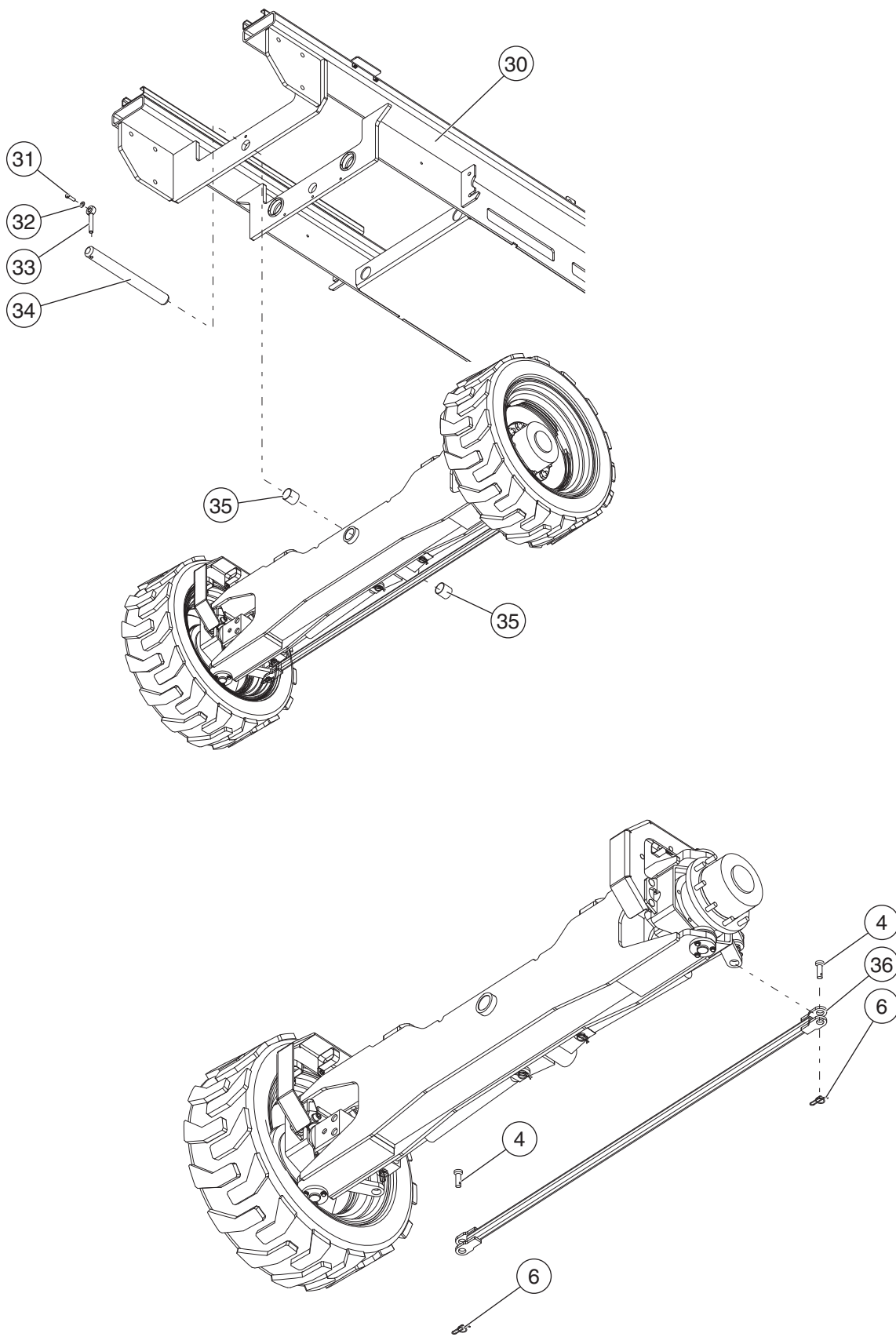


ILLUSTRATION No.
ART_3314

5492RT

Pinned Front Axle, #2 of 2

Front Axle Assembly, 2 of 2, Early 5492RT Models w/ Pinned Front Axle

ITEM	PART NO.	QTY	DESCRIPTION
4	17491	6	Pin,
--	--	--	---
6	17492	6	Pin Retainer
--	--	--	-
30	REF	--	Chassis
31	50236	1	Bolt, M12 x 40
32	50003	1	Washer, M12 Std.
33	17405	1	Pin Retainer, 1/2"
34	17403	1	Pin, Front Axle
35	6669	2	Bearing, 2" x 2" LG
36	17453	1	Drag Link Weldment



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

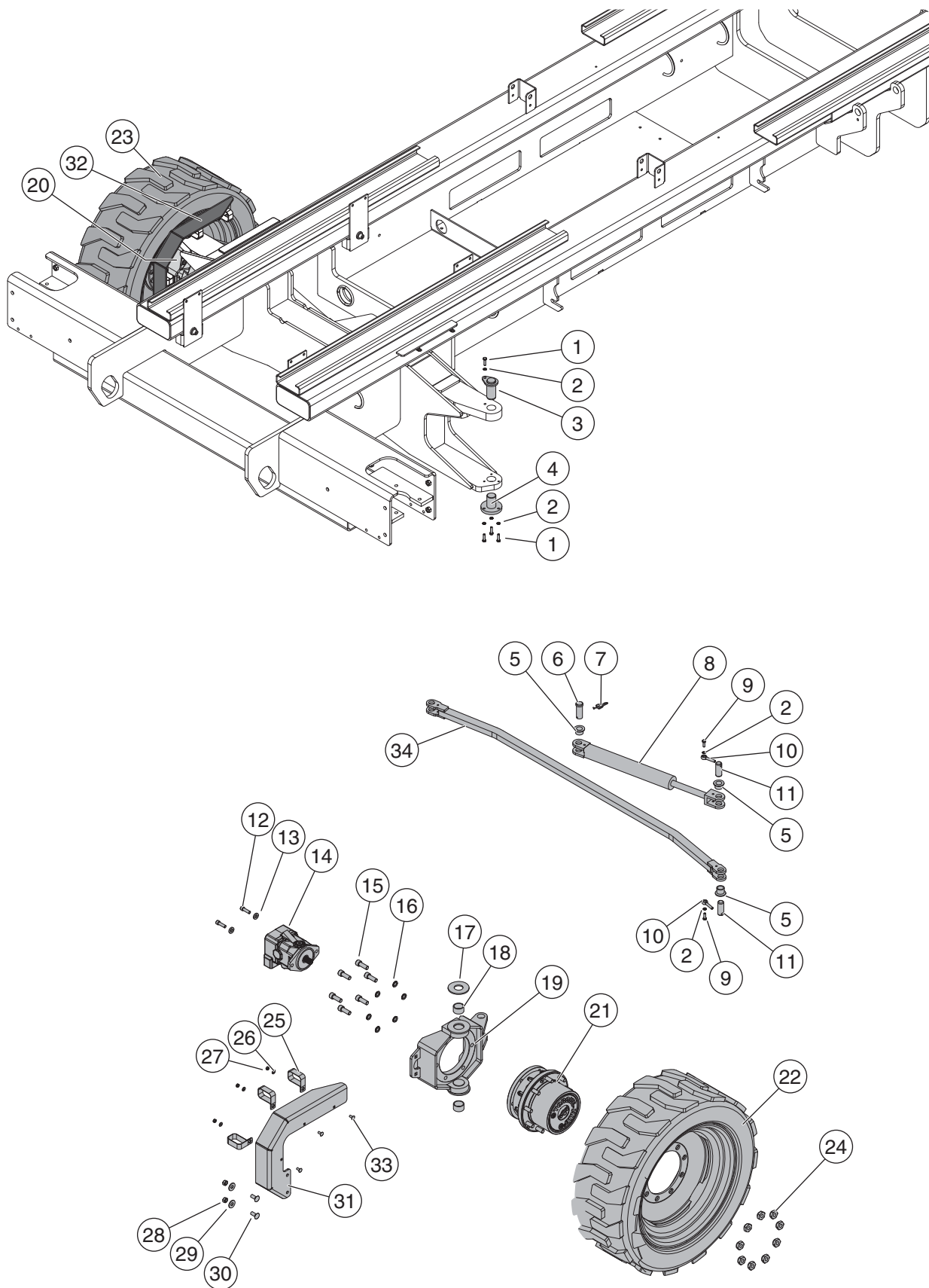


ILLUSTRATION No.
ART_4759

92RT Series

Welded Front Axle

Front Axle Assembly, Later 92RT Models w/ Welded Front Axle

ITEM	PART NO.	QTY	DESCRIPTION
1	50032	4	Bolt, M8 x 30
2	50200	8	Washer, M8 Nordlock
3	21401	2	King Pin
4	17483	2	Trunion Pin
5	17489	6	Flange Bearing
6	17491	2	Clevis Pin
7	17492	2	Rue Clip
8	17963	2	Steering Cylinder -- See Section E
9	50031	4	Bolt, M8 x 25
10	18165	4	Keeper Pin
11	17979	4	Steering Yoke Pin
12	50055	4	Bolt, Socket Head 7/16 x 1.5
13	11176	4	Washer, 1/2" Heavy
14	REF	2	Wheel Motor -- See Section E
15	50057	12	Bolt, Socket Head 5/8 x 1.75
16	50249	12	Washer, M16 Nordlock
17	17490	2	Thrust Washer
18	17487	4	Bearing
STEERING YOKES -- 6092RT ~#12900030			
19	17532	1	Steering Yoke, Left Hand
20	17533	1	Steering Yoke, Right Hand
STEERING YOKES -- Later 5492RT, All 3392RT-T, 6092RT #12900031~			
19	17532	1	Steering Yoke, Left Hand
20	17533	1	Steering Yoke, Right Hand
21	91400	2	3392RT-T ~#13600044 Hub, Planetary Drive w/ Brake
	91562	--	Hub Seal Kit
	91563	--	Brake Seal Kit
	91564	--	Brake Lining Kit (includes 91563)
	93624	2	3392RT-T #13600045~ Hub, Planetary Drive w/ Brake
	17958	2	5492RT -- Later Machines w/ Welded Front Axle Hub, Planetary Drive w/ Brake
	92528	--	Seal Kit
	92529	--	Brake Release Parts Kit
	93624	2	6092RT Hub, Planetary Drive w/ Brake
22	17953	1	Wheel & Tire LSW Left
	91902	1	Wheel & Tire LSW Left Non-Marking
23	17954	1	Wheel & Tire LSW Right
	91903	1	Wheel & Tire LSW Right Non-Marking
24	50266	18	Lug Nut, 5/8-18
25	50203	6	Nut, 5/16 Nylock
26	5217	6	Washer, 5/16 Std
27	92662	6	Hose Clamp
28	50201	4	Nut, 1/2 Nylock
29	50207	4	Washer, 1/2 Std
30	50432	4	Carriage Bolt, 1/2 x 1.25
31	17643	1	Hose Guard, Left Side
32	17642	1	Hose Guard, Right Side
33	50204	6	Carriage Bolt, 5/16 x 7/5
34	17542	1	Drag Link Weldment

• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



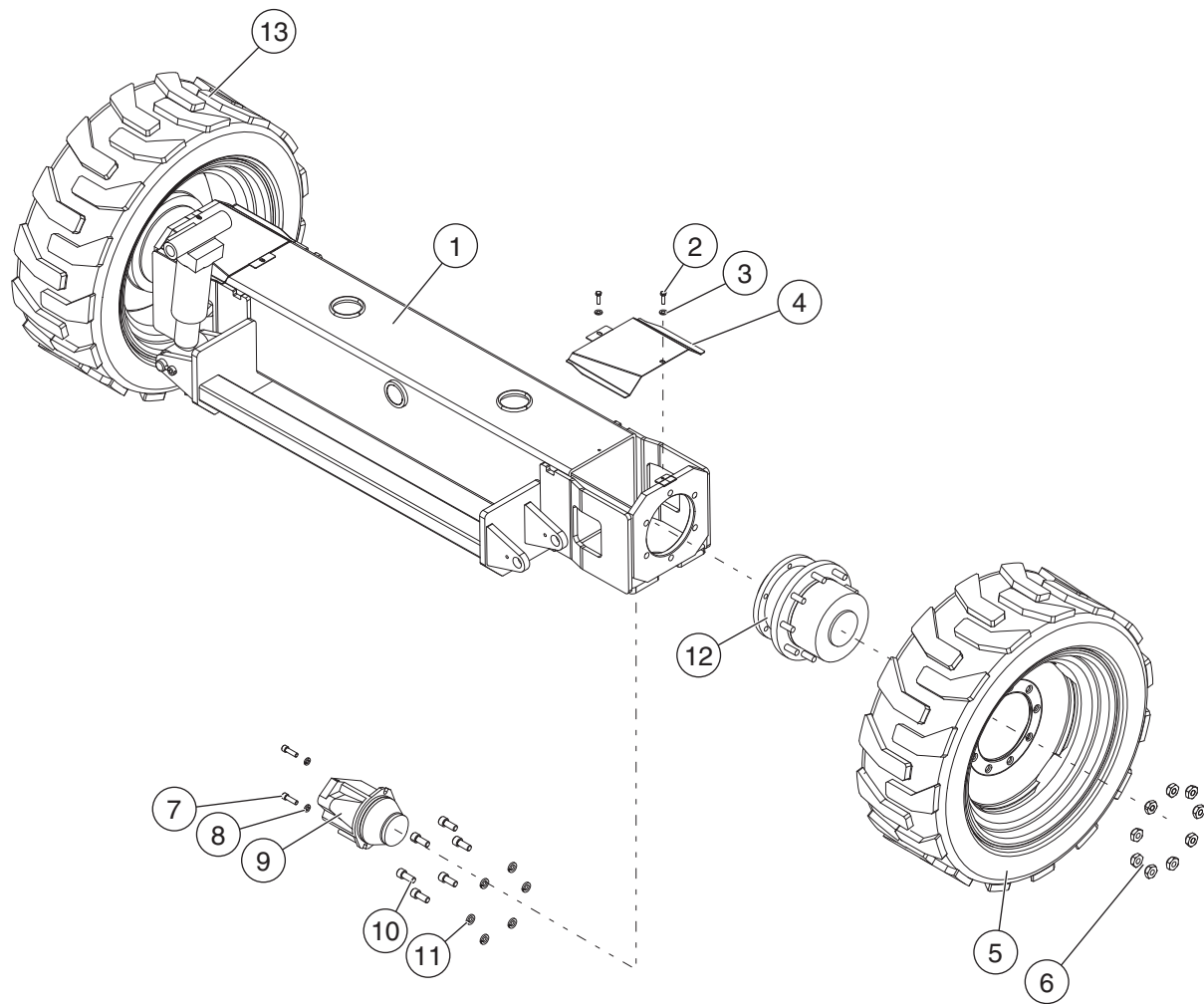


ILLUSTRATION No.
ART_3315

92RT Series

Rear Axle, 5492RT

Rear Axle Assembly, 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
--	84107	1	Rear Axle Assembly
1	17020	1	Rear Axle Weldment
2	50258	4	Bolt, M8 x 10
3	50001	4	Washer, M8 Std
4	17022	2	Cover, Rear Motor
5	17953	1	Wheel & Tire LSW Left
6	91420	18	Nut, Lug 5/8-18 UNF
7	50055	4	Bolt, SHCS 7/16-14 x 1.5 Gr8
8	50252	4	Washer, 7/16 Spring Lock
9	REF	2	Wheel Motor -- See Section E
10	50056	12	Bolt, SHCS 5/8-11 x 1.5 Gr8
11	50253	12	Washer, 5/8 Spring Lock
12	17958	2	Hub, Planetary Drive w/ Brake
--	92528	--	Seal Kit
--	92529	--	Brake Release Parts Kit
13	17954	1	Wheel & Tire LSW Right



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

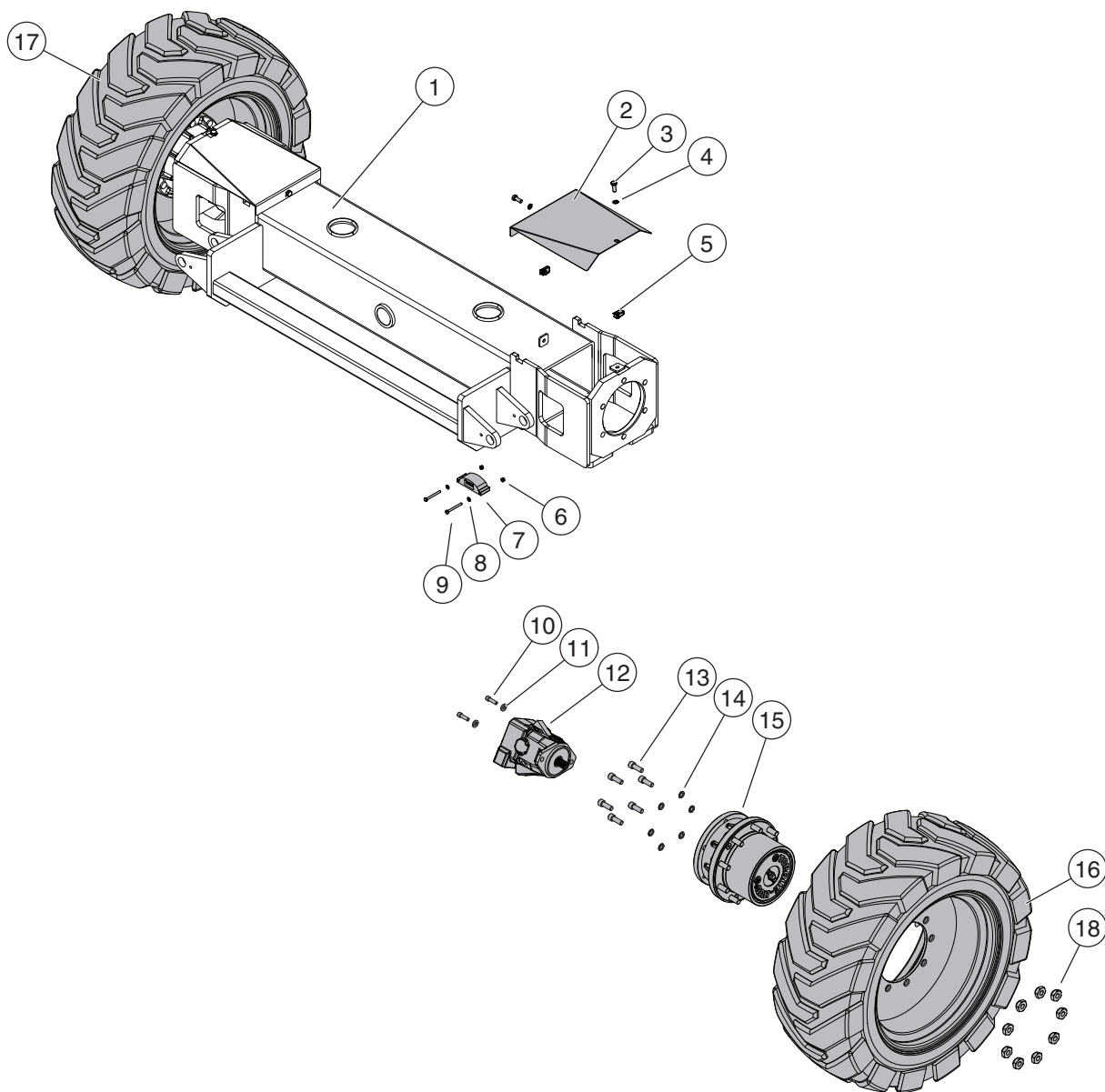


ILLUSTRATION No.
ART_4760

92RT Series

Rear Axle, 3392RT-T, 6092RT



Rear Axle Assembly, 3392RT-T, 6092RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17871	1	Rear Axle Weldment
2	17873	2	Rear Motor Cover
3	50033	4	Bolt, M10 x 25
4	50006	4	Washer, M10 Nordlock
5	92098	4	Clip Nut, M10 x .375
6	50047	2	Nut, M6 Mylock
7	19308	1	Angle Transducer CAN-Tilt 162
8	50000	2	Washer, M6 Std
9	50134	2	Bolt, M6 x 60
10	50055	4	Bolt, Socket Head 7/16 x 1.5
11	11176	4	Washer, 1/2" Heavy
12	REF	2	Wheel Motor -- See Section E
13	50056	12	Bolt, Socket Head 5/8 x 1.5
14	50249	12	Washer, M16 Nordlock
15	91400	2	3392RT-T ~#13600044 Hub, Planetary Drive w/ Brake
	91562	--	Hub Seal Kit
	91563	--	Brake Seal Kit
	91564	--	Brake Lining Kit (includes 91563)
	93624	2	3392RT-T #13600045~ Hub, Planetary Drive w/ Brake
	17958	2	5492RT -- Later Machines w/ Welded Front Axle Hub, Planetary Drive w/ Brake
	92528	--	Seal Kit
	92529	--	Brake Release Parts Kit
	93624	2	6092RT Hub, Planetary Drive w/ Brake
16	17953	1	Wheel & Tire LSW Left
	91902	1	Wheel & Tire LSW Left Non-Marking
17	17954	1	Wheel & Tire LSW Right
	91903	1	Wheel & Tire LSW Right Non-Marking
18	91420	18	Nut, Lug 5/8-18 UNF

• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



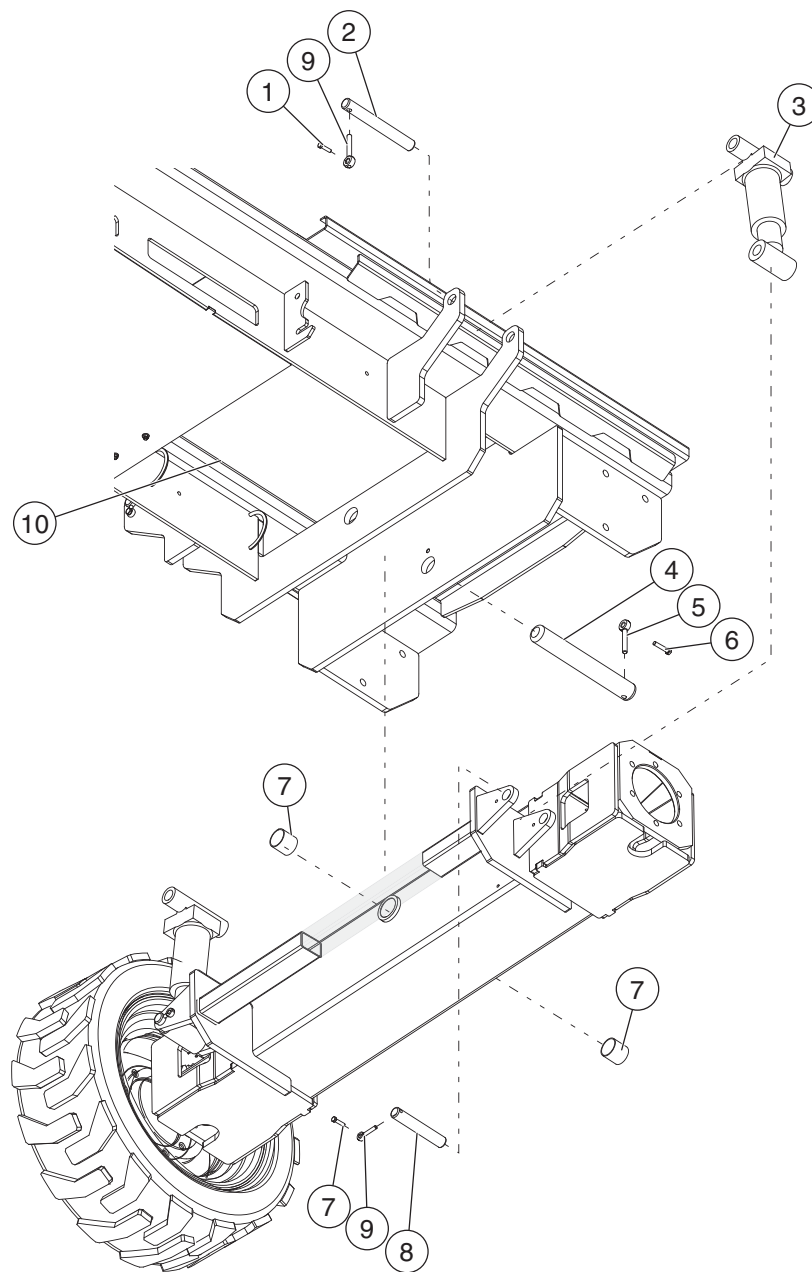


ILLUSTRATION No.
ART_3316

92RT Series

Rear Axle/Chassis Articulation

Rear Axle/Chassis Articulation

ITEM	PART NO.	QTY	DESCRIPTION
1	50034	4	Bolt, M10 x 30
2	17325	2	Cylinder Pin
3	REF	2	Cylinder, Axle Lock -- See Section E
4	17404	1	Axle Pin
5	17405	1	Pin Retainer, .5"
6	50040	1	Bolt, M12 x 35
7	92110	2	Bearing, 2" x 2" LG
8	17678	2	Cylinder Pin
9	17654	4	Pin Retainer
10	REF	--	Chassis



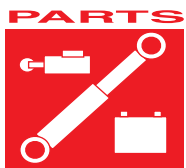
• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

NOTES:



SECTION E

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NOTES:



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

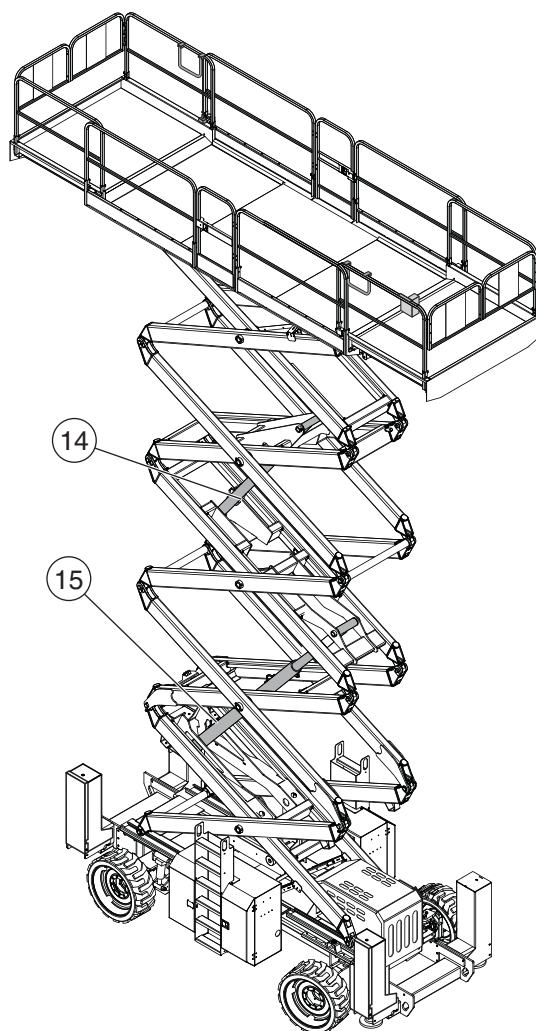
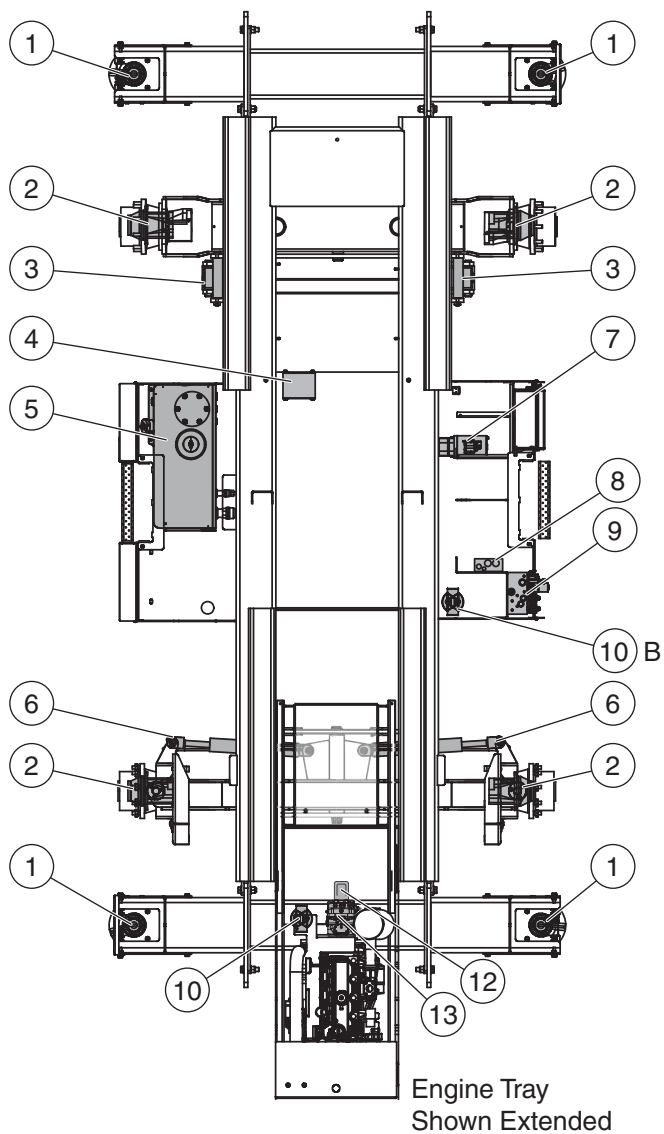


ILLUSTRATION No.
ART_3486

92RT Series

HYDRAULIC SYSTEM COMPONENTS

Hydraulic Components

ITEM	PART NO.	QTY	DESCRIPTION
1	17317	4	Cylinder, Outtrigger
2	REF	4	Motor, Wheel
3	17469	2	Cylinder, Axle Lock
4	REF	1	Manifold, Traction -- 5492RT, early 3392RT-T only
5	REF	1	Tank, Hydraulic Fluid
6	17318	2	Cylinder, Steer
7	17973	1	Auxiliary Power Unit
8	18401	1	Manifold, Brake
9	17950	1	Manifold, Function
10	92072	1	Filter Assembly
		2	Filter Assembly -- Location B -- if so equipped
11	--	--	--
12	REF	1	Pump, Function
13	REF	1	Pump, Drive
14	17316	1	Cylinder, Upper Lift
15	17315	1	Cylinder, Lower Lift

Component Fittings not show or listed on this page.

For REF listings on this page, see later pages in this section.

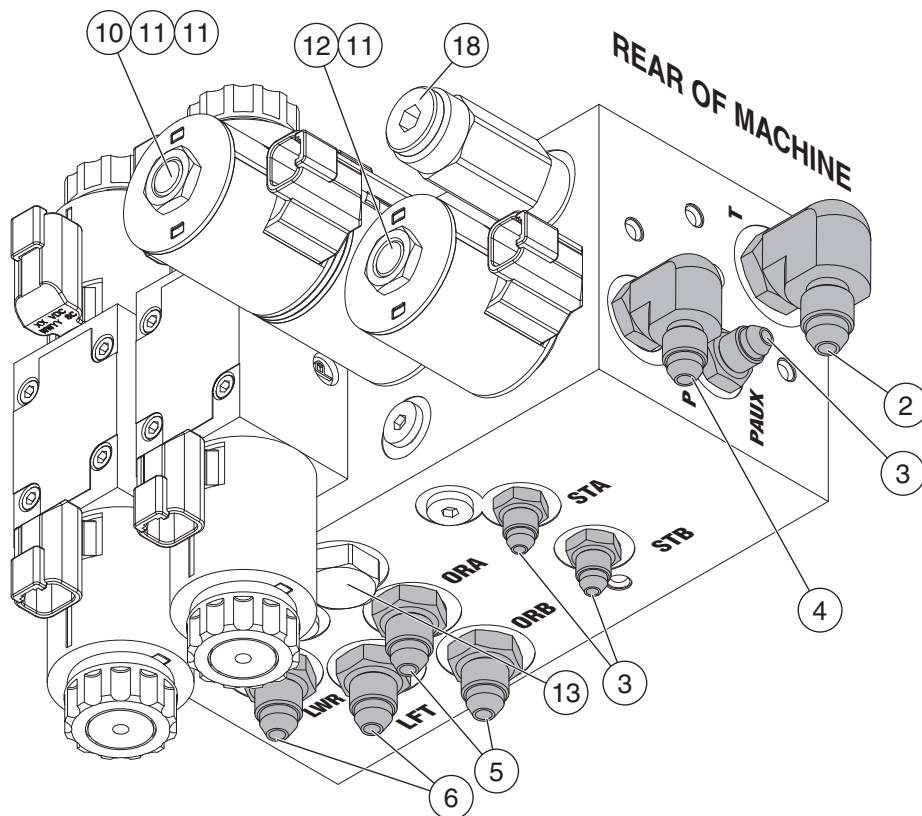
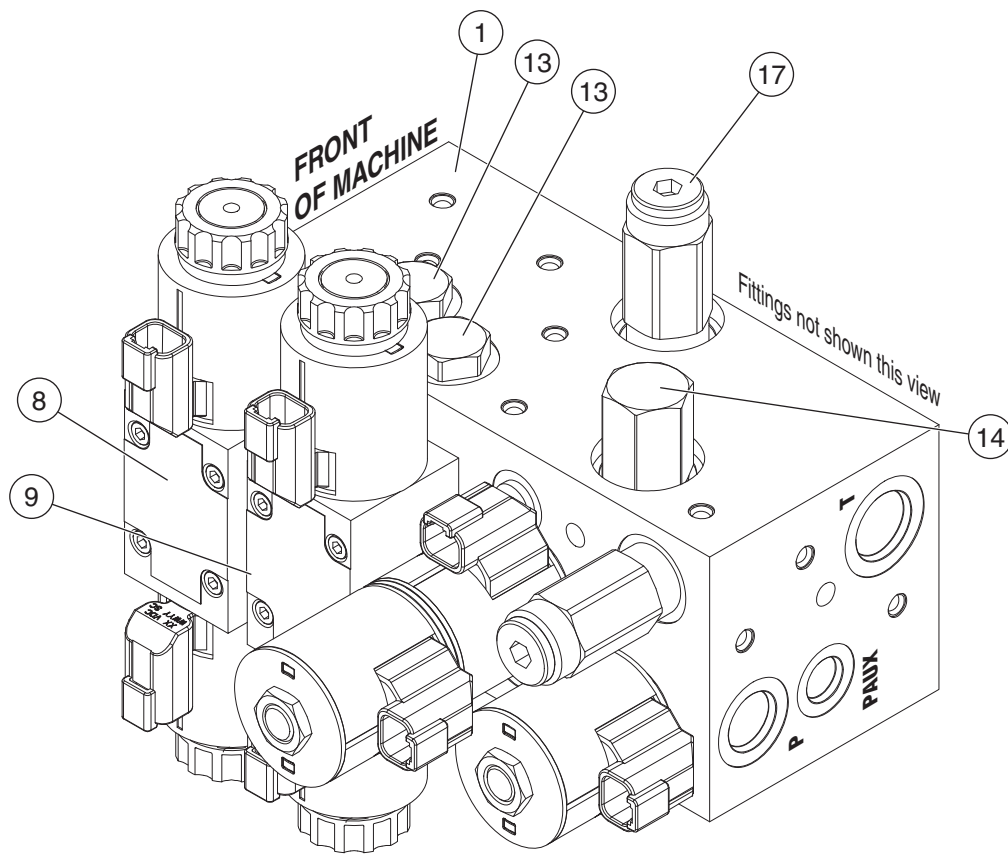


• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



Function Manifold Assembly

ITEM	PART NO.	QTY	DESCRIPTION
1	17950	–	Manifold, Function, without fittings
2	50781	1	Fitting, MB-MJ90-10-8
3	50776	3	Fitting, MB-MJ-6-6
4	50792	1	Fitting, MB-MJ90-8-8
5	50778	2	Fitting, MB-MJ-8-6
6	50779	2	Fitting, MB-MJ-8-8
7			
8	92168	1	Valve, 4-way 3-position - Lift
9	91144	1	Valve, 4-way 3-position - Outrigger
10	92170	1	Valve, 5-way 3-position - Steer
11	91143	3	Coil, Valve, 12V
12	91148	1	Valve, Proportional
13	91477	2	Valve, Check
14	92171	1	Valve, Flow Regulator
15	93198	1	Valve, Check
16	51222	1	Fitting,
17		1	Valve, Relief
18		1	Valve, Relief



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

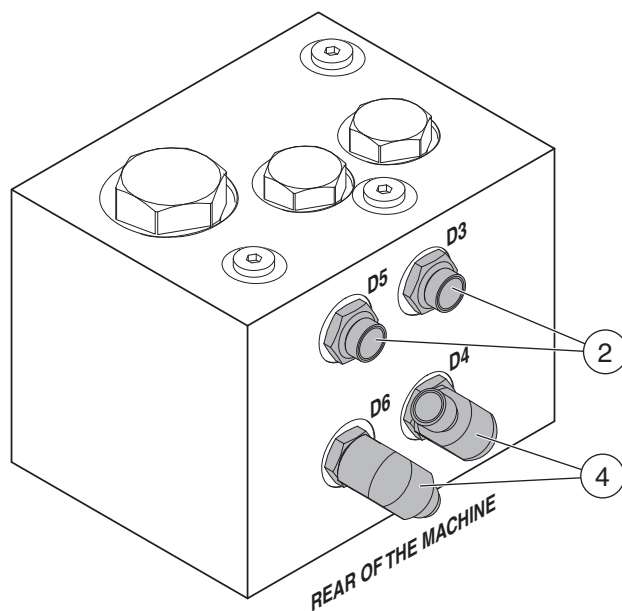
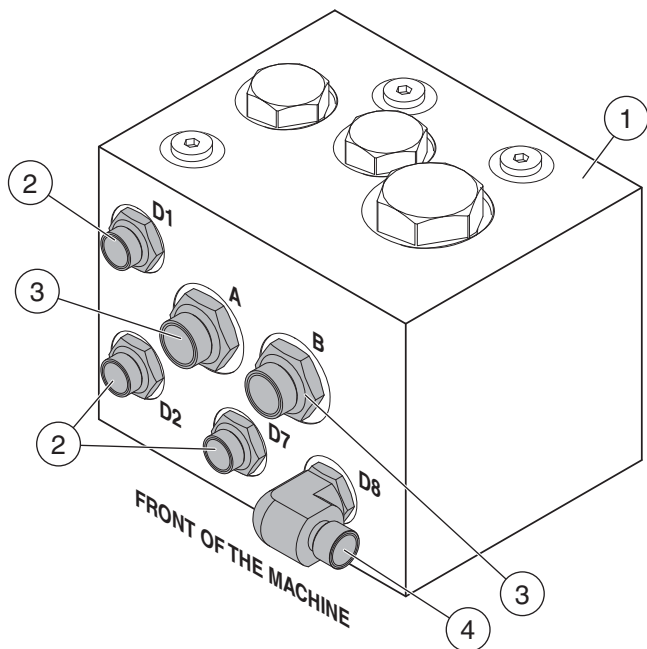


ILLUSTRATION No.
ART_3488

92RT Series

DRIVE MANIFOLD, 5492RT

Traction Manifold Assembly -- 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
1	18400	1	Manifold, Drive, without fittings
2	50837	5	Fitting, MFFOR-MB-8-10
3	50827	2	Fitting, MFFOR-MB-12-16
4	50848	3	Fitting, MFFOR-MB90-8-10



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

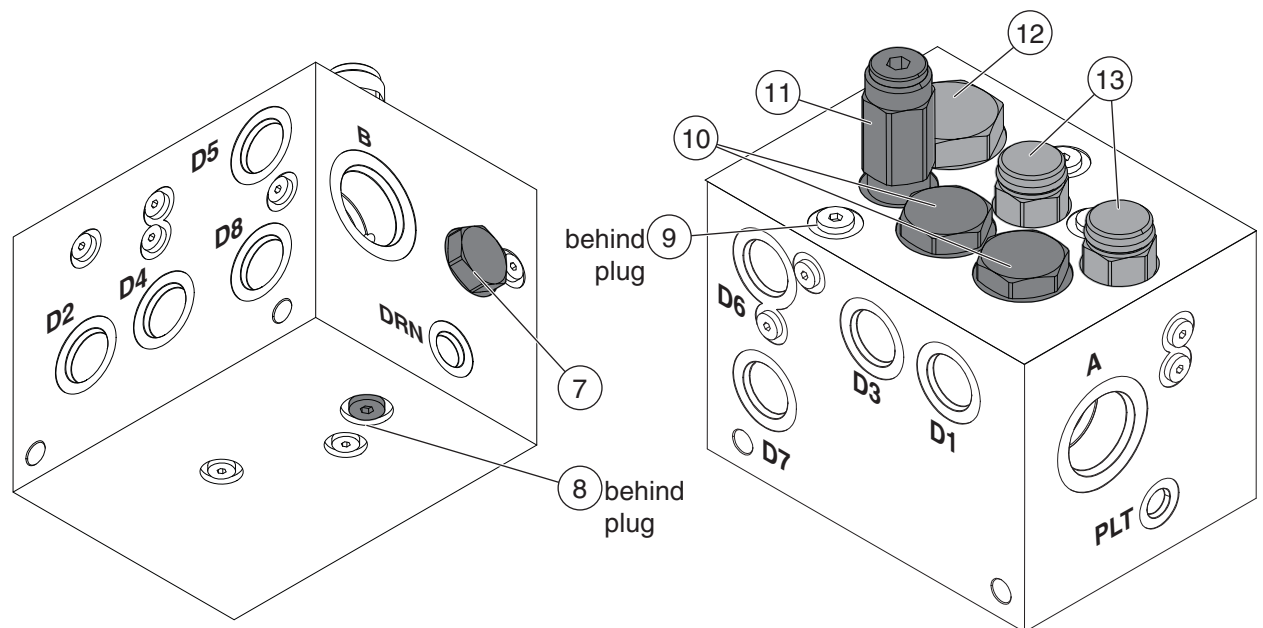
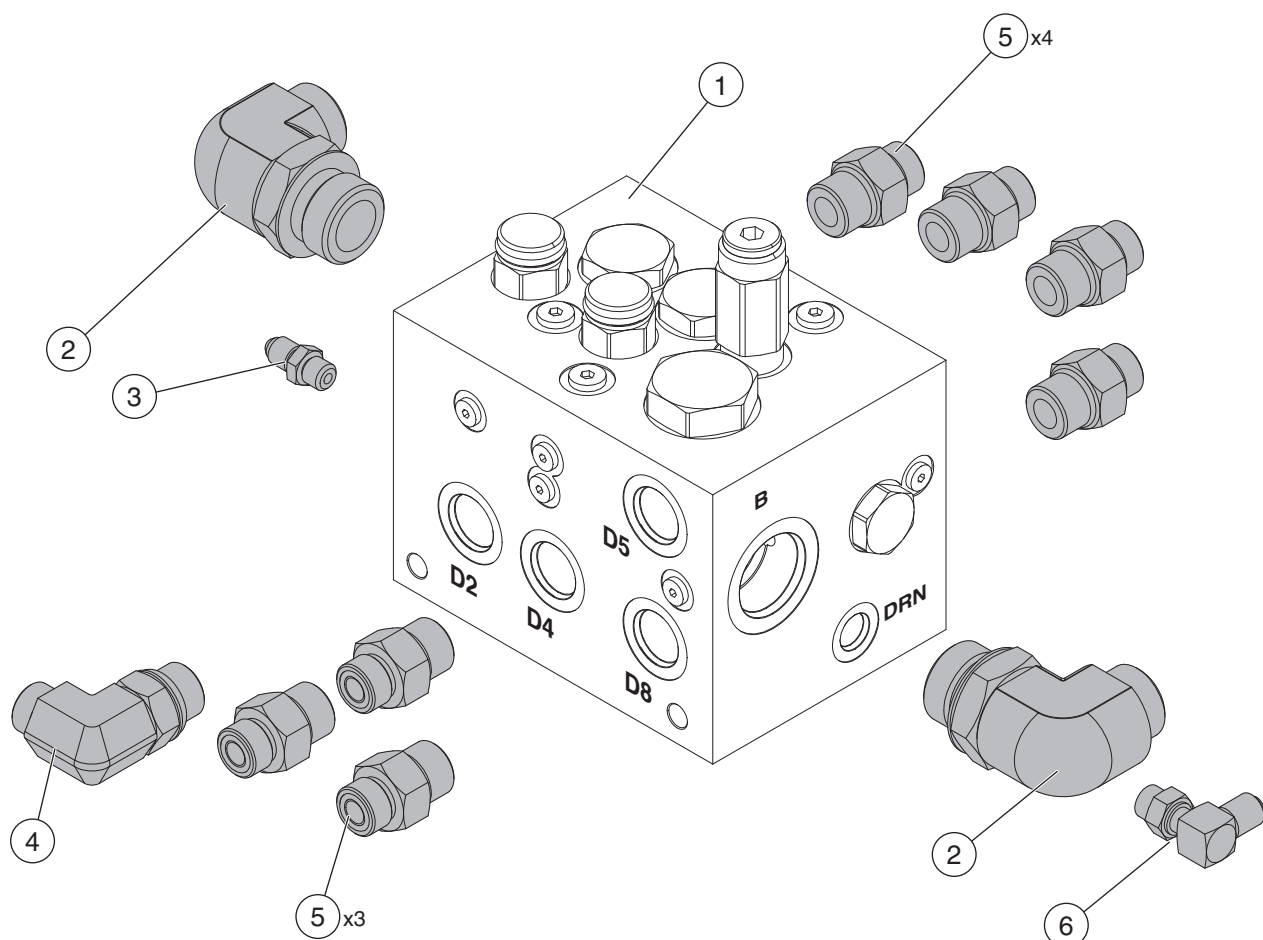


ILLUSTRATION No.
ART_4773

92RT Series

Traction Manifold, Early 3392RT-T

Traction Manifold Assembly -- 3392RT-T ~#13600044

ITEM	PART NO.	QTY	DESCRIPTION
--	88011	--	Traction Manifold Assembly
1	92167	1	Traction Manifold Block, without fittings
2	50845	2	Fitting, MFFOR-MB90-16-12
3	50769	1	Fitting, MB-MJ-4-4
4	50848	1	Fitting, MFFOR-MB-8-10
5	50837	7	Fitting, MFFOR-MB-8-10
6	50790	1	Fitting, MB-MJ-6-6
7	92604	1	Valve, Oil Shuttle
8	91017	1	Orifice Plug, .040"
9	92607	1	Orifice Plug, .090"
10	92605	2	Flow Divider
11	92602	1	Valve, Relief
12	92606	1	Flow Divider
13	92603	2	Valve, Piloted



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

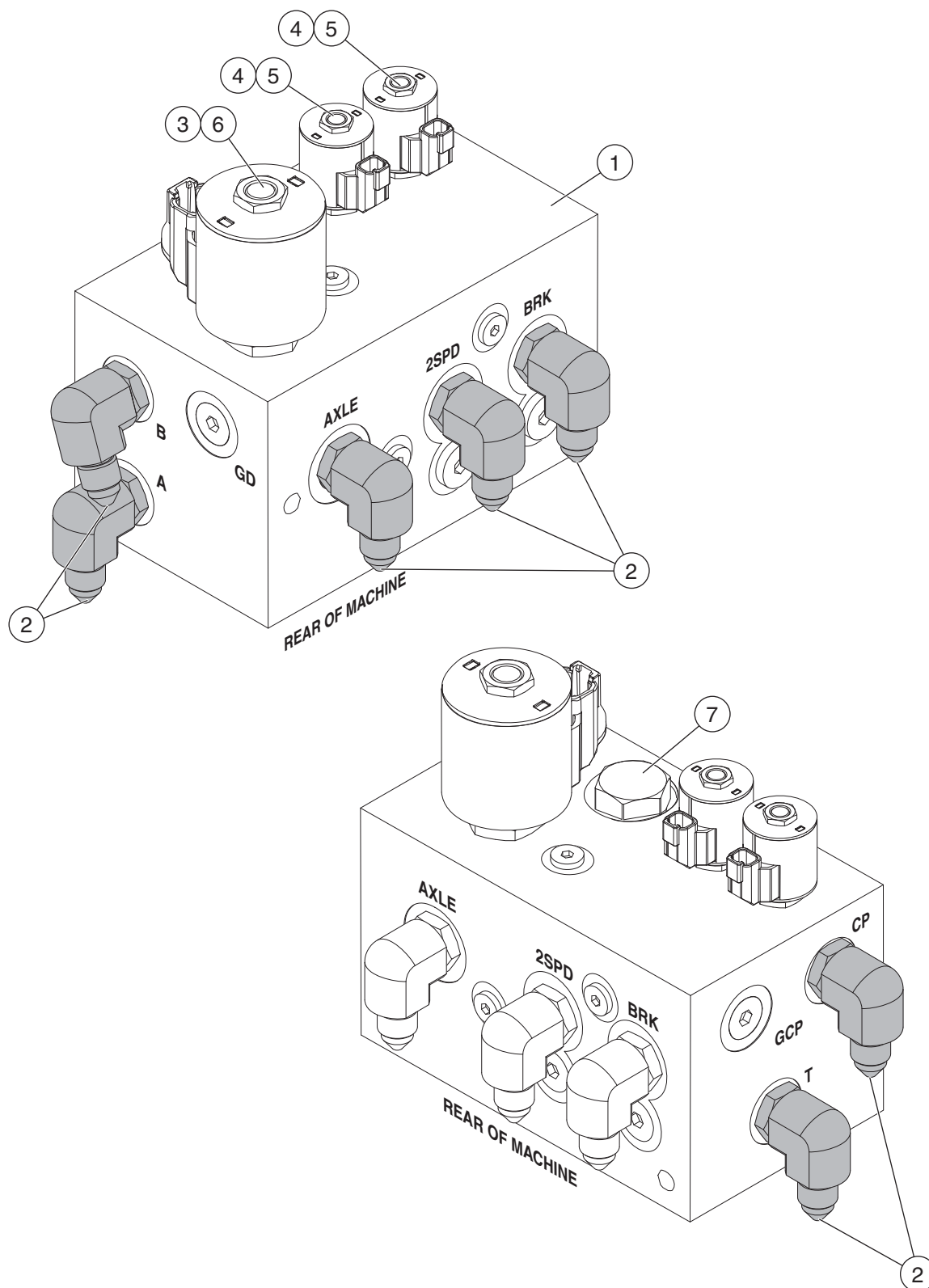


ILLUSTRATION No.
ART_3489

92RT Series

BRAKE MANIFOLD

Brake Manifold Assembly

ITEM	PART NO.	QTY	DESCRIPTION
1	18401	–	Manifold, Brake, without fittings
2	50665	7	Fitting, MB-MJ90-4-4
3	92174	1	Valve, Solenoid
4	90119	2	Valve, Solenoid
5	92173	2	Coil, #8
6	91143	1	Coil, #10
7	92172	1	Valve, Load Sense Check



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

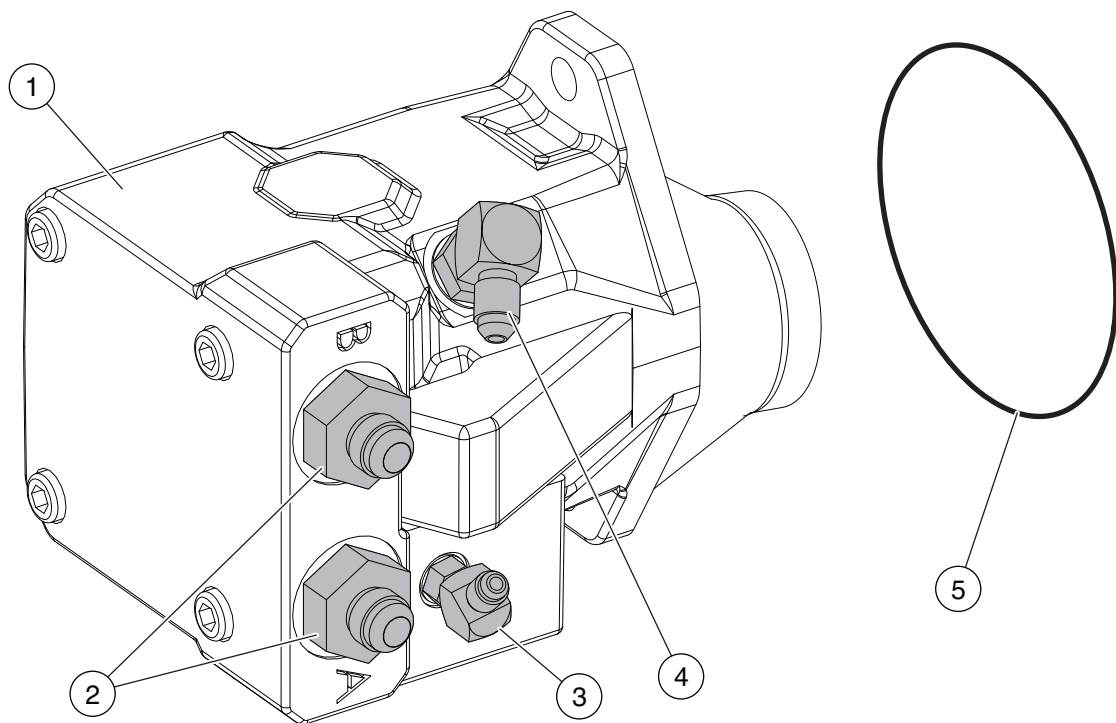


ILLUSTRATION No.
ART_4758

92RT Series

3392 RT-T WHEEL MOTORS, ~#13600044

Wheel Motor Assembly, 3392RT-T ~#13600044

ITEM	PART NO.	QTY PER WHEEL	DESCRIPTION
1	91402	4	3392RT-T ~#13600044 Wheel Motor, without fittings
--	91560	--	Seal Kit
2	50659	2	Fitting, MB-MJ-12-8
3	50771	1	Fitting, MB-MJ45-4-4
4	50791	1	Fitting, MB-MJ90-8-6
5	91419	1	O-ring



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

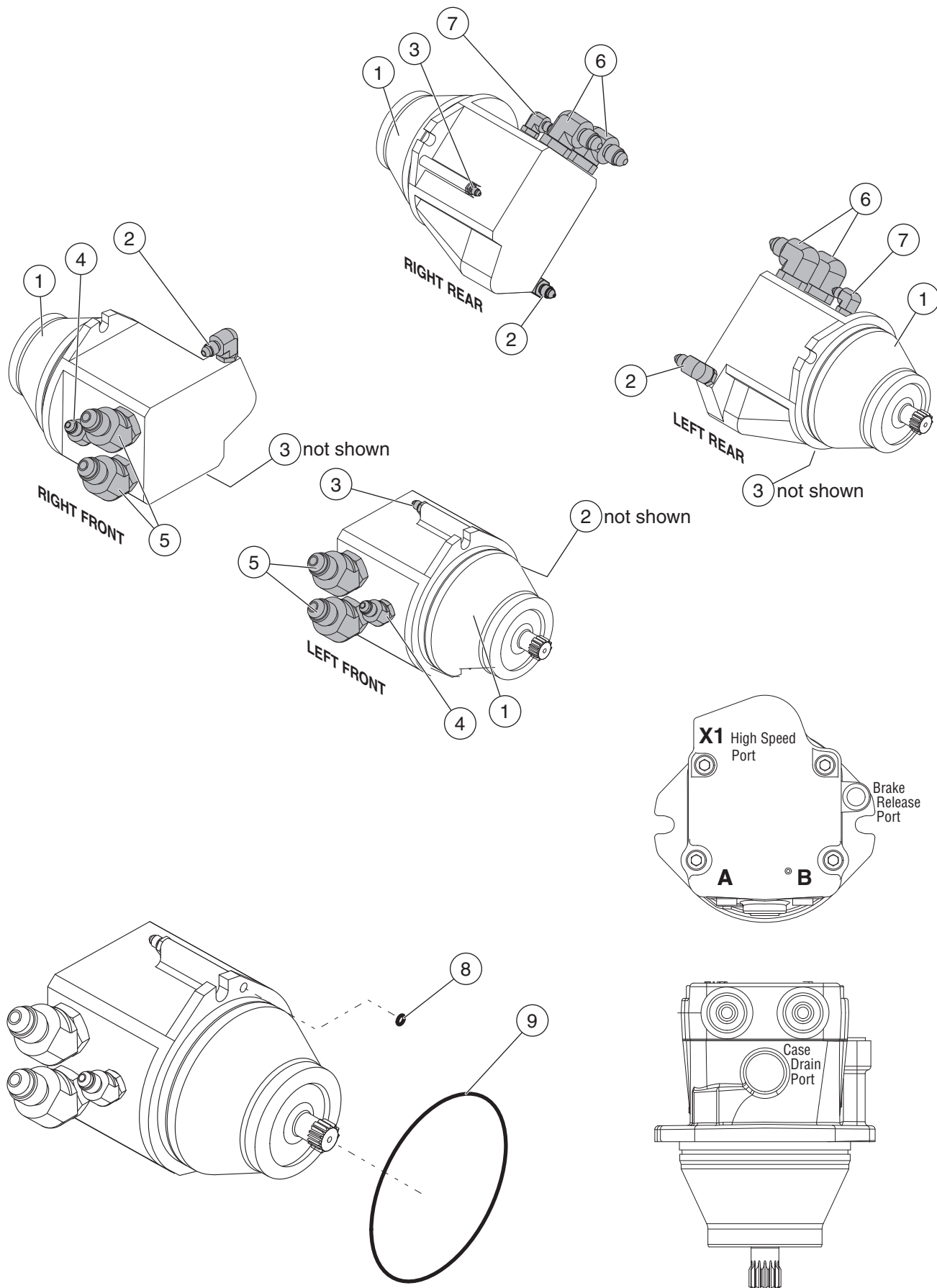


ILLUSTRATION No.
ART_3490

92RT Series

WHEEL MOTORS, 5492RT, 6092RT, 3392RT-T #13600045~

Wheel Motor Assembly

ITEM	PART NO.	QTY	DESCRIPTION
1	92514	4	3392RT-T #13600045~ Wheel Motor, without fittings
	17961	4	5492RT ~#11900056, excluding 11900051, 11900055 Wheel Motor, without fittings
	91882	4	5492RT #11900057~, including 11900051, 11900055 Wheel Motor, without fittings
	92514	4	6092RT Wheel Motor, without fittings
2	50660	4	Fitting, MB-MJ90-6-4
3	50769	4	Fitting, MB-MJ-4-4
4	51040	2	Fitting, MB-MJ45-8-6
5	50817	4	Fitting, MB-MFFOR45-12-8
6	50849	4	Fitting, MB-MFFOR90-12-8
7	50791	2	Fitting, MB-MJ90-8-6
8	92042	4	O-ring
9	92166	4	O-Ring



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

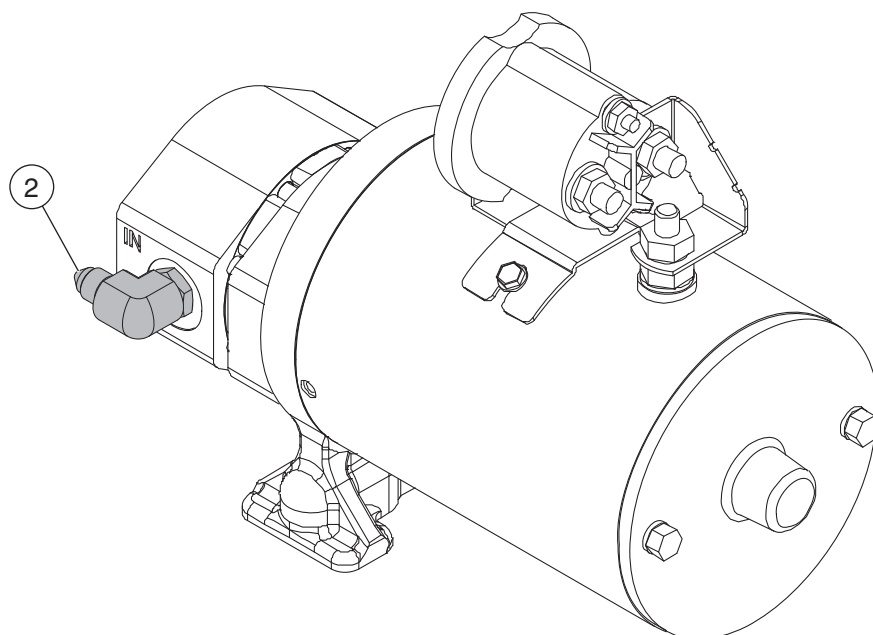
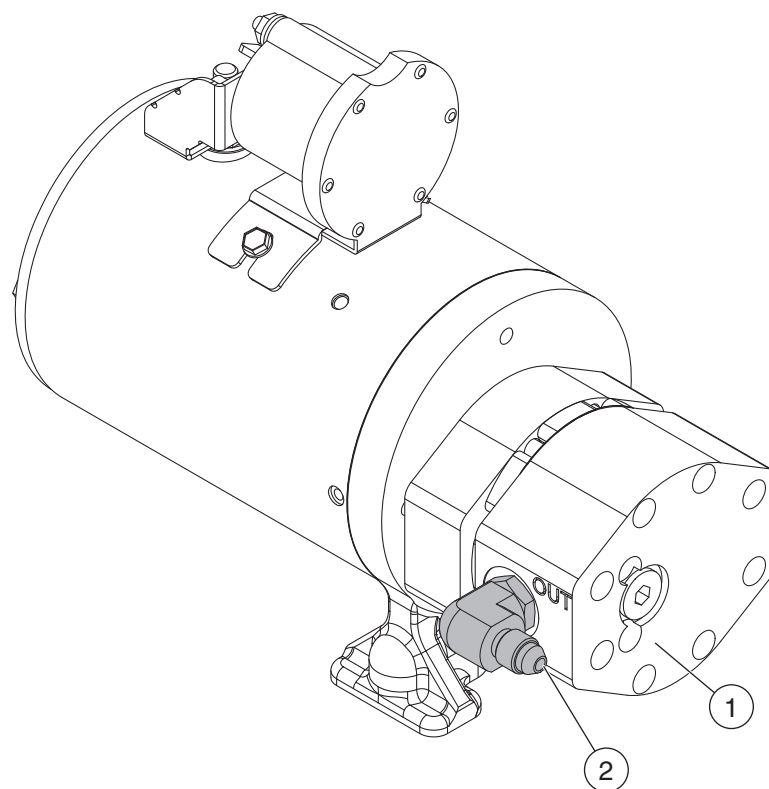


ILLUSTRATION No.
ART_3491

92RT Series

AUXILLARY POWER UNIT, 5592RT, 3392RT-T

Auxiliary Power Unit. 3392RT-T & 5492RT only

ITEM	PART NO.	QTY	DESCRIPTION
1	17973	1	Auxiliary Power Unit, without fittings
--	92534	--	Solenoid
2	50790	2	Fitting, MB-MJ90-6-6



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

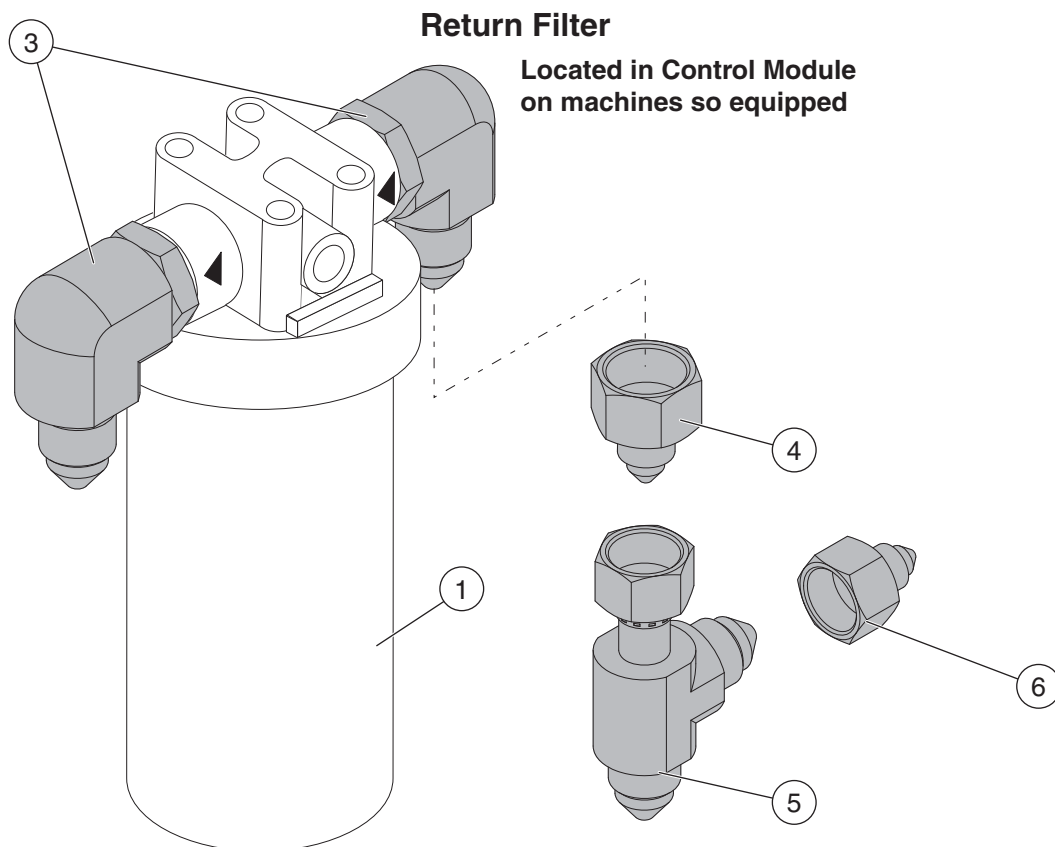
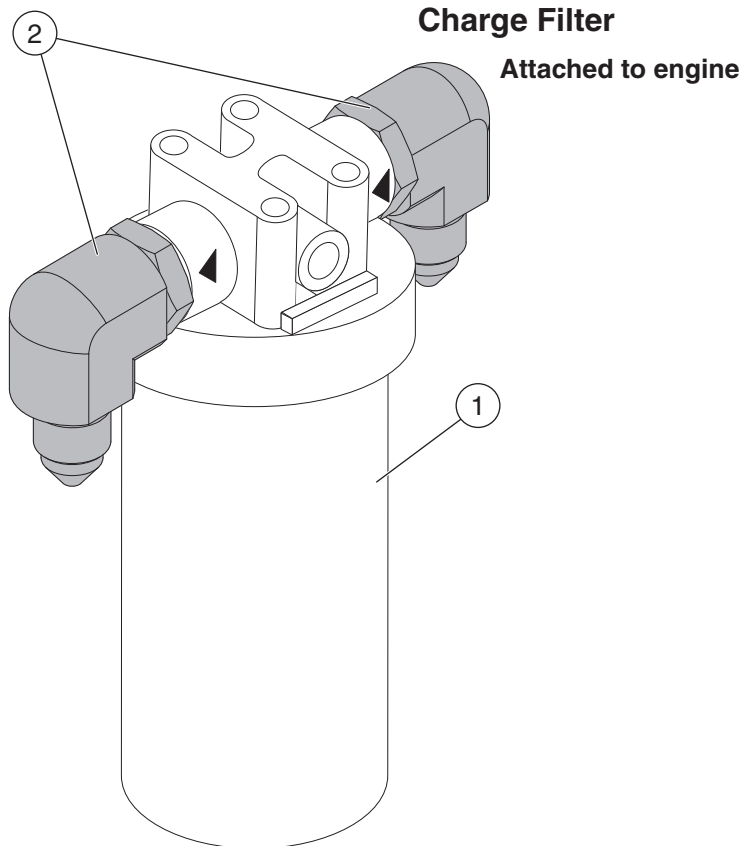


ILLUSTRATION No.
ART_3492

92RT Series

FILTER ASSEMBLY

Filter Assembly

ITEM	PART NO.	QTY	DESCRIPTION
1	92072	2	Assembly, Filter, without fittings
--	92169	--	Filter Element
2	50923	2	Fitting, MP-MJ90-12-8
3	50916	2	Fitting, MP-MJ90-12-12
4	50883	1	Fitting, FJ-MJ-12-8
5	50891	1	Fitting, Tee, MJ-MJ-FJXT-12
6	50882	1	Fitting, FJ-MJ-8-4



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

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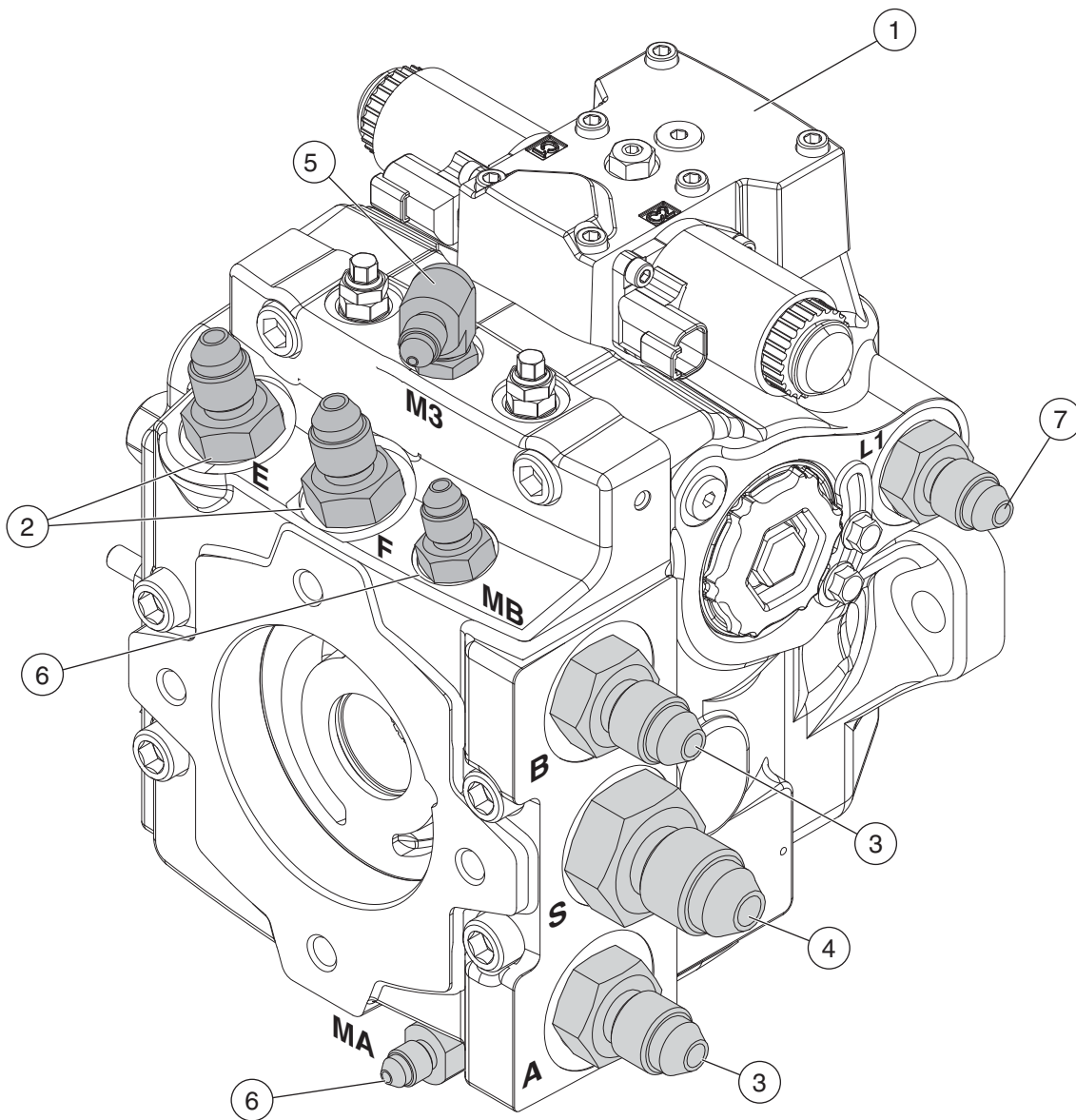


ILLUSTRATION No.
ART_3493

92RT Series

DRIVE PUMP

Drive Pump

ITEM	PART NO.	QTY	DESCRIPTION
1	17965*		5492RT ~#11900056, excluding 11900051, 11900055* Drive Pump, 9-Spline Output, without fittings
	91893		5492RT #11900057~, including 11900051, 11900055 All 3392RT-T, 6092RT models Drive Pump, 11-Spline Output, without fittings
2	50762	2	Fitting, MB-MJ-10-8
3	50764	2	Fitting, MB-MJ-16-12
4	50765	1	Fitting, MB-MJ-16-16
5	50790	1	Fitting, MB-MJ90-06-04
6	50775	2	Fitting, MB-MJ-06-04
7	50659	1	Fitting, MB-MJ-12-08
8	93032*	--	Shaft, 11-spline adaptor, for part #17975 -- not shown

***5492RT** -- If purchasing an 11-spline pump to replace a 9-spline pump, an 11-spline adaptor shaft must be purchased for gear pump #17975 (see Page E-25).



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

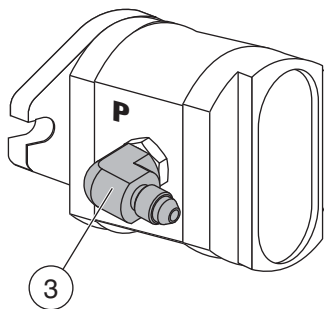
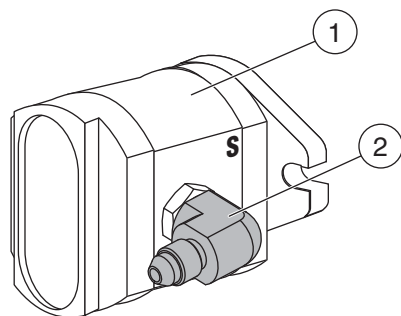


ILLUSTRATION No.
ART_3494

92RT Series

LIFT PUMP

Lift Pump Assembly

ITEM	PART NO.	QTY	DESCRIPTION
1	93033	1	3392RT-T Lift Pump, without fittings
	17975	1	5492RT ~#11900056, excluding 11900051, 11900055* Lift Pump, 9-Spline Shaft, without fittings
	93053	1	5492RT #11900057~, including 11900051, 11900055 Lift Pump, 11-Spline Shaft, without fittings
	93033	1	6092RT Lift Pump, without fittings
2	50782	1	Fitting, MB-MJ90-12-12
3	50781	1	Fitting, MB-MJ90-10-8

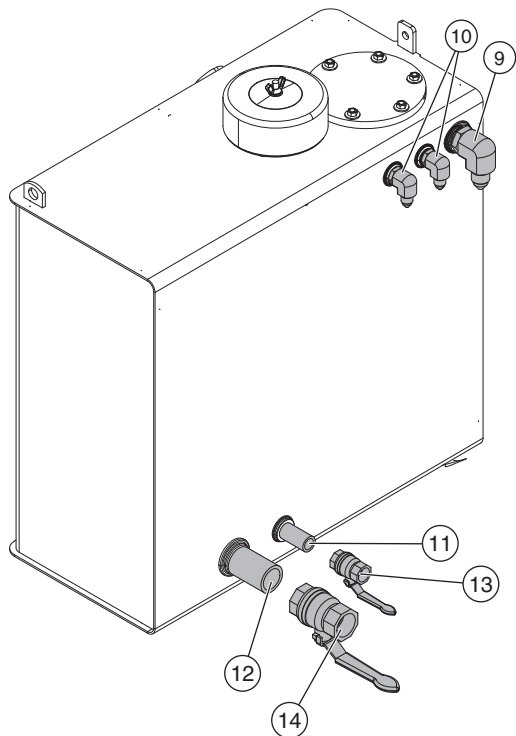


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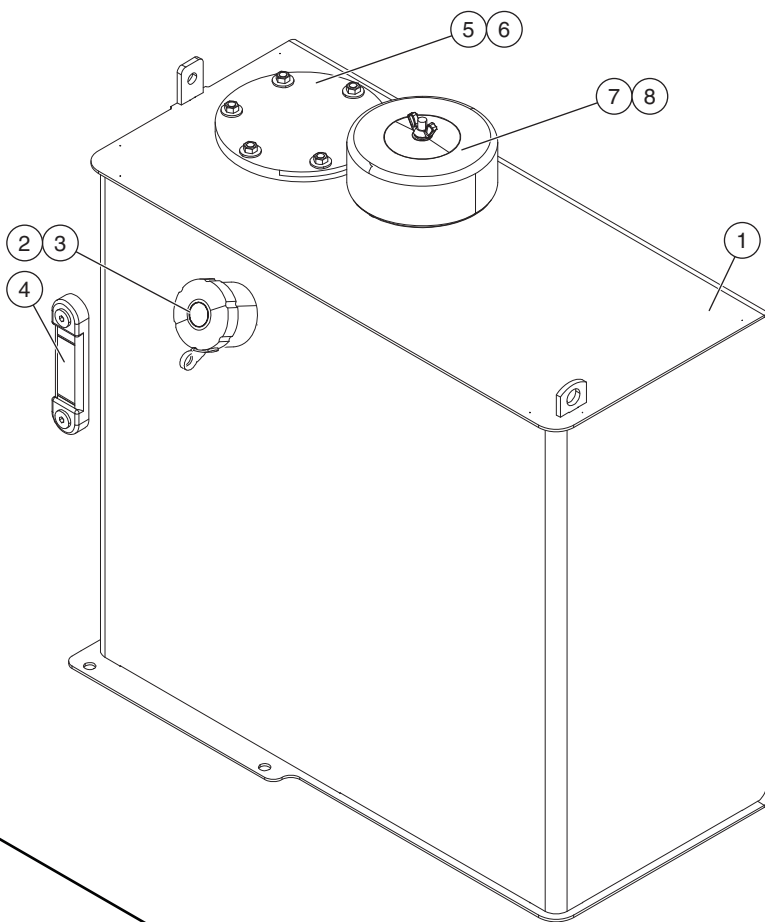
• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



Early 5492RT Models



Later Machines

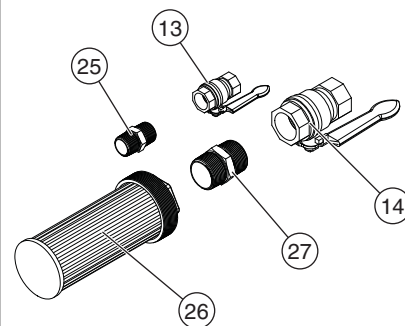
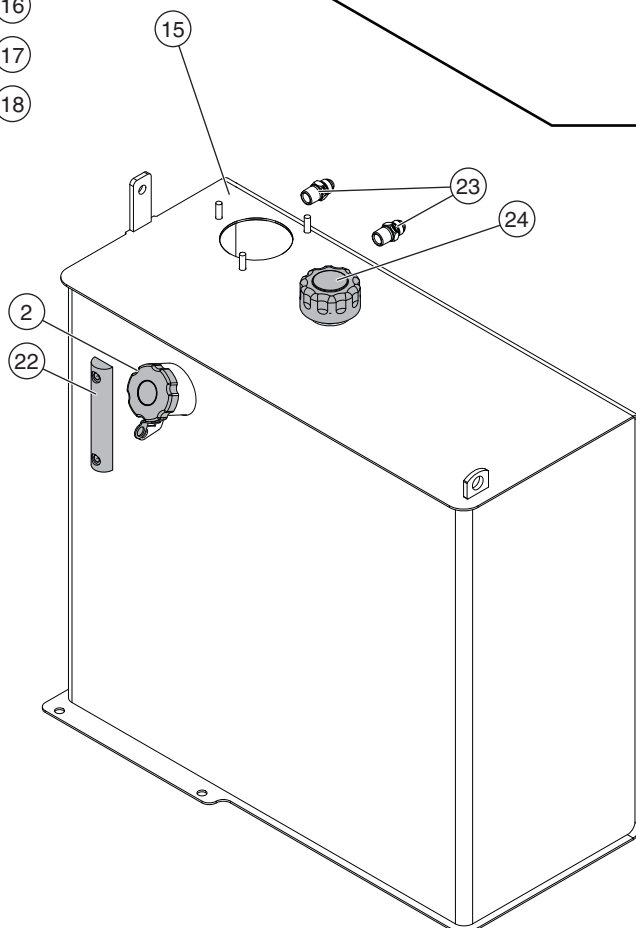
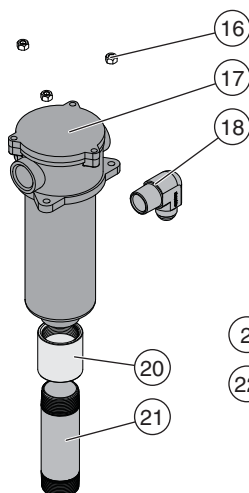


ILLUSTRATION No.
ART_3505

92RT Series

HYDRAULIC TANK

Hydraulic Tank Assembly

ITEM	PART NO.	QTY	DESCRIPTION
1	17955	1	Hydraulic Tank Assembly
2	92478	--	Filler Cap
3	92484	--	Filler Tube Strainer
4	92479	--	Sight Gauge
5	92482	--	Filter Element
6	92481	--	Breather Assembly
7	92485	--	Breather Element
8	92483	--	Gasket, Filter Cover
9	50916	1	Fitting, MJ-MP90-12-12
10	50924	2	Fitting, MJ-MP90-8-8
11	17409	1	Pipe Nipple, 3/4" x 2.00"
12	17408	1	Pipe Nipple, 1-1/4" x 2.5"
13	17410	1	Ball Valve, 3/4"
14	17407	1	Valve, 1-1/4"
15	17839	1	Hydraulic Tank Weldment
16	50048	3	Nut, M8 Nylock
17	92366	1	Filter Assembly
--	92397	--	Filter Element
18	51021	1	Fitting, MJ-MP90-12-16
19	--	1	--
20	93165	1	Fitting, 1-1/2 NPT Coupler, Aluminum
21	93625	1	Fitting, 1-1/2 NPT Stainless Nipple
22	9370	1	Sight Gauge
23	51022	2	Fitting, MJ-MP-8-8
24	92357	1	Breather Cap
25	93823	1	Fitting, 3/4 NPT Nipple
26	92356	1	Suction Strainer
27	93824	1	Fitting, 1-1/14 NPT Nipple



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

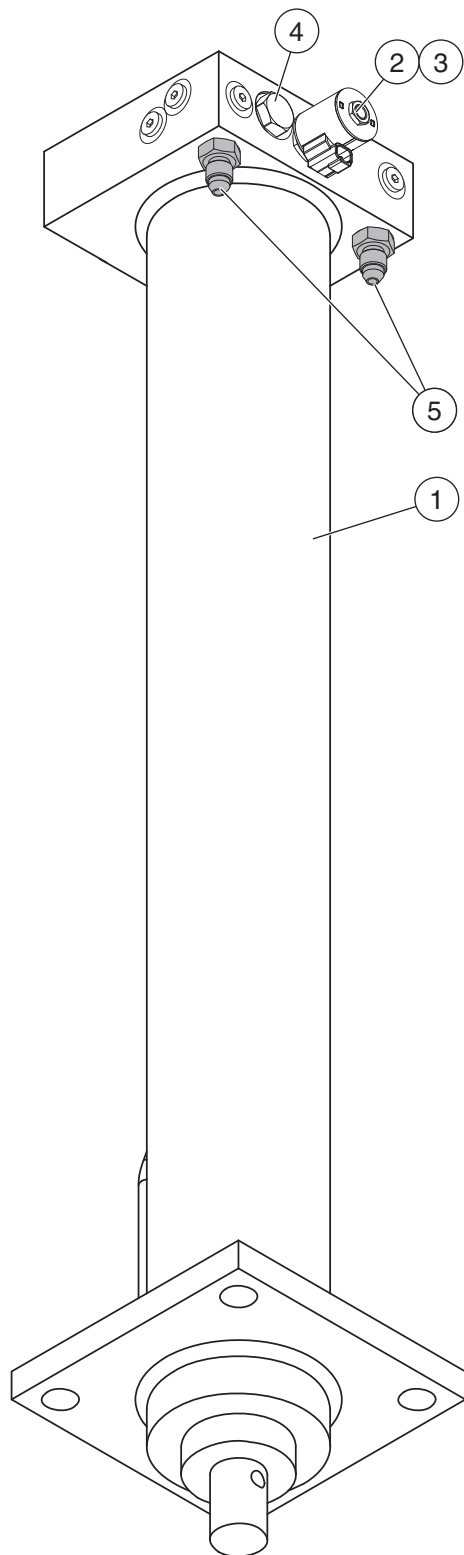


ILLUSTRATION No.
ART_3495

92RT Series

OUTRIGGER CYLINDER

Outrigger Cylinder

ITEM	PART NO.	QTY PER ASSEMBLY	QTY PER MACHINE	DESCRIPTION
1	17317	1	4	Machines manufactured before Sept 2015 -- Assembly, Outrigger Cylinder, without fittings
	92518	--	--	Seal Kit for #17317
	93713	1	4	Machines manufactured after Sept 2015 -- Assembly, Outrigger Cylinder, without fittings
2	92519	1	4	Valve
3	91143	1	4	Coil
4	92520	1	4	Check Valve
5	50774	2	8	Fitting, MB-MJ-4-6



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

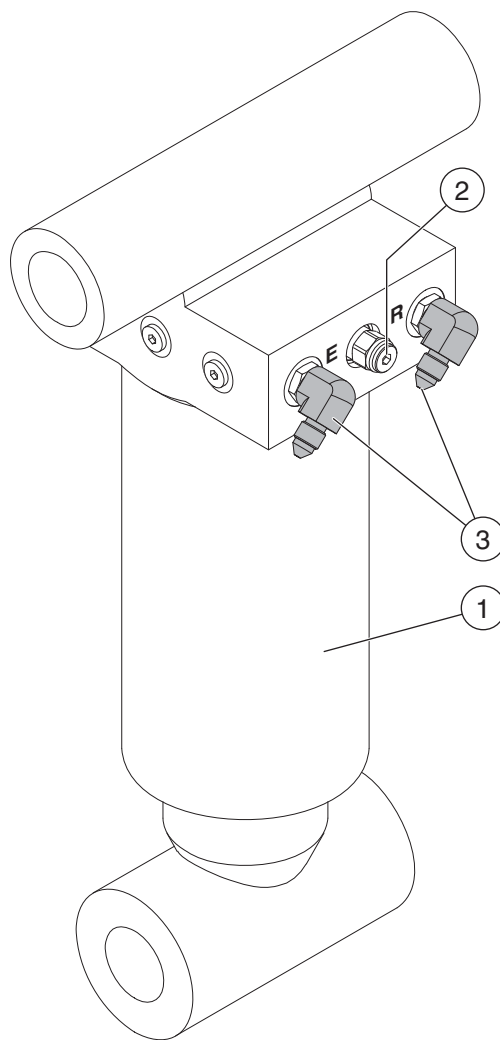


ILLUSTRATION No.
ART_3496

92RT Series

AXLE LOCK CYLINDER

Axle Lock Cylinder

ITEM	PART NO.	QTY PER ASSEMBLY	QTY PER MACHINE	DESCRIPTION
1	17469	1	2	Assembly, Axle Lock Cylinder, without fittings
--	92521	--	--	Seal Kit
2	92522	1	4	Counterbalance Valve
3	50665	2	4	Fitting, MB-MJ90-4-4



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

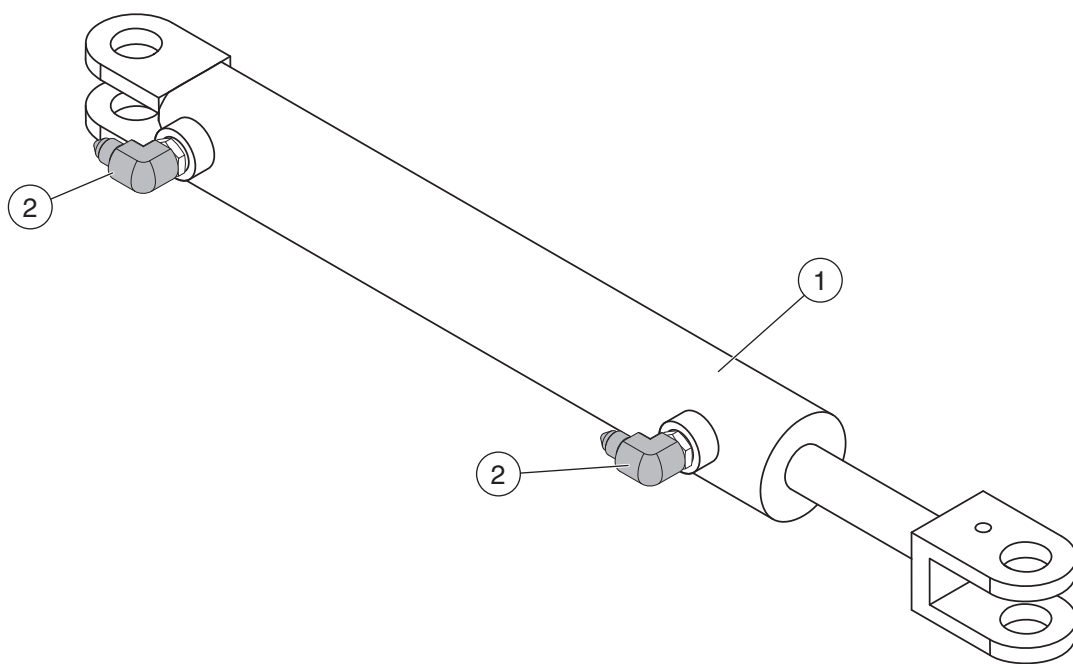


ILLUSTRATION No.
ART_3497

92RT Series

STEERING CYLINDER

Steer Cylinder

ITEM	PART NO.	QTY PER ASSEMBLY	QTY PER MACHINE	DESCRIPTION
1	17318	1	2	Assembly, Steer Cylinder, without fittings
--	92523	--	--	Seal Kit
2	50790	2	4	Fitting, MB-MJ90-6-6



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

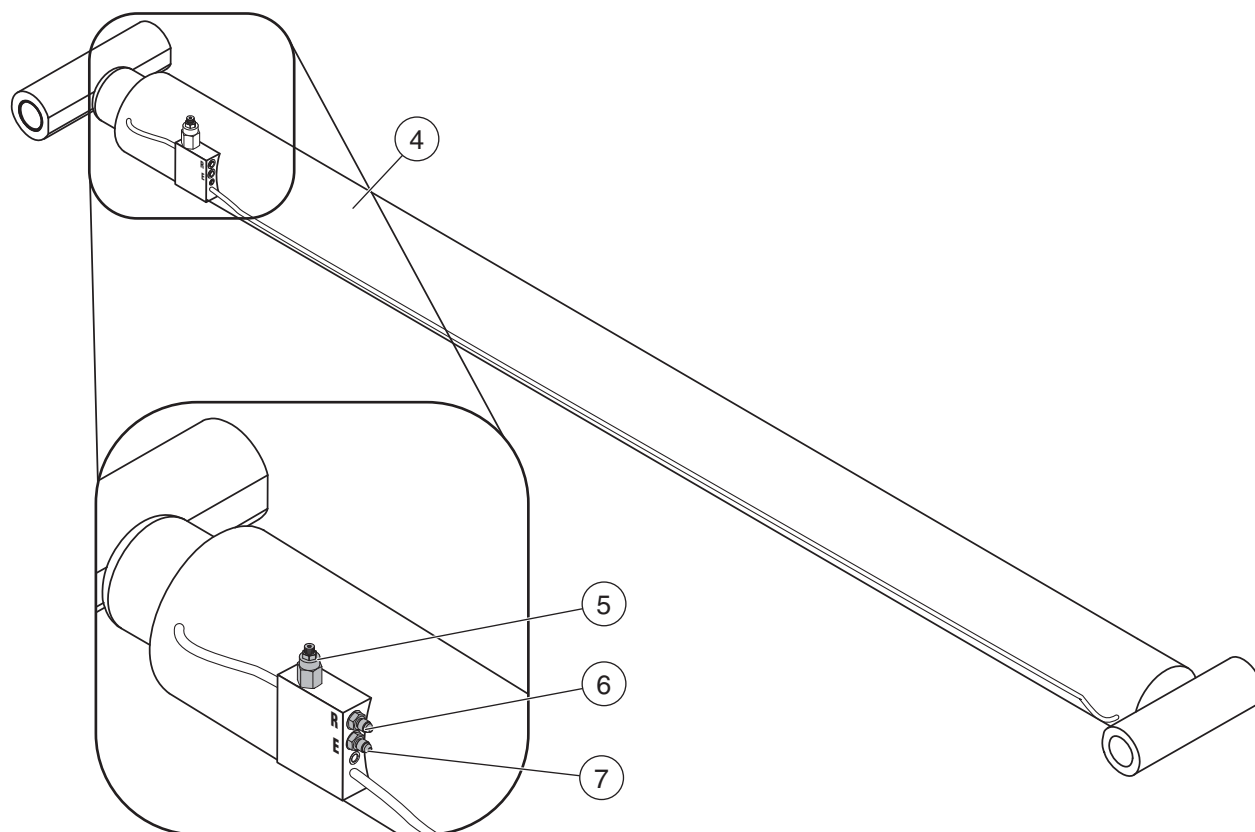
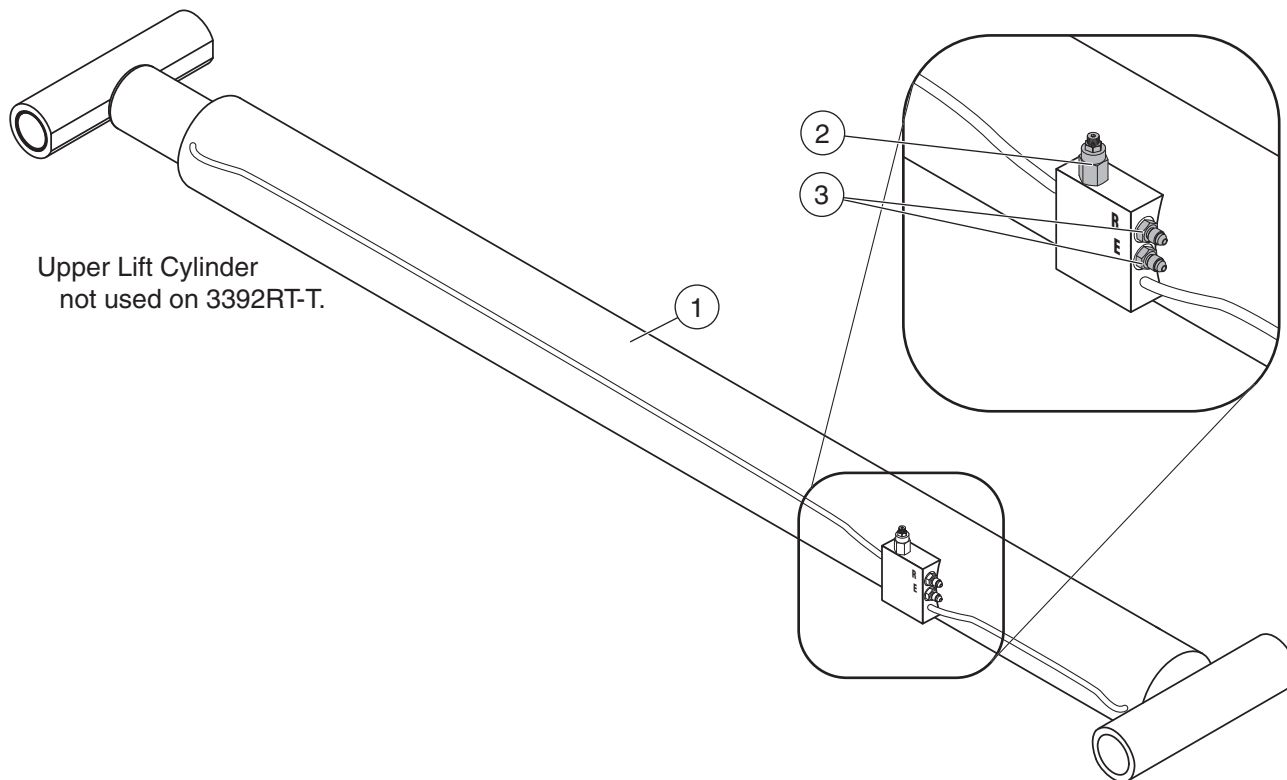


ILLUSTRATION No.
ART_3498

92RT Series

LIFT CYLINDERS, 3392RT-T, 5492RT

Lift Cylinders, 3392RT-T, 5492RT

Upper Lift Cylinder not used on 3392RT-T.

ITEM	PART NO.	QTY	DESCRIPTION
1	17316	--	Assembly, Upper Lift Cylinder, without fittings
--	92524	--	Seal Kit
2	92525	1	Counterbalance Valve
3	50776	2	Fitting, MB-MJ-6-6
4	17315	--	Assembly, Lower Lift Cylinder, without fittings
--	92526	--	Seal Kit
5	92525	1	Counterbalance Valve
6	50776	1	Fitting, MB-MJ-6-6
7	50779	1	Fitting, MB-MJ-8-8



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

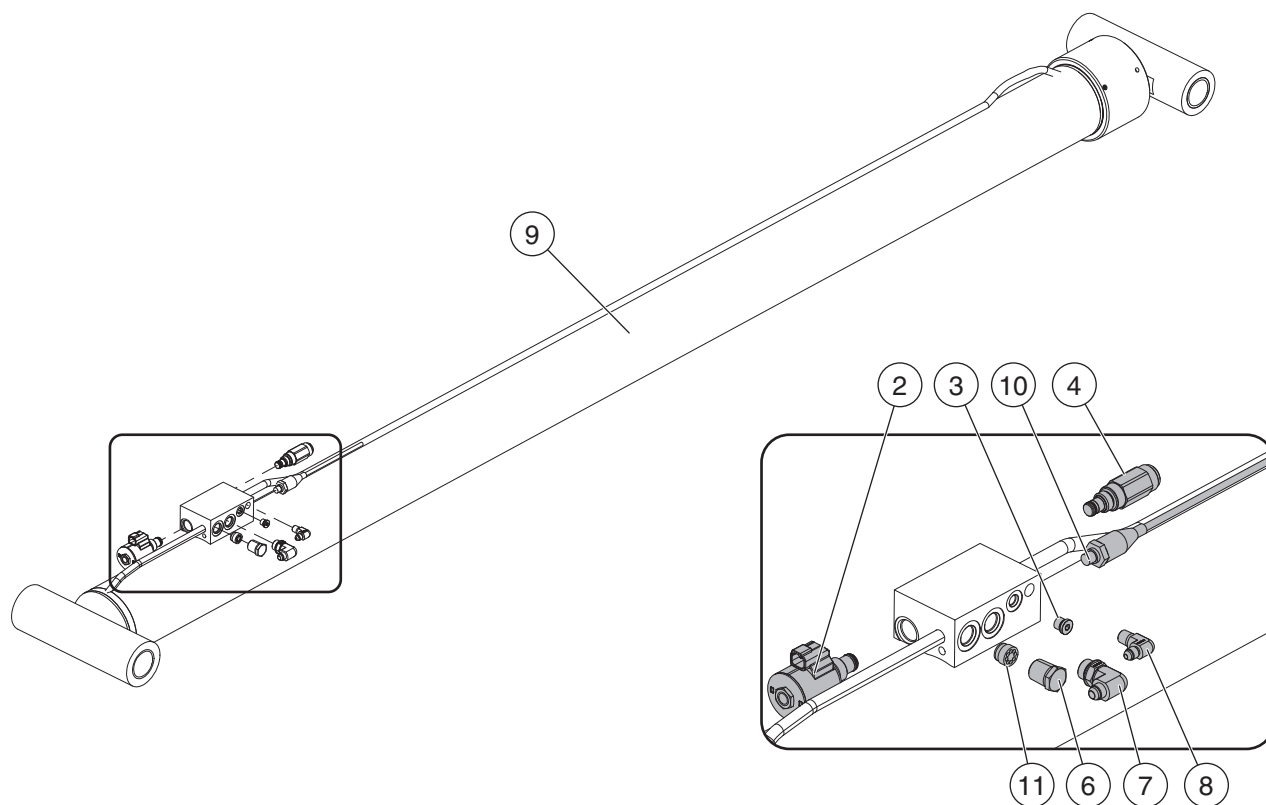
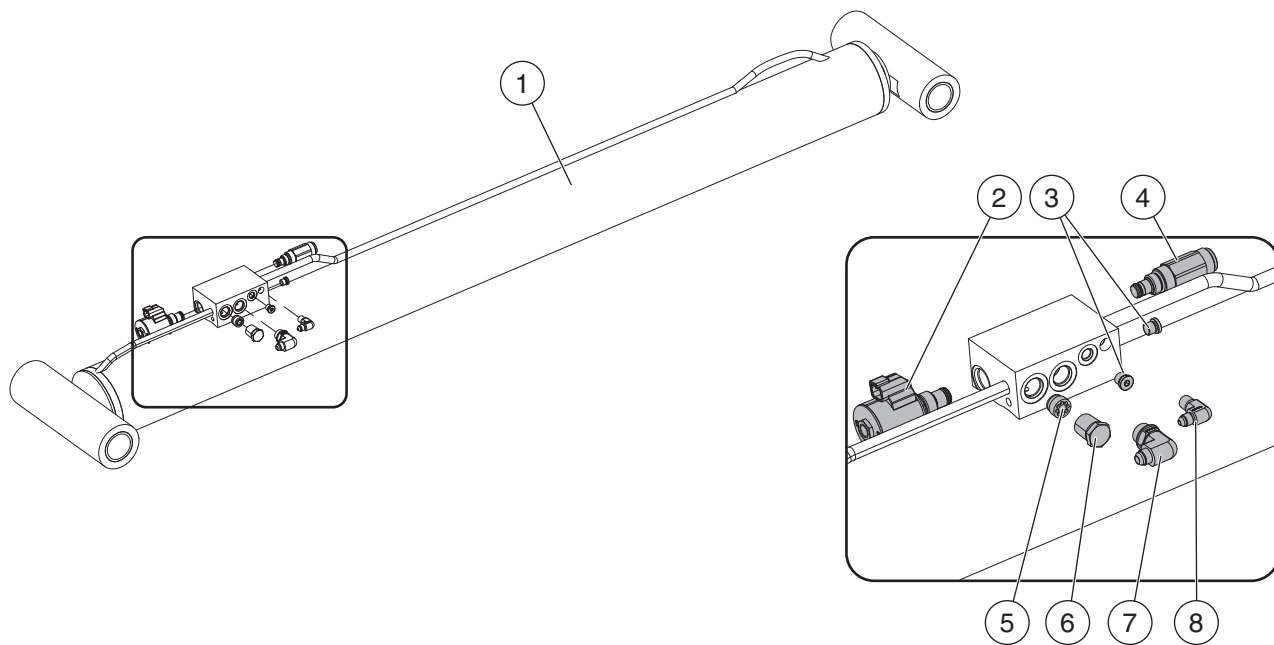


ILLUSTRATION No.
ART_4774

92RT Series

LIFT CYLINDERS, 6092RT

Lift Cylinders, 6092RT

ITEM	PART NO.	QTY	DESCRIPTION
1	17857	1	Machines manufactured ~Sept 2015 Upper Lift Cylinder
	93712		Machines manufactured Sept 2015~ Upper Lift Cylinder
2	93654	2	Valve
3	50961	3	Fitting, MB-4 Plug
4	93653	2	Relief Valve
5	93655	1	Check Orifice
6	51098	2	Fitting, MB-8 Plug
7	50991	2	Fitting, 06G-08MBX90
8	50664	2	Fitting, MJ-MP90-4-4
9	17856	1	Machines manufactured ~Sept 2015 Lower Lift Cylinder
	93711		Machines manufactured Sept 2015~ Lower Lift Cylinder
10	90845	1	Pressure Transducer -- only on machines equipped with optional Overload Sensing System
11	93656	1	Check Orifice

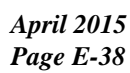


• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



Lift Circuit, 3392RT-T, 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
1	52113	1	Hose Assy, 1/2" x 21', 8G8FJX-8G8FJX
2	52114	1	Hose Assy, 1/2" x 21', 8G6FJX-8G8FJX
Item #s 3-6 used only on 5492RT machines; not used on 3392RT-T machines			
3	52115	1	Hose Assy, 3/8" x 29', 6G6FJX-8G6FJX90L
4	52116	1	Hose Assy, 3/8" x 29', 6G6FJX-6G6FJX90
5	50893	1	Fitting, MJ-FJX-MJT-6
6	50894	1	Fitting, MJ-FJX-MJT-8



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

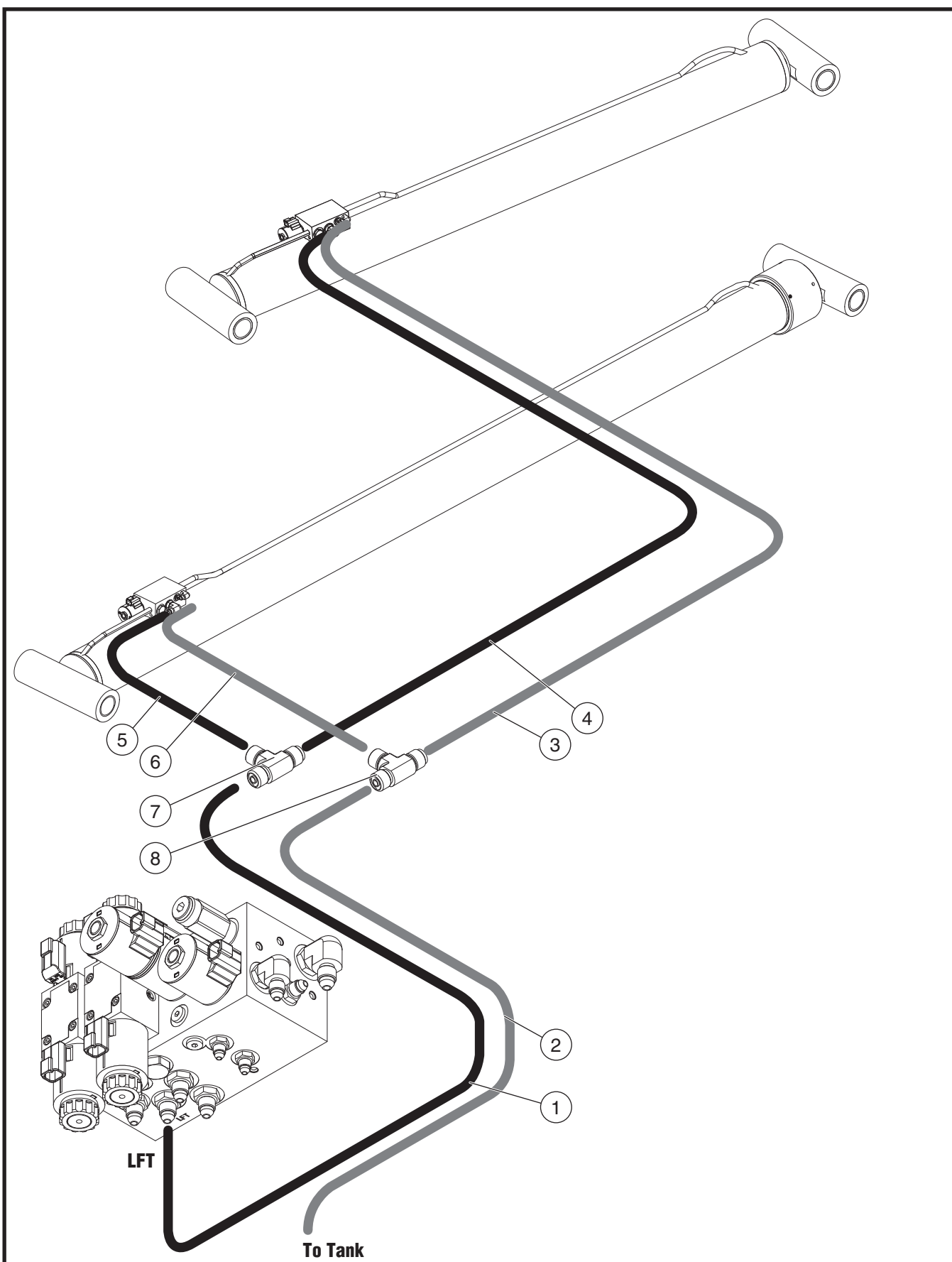


ILLUSTRATION No.
ART_4776

92RT Series

LIFT CIRCUIT, 6092RT

Lift Circuit, 6092RT

ITEM	PART NO.	QTY	DESCRIPTION
1	52656	1	Hose Assy, 1/2" x 187", 8G8FJX-8G8FJX
2	52657	1	Hose Assy, 3/8" x 195", 6G6FJX-6G6FJX60
3	52658	1	Hose Assy, 3/8" x 32.5", 6G6FJX-6G6FJX90
4	52659	1	Hose Assy, 3/8" x 32.5", 6G6FJX-6G8FJX90
5	52660	1	Hose Assy, 1/2" x 48", 8G8FJX-8G8FJX
6	52661	1	Hose Assy, 3/8" x 48", 6G6FJX-6G6FJX
7	50894	1	Fitting, MJ-FJX-MJ-8
	50900	1	Fitting, MJ-MJ-8-8 (not shown)
9	50928	1	Fitting, MJT-6



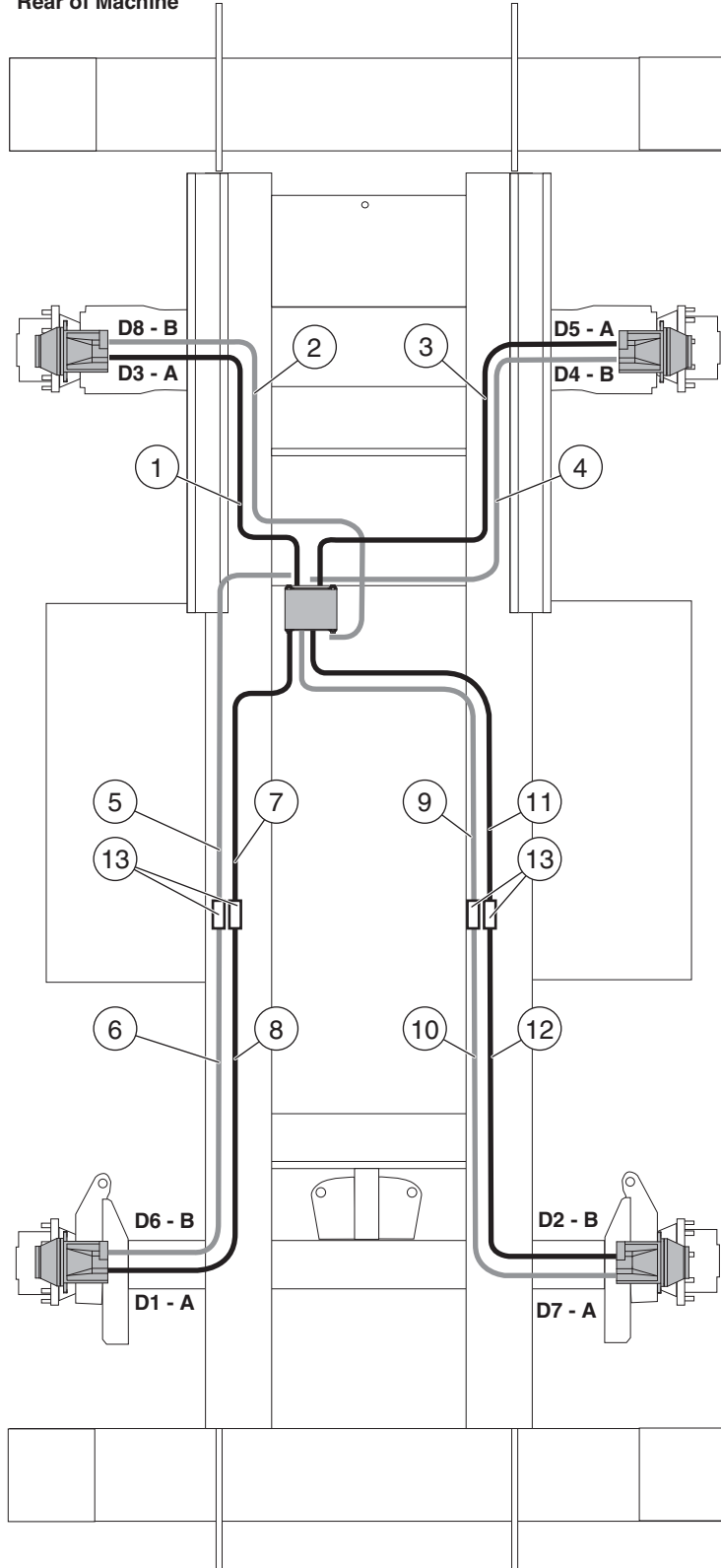
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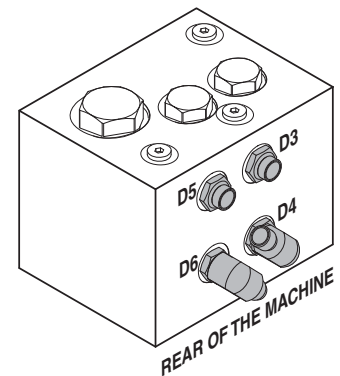
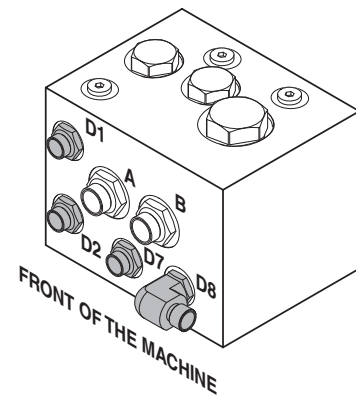
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Rear of Machine



Front of Machine

Traction Manifold



Wheel Motor

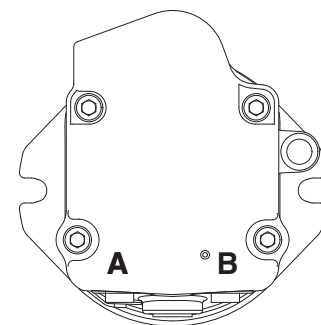


ILLUSTRATION No.
ART_3507

92RT Series

DRIVE CIRCUIT, 5492RT

Drive Circuit -- 5492RT

ITEM	PART NO.	QTY	DESCRIPTION
1	52060	1	Hose Assy, 1/2" x 56", 8G8FFORX90 - 8G8FFORX45
2	52061	1	Hose Assy, 1/2" x 64", 8G8FFORX90 - 8G8FFORX90
3	52062	1	Hose Assy, 1/2" x 68", 8G8FFORX90 - 8G8FFORX45
4	52063	1	Hose Assy, 1/2" x 64", 8G8FFORX - 8G8FFORX90
5	52064	1	Hose Assy, 1/2" x 58", 8G8FFORX - 8G8FFORX45
6	52065	1	Hose Assy, 1/2" x 72", 8G8FFORX - 8G8FFORX
7	52066	1	Hose Assy, 1/2" x 48", 8G8FFORX - 8G8FFORX90
8	52067	1	Hose Assy, 1/2" x 69", 8G8FFORX - 8G8FFORX
9	52068	1	Hose Assy, 1/2" x 66", 8G8FFORX - 8G8FFORX45
10	52069	1	Hose Assy, 1/2" x 63", 8G8FFORX - 8G8FFORX
11	52070	1	Hose Assy, 1/2" x 63", 8G8FFORX - 8G8FFORX45
12	52071	1	Hose Assy, 1/2" x 71", 8G8FFORX - 8G8FFORX
13	50867	4	Fitting, MFFOR-MFFOR-8



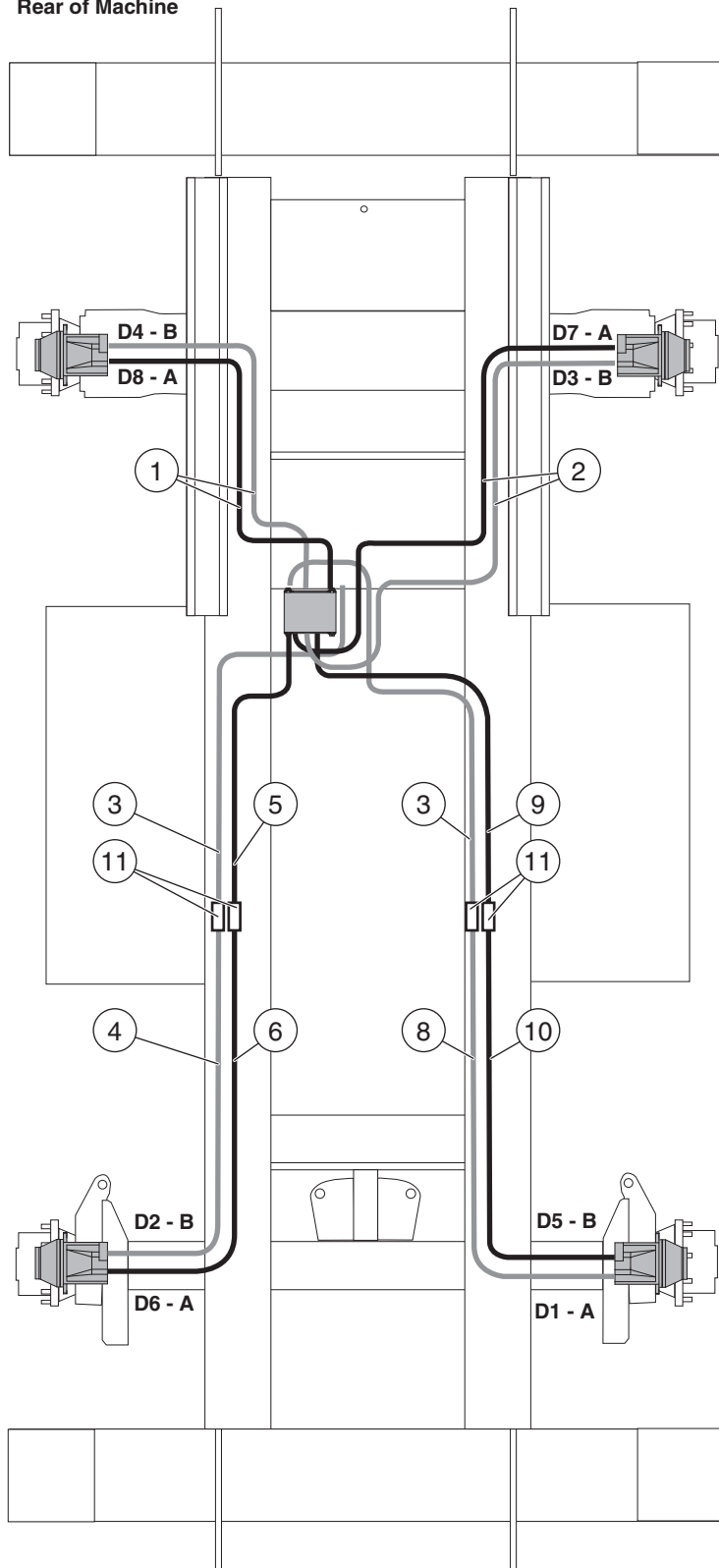
• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

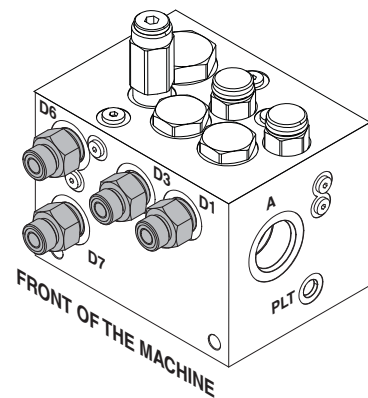
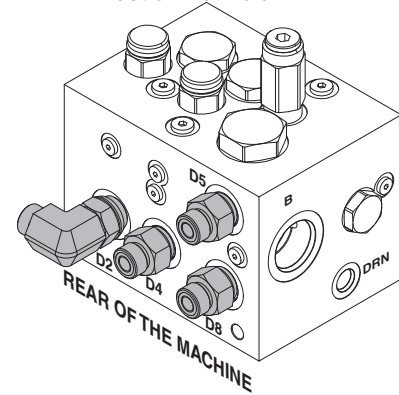
• REF: Reference only

Rear of Machine



Front of Machine

Traction Manifold



Wheel Motor

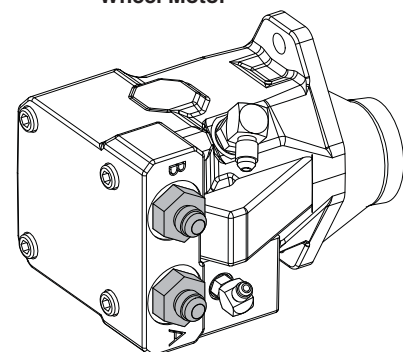


ILLUSTRATION No.
ART_4775

92RT Series

DRIVE CIRCUIT, 3392RT-T ~#13600044

Drive Circuit-- 3392RT-T ~#13600044

ITEM	PART NO.	QTY	DESCRIPTION
1	52529	2	Hose Assy, 1/2" x 53", 8G8FFORX - 8G8FFORX45
2	52530	2	Hose Assy, 1/2" x 71", 8G8FFORX - 8G8FFORX90
3	52681	2	Hose Assy, 1/2" x 58.5", 8G8FFORX - 8G8FFORX90
4	52064	1	Hose Assy, 1/2" x 58", 8G8FFORX - 8G8FFORX45
5	52680	1	Hose Assy, 1/2" x 45.25", 8G8FFORX - 8G8FFORX45
6	52066	1	Hose Assy, 1/2" x 48", 8G8FFORX - 8G8FFORX90
7	--	--	--
8	52070	1	Hose Assy, 1/2" x 66.25", 8G8FFORX - 8G8FFORX45
9	52682	1	Hose Assy, 1/2" x 66.25", 8G8FFORX - 8G8FFORX90
10	52068	1	Hose Assy, 1/2" x 66", 8G8FFORX - 8G8FFORX45
11	50867	4	Fitting, MFFOR-MFFOR-8



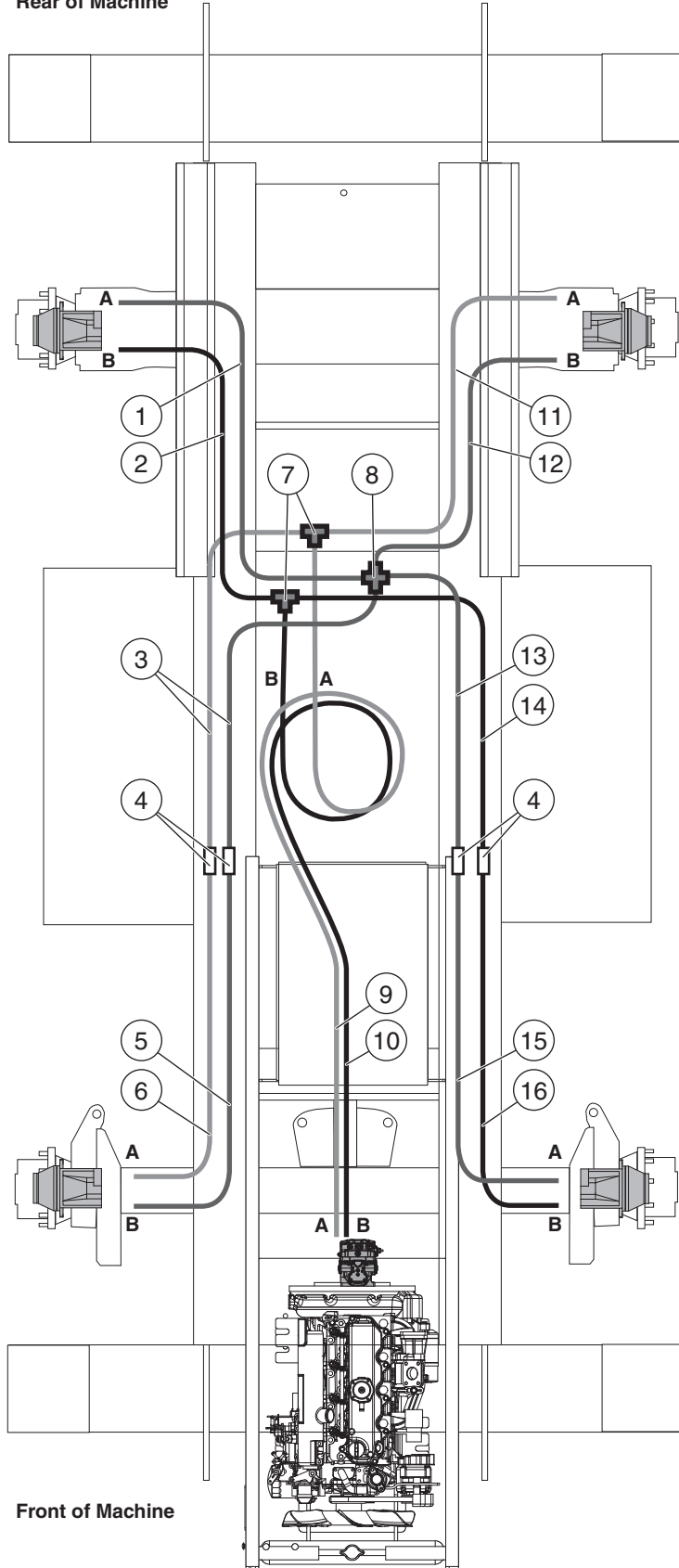
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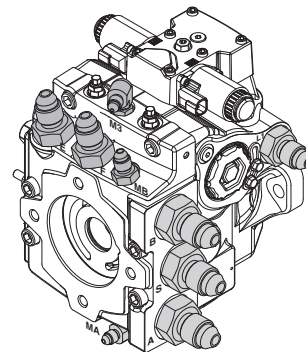
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• REF: Reference only

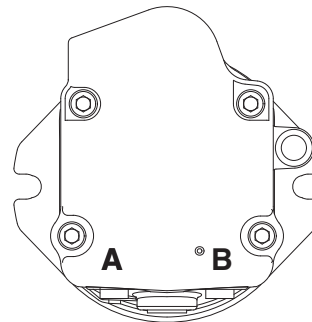
Rear of Machine



Drive Pump



Wheel Motor



Front of Machine



ILLUSTRATION No.
ART_4777

92RT Series

DRIVE CIRCUIT, 3392RT-T #13600045~, 6092RT

Drive Circuit-- 3392RT-T #13600045~, 6092RT

ITEM	PART NO.	QTY	DESCRIPTION
1	52610	1	Hose Assy, 1/2" x 53", 8G8FFORX - 8G12FFORX
2	52609	1	Hose Assy, 1/2" x 50.5", 8G8FFORX - 8G12FFORX
3	52614	2	Hose Assy, 1/2" x 42", 8G8FFORX - 8G12FFORX90S
4	50867	4	Fitting, MFFOR-MFFOR-8
5	52605	1	Hose Assy, 1/2" x 62.5", 8G8FFORX - 8G8FFORX
6	52606	1	Hose Assy, 1/2" x 66", 8G8FFORX - 8G8FFORX
7	51140	2	Fitting, MFFOR-12-12-12
8	51141	1	Fitting, MFFOR-12-12-12-12
9	52073	1	Hose Assy, 3/4" x 139", 12G12FFORX-12G12FFORX90
10	52072	1	Hose Assy, 3/4" x 133", 12G12FFORX-12G12FFORX90
11	52612	1	Hose Assy, 1/2" x 71", 8G8FFORX - 8G12FFORX
12	52613	1	Hose Assy, 1/2" x 73", 8G8FFORX - 8G12FFORX
13	52611	1	Hose Assy, 1/2" x 61.75", 8G8FFORX - 8G12FFORX90S
14	52615	1	Hose Assy, 1/2" x 61.25", 8G8FFORX - 8G12FFORX
15	52607	1	Hose Assy, 1/2" x 66.75", 8G8FFORX - 8G8FFORX
16	52608	1	Hose Assy, 1/2" x 62.75", 8G8FFORX - 8G8FFORX

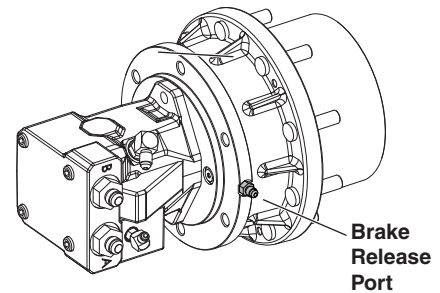
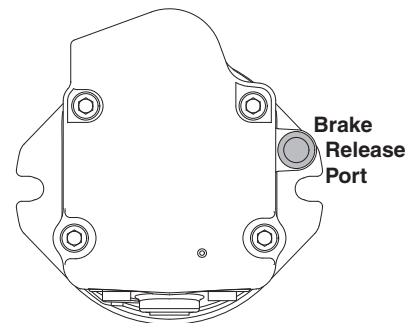
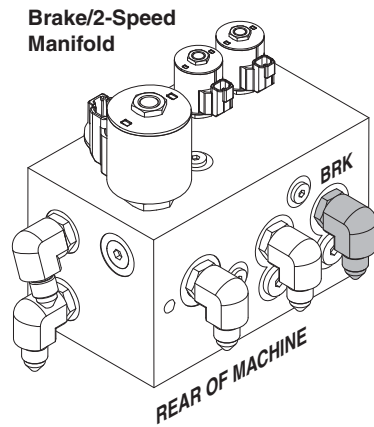
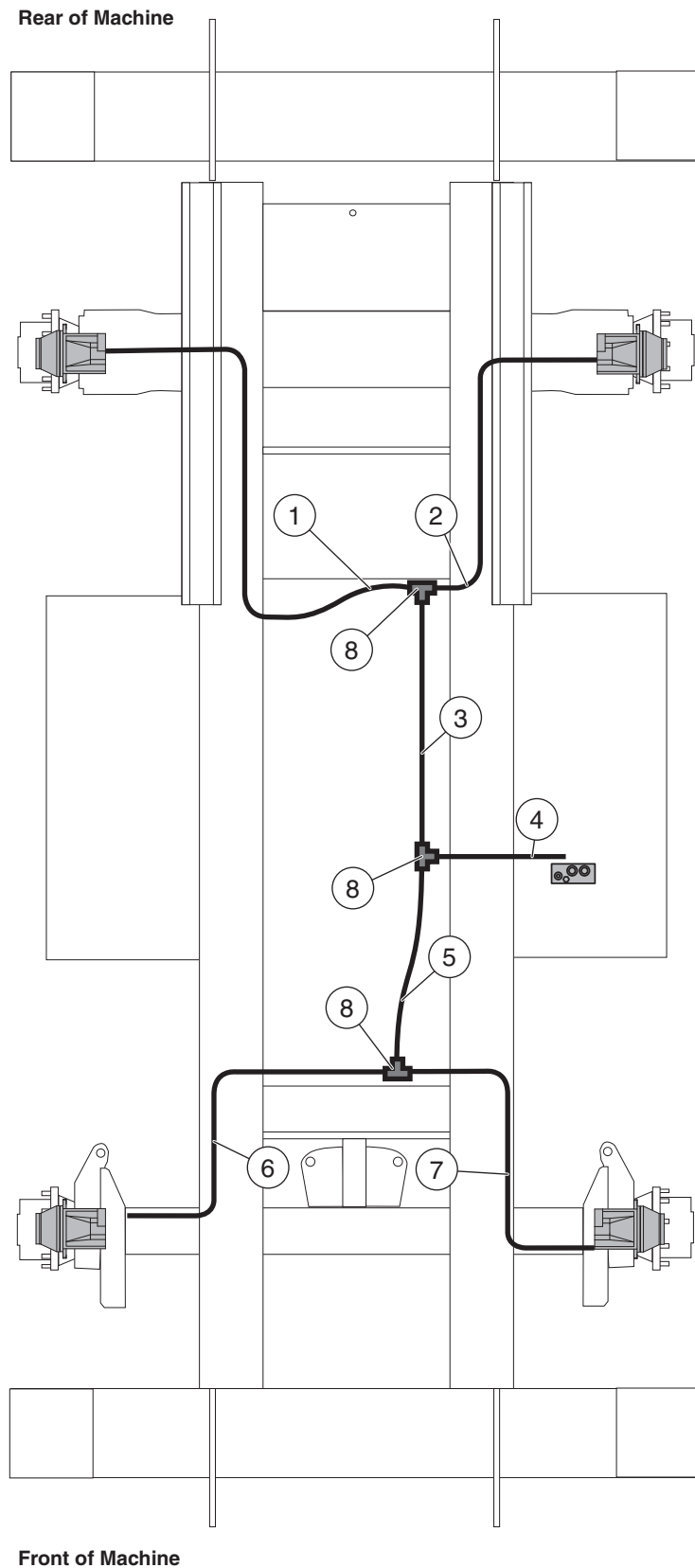


• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



Brake Circuit

ITEM	PART NO.	QTY	DESCRIPTION
1	52078	1	Hose Assy, 1/4" x 90", 4G4FJX-4G4FJX
2	52079	1	Hose Assy, 1/4" x 66", 4G4FJX-4G4FJX90
3	52080	1	Hose Assy, 1/4" x 19", 4G4FJX-4G4FJX
4	52081	1	Hose Assy, 1/4" x 38", 4G4FJX-4G4FJX
5	52082	1	Hose Assy, 1/4" x 14", 4G4FJX-4G4FJX
6	52083	1	Hose Assy, 1/4" x 124", 4G4FJX-4G4FJX90
7	52084	1	Hose Assy, 1/4" x 79", 4G4FJX-4G4FJX90
8	50927	3	Fitting, MJT-4



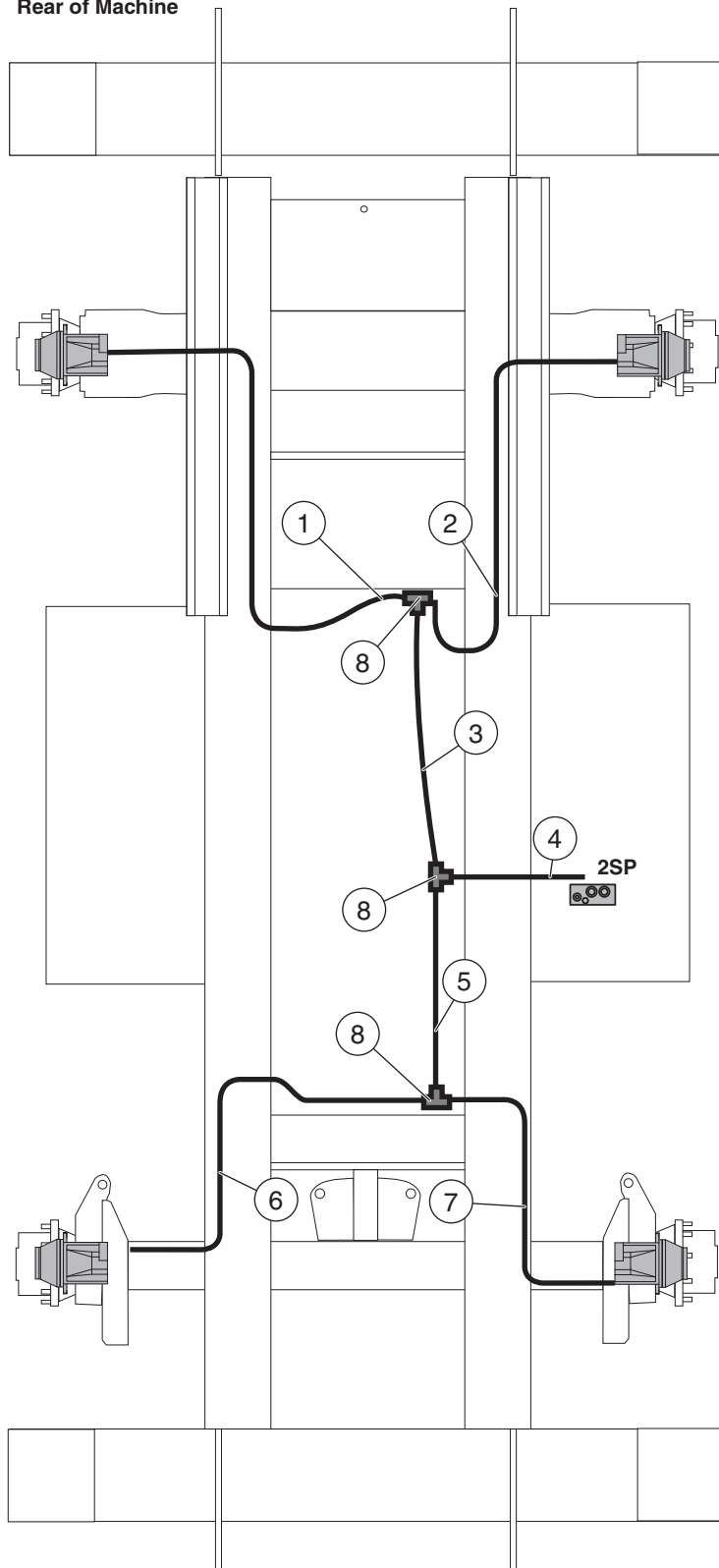
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• NS: Not a Stock item

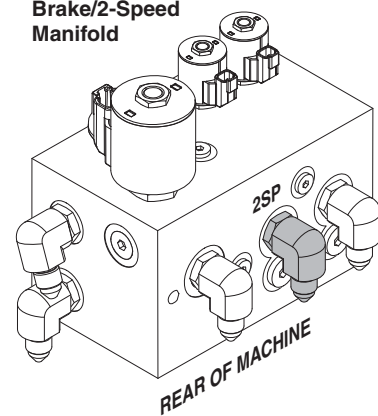
• REF: Reference only

Rear of Machine



Front of Machine

Brake/2-Speed
Manifold



Wheel Motor

on side
→

X1

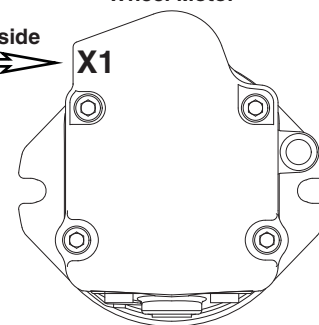


ILLUSTRATION No.
ART_3509

92RT Series

HIGH SPEED CIRCUIT, 5492RT, 6092RT, 3392RT-T #13600045~

High Speed Circuit -- 5492RT, 6092RT, 3392RT-T #13600045~

ITEM	PART NO.	QTY	DESCRIPTION
1	52078	1	Hose Assy, 1/4" x 90", 4G4FJX-4G4FJX
2	52079	1	Hose Assy, 1/4" x 66", 4G4FJX-4G4FJX90
3	52080	1	Hose Assy, 1/4" x 19", 4G4FJX-4G4FJX
4	52081	1	Hose Assy, 1/4" x 38", 4G4FJX-4G4FJX
5	52082	1	Hose Assy, 1/4" x 14", 4G4FJX-4G4FJX
6	52085	1	Hose Assy, 1/4" x 124", 4G4FJX-4G4FJX
7	52086	1	Hose Assy, 1/4" x 88", 4G4FJX-4G4FJX
8	50927	3	Fitting MJT-4



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



High Speed Circuit -- 3392RT-T ~#13600044

ITEM	PART NO.	QTY	DESCRIPTION
1	52078	1	Hose Assy, 1/4" x 90", 4G4FJX-4G4FJX
2	52079	1	Hose Assy, 1/4" x 66", 4G4FJX-4G4FJX90
3	52080	1	Hose Assy, 1/4" x 19", 4G4FJX-4G4FJX
4	52081	1	Hose Assy, 1/4" x 38", 4G4FJX-4G4FJX
5	52082	1	Hose Assy, 1/4" x 14", 4G4FJX-4G4FJX
6	52085	1	Hose Assy, 1/4" x 124", 4G4FJX-4G4FJX
7	52086	1	Hose Assy, 1/4" x 88", 4G4FJX-4G4FJX
8	50927	3	Fitting MJT-4
9	50665	1	Fitting, MB-MJ90-4-4
10	52668	2	Hose, 1/4" x 18", 4G4FJX-4G4FJX
11	93067	1	2-Speed Valve Assembly



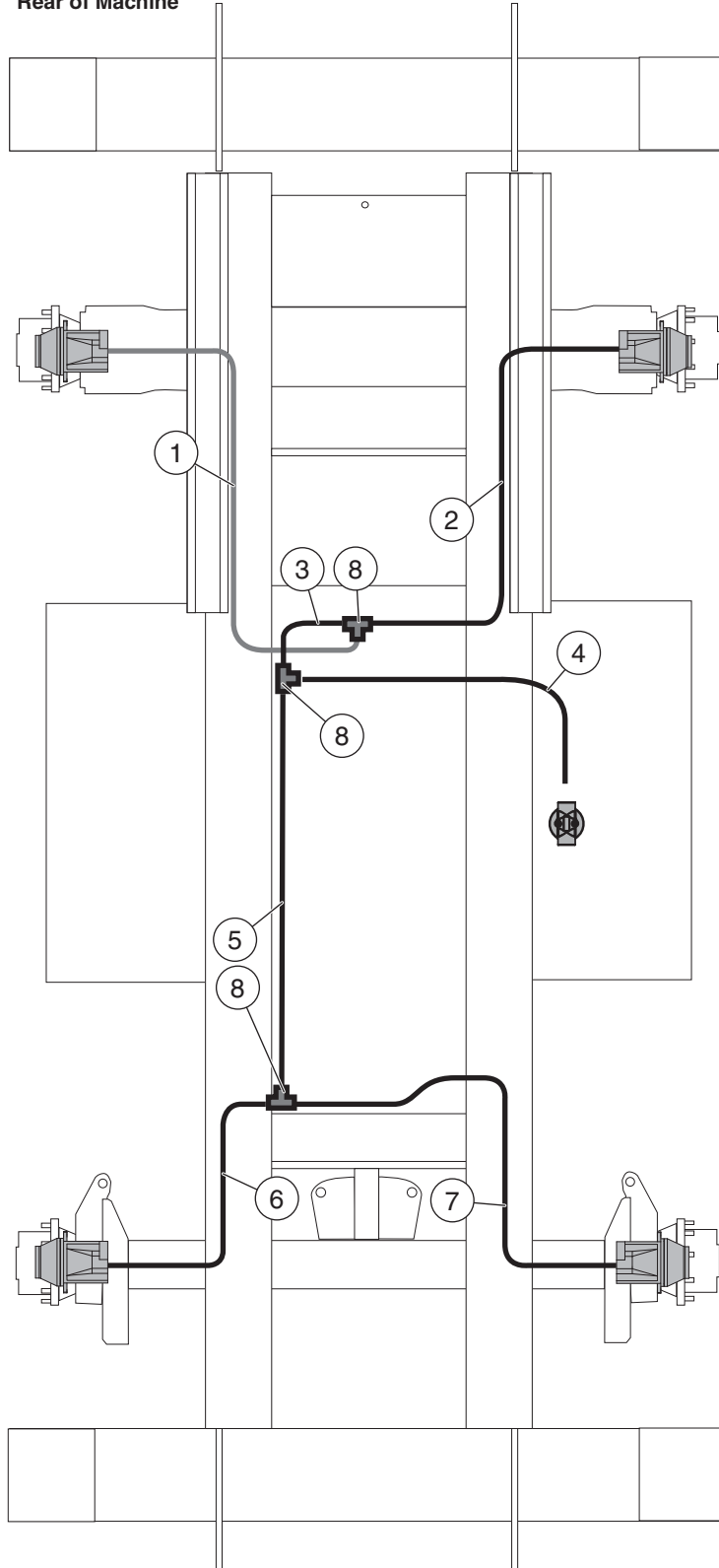
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• INCL: Included with assembly

• NS: Not a Stock item

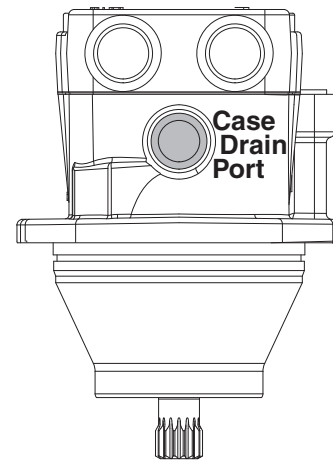
• REF: Reference only

Rear of Machine

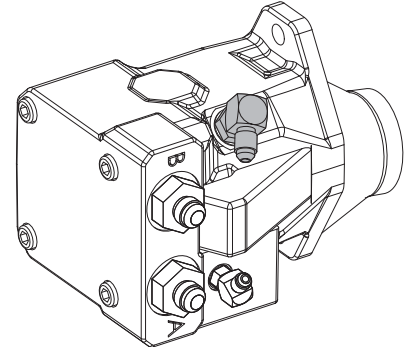


Front of Machine

Wheel Motor, 5492RT, 6092RT,
3392RT-T #13600045~



Wheel Motor, 3392RT-T ~#13600044



Case Drain / Return
Filter Assembly

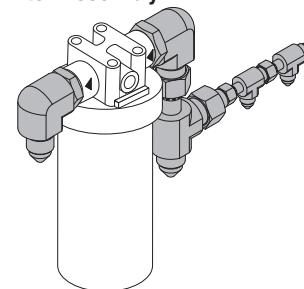


ILLUSTRATION No.
ART_3510

92RT Series

CASE DRAIN CIRCUIT, 1 of 2

Case Drain/Return Circuit, 1 of 2

ITEM	PART NO.	QTY	DESCRIPTION
1	52087	1	Hose Assy, 3/8" x 66", 6G6FJX-6G6FJX90
2	52088	1	Hose Assy, 3/8" x 78", 6G6FJX-6G6FJX
3	52089	1	Hose Assy, 3/8" x 10.5", 6G6FJX-6G6FJX90
4	52090	1	Hose Assy, 3/8" x 30", 6G6FJX-6G6FJX
5	52091	1	Hose Assy, 3/8" x 31.5", 6G6FJX-6G6FJX
6	52092	1	Hose Assy, 3/8" x 82", 6G6FJX-6G6FJX
7	52093	1	Hose Assy, 3/8" x 100", 6G6FJX-6G6FJX
8	50928	3	Fitting MJT-6

... continued



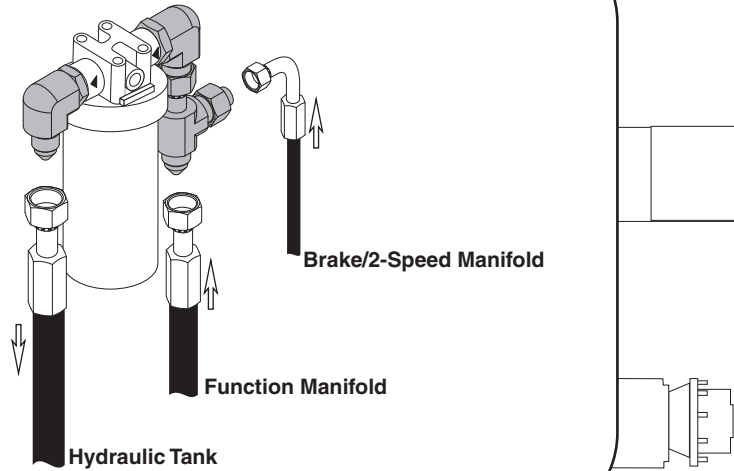
• as req: as required

• INCL: Included with assembly

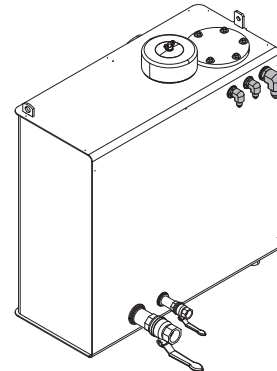
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• REF: Reference only

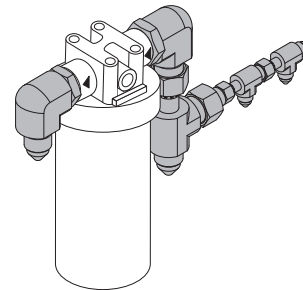
Case Drain Return Filter Connections



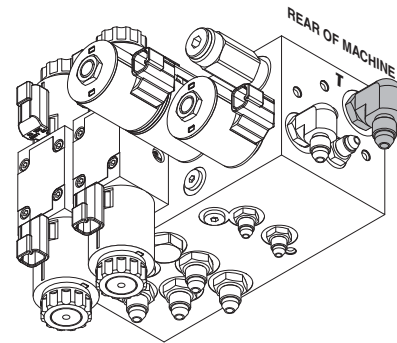
Hydraulic Tank



Case Drain / Return Filter



Function Manifold



Brake/2-Speed Manifold

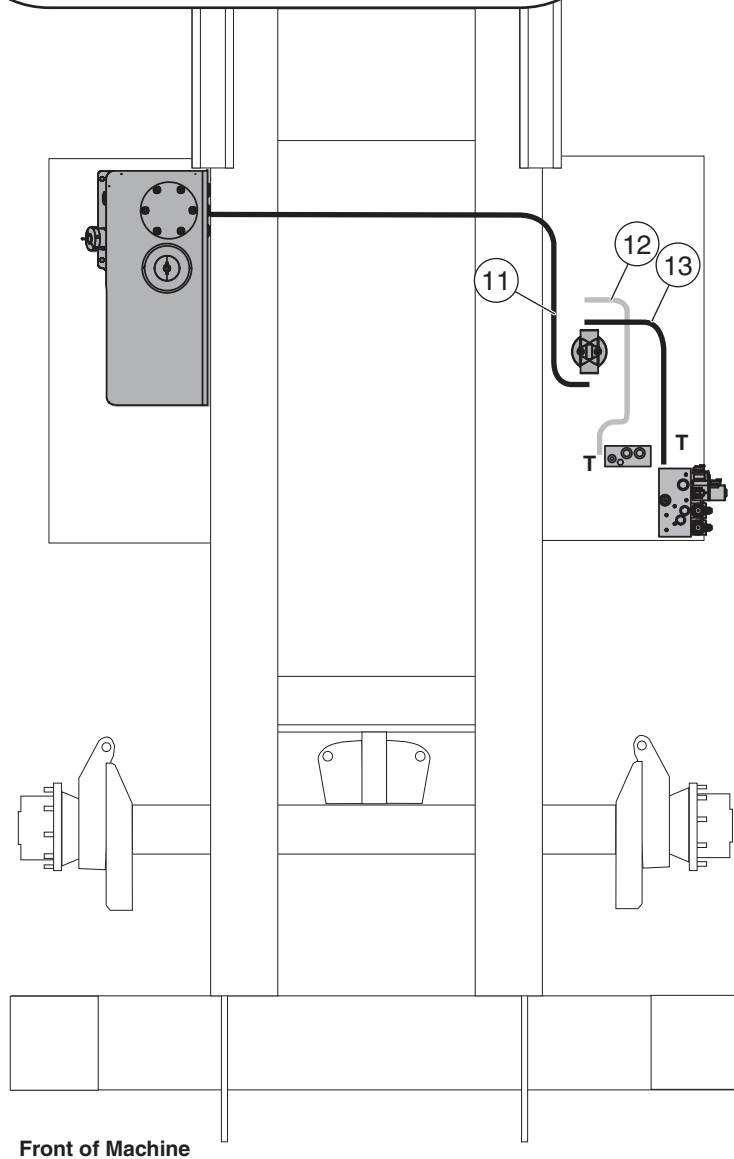
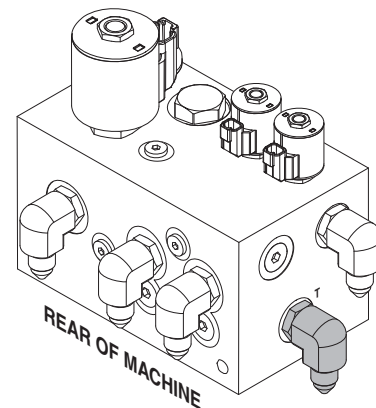


ILLUSTRATION No.
ART_3510

92RT Series

CASE DRAIN CIRCUIT, 2 of 2

Case Drain/Return Circuit, 2 of 2 (continued)

ITEM	PART NO.	QTY	DESCRIPTION
9	--	--	--
10	--	--	--
11	52087	1	Hose Assy, 3/8" x 66", 6G6FJX-6G6FJX90
12	52112	1	Hose Assy, 1/4" x 26", 4G4FJX-4G4FJX
13	52111	1	Hose Assy, 1/2" x 27", 8G6FJX-8G8FJX



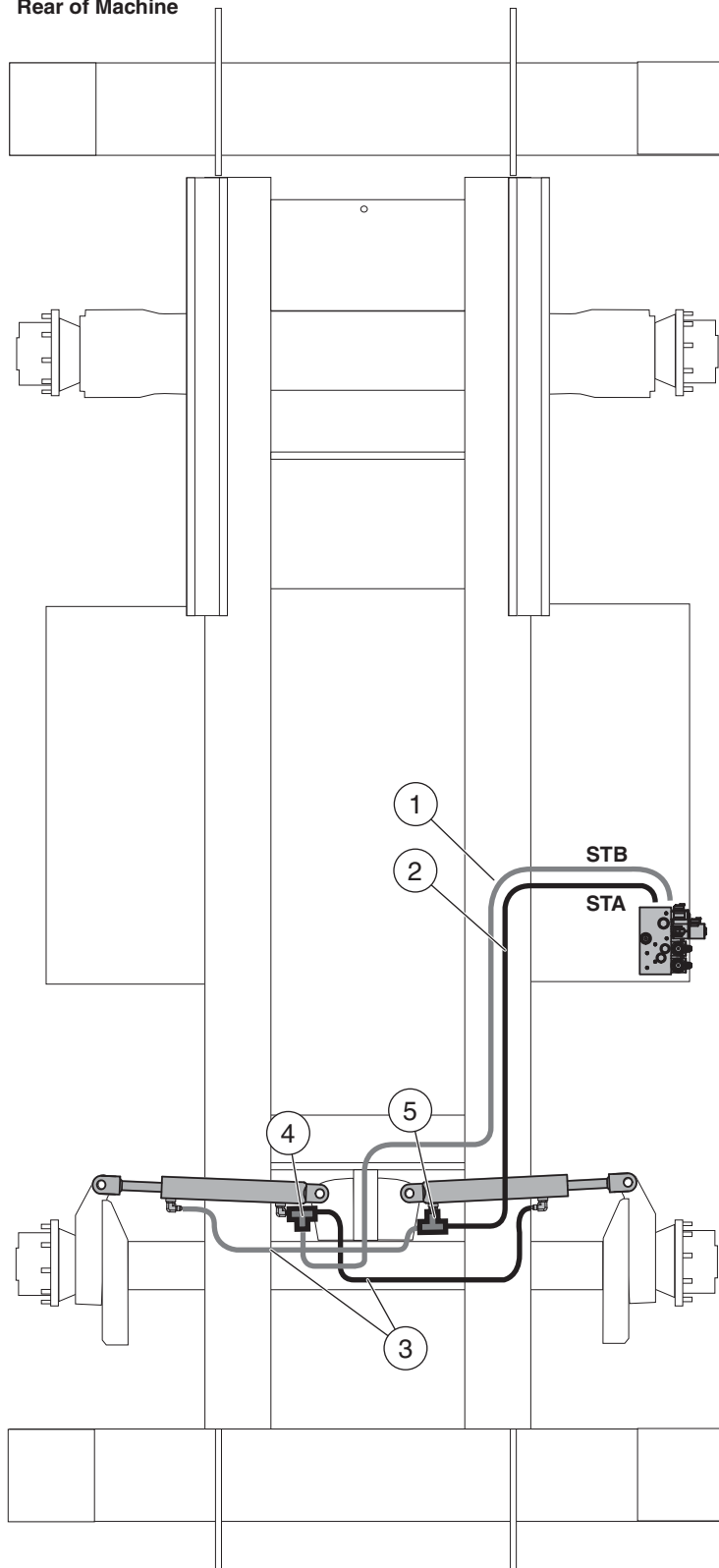
• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

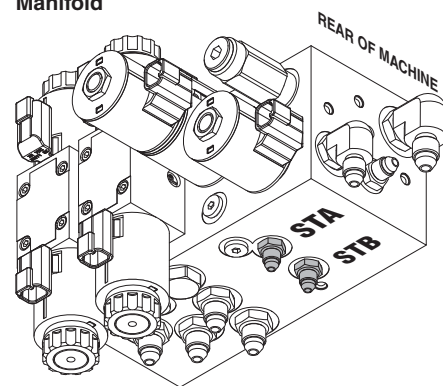
• REF: Reference only

Rear of Machine



Front of Machine

Function
Manifold



Steer
Cylinder

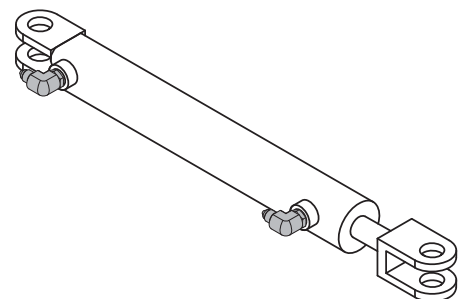


ILLUSTRATION No.
ART_3511

92RT Series

STEER CIRCUIT

Steering Circuit

ITEM	PART NO.	QTY	DESCRIPTION
1	52094	1	Hose Assy, 3/8" x 91.5", 6G6FJX-6G6FJX90
2	52084	1	Hose Assy, 3/8" x 79.5", 6G6FJX-6G6FJX90
3	52095	2	Hose Assy, 3/8" x 29.5", 6G6FJX-6G6FJX
4	50902	1	Fitting, MJ-MJ-FJXT-6
5	50893	1	Fitting, MJ-FJX-MJT-6



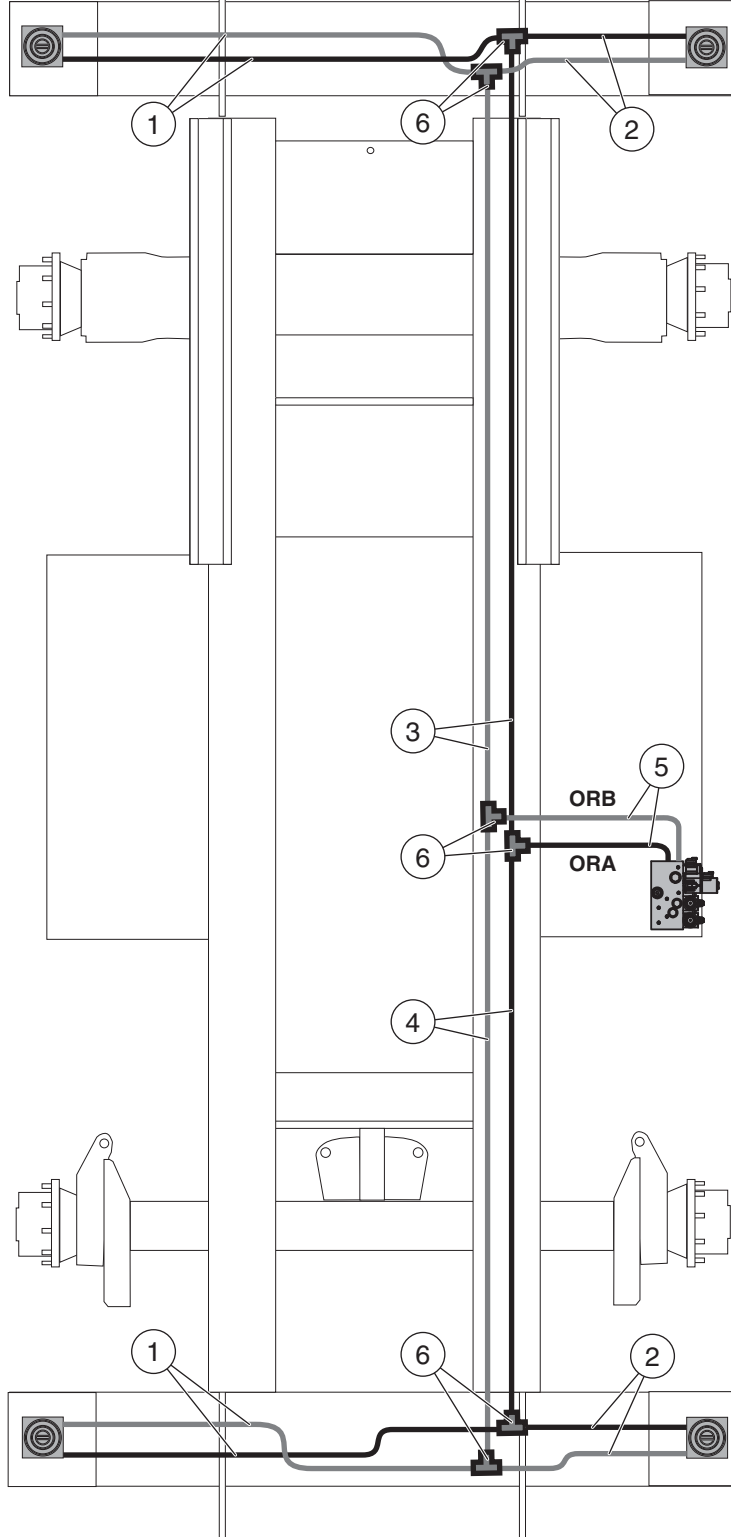
• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

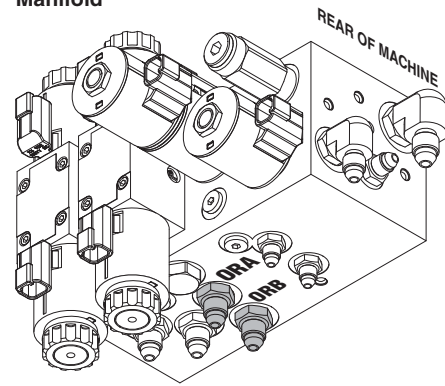
• REF: Reference only

Rear of Machine

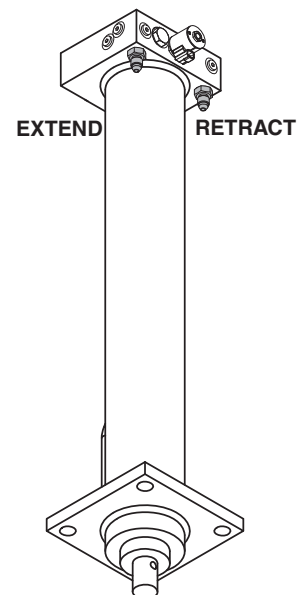


Front of Machine

Function
Manifold



Steer
Cylinder



OUTRIGGER CIRCUIT



ILLUSTRATION No.
ART_3511

92RT Series

Outrigger Circuit

ITEM	PART NO.	QTY	DESCRIPTION
1	52096	1	Hose Assy, 3/8" x 91", 6G6FJX
2	52097	1	Hose Assy, 3/8" x 49", 6G6FJX
3	52098	1	Hose Assy, 3/8" x 99", 6G6FJX
4	52078	1	Hose Assy, 3/8" x 90", 6G6FJX
5	52099	1	Hose Assy, 3/8" x 44", 6G6FJX
6	50928	6	Fitting, MJT-6



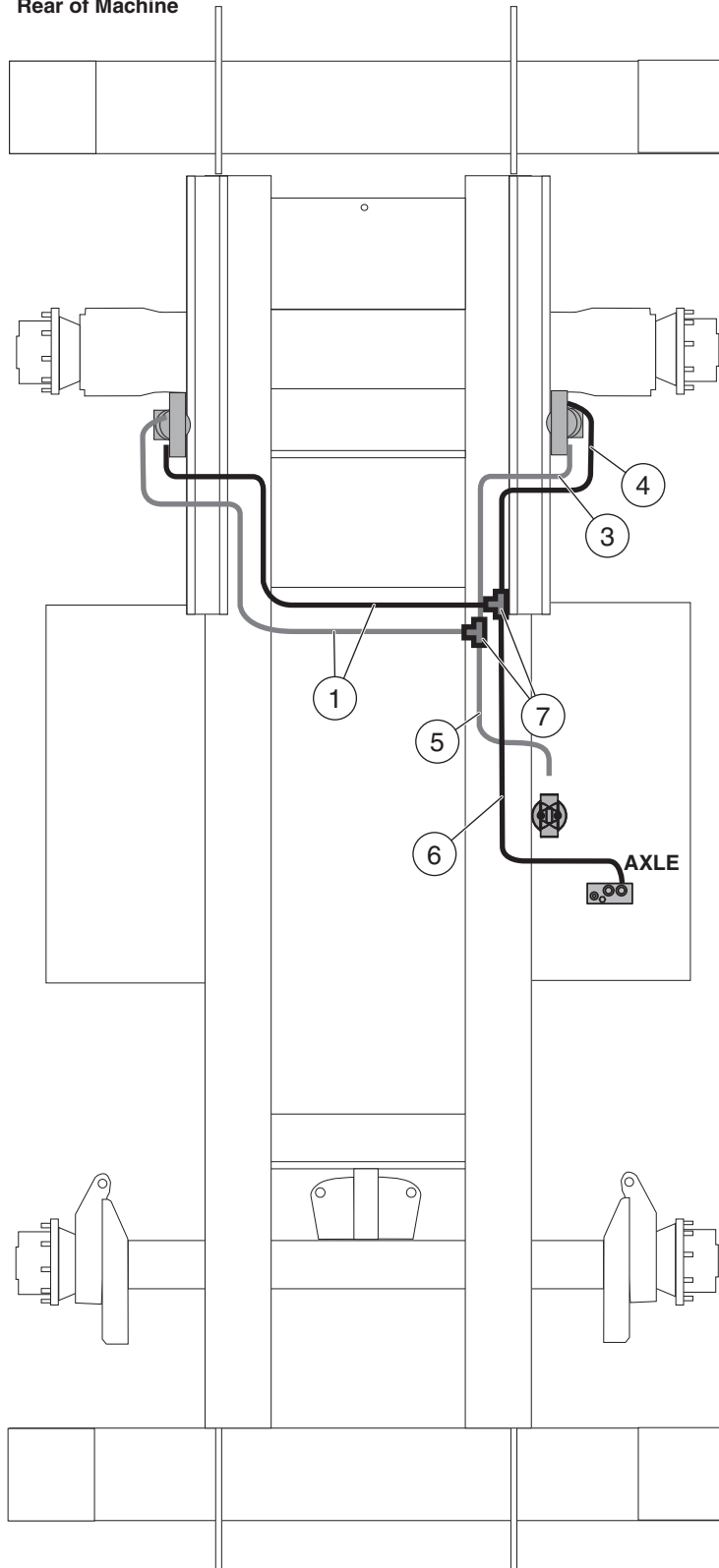
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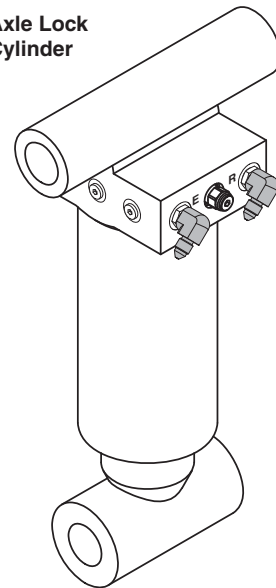
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Rear of Machine

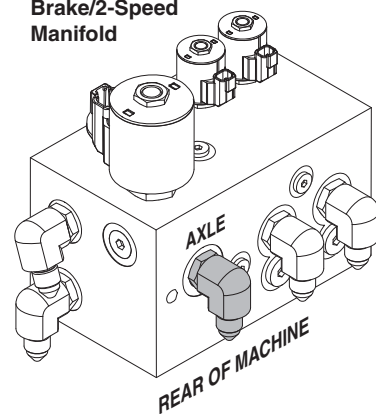


Front of Machine

Axle Lock Cylinder



Brake/2-Speed Manifold



AXLE LOCK CIRCUIT



ILLUSTRATION No.
ART_3509

92RT Series

Axle Lock Circuit

ITEM	PART NO.	QTY	DESCRIPTION
1	52102	2	Hose Assy, 1/4" x 58", 4G4FJX-4G4FJX
2	--	--	--
3	52103	1	Hose Assy, 1/4" x 40", 4G4FJX-4G4FJX
4	52104	1	Hose Assy, 1/4" x 43", 4G4FJX-4G4FJX
5	52105	1	Hose Assy, 1/4" x 60", 4G4FJX-4G4FJX
6	52106	1	Hose Assy, 1/4" x 54", 4G4FJX-4G4FJX
7	50927	2	Fitting, MJT-4



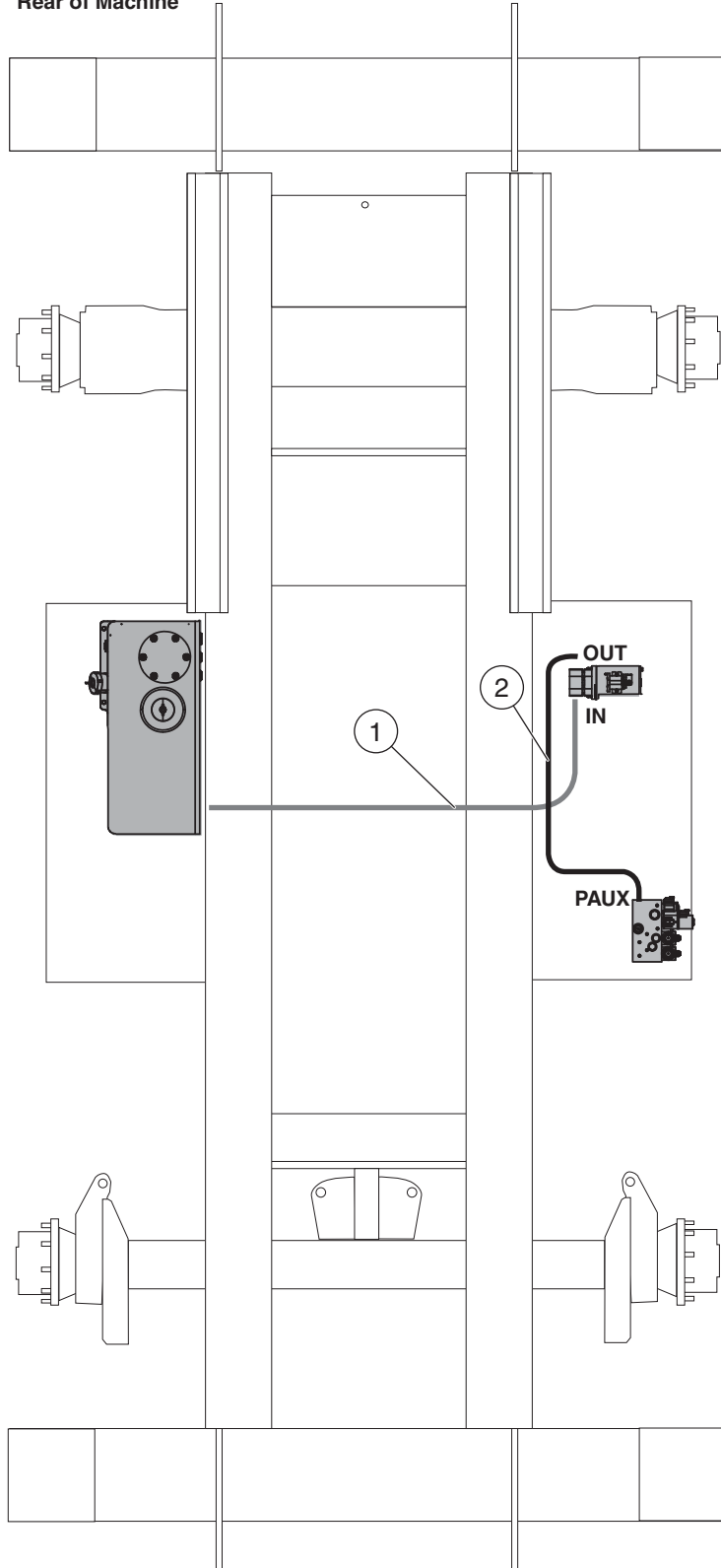
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• NS: Not a Stock item

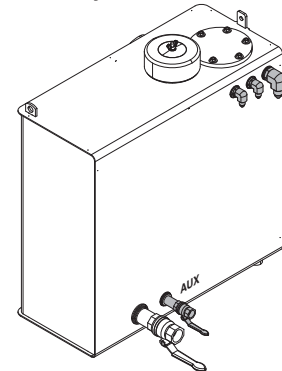
• REF: Reference only

Rear of Machine

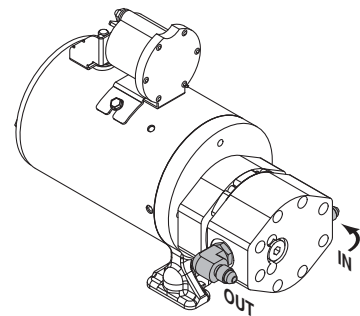


Front of Machine

Hydraulic Tank



Auxillary Power Unit



Function Manifold

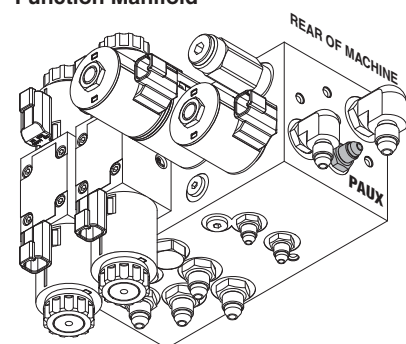


ILLUSTRATION No.
ART_3514

92RT Series

AUXILLARY DOWN CIRCUIT

Auxiliary Down Circuit, 5492RT, 3392RT-T only

ITEM	PART NO.	QTY	DESCRIPTION
1	52100	1	Hose Assy, 3/8" x 60",6G6FJX-6G6FJX
2	52101	1	Hose Assy, 3/8" x 54",6G6FJX-6G6FJX90



• as req: as required

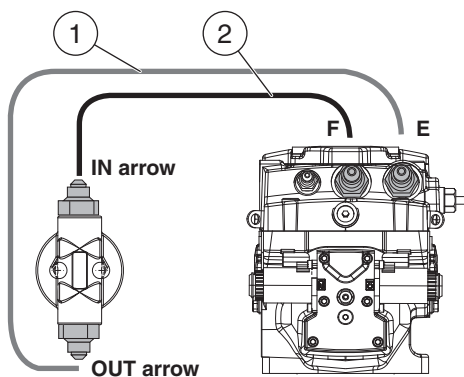
• INCL: Included with assembly

• NS: Not a Stock item

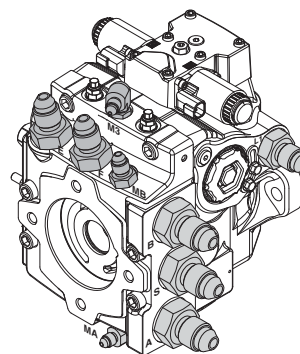
• REF: Reference only

Rear of Machine

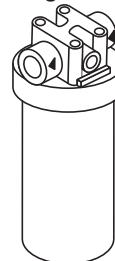
Charge Filter Detail



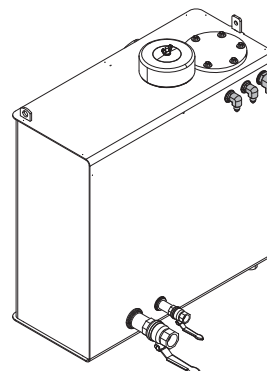
Drive Pump



Charge Filter



Hydraulic Tank



Front of Machine

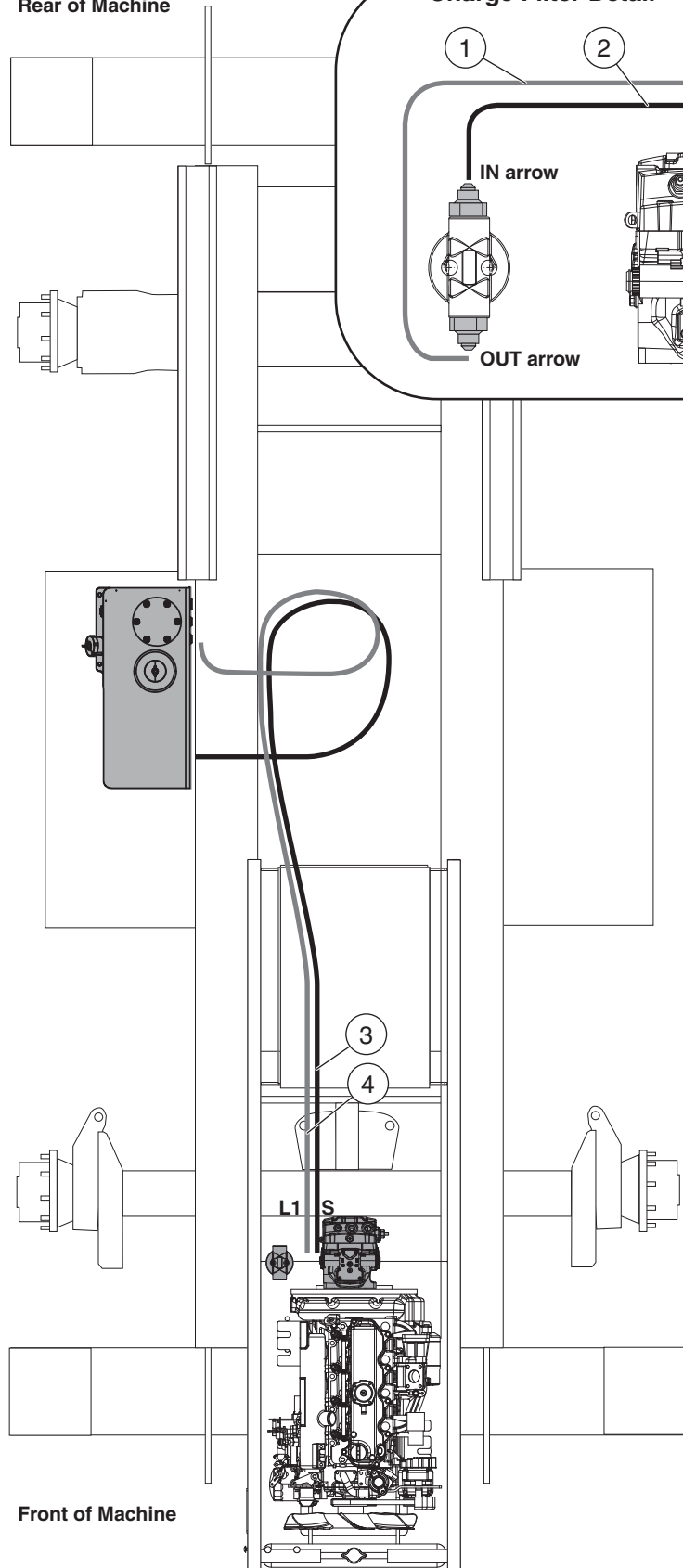


ILLUSTRATION No.
ART_3515

92RT Series

DRIVE PUMP HOSES, 1 of 2

Drive Pump Hoses, 1 of 3

ITEM	PART NO.	QTY	DESCRIPTION
1	52107	1	Hose Assy, 1/2" x 44", 8G8FJX-8G8FJX90
2	52108	1	Hose Assy, 1/2" x 40", 8G8FJX-8G8FJX90
3	52110	1	Hose Assy, 1-1/4" x 121", 20G20FJX-20G20FJX90
4	52109	1	Hose Assy, 1/2" x 177", 8G8FJX-8G8FJX

... continued



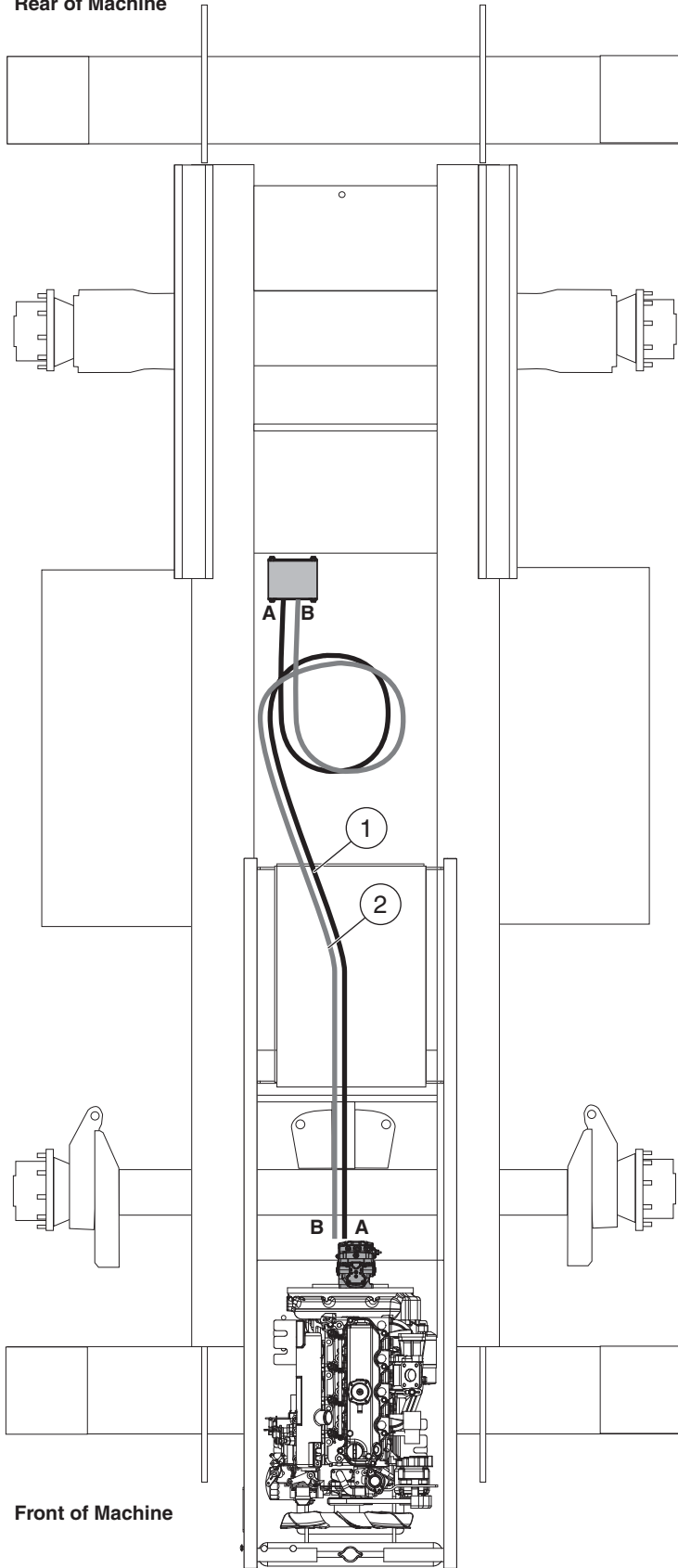
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• NS: Not a Stock item

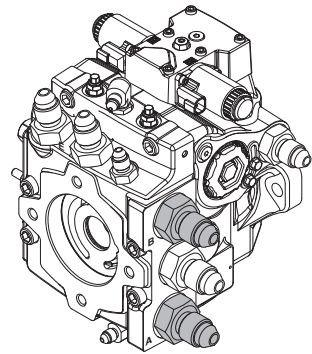
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Rear of Machine



Front of Machine

Drive Pump



Traction Manifold

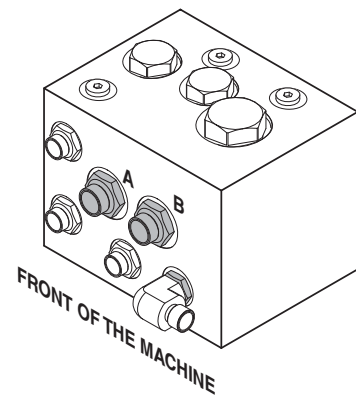


ILLUSTRATION No.
ART_3517

92RT Series

DRIVE PUMP HOSES, 2 of 3

Drive Pump Hoses, 2 of 3 (continued)

ITEM	PART NO.	QTY	DESCRIPTION
1	52072	1	Hose Assy, 3/4" x 133", 12G12FFORX-12G12FFORX90
2	52073	1	Hose Assy, 3/4" x 139", 12G12FFORX-12G12FFORX90

... continued



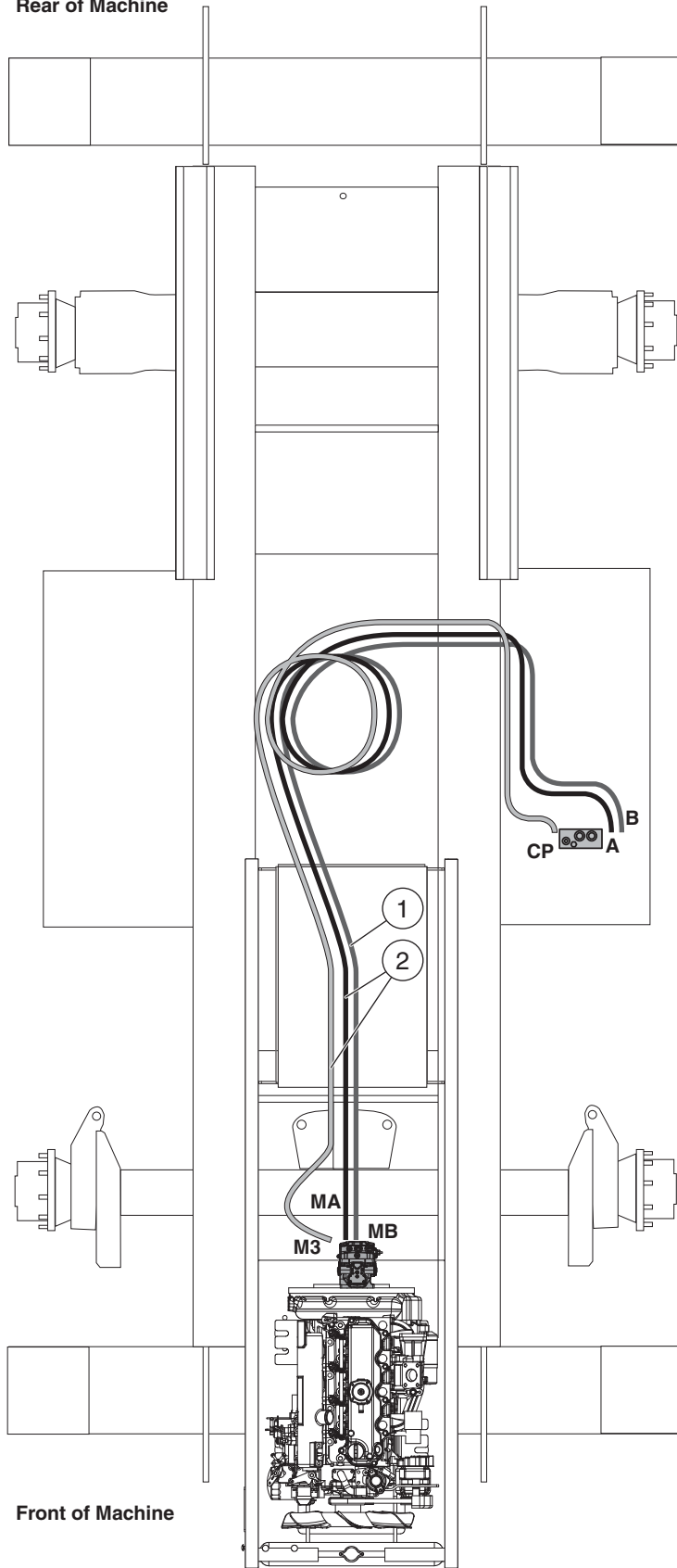
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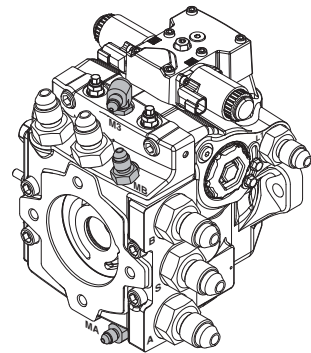
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Rear of Machine

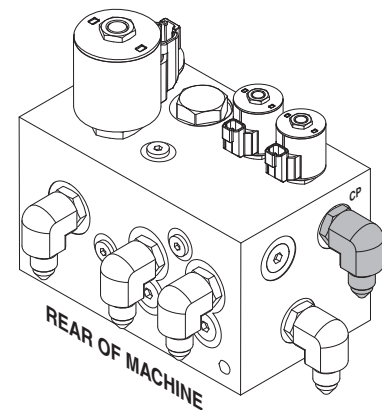
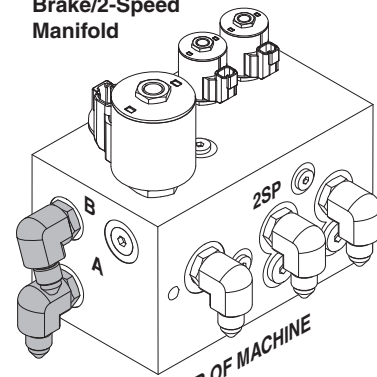


Front of Machine

Drive Pump



Brake/2-Speed Manifold



Drive Pump Hoses, 3 of 3 (continued)

ITEM	PART NO.	QTY	DESCRIPTION
1	52074	1	Hose Assy, 1/4" x 150", 4G4FJX-4G4FJX
2	52075	2	Hose Assy, 1/4" x 150", 4G4FJX-4G4FJX90



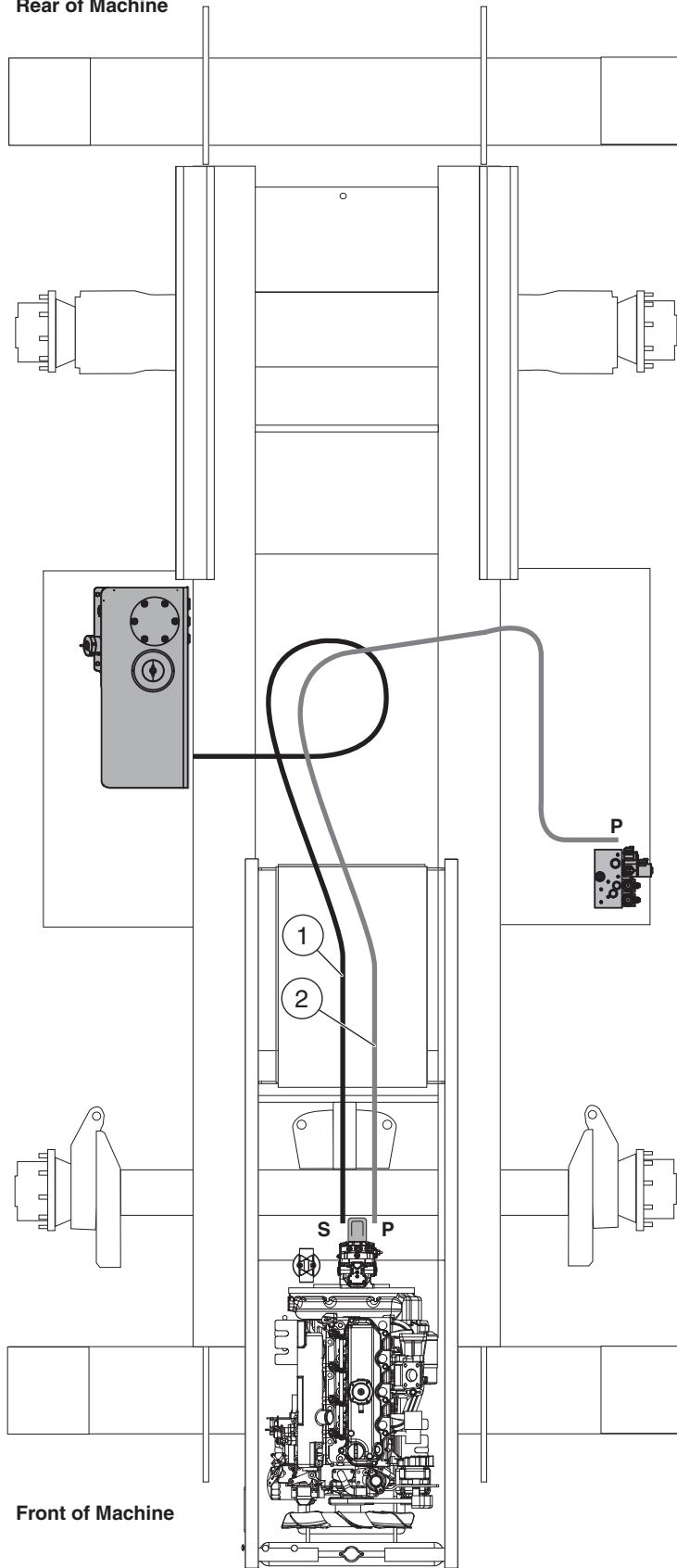
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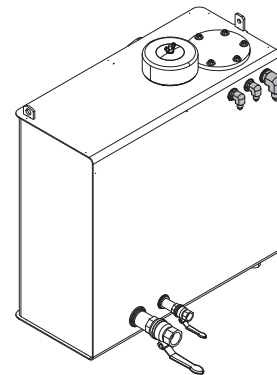
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Rear of Machine

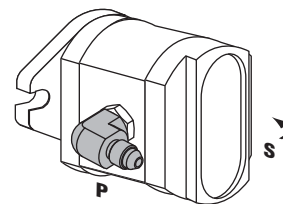


Front of Machine

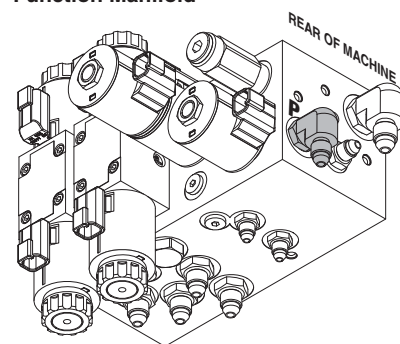
Hydraulic Tank



Function Pump



Function Manifold



FUNCTION PUMP CIRCUIT



ILLUSTRATION No.
ART_3516

92RT Series

Function Pump Circuit

ITEM	PART NO.	QTY	DESCRIPTION
1	52076	1	Hose Assy, 3/4" x 126", 12GFJX-12GFJX
2	52077	1	Hose Assy, 1/2" x 160", 8GFJX-8GFJX



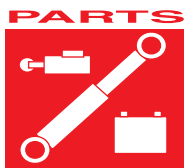
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• NS: Not a Stock item

• REF: Reference only

NOTES:



SECTION F

BASE

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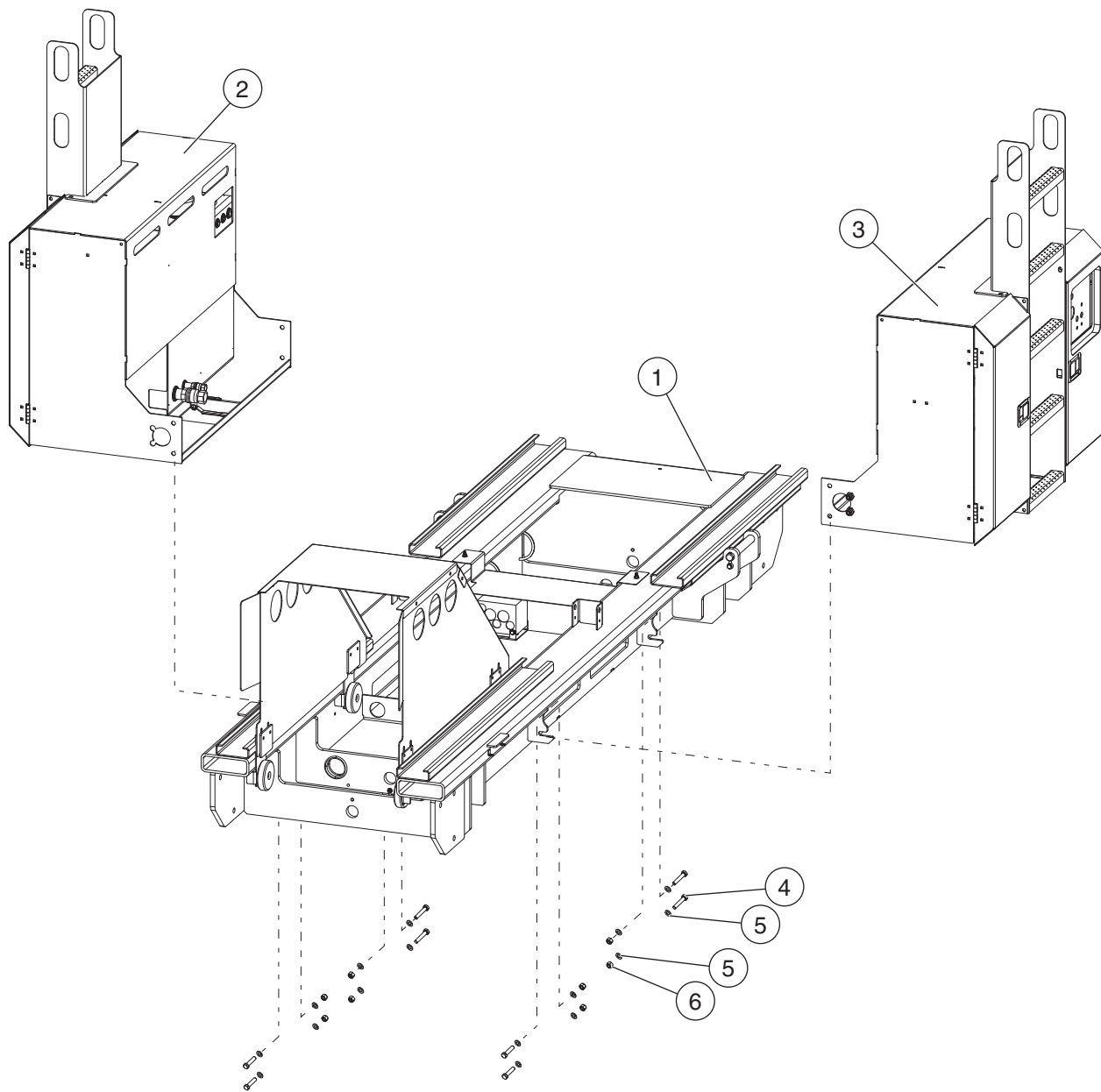


ILLUSTRATION No.
ART_3328

92RT Series

Chassis/Modules

Module Installation

ITEM	PART NO.	QTY	DESCRIPTION
1	REF	1	Chassis Assembly
2	REF	1	Fluids/Tank Module
3	REF	1	Controls Module
4	50032	8	Bolt, M8 x 30
5	50061	16	Washer, M8 Std
6	50048	8	Nut, M8 Nylock

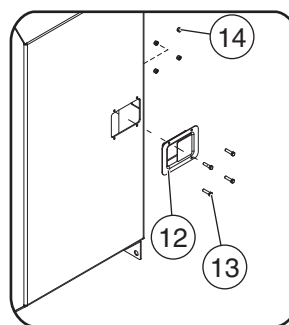
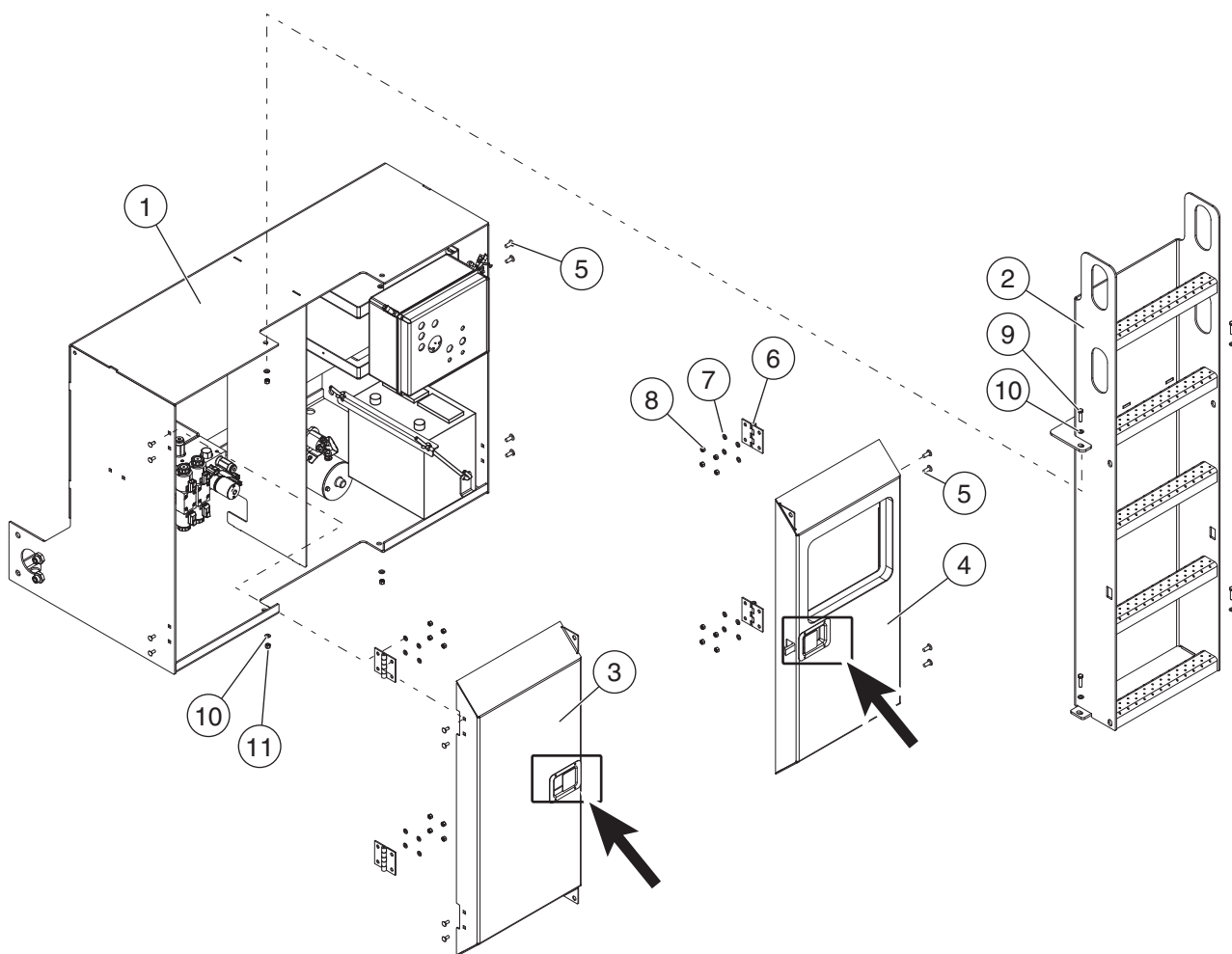


• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



**Typical
Assembly x2**

Control Module, Drawing 1 of 2

ITEM	PART NO.	QTY	DESCRIPTION
1	17456	1	Cabinet Weldment
2	17116	1	5492RT, 6092RT -- Ladder Weldment
	17545	1	3392RT-T -- Ladder Weldment
3	17319	1	Module Door Weldment
4	17485	1	Module Door Weldment
5	50225	16	Bolt, Carriage, M8 x 20
6	17968	4	Hinge, Door
7	50001	16	Washer, M8 Std
8	50048	16	Nut, M8 Nylock
9	50039	4	Bolt, M12 x 30
10	50003	8	Washer, M12 Std
11	50050	4	Nut, M12 Nylock
12	17952	2	Door Latch
13	50321	8	Screw, M4 x 10
14	50285	8	Nut, M4 Nylock
15	--	--	--
16	--	--	--
17	--	--	--
18	--	--	--



• as req: as required

• INCL: Included with assembly

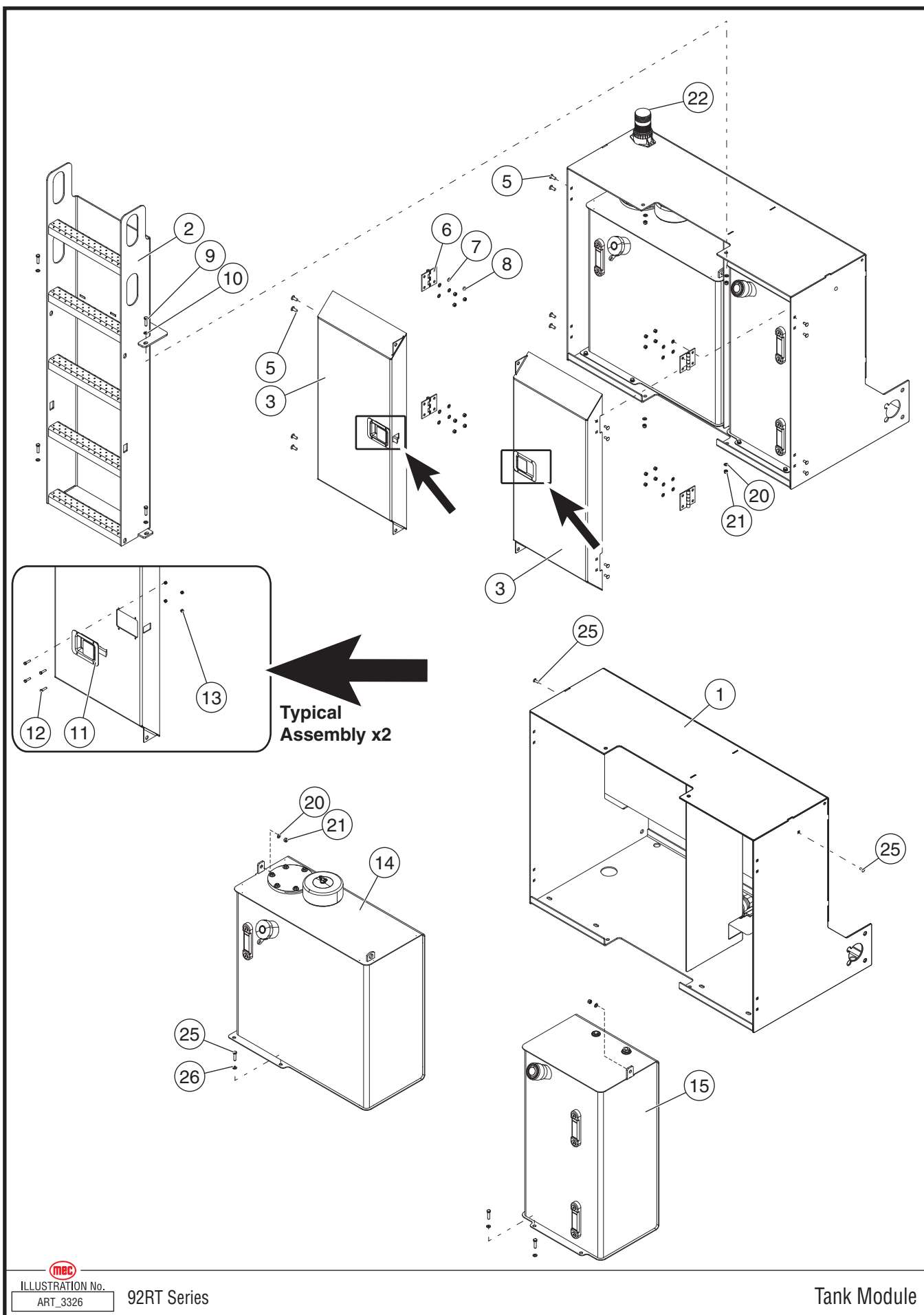
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• REF: Reference only



Control Module, Drawing 2 of 2

ITEM	PART NO.	QTY	DESCRIPTION
--	84103	--	Control Module Assembly
19	REF	1	Hydraulic Fluid Filter -- See Section E
20	REF	1	Brake Manifold -- See Section E
21	17351	1	Manifold Bracket
22	REF	1	Main Valve Manifold -- See Section E
23	17349	2	Control Box Bracket
24	REF	1	Chassis Controls -- See Section A
25	REF	1	Battery -- See See "Wiring Harness & Electrical Components" on Page E-25.
26	17475	1	Bracket, Battery Hold-Down
27	HDW6110	2	Wing Nut
28	22563	2	J-Bolt, Battery Hold-Down
29	17476	2	Mount, Battery Hold-Down
30	REF	1	Hydraulic Pump, Auxiliary Power -- See Section E
31	REF	--	3392RT-T ~#13600044 only -- 2-Speed Valve -- See Section E
32	50117	7	Bolt, M6 x 25
33	50000	14	Washer, M6 Std
34	50047	7	Nut, M6 Nylock
35	50018	4	Bolt, M8 x 80
36	50275	2	Bolt, 3/8-16 x 1.0
37	50131	2	Washer, 3/8 std
38	50109	6	Bolt, 5/16-18 x .75
39	50350	6	Washer, 5/16 std
40	50289	4	Screw, M6 x 40
41	92782	1	Beacon Light (option)
42	--	--	--
43	50048	4	Nut, M8 Nylock
44	--	--	--
45	50039	2	Bolt, M12 x 30
46	50003	2	Washer, M12 Std



Tank Module

ITEM2	PART NO.	QTY	DESCRIPTION
--	84104	--	Tank Module
1	17456	1	Cabinet Weldment
2	17116	1	5492RT, 6092RT -- Ladder Weldment
	17545	1	3392RT-T -- Ladder Weldment
3	17319	2	Module Door Weldment
4	--	--	--
5	50225	16	Bolt, Carriage, M8 x 20
6	17968	4	Hinge, Door
7	50001	16	Washer, M8 Std
8	50048	16	Nut, M8 Nylock
9	50039	4	Bolt, M12 x 30
10	50003	8	Washer, M12 Std
11	17952	2	Door Latch
12	50321	8	Screw, M4 x 10
13	50285	8	Nut, M4 Nylock
14	REF	1	Tank, Hydraulic -- See Section E
15	88002	1	Fuel Tank Assembly
--	17843	1	Fuel Tank Weldment
--	92480	1	Filler Cap, Fuel Tank
--	92479	2	Sight Gauge
16	17410	1	Ball Valve, 3/4"
17	17409	1	Pipe Nipple, 3/4" x 2.00"
18	17407	1	Valve, 1-1/4"
19	17408	1	Pipe Nipple, 1-1/4" x 2.5"
20	50000	9	Washer, M6 Std
21	50047	9	Nut, M6 Nylock
22	92782	1	Beacon Light (option)
23	--	--	--
24	--	--	--
25	50214		Bolt, M6 x 30

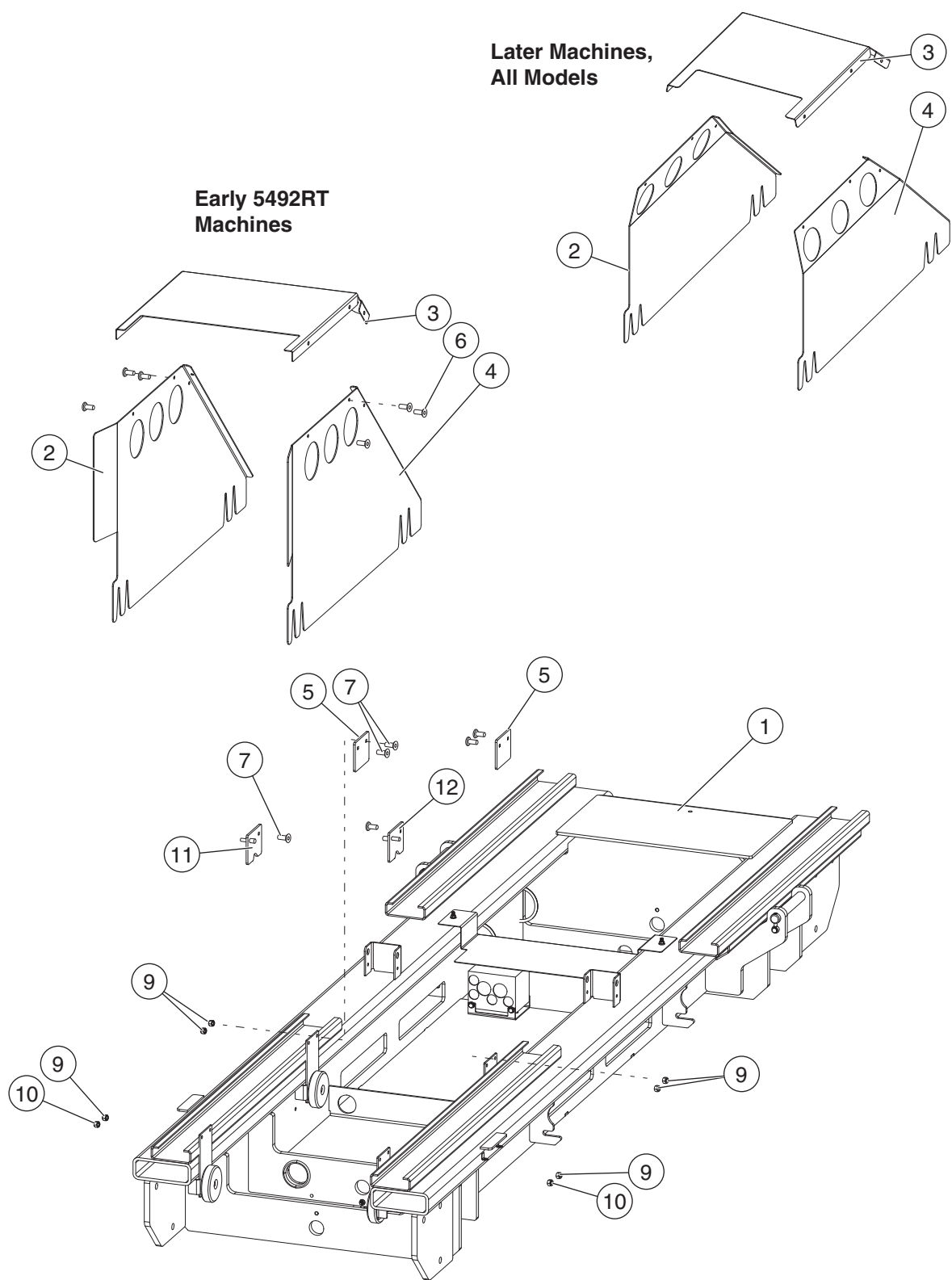


ILLUSTRATION No.
ART_3333

92RT Series

ENGINE ENCLOSURE

Engine Enclosure

ITEM	PART NO.	QTY	DESCRIPTION
1	REF	--	Chassis Assembly
Early 5492RT, Early 3392RT-T Machines			
2	17604	1	Engine Cover, Right Side
3	17606	1	Engine Cover, Top
4	17605	1	Engine Cover, Left Side
Later Machines, All Models			
2	17572	1	Engine Cover, Right Side
3	17571	1	Engine Cover, Top
4	17573	1	Engine Cover, Left Side
5	17607	4	Clamp Plate, Engine Cover
6	50030	6	Bolt, M8 x 20
7	50204	6	Bolt, Carriage 5/16 x 1
8	--	--	--
9	50203	8	Nut, 5/16 Nylock
10	50048	2	Nut, M8 Nylock
11	17734	1	Clamp Plate
12	17735	1	Clamp Plate

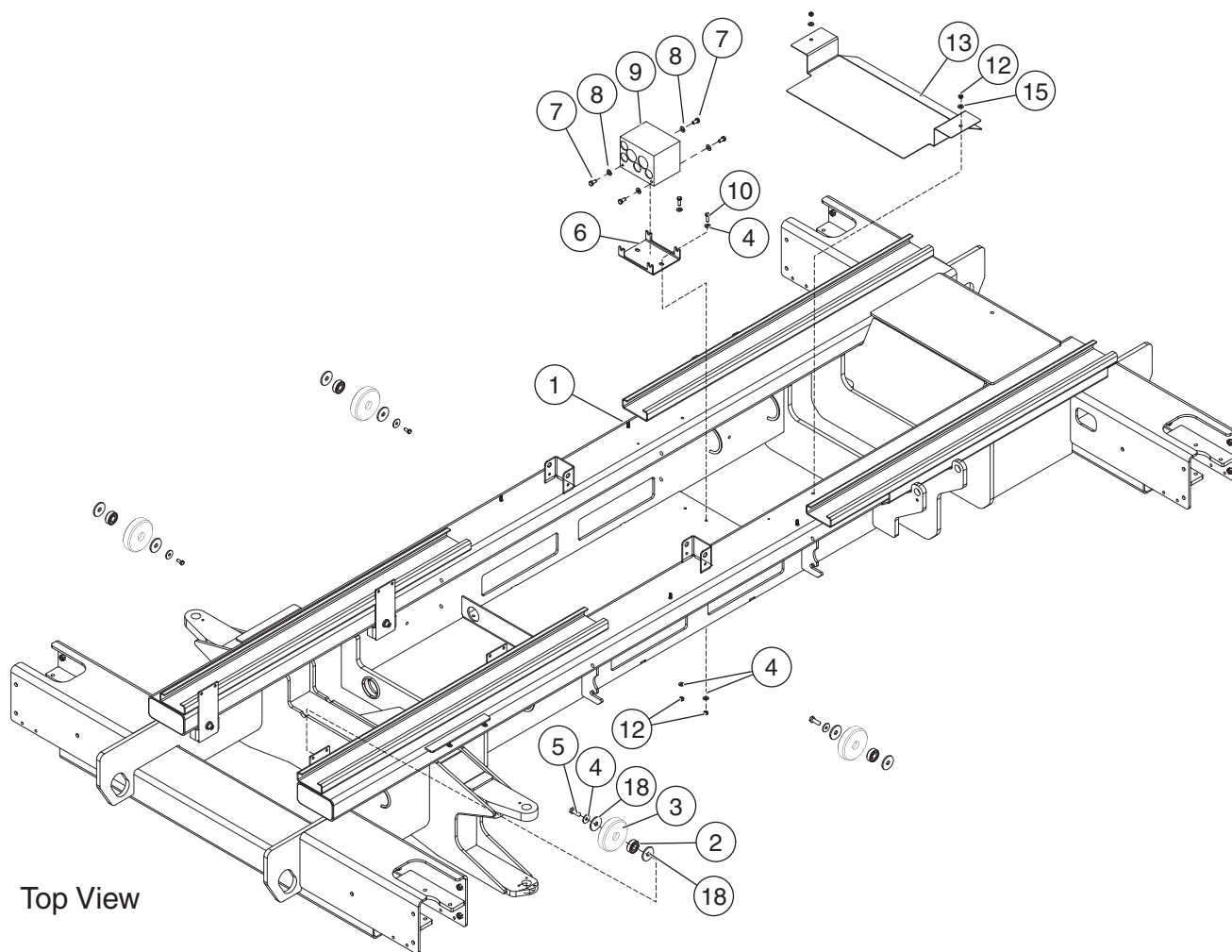


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• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



Top View

Bottom View

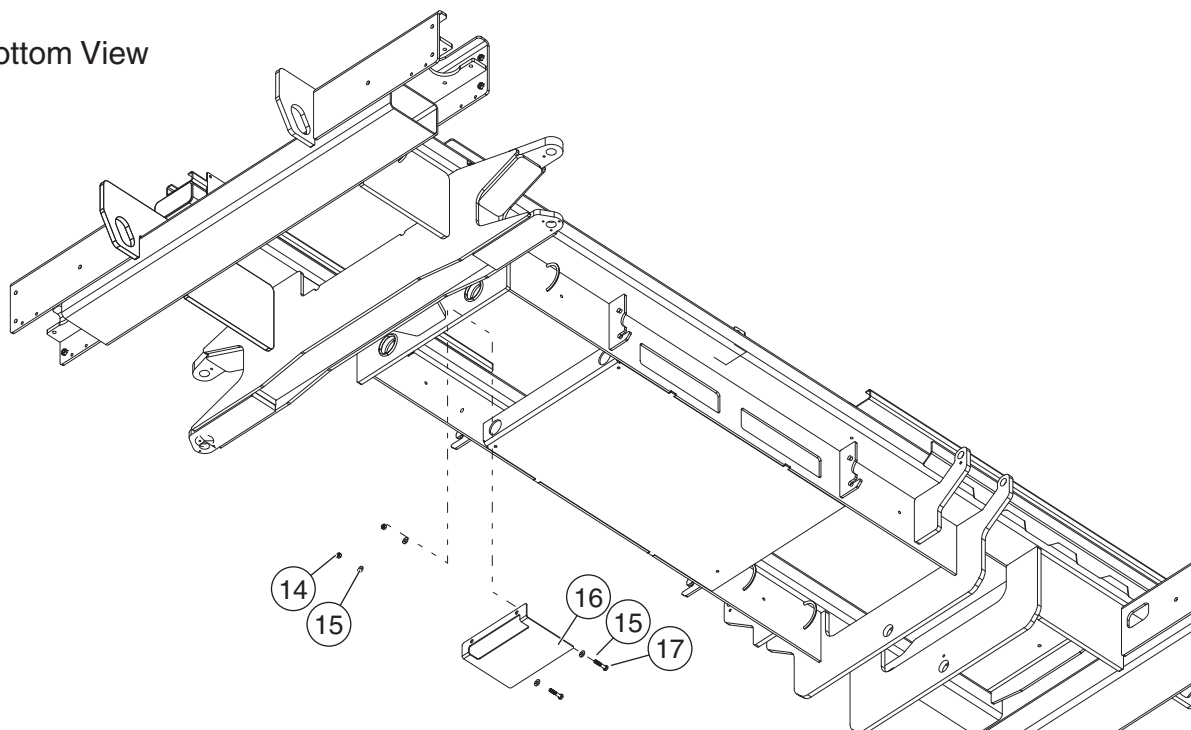


ILLUSTRATION No.
ART_3317

92RT Series

CHASSIS

Chassis Assembly

ITEM	PART NO.	QTY	DESCRIPTION
--	--	--	Chassis Assembly
1	17182	1	Early 5492RT with bolt-on outriggers -- Chassis Weldment
	17862	1	Later 5492RT, all 3392RT-T, 6092RT -- Chassis Weldment
2	91593	4	Bearing, .75" id x 1.7813" od x .6094 w
3	17495	4	Tray Roller
4	50001	8	Washer, M8 Std
5	50030	8	Bolt, M8 x 20
6	17363	1	Bracket, Traction Valve Block
7	50219	4	Bolt, 3/8-16 x .75
8	50131	4	Washer, 3/8" ZP
9	REF	1	5492RT, 3392RT-T ~#13600044 -- Traction Manifold -- See Section E
10	--	--	--
11	--	--	--
12	50048	6	Nut, M8-1.25 Nylock
13	17715	1	5492RT, 3392RT-T ~#13600044 -- Cover Plate
	17996	1	6092RT, 3392RT-T #13600045~ -- Cover Plate (differs in appearance to what is shown)
14	--	--	--
15	50001	6	Washer, M8 ZP
16	17717	1	Exhaust Deflector
17	50014	2	Bolt, HHCS, M8-1.25 x 40
18	50005	8	Washer, M20 Std



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

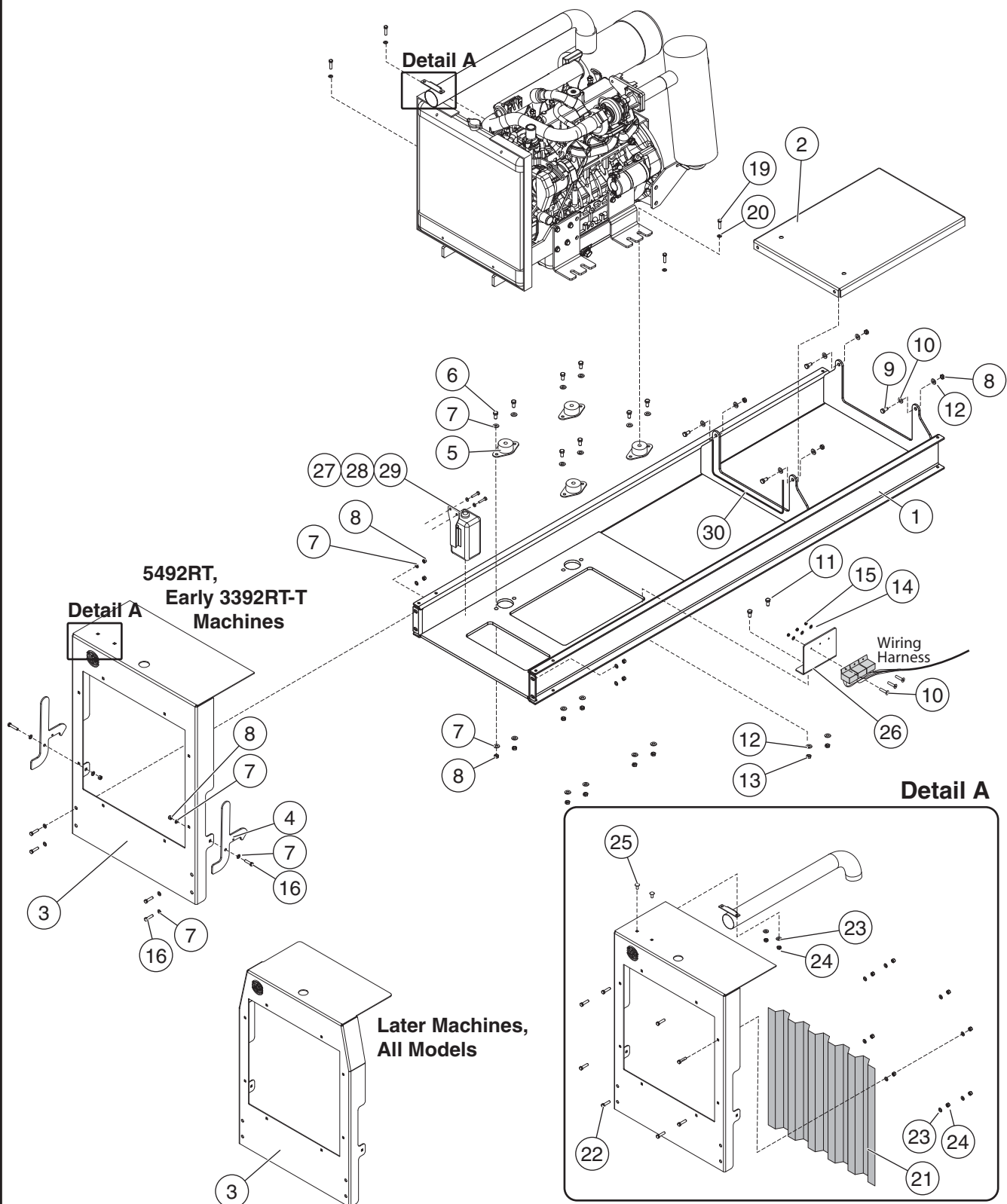


ILLUSTRATION No.
ART_3323

92RT Series

ENGINE TRAY

Engine Tray Assembly

ITEM	PART NO.	QTY	DESCRIPTION
--	84108	--	Engine Tray Assembly
1	17320	1	Engine Tray Weldment
2	17352	1	Cover, Interior Hose Guard
3	17100	1	5492RT, 3392RT-T ~#13600044 -- Radiator Support Mount
	17570	1	6092RT, 3392RT-T #13600045~ -- Radiator Support Mount
4	17108	2	Engine Tray Release
	91906	2	Spring (not shown)
5	17969	4	Engine Mount
6	50033	8	Bolt, M10 x 25
7	50002	16	Washer, M10 Std
8	50049	18	Nut, M10 Nylock
9	50215	4	Bolt, M10 x 20
10	50191	2	Screw, 10-32 Truss Head
11	50117	2	Bolt, M6 x 25
12	50000	2	Washer, M6 Std
13	50047	2	Nut, M6 Nylock
14	50284	3	Washer, #12
15	50238	3	Nut, 10-32 Nylock
16	50370	6	Bolt, BHCS M10 x 30
17	11870386	2	Spacer
18	50050	4	Nut, M12 Nylock
19	50036	4	M12 x 50
20	50003	4	M12 Std
21	17680	1	Radiator Grill
22	50225	8	Bolt, Carriage, M8 x 20
23	50001	8	Washer, M8 Std
24	50305	8	Nut, M8 Nylock
25	50225	2	Bolt, Carriage, M8 x 20
26	17574	1	Bracket, Relay Mount
--	17575	1	Cover (not shown)
27	91127	1	Coolant Overflow Tank
28	50028	2	Screw, M6 x 29
29	50047	2	Nut, M6 Nylock
30	92535	50"	Trimlock



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

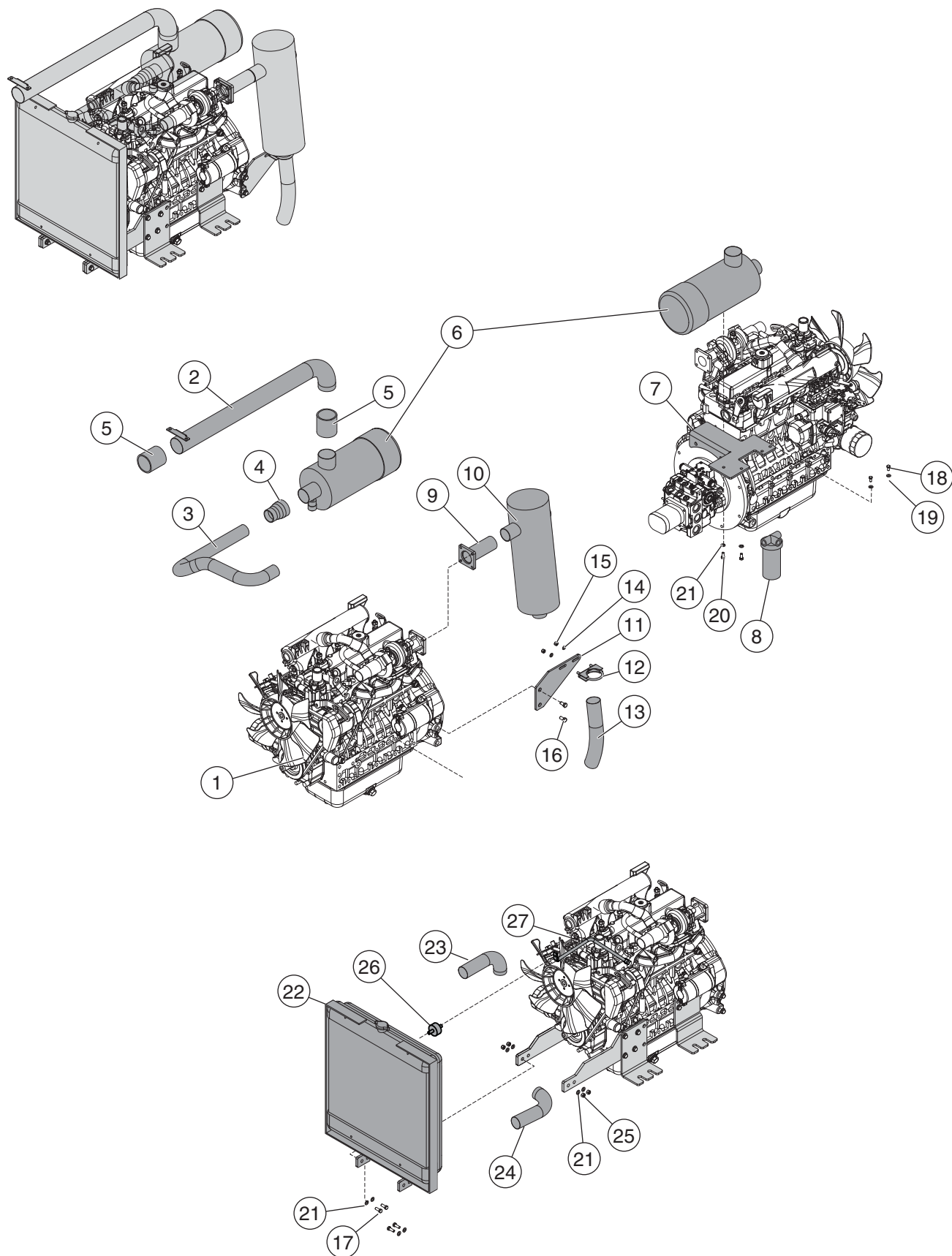


ILLUSTRATION No.
ART_3324

92RT Series

ENGINE & COMPONENTS, #1 of 3

Engine Components, Drawing 1 of 3

ITEM	PART NO.	QTY	DESCRIPTION
1	17964	1	Engine, Kubota V2403-T
2	17619	1	Intake Tube Weldment
3	17675	1	Turbo Tube Intake
4	17676	1	Hose Adapter
5	17677	2	Hose, Intake
--	91935	3	Hose Clamp
6	92474	1	Air Filter Assembly
--	92181		Air Filter Element
7	17467	1	Mounting Bracket, Air Filter/Charge Filter
8	REF	1	Charge Filter Assembly -- See Section E
9	17635	1	Engine Exhaust Weldment
10	17627	1	Muffler
11	17630	1	Muffler Mounting Plate
12	17637	1	Muffler Clamp, 5/16" x 1-1/8"
13	17636	1	Exhaust Extension
14	50061	2	Washer, 5/16 Std
15	50203	2	Nut, 5/16-18 Nylock
16	50319	2	Bolt, M14 x 30
17	50030	4	Bolt, M8-1.0 x 20
18	50219	2	Bolt, 3/8-16 x .75
19	50006	2	Washer, M10 Nordlock
20	50030	2	Bolt, M8-1.25 x 20
21	50001	2	Washer, M8 Std
22	92186	1	Radiator Assembly
23	92468	1	Upper Radiator Hose
24	92469	1	Lower Radiator Hose
25	50305	4	Nut, M8 Nylock
26	91591	2	Mount, Rubber
--	50047	2	Nut, M6 Nylock (not shown)
27	18257	1	Radiator Support
28	--	--	--



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

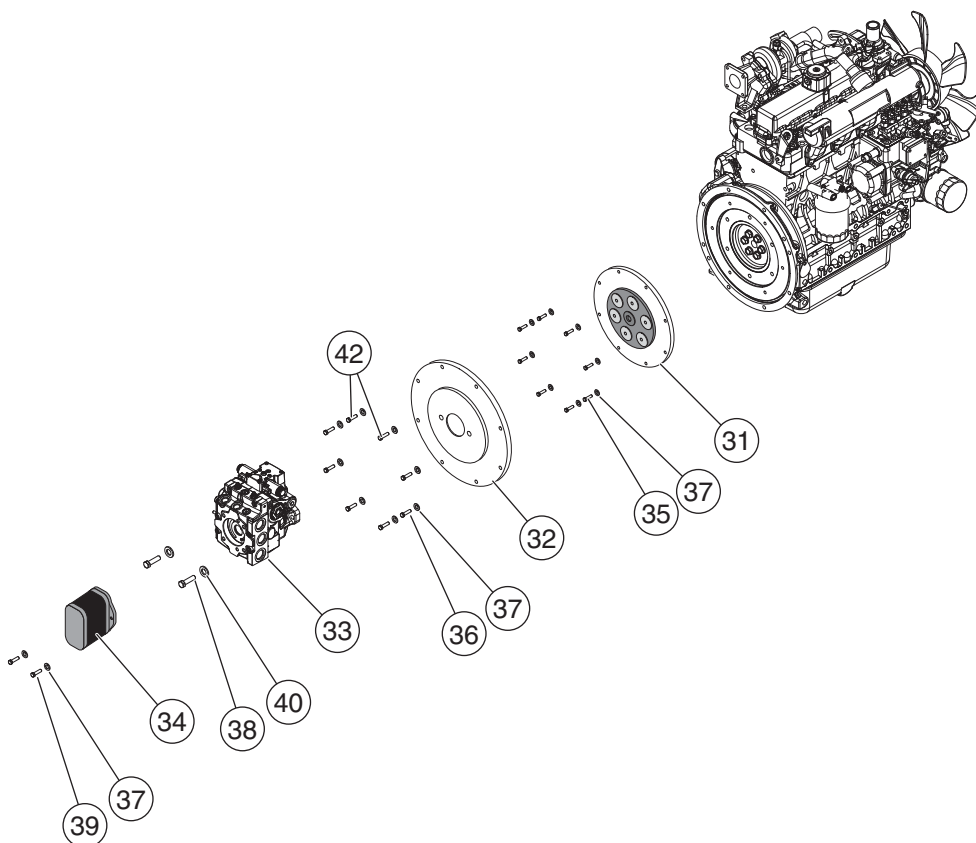
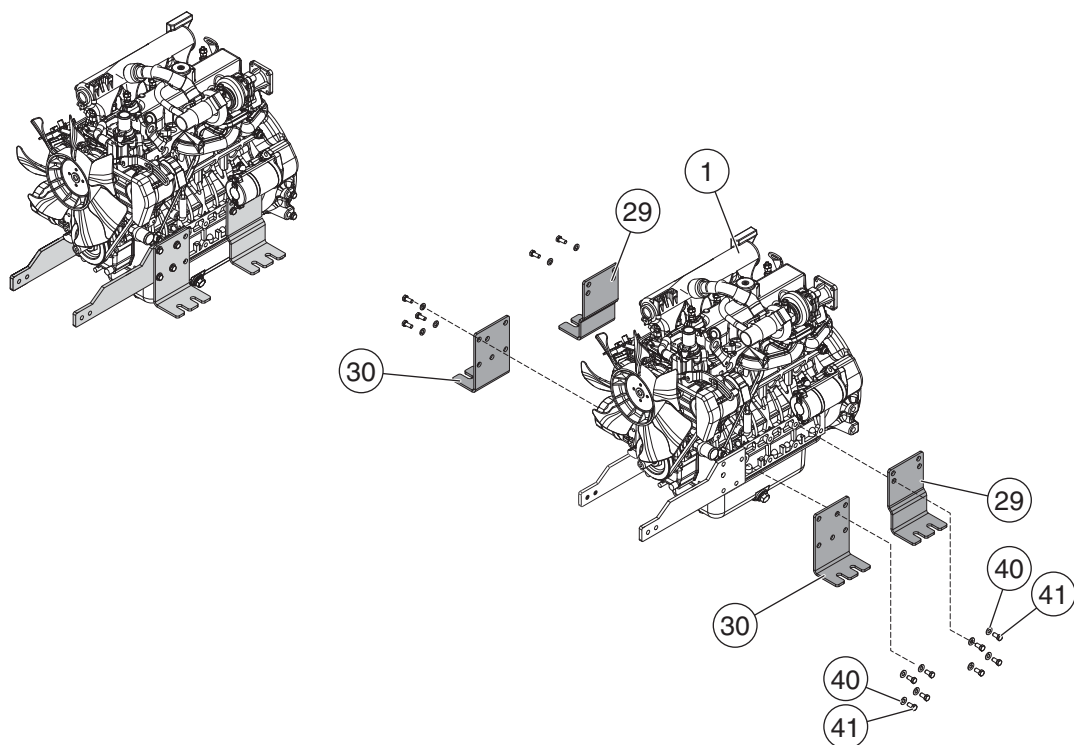


ILLUSTRATION No.
ART_3332

92RT Series

ENGINE & COMPONENTS, #2 of 3

Engine Components, Drawing 2 of 3

ITEM	PART NO.	QTY	DESCRIPTION
1	17964	1	Engine, Kubota V2403-T
29	17666	2	Bracket, Rear Engine Mount
30	17665	2	Bracket, Front Engine Mount
31	92473	1	Coupler, Motor
32	17976	1	Plate, Adapter
33	REF	1	Pump, Drive -- See Section E
34	REF	1	Pump, Lift -- See Section E
35	50116	8	Bolt, M10-1.25 x 25
36	50039	8	Bolt, M10-1.5 x 30
37	50006	8	Washer, M10 Nordlock
38	50069	2	Bolt, 1/2-13 x 1.5
39	50127	4	Bolt, Socket Head M10-1.5 x 30
40	50007	4	Washer, M12 Nordlock
41	50133	4	Bolt, M12-1.25 x 35
42	50035	2	Bolt, M10-1.5 x 40
43	--	--	--
44	--	--	--
45	--	--	--

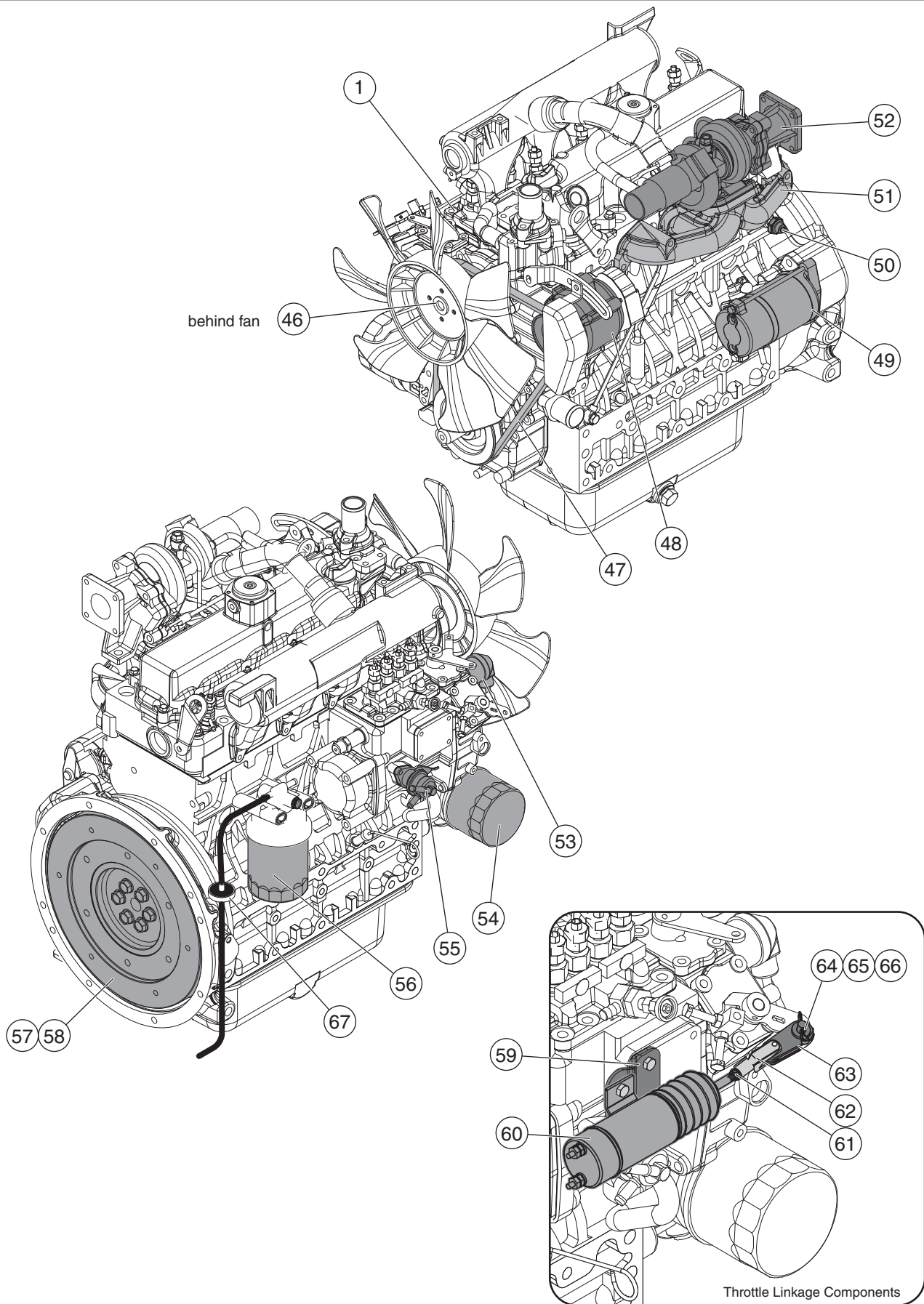


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• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



Engine Components, Drawing 3 of 3

ITEM	PART NO.	QTY	DESCRIPTION
1	17964	--	Engine, Kubota V2403-T
46	92471	1	Water Pump
47	92472	1	Fan Belt
48	92178	1	Alternator
49	92177	1	Starter
50	91175	1	Oil Pressure Switch
51	92184	1	Exhaust Manifold
--	92185	--	Gasket, Exhaust Manifold
52	92470	1	Turbo Charger Assy
53	92179	1	Solenoid, Fuel Shutoff
54	92180	1	Oil Filter
55	92176	1	Fuel Pump
56	92182	1	Fuel Filter
57	92183	1	Flywheel Assy -- Includes Item #58
58	92175	1	Ring Gear, Flywheel
59	17638	1	Bracket, Throttle Solenoid
60	91589	1	Throttle Solenoid
--	50028	2	Bolt, M6 x 20
--	50000	4	Washer, M6 Std
--	50047	2	Nut, M6 Nylock
61	50164	1	Jam Nut, 1/4-28
62	91117	1	Yoke
63	16347	2	Throttle Link
64	50157	1	Washer, 5/16 Flat
65	HDW91590	1	Pin, Clevis, 5/16 x 1
66	50177	1	Pin, Cotter, 1/8 x 1
67	91905	1	Check Valve, Fuel



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

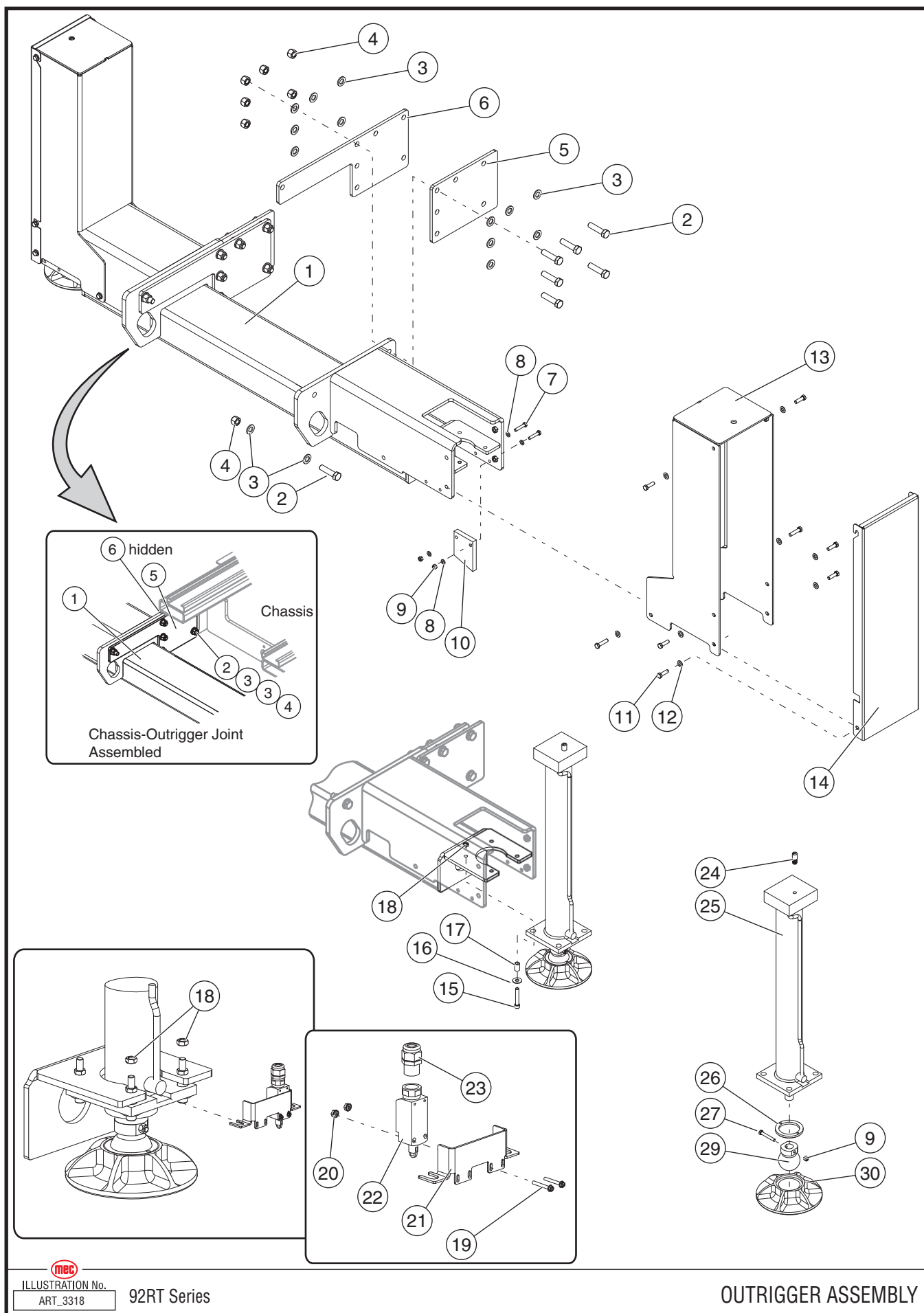


ILLUSTRATION No.
ART_3318

92RT Series

OUTRIGGER ASSEMBLY

Outrigger Assembly

ITEM	PART NO.	QTY PER ASSEMBLY	QTY PER MACHINE	DESCRIPTION
Items #1 through #6 used only on early machines. On later machines the Outrigger Weldment is part of the Chassis Weldment.				
1	17109	1	2	Outrigger Main Weldment
2	50026	12	24	Bolt, M20-2.5 x 80
3	50005	24	48	Washer, Narrow Flat, M20
4	50052	12	24	Nut, Nylock M20
5	17450	2	4	Plate, Outer Outrigger Mount
6	17451	2	4	Plate, Inner Outrigger Mount
7	50020	4	8	Bolt, HHCS M10-1.50 x 50
8	50002	8	16	Washer, M10 Narrow
9	50053	6	12	Nut, M10 Nylock
10	17721	2	4	Foot Guide, Outrigger
11	50236	16	32	Bolt, HHCS M12-1.75 x 40
12	50003	16	32	Washer, M12 Std
13	17308	2	4	Outrigger Cover Weldment
14	17306	2	4	Outrigger Cover
15	50208	8	16	Bolt, SHCS 1/2-13 x 3
16	50207	8	16	Washer, 1/2 type A
17	17623	8	16	Spacer
18	50202	12	24	Nut, 1/2-13 Jam
19	50307	4	8	Bolt, HHWS #8-32 x 1.25
20	50285	4	8	Nut, 8-32 Star Lock
21	17640	2	4	Mounting Bracket, Limit Switch
22	90531	2	4	Limit Switch, 2-Pole
23	7494	2	4	Cord Connector, Liquid Tight
24	17625	2	4	Indicator, Outrigger Engaged
25	REF	2	4	Outrigger Cylinder -- See Section E
26	17348	2	4	Outrigger Retainer, Cast
27	50022	2	4	Bolt, HHCS M10-1.50 x 70
28	--	--	--	--
29	17347	2	4	Outrigger Ball, Cast
30	17346	2	4	Outrigger Foot -- Includes #26 and #29

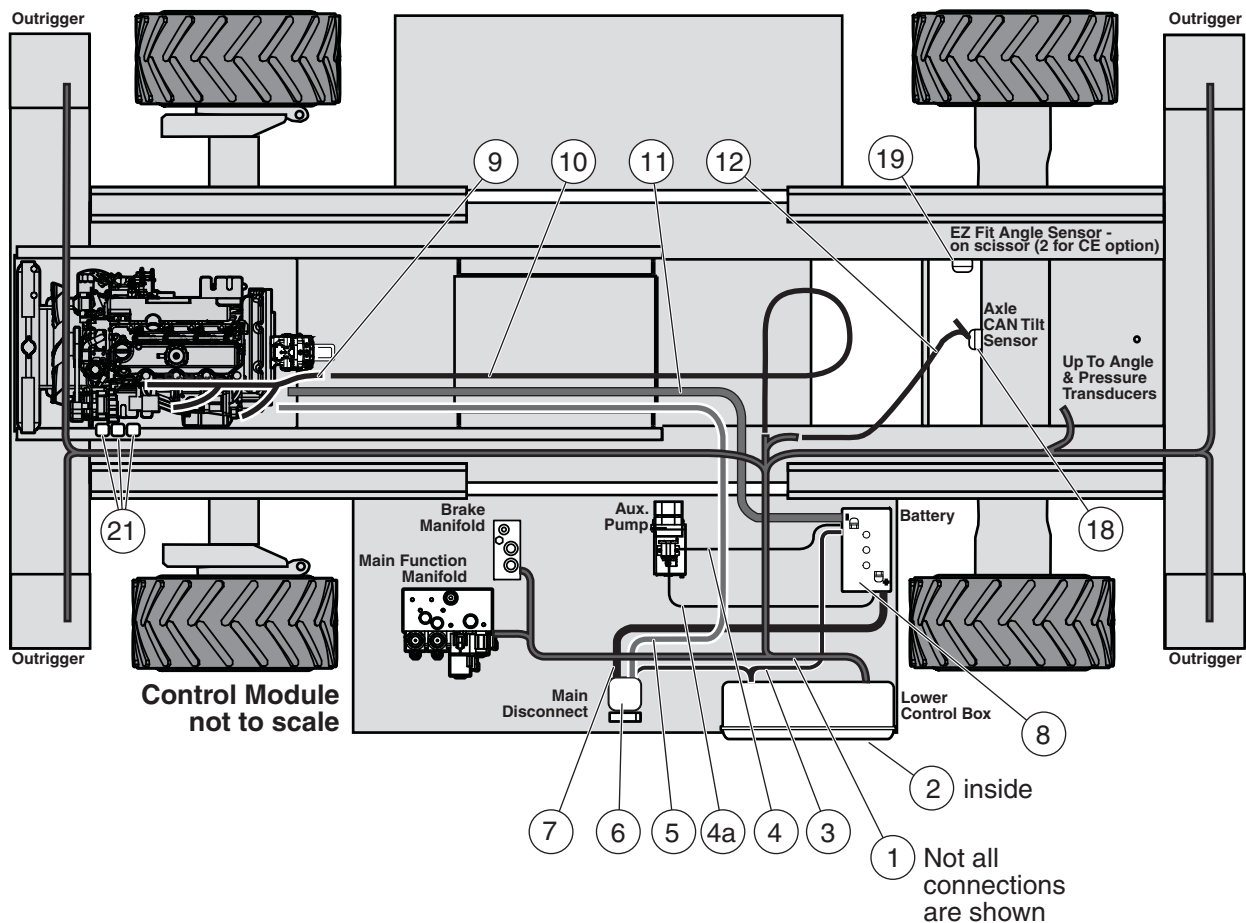
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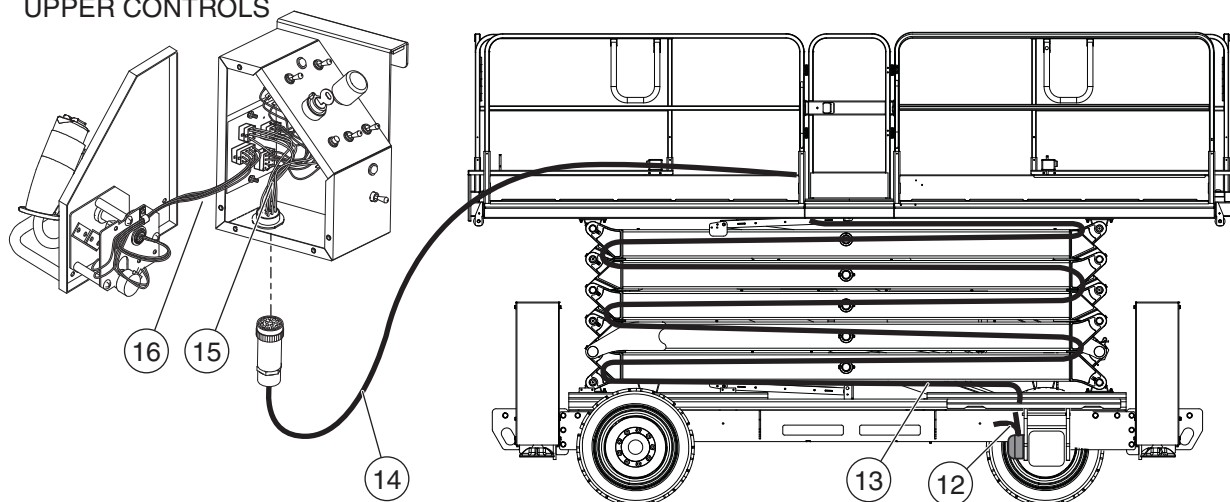
• NS: Not a Stock item

• REF: Reference only





UPPER CONTROLS



mec
ILLUSTRATION No.
ART_3547

92RT Series

Wire Harnesses

Wiring Harness & Electrical Components

ITEM	PART NO.	QTY	DESCRIPTION
1	92429	1	Harness, Lower Control Box to Manifolds, Outriggers & Angle Transducers
2	92428	1	Harness, Lower Control Box Interior
3	92142	1	Cable, Lower Control Box to Master Disconnect, Battery-
4	92459	1	Cable, Battery- to Auxiliary Power Unit B-
4a	92457	1	Cable, Battery+ to Auxiliary Power Unit B+
5	92456	1	Cable, Master Disconnect to Engine Starter
6	8841	1	Switch, Main Battery Disconnect
7	92455	1	Cable, Battery+ to Master Disconnect
8	17966	1	Battery, Group 31, 950 cca
9	92433	1	5492RT -- Harness, Engine Harness
	17569	1	6092RT, 3392RT-T -- Harness, Engine Harness
10	92432	1	Harness, Main Harness to Engine, Extension
11	92458	1	Cable, Battery- to Engine
12	92431	1	Harness, Communication, Axle CAN-Tilt Adapter
13	92430	1	5492RT -- Harness, Communication, Axle CAN-Tilt to Platform Bottom
	17427	1	6092RT -- Harness, Communication, Axle CAN-Tilt to Platform Bottom
	17428	1	3392RT-T -- Harness, Communication, Axle CAN-Tilt to Platform Bottom
14	91780	1	Harness, Communication, Platform Bottom to Upper Control Box -- Removable Control Box
15	92157	1	Harness, Inside Upper Control Box Base -- Removable Control Box
16	92193	1	Harness, Matrix Module to Joystick
17	92933	79 ft	Cable, Power to Platform -- Not Shown; connects outlet plug on module base to outlet plug at platform
18	92010	1	5492RT ~SERIAL #11900038 -- CAN Tilt Angle Transducer (152)
	92202	1	5492RT SERIAL #11900039~, All 3392RT-T, All 6092RT -- CAN Tilt Angle Transducer (162)
19	90845	1	Pressure Sensor -- Not Shown; CE Option only; connects lower lift cylinder to Item #1
20	90844	1	Standard -- EZFit Angle Sensor (120)
		2	Option Load Sensing System-- EZFit Angle Sensor (120)
21	91375	3	Relay, Engine

• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



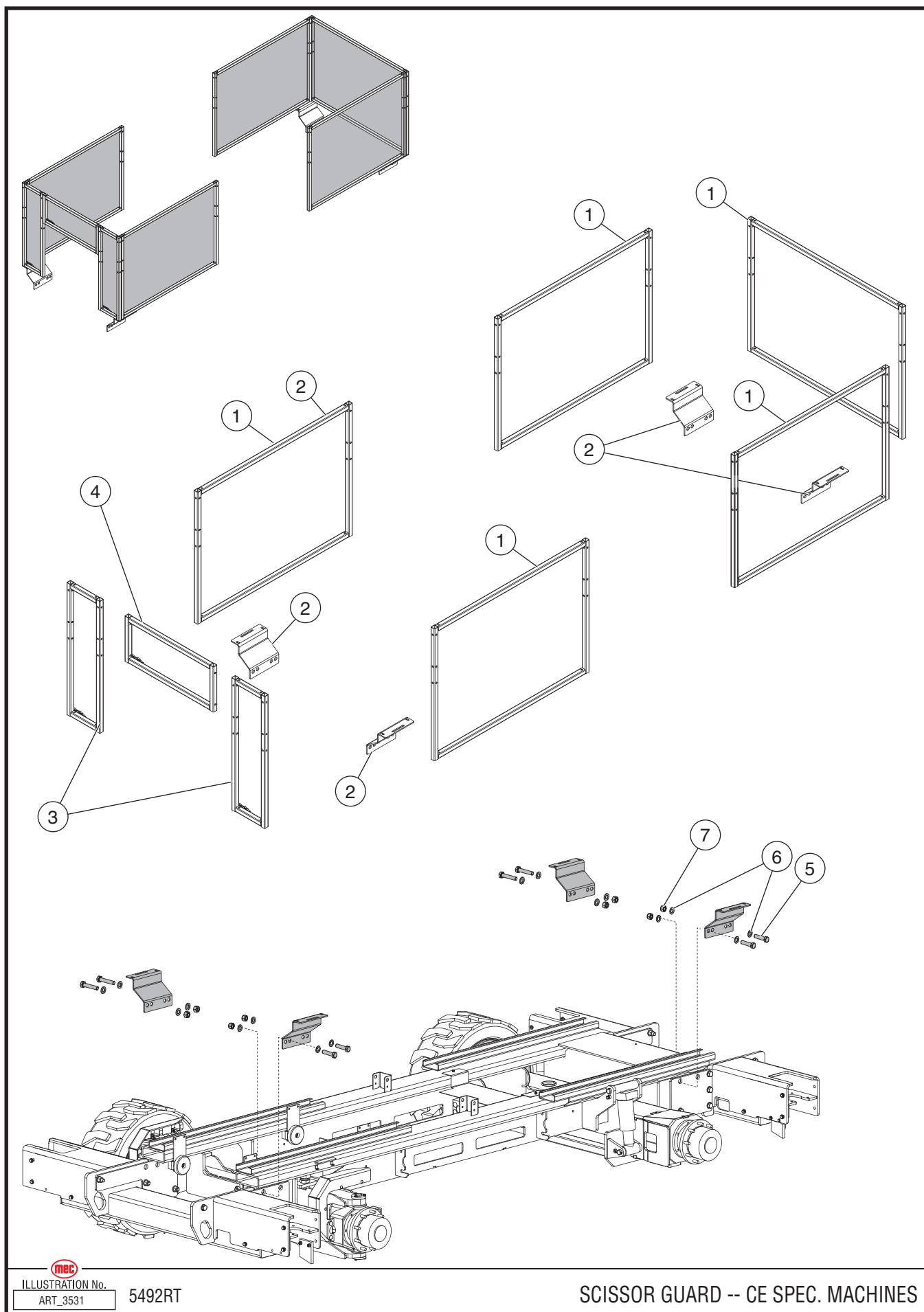


ILLUSTRATION No.
ART_3531

5492RT

SCISSOR GUARD -- CE SPEC. MACHINES

Scissor Guard Assembly -- Option, Early 5492RT Models

ITEM	PART NO.	QTY	DESCRIPTION
1	17499	5	Main Panel, Scissor Guard
2	17608	4	Bracket, Scissor Guard
3	17600	2	End Panel, Scissor Guard
4	17609	1	Top Panel, Scissor Guard
5	REF	8	Bolt, M20 x 2.5 x 80 -- (see "Outrigger Assembly," on Page F-23)
6	REF	16	Washer, Narrow Flat, M20 -- (see "Outrigger Assembly," on Page F-23)
7	REF	8	Nut, Nylock M20 -- (see "Outrigger Assembly," on Page F-23)



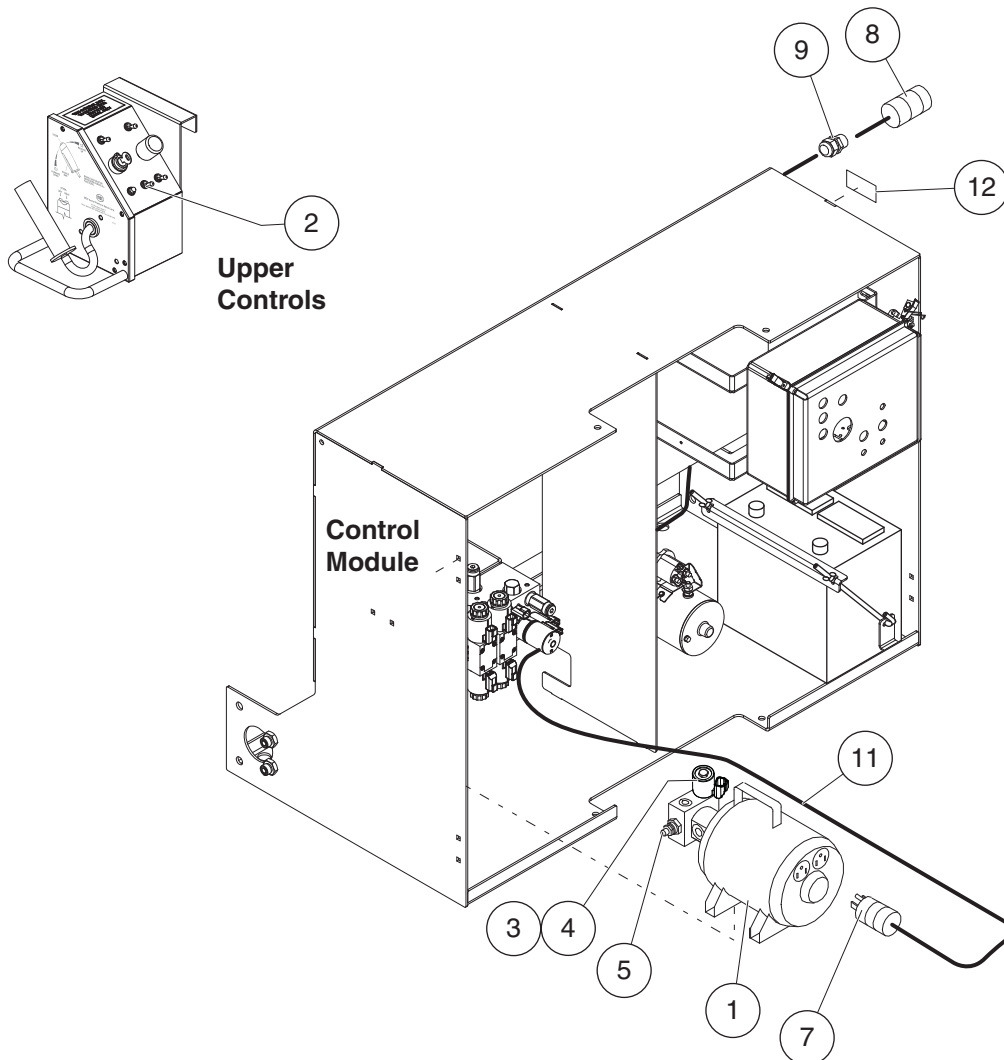
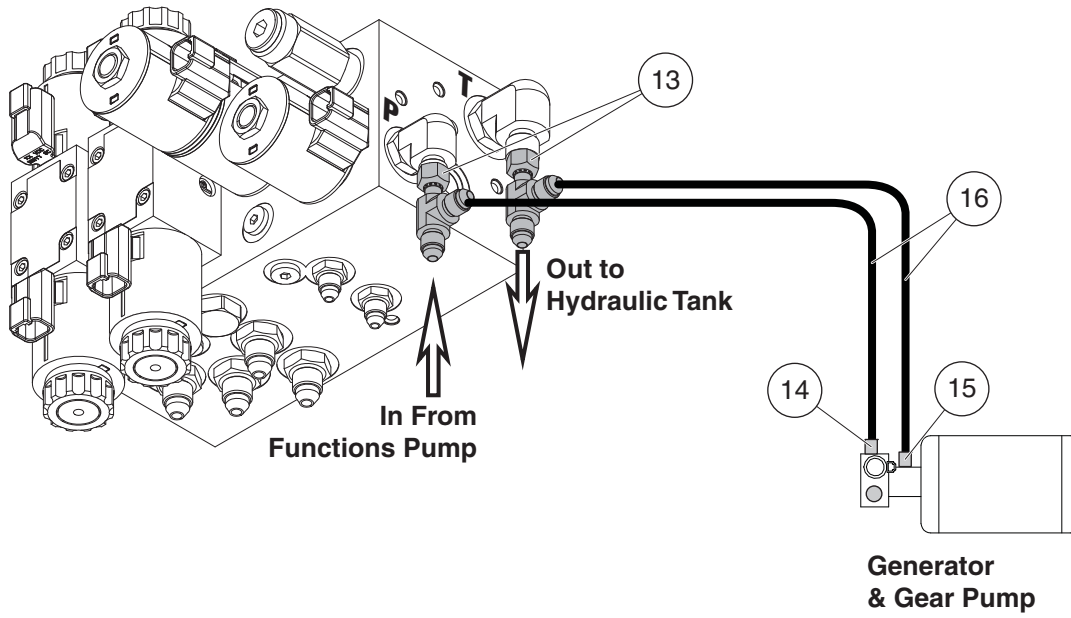
• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only

Function Manifold



Generator Option, RT

ITEM	PART NO.	QTY	DESCRIPTION
Refer to Section E for Hose Kit			
1	91550	1	Generator, 2000 Watt
2	5630	1	Switch, Toggle
3	91551	--	Valve, Solenoid, 2-way, n.c. -- included with item #1
4	91002	--	coil, 12V 10 Series -- included with item #1
5	91546	--	Needle Valve -- included with item #1
6	--	--	--
7	91544	1	Plug, Male, 3 Prong
8	91545	2	Receptacle, Female
9	7594	1	Strain Relief
10	--	--	--
11	7617	6 FT	Wire, 14GA, 3 conductor
12	91556	1	Label, AC Generator
13	50894	2	Fitting, MJ-FJX-MJT-8
14	50792	1	MB-MJ90-8-8
15	50781	1	MB-MJ90-10-8
16	91259	2	Hose Assy, 1/2" x 84", 8FJX -8FJX45
17	92196	1	Harness, Engine Intermediate, Generator Option (not shown)

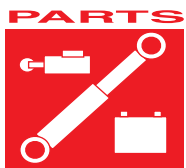


• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



SECTION G

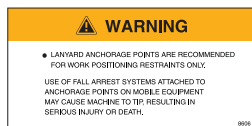
DECALS, ANSI

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Decals, 5492RT ANSI	G-3
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1 8606



2 8605 -- 6 places



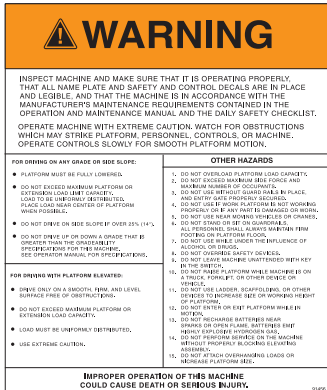
3 90733



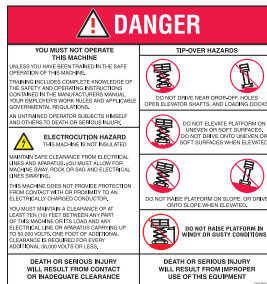
4 90718 inside document case



5 91456



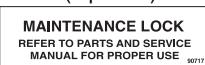
7 90721



8 90730



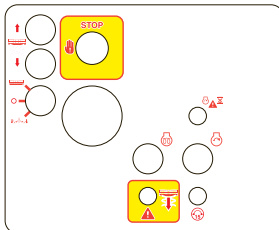
9 90717 (2 places)



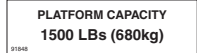
10 9910 (4 places)



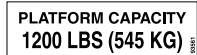
11 91930



12 5492RT -- 91848



6092RT -- 93561



13 90732



17 8502 (4 places -- front and rear of each module)



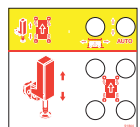
19 91553



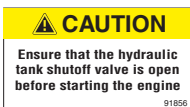
21 93572 (2 places)



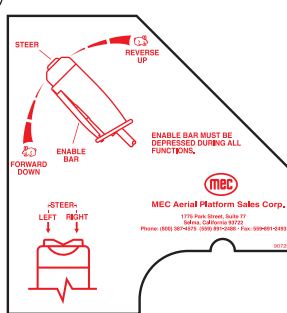
23 91844



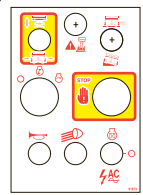
14 91856



20 90729



22 91873



24 9465 each outrigger



15 6873



16 91975



25 5492RT -- 91992 (2 places)



6092RT -- 93550 (2 places)



26 5492RT -- 91876 (2 places)



6092RT -- 93549 (2 places)



27 92416 (2 places)



28 90719 (4 places)



29 91973 (4 places)



30 7156



31 90739 (2 places)



ILLUSTRATION No.
ART_3023r1

NOTE: Decals may vary in accordance with locale requirements.

Decals, 5492RT, 6092RT -- ANSI Specification

ITEM	PART NO.	QTY	DESCRIPTION
1	8606	1	Warning, Lanyard (option)
2	8605	6	Decal, Anchorage Point (option)
3	90733	1	Decal, Manuals Inside
4	90718	1	Warning, Inspection Report
5	91456	1	Decal, Warning Panel
6	91851		5492RT -- Decal, Platform Capacity, 5492RT
	93460		6092RT -- Decal, Platform Capacity, 6092RT
7	90721	1	Decal, Danger Panel
8	90730	1	Decal, Warning, Sheet Loading
9	90717	2	Decal, Maintenance Lock
10	9910	4	Decal, Crush Hazard
11	91930	1	Decal, Lower Controls
12	91848	1	5492RT -- Decal, Capacity 1500 lbs Small
	93561	1	6092RT -- Decal, Capacity 1200 lbs Small
13	90732	1	Decal, Warning, Pressure Wash
14	91856	2	Decal, Caution Hyd Tank Valve
15	6873	1	Decal, Hydraulic Oil
16	91975	1	Decal, Diesel
17	8502	4	Decal, Tire Inflation (not used with Foam-Filled Tire option)
18	8519	4	Decal, Warning, Tire Replacement
19	91553	1	Serial Plate
20	90729	1	Decal, Upper Control Box, Side
21	93572	2	Decal, Glow Plug
22	91873	1	Decal, Upper Controls
23	91844	1	Decal, Outrigger Operation
24	9465	4	Decal, Danger, Crush Hazard
25	91992	2	5492RT -- Decal, MEC 5492RT Toeboard
	93550	2	6092RT -- Decal, MEC 6092RT Toeboard
26	91876	2	5492RT -- Decal, MEC 5492RT Turbo Module Door
	93549	2	6092RT -- Decal, MEC 6092RT Turbo Module Door
27	92416	2	Decal, Website
28	90719	4	Decal, MEC Oval
29	91973	4	Tie Down Point
30	7156	1	Decal, Front
31	90739	1	Decal, Made in USA

• as req: as required

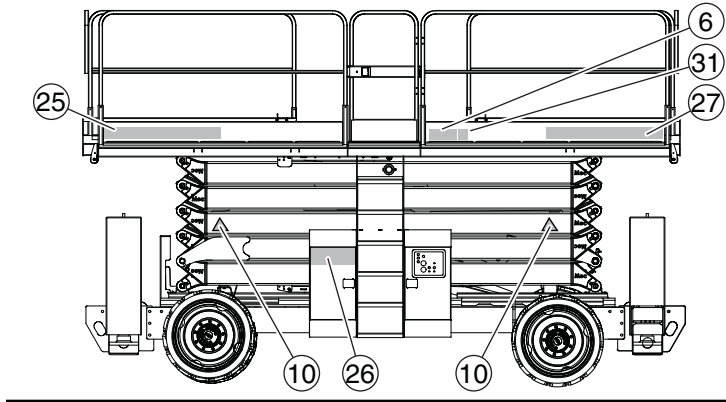
• INCL: Included with assembly

• NS: Not a Stock item

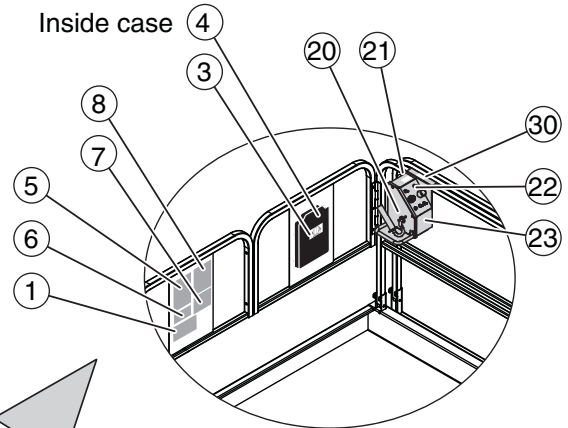
• REF: Reference only



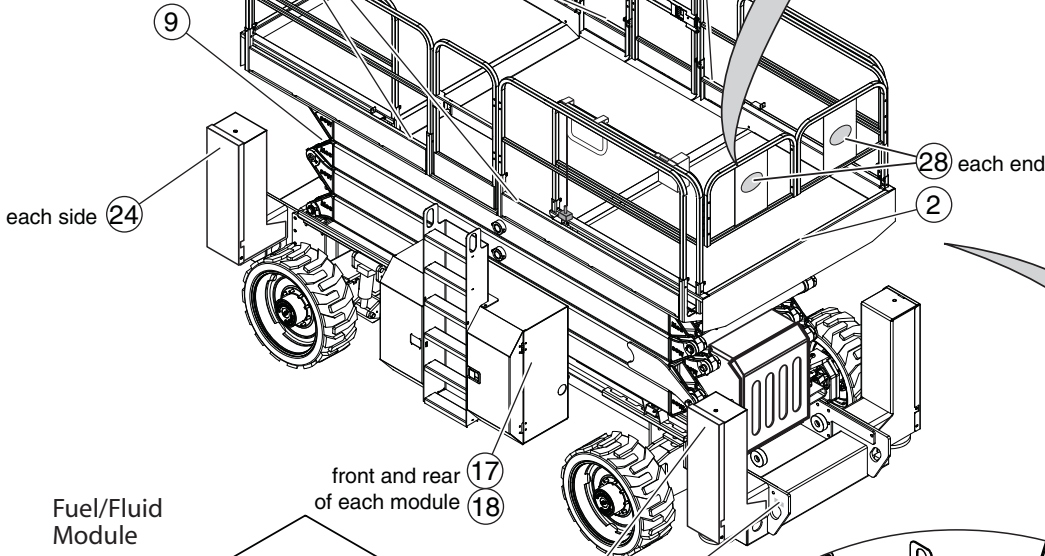
EACH SIDE



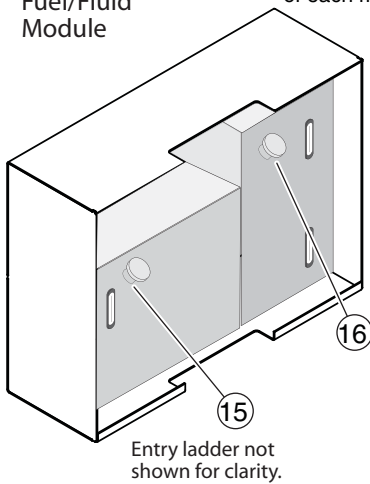
Inside case



Maintenance Lock
2 places



Fuel/Fluid
Module



Entry ladder not
shown for clarity.

front and rear
of each module

each side
each
tie-down
point

Inside
Module

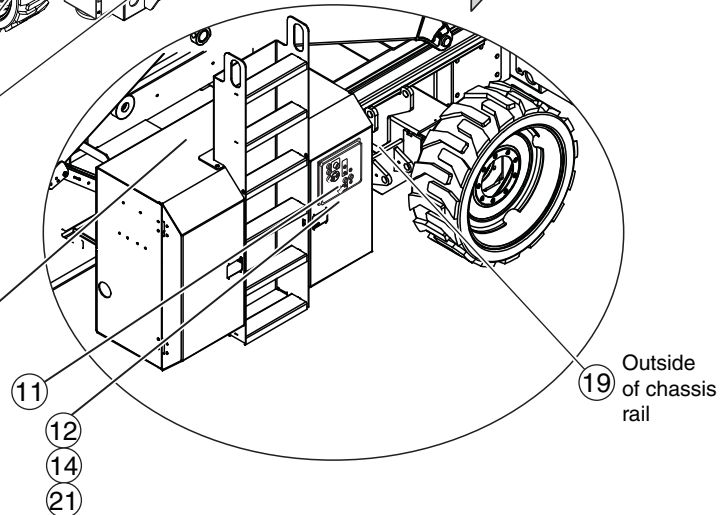
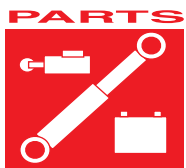


ILLUSTRATION No.
ART_3025r1



SECTION H

DECALS, CE

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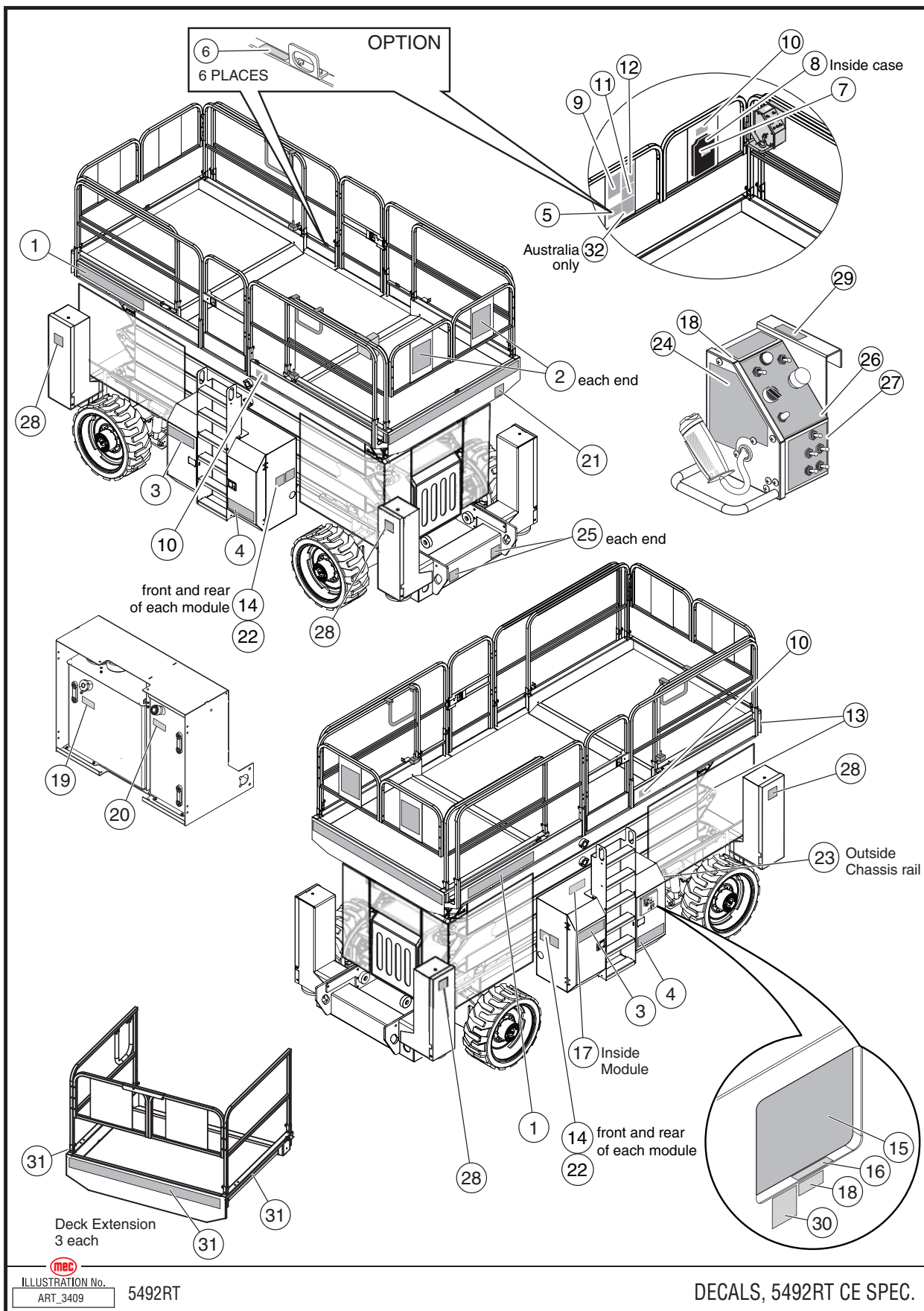
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Decal Placement, 5492RT -- CE Specification	H-3
Decals, 6092RT -- CE Specification	H-4
Decal Placement, 6092RT -- CE Specification	H-5
Decals, 3392RT-T -- CE Specification	H-6
Decal Placement, 3392RT-T -- CE Specification	H-7



April 2015
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“92RT Series” Parts Section

Decal Placement, 5492RT -- CE Specification



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



Decals, 6092RT -- CE Specification

1 8606

2 8605 -- 6 Places

3 8911

4 not used

5 91456

6 93671 -- 3 places

7 90721

8 90730

9 90717 -- 2 Places

10 9910 -- 4 Places

11 91930

12 93561

13 90732

14 91856

15 6873

16 91975

17 91388 -- 2 places

18 8519 4 places -- front and rear of each module

19 CE -- 91775 Aus/NZ -- 93752

20 90729

21 90739 -- 2 places

22 91875

23 91844

24 9465 each outrigger

25 93550 -- 2 places

26 93549 -- 2 places

27 92416 -- 2 places

28 7155

29 7156

30 91973 -- 4 places

31 7982 -- 6 Places

32 93672 -- 4 Places

33 93673

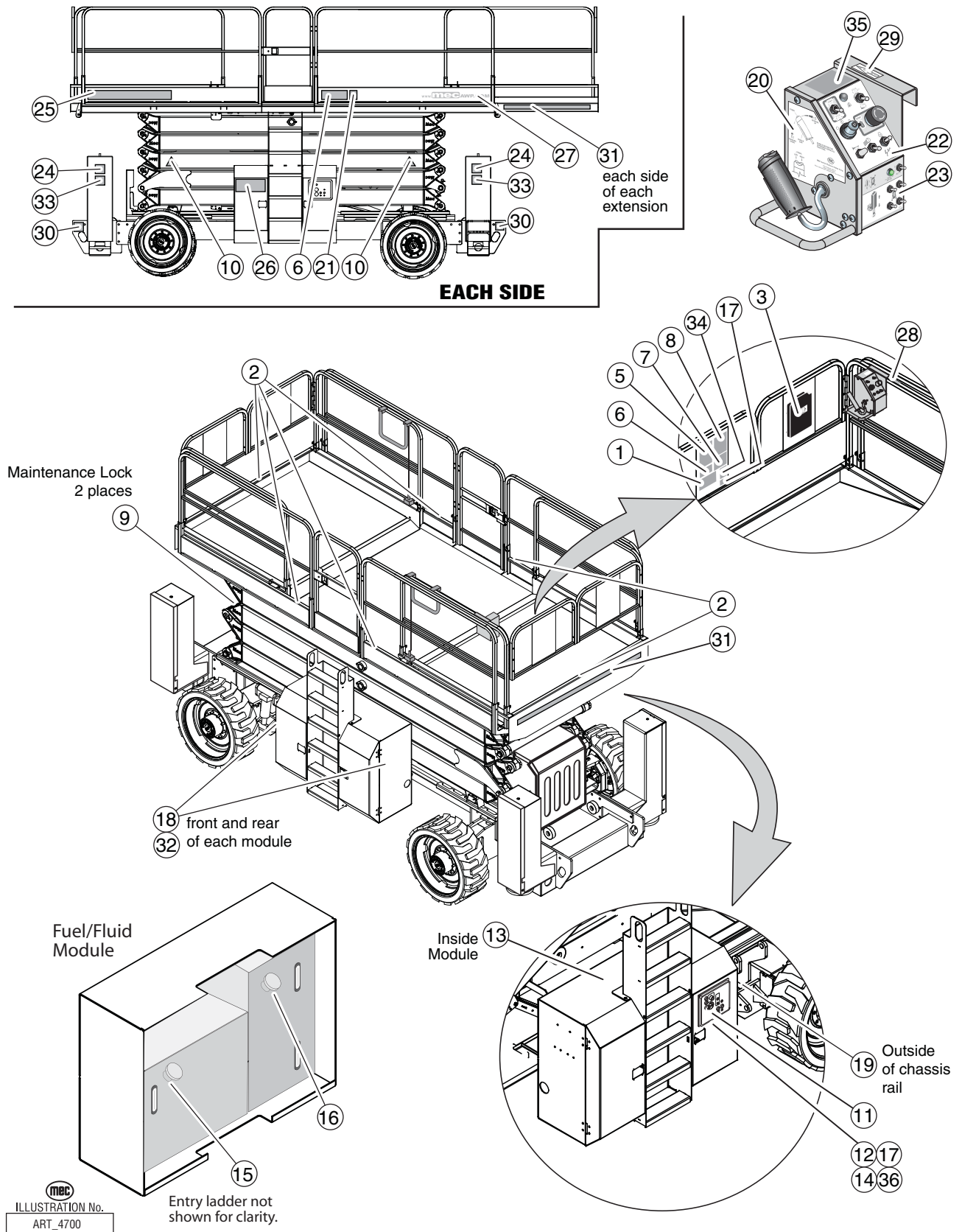
34 91325 -- AUS/NZ only

35 93565

36 93564

ILLUSTRATION No. ART_4749 NOTE: Decals may vary in accordance with local requirements.

Decal Placement, 6092RT -- CE Specification



• as req: as required

• INCL: Included with assembly

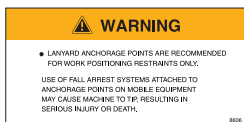
• NS: Not a Stock item

• REF: Reference only



Decals, 3392RT-T -- CE Specification

① 8606



② 8605 -- 6 Places

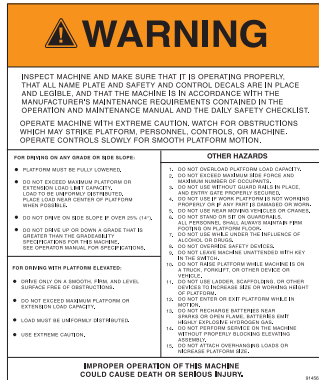


③ 8911

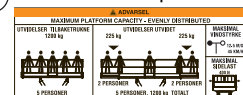


④ not used

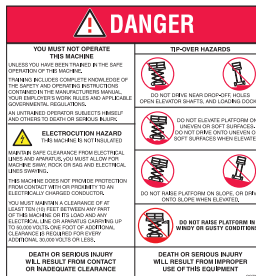
⑤ 91456



⑥ 93675NOR -- 3 places



⑦ 90721



⑧ 90730



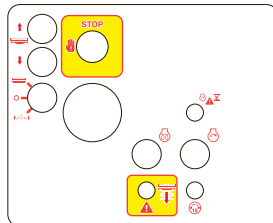
⑨ 90717 -- 2 Places



⑩ 9910 -- 4 Places



⑪ 91930



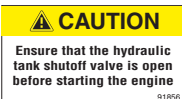
⑫ 93678



⑬ 90732



⑭ 91856



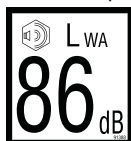
⑮ 6873



⑯ 91975



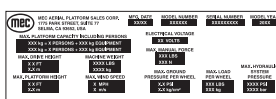
⑰ 91388 -- 2 places



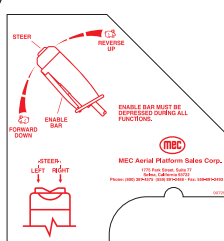
⑱ 8519 4 places -- front and rear of each module



⑲ CE -- 91775 Aus/NZ -- 93752



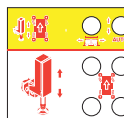
⑳ 90729



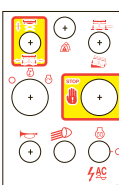
㉑ 90739 -- 2 places



㉒ 91844



㉓ 91875



㉔ 9465 each outrigger



⑳ 2 places
93683 white
93684 dark gray
MEC 3392RT-T

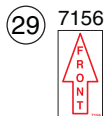
㉑ 2 places
93681 white
93682 dark gray
MEC 3392RT-T TURBO

www.mecawp.com

MEC
ILLUSTRATION No.
ART_4749

NOTE: Decals may vary in accordance with local requirements.

㉒ 7155
LOCATE CONTROL BOX HERE
FOR NORMAL OPERATION OF THIS UNIT



㉓ 91973 -- 4 places



㉔ 7982 -- 6 Places



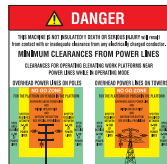
㉕ 93676 -- 4 Places



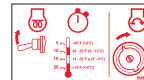
㉖ 93677



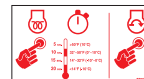
㉗ 91325 -- AUS/NZ only



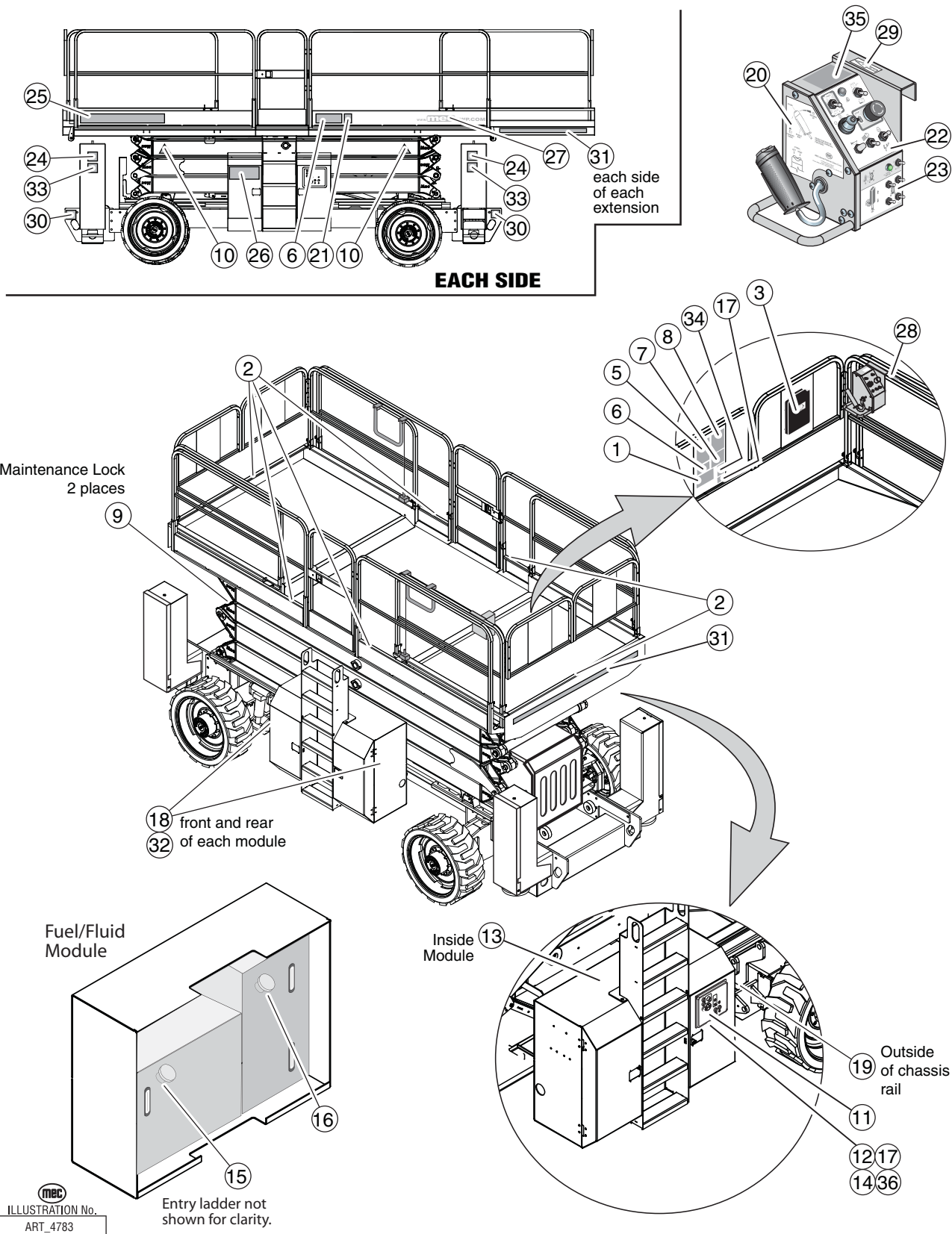
㉘ 93565



㉙ 93564



Decal Placement, 3392RT-T -- CE Specification



• as req: as required

• INCL: Included with assembly

• NS: Not a Stock item

• REF: Reference only



NOTES:



Service Parts Order Form

Fax to 559-263-9631

Please fill out completely

Date: _____

Ordered By: _____

Account: _____

Your Fax No.: _____

Bill to: _____

Ship to: _____

Purchase Order Number _____

Ship VIA _____

**All orders MUST have a Purchase Order Number

**Fed Ex shipments require Fed Ex account number

Part Number	Description	Quantity	Price

All backordered parts will be shipped when available via the same ship method as original order unless noted below:

- Ship complete order only - no backorders
- Ship all available parts and contact customer on disposition of backordered parts
- other (please specify)

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.



Aerial Platform Sales Corp.

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