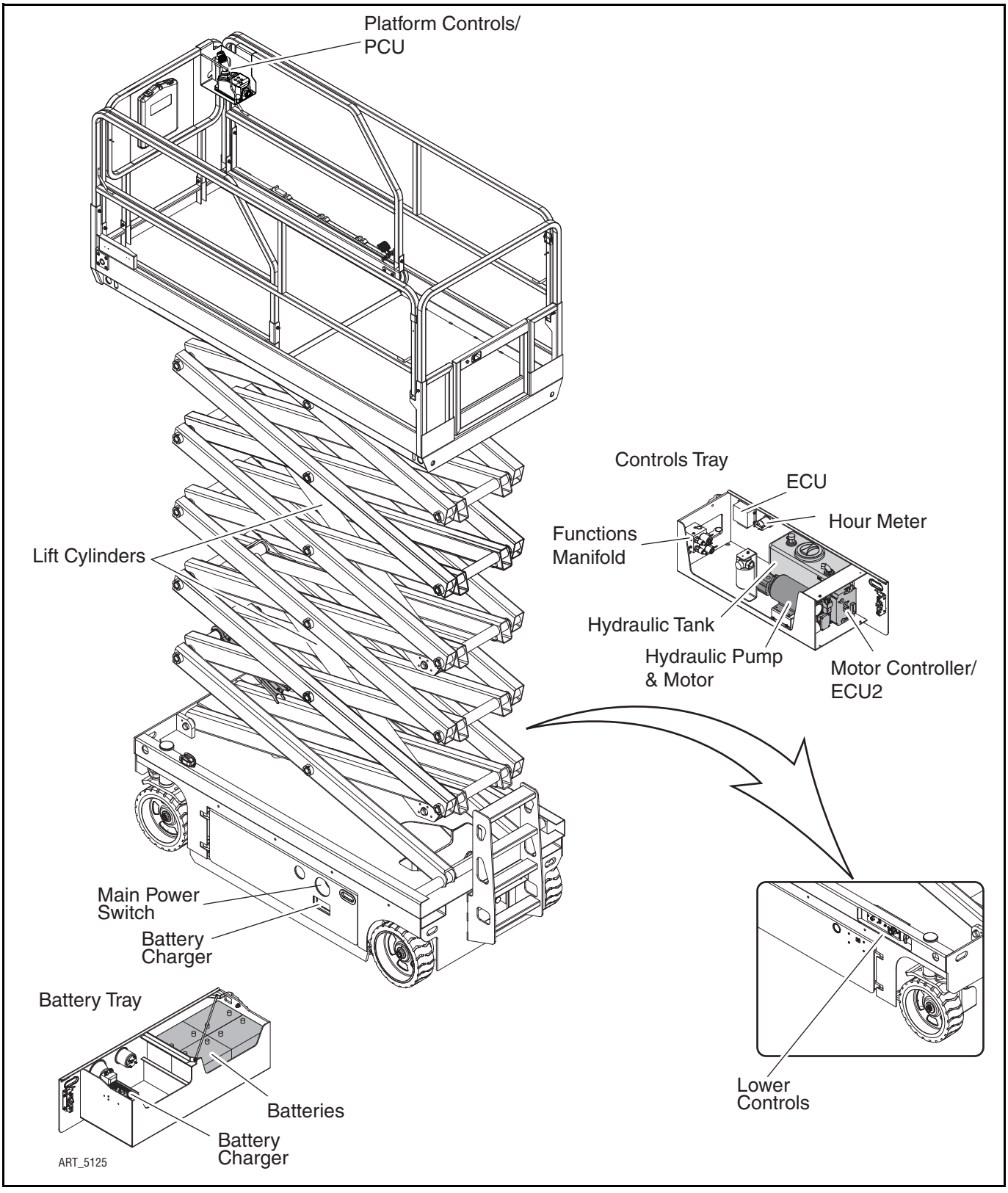
Section 2

CONTROL SYSTEM

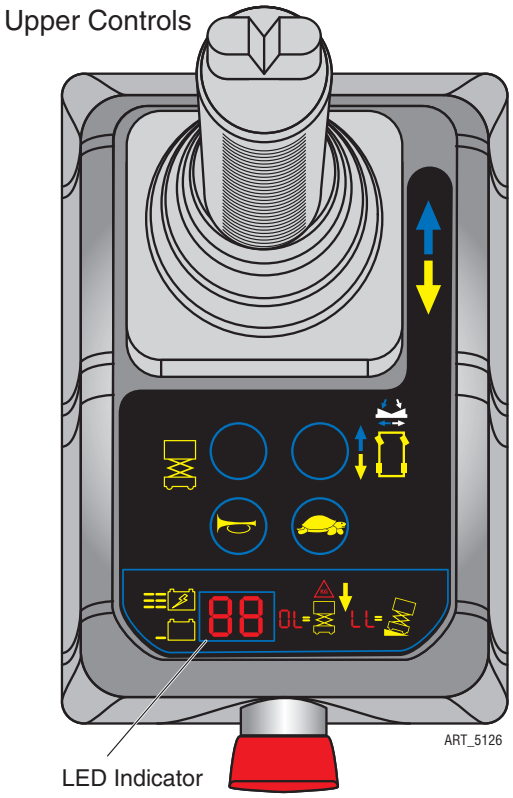
CONTENTS

CONTROL COMPONENT LOCATIONS



FAULT CODES

Fault Codes, when present, appear on the LED Indicator at the Upper Controls station.



Error Code	Description	Action
01	System Initialization Fault	Disables All Motion
02	System Communication Fault	Disables All Motion
03	Invalid Option Setting Fault	Disables All Motion
12	Chassis Up/Down Switch ON at Power-up Fault	Disable Chassis Control
18	Pothole Guard Fault	Disable Lifting and Driving
31	Pressure Sensor Fault	Disables All Motion
32	Angle Sensor Fault	Disables All Motion
34	Reserved	
42	Platform Left Turn Switch ON at Power-up Message	Diagnostic Message Only
43	Platform Right Turn Switch ON at Power-up Message	Diagnostic Message Only
46	Platform Joystick Enable Switch ON at Power-up Fault	Disable Platform Control
47	Platform Joystick Not In Neutral at Power-up Message	Diagnostic Message Only

Error Code	Description	Action
52	Drive Forward Coil Fault	Disable Lifting and Driving
53	Drive Reverse Coil Fault	Disable Lifting and Driving
54	Lift Up Coil Fault	Disable Lifting and Driving
55	Lift Down Coil Fault	Disable Lifting and Driving
56	Right Turn Coil Fault	Disable Lifting and Driving
57	Left Turn Coil Fault	Disable Lifting and Driving
58	General Brake Coil Fault	Disable Lifting and Driving
59	Parallel Coil Fault	Disable Lifting and Driving
61	Motor Controller Current Sensor Fault	Controller Dependent
62	Motor Controller Hardware Failsafe Fault	Controller Dependent
63	Motor Controller Motor Output Fault	Controller Dependent
64	Motor Controller SRO Fault	Controller Dependent
65	Motor Controller Throttle Fault	Controller Dependent
66	Motor Controller Emergency Reverse Fault	Controller Dependent
67	Motor Controller HPD Fault	Controller Dependent
68	Low Voltage Fault	Disable All Motion
69	High Neutral Current Fault	Disable All Motion
70	Steering Input Out of Range	Disable All Motion
71	Motor Controller Main Contactor Fault	Disable Lifting and Driving
72	Motor Controller Over Voltage Fault	Controller Dependent
73	Motor Controller Thermal Cutback Fault	Controller Dependent
74	Motor Controller Motor Fault	Controller Dependent
75	Motor Controller Pump Motor Fault	Controller Dependent
76	Motor Controller Left Drive Motor Fault	Controller Dependent
77	Motor Controller Right Drive Motor Fault	Controller Dependent
78	Pump Motor Short Fault	Disable Lifting and Driving
79	Left Drive Motor Short Fault	Disable Lifting and Driving
80	Over 80% Load Warning	Warning Only
81	Right Drive Motor Short Fault	Disable Lifting and Driving
82	Right Brake Coil Fault	Disable Lifting and Driving
83	Left Brake Coil Fault	Disable Lifting and Driving
90	Over 90% Load Warning	Warning Only
99	Over 99% Load Warning	Warning Only

TROUBLESHOOTING TABLE

Error Code	Troubleshooting
01	System Initialization Fault: ECU may be malfunctioning. Contact MEC Customer Service.
02	System Communication Fault: Check communications cable connections and other wiring. If that does not resolve the problem, contact MEC Customer Service.
03	Invalid Option setting Fault: Set appropriate option for this lift.
12	Chassis Toggle Switch ON at Power-up Fault: Check the wires to the Toggle Switch or look for a stuck Toggle Switch.
18	Pothole Guard Fault: Check that the pothole guards are extended. Check the pothole limit switches. Check wires to the switches. Check the down limit switch and connections.
31	Pressure Sensor Fault: Check the wiring to the sensor and then the sensor itself. Also check to make sure that the correct option is properly selected (or not) for load sensing.
32	Angle Sensor Fault: Check the wiring to the sensor and then the sensor itself. Also check to make sure that the correct option is properly selected (or not) for load sensing
42	Platform Left Turn Switch ON at Power-up Message: Ensure that nothing is holding the Joystick Toggle Switches down. If OK, contact MEC Customer Service.
43	Platform Right Turn Switch ON at power-up Message: Ensure that nothing is holding the Joystick Toggle Switches down. If OK, contact MEC Customer Service.
46	Platform Joystick Enable Switch ON at power-up Fault: Ensure that nothing is holding the Enable switch closed. Also check the neutral zone parameters. If OK, contact MEC Customer Service.
47	Platform Joystick Not In Neutral At Power-up Message: Make sure that the Joystick is in the neutral (upright) position. Check the neutral zone parameter setting in Scissor Programmer. If it's OK, contact MEC Customer Service.
52	Drive Forward Coil Fault: Check the connections to the Coil's terminals and make sure they are tight. If so, check the coil itself to see if it is open or shorted.
53	Drive Reverse Coil Fault: Check the connections to the Coil's terminals and make sure they are tight. If so, check the coil itself to see if it is open or shorted.
54	Lift Up Coil Fault: Check the connections to the Coil's terminals and make sure they are tight. If so, check the coil itself to see if it is open or shorted.
55	Lift Down Coil Fault: Check the connections to the Coil's terminals and make sure they are tight. If so, check the coil itself to see if it is open or shorted.
56	Right Turn Coil Fault: Check the connections to the Coil's terminals and make sure they are tight. If so, check the coil itself to see if it is open or shorted.
57	Left Turn Coil Fault: Check the connections to the Coil's terminals and make sure they are tight. If so, check the coil itself to see if it is open or shorted.
58	General Brake Coil Fault: Check the connections to the Coil's terminals and make sure they are tight. If so, check the coil itself to see if it is open or shorted.
59	Parallel Coil Fault: Check the connections to the Coil's terminals and make sure they are tight. If so, check the coil itself to see if it is open or shorted.

Error Code	Troubleshooting
61	Motor Controller Current Sensor Fault: Drive or Lift Motor may be overheating. Let the lift cool down. If that does not help, cycle power to reset the Motor controller. If the problem persists, check the wiring and if OK, contact MEC Customer Service.
62	Motor Controller Hardware Failsafe Fault: Cycle power. If that does not resolve the issue check for noise sources. If still needed, contact MEC Customer Service.
63	Motor Controller Motor Output fault: Check wiring first then cycle power. Contact MEC Customer Service.
64	Motor Controller SRO Fault: Look at motor enable delay with the Scissor Programmer, it may be too short. Make sure other Motor Controller parameters are properly selected.
65	Motor Controller Throttle Fault: Check wiring. Make sure the correct throttle type is selected in the Motor Controller.
67	Motor Controller HPD Fault: Look at motor enable delay with the Scissor Programmer, it may be too short. Make sure other Motor Controller parameters are properly selected.
68	Low Voltage Fault: Check battery voltage and charge batteries if necessary. Check the battery connections and tighten or clean. Check the voltage to the ECU and PCU.
69	High Neutral Current: The MC is sensing current in the motors when there should not be. This could occur anytime the MC thinks the brakes are on and the motors are still turning. This message sometimes comes just before other faults but should be ignored in those cases.
70	Steering Input Out of Range: There is an inappropriate voltage at the steering input of the motor controller. The controller may need to be “trained” for the three steering voltages (on Differential Steered machines). Or the steering voltage from the ECU was at some point outside of the range that was recorded during the “training” session. Retrain the controller and/or check for fluctuating voltages due to lose wires, etc.
71	Motor Controller Main Contactor Fault: Check the connections to the main contactor. Contact MEC Customer Service.
72	Motor Controller Over Voltage Fault: Check battery voltage and make sure the battery charger is not on. Then cycle power to the lift. If that does not resolve the issue, contact MEC Customer Service.
73	Motor Controller Thermal Cutback Fault: Drive or Lift Motor may be overheating. Let the lift cool down. If that does not help cycle power to reset the Motor controller. If that doesn't resolve the issue, contact MEC Customer Service.
74	Motor Controller Motor Fault: Check connections to the motors. Cycle power to the lift and if that does not resolve the issue, contact MEC Customer Service.
75	Motor Controller Pump Motor Fault: Check connections to the Pump Motor. Cycle power to the lift and if that does not resolve the issue, contact MEC Customer Service.
76	Motor Controller Left Drive Motor Fault: Check connections to the motors. Cycle power to the lift and if that does not resolve the issue, contact MEC Customer Service.
77	Motor Controller Right Drive Motor Fault: Check connections to the motors. Cycle power to the lift and if that does not resolve the issue, contact MEC Customer Service.
78	Pump Motor Short Fault: Check connections to the pump motor. Cycle power to the lift and if that does not resolve the issue, contact MEC Customer Service.
79	Left Drive Motor Short Fault: Check the Motor connections and make sure they are tight. Check the Motor for a short.
80	Over 80% Load Warning: Platform is getting close to its limit of weight. Consider not adding more load.
81	Right Drive Motor Short Fault: Check the Motor connections and make sure they are tight. Check the Motor for a short.

Error Code	Troubleshooting
82	Right Brake Coil Fault: Check the connections to the Coil's terminals and make sure they are tight. If so, check the coil itself to see if it is open or shorted.
83	Left Brake Coil Fault: Check the connections to the Coil's terminals and make sure they are tight. If so, check the coil itself to see if it is open or shorted.
90	Over 90% Load Warning: Platform is getting close to its limit of weight. Consider not adding more load.
99	Over 99% Load Warning: Platform has reached its limit of weight. Do not add more load.

PARAMETER ADJUSTMENT

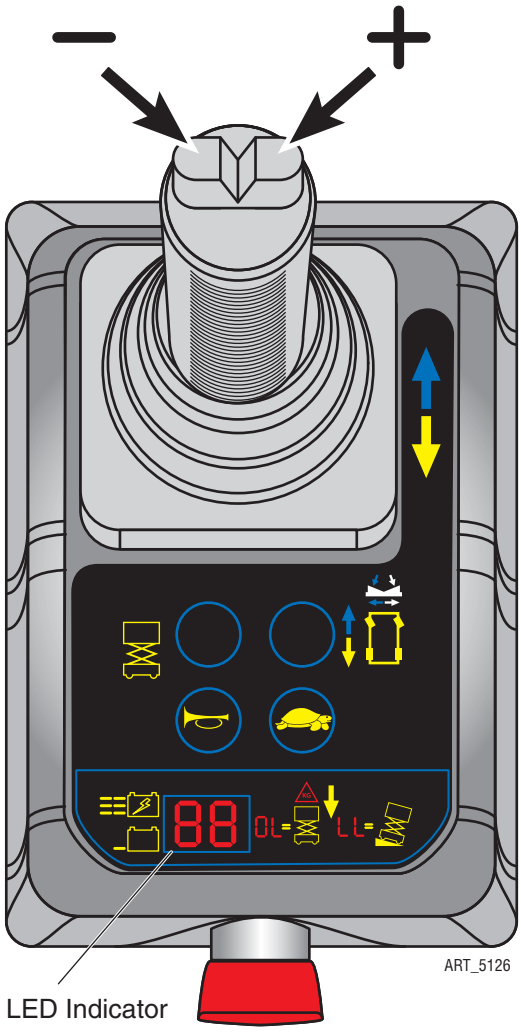
WARNING

PARAMETERS SHOULD BE ADJUSTED ONLY IF THE FUNCTION IS OPERATING OUTSIDE OF MACHINE SPECIFICATIONS, OR IF WRITTEN APPROVAL IS OBTAINED FROM MEC PRIOR TO MAKING THE CHANGE.

The following adjustments are made at the Platform Controls station using the LED Indicator to display the current settings. Follow the instructions to reach the desired setting.

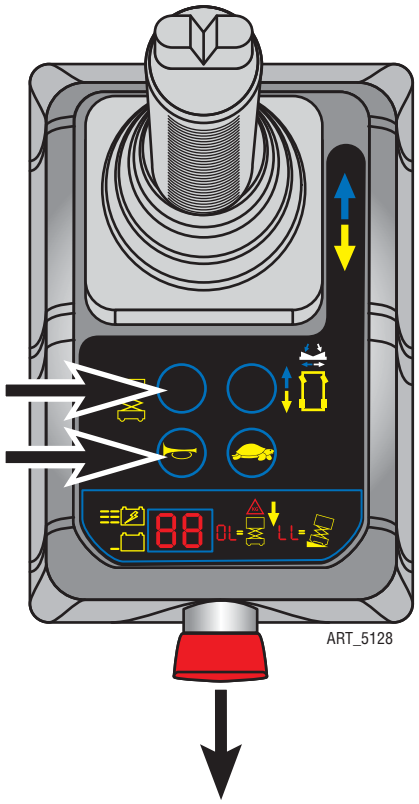
Change the setting by using the Steer Buttons on top of the control handle. The right button increases the setting. The left button decreases the setting.

Number represent a percentage. 99 means 99%. 9°9 (dot between the digits) means 100%.



SPEED ADJUSTMENT STATE

1. Set the keyswitch at the Base Controls to PLATFORM. Twist the Base Emergency Stop Switch out to the ON position.
2. Push the Platform Controls Emergency Stop Button in to the OFF Position.
3. Press and hold the HORN and LIFT buttons, then twist the Platform Emergency Stop Switch to the ON position.



ART_5128

4. "PS" and the current Lift Speed setting will alternate on the LED Indicator.

ART_5129

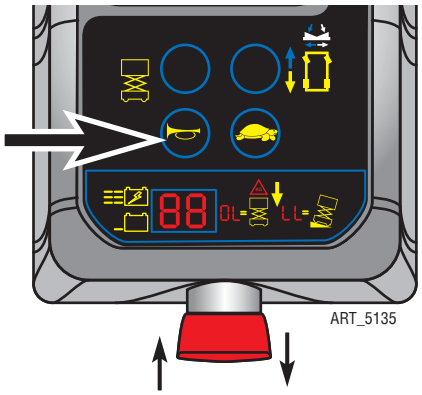
Refer to the following pages for individual operating adjustments.

SAVING NEW VALUES

New values must be saved immediately after adjustment.

To save new values, press and hold the Horn button for 3 seconds.

To operate the machine with new values, press the Emergency Stop button, then rotate it to return to the ON position.

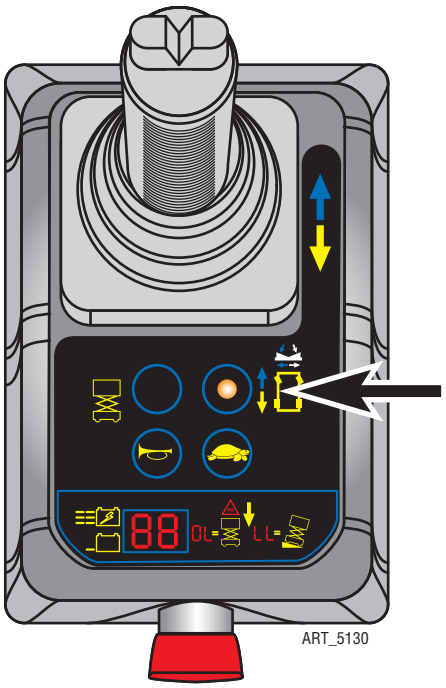


ART_5135

HIGH DRIVE SPEED

This parameter controls high speed drive when the platform is in the stowed position.

1. Press the Drive Mode Select button. The button will light up, indicating this mode is active, and the LED Indicator will show the present setting.
2. Adjust the speed using the steer left and steer right buttons on top of the Control Handle.
3. High Drive Speed may be changed from 00 to 9°9. Factory setting is 9°9.
4. Save the new setting (see "Saving New Values" on page 2-8).



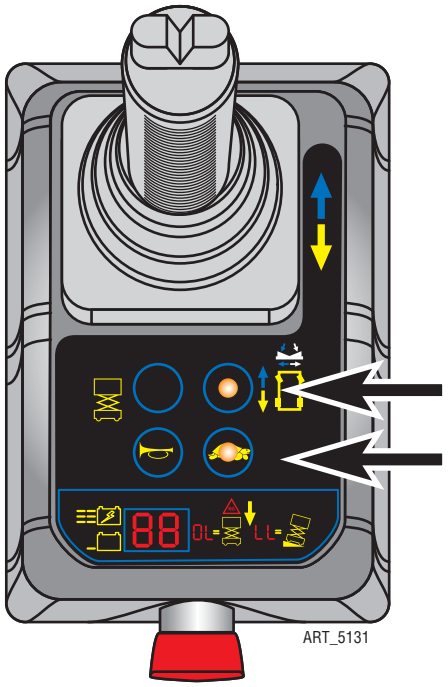
LOW SPEED DRIVE

This parameter controls low speed drive when the platform is in the stowed position and Low Speed is selected (turtle icon).

1. Press the Drive Mode Select button. The button will light up, indicating this mode is active.
2. Press and hold the Low Speed Mode Select button (turtle icon). The button will light up, and the LED Indicator will show the present setting.
3. Adjust the speed using the steer left and steer right buttons on top of the Control Handle.
4. Low Drive Speed can be set from 00 to 9°9, **but must not be set higher than 50.**
   Factory setting is 50.

   DANGER

   DO NOT ADJUST THE SETTING HIGHER THAN 50.
5. Save the new setting (see "Saving New Values" on page 2-8).



ELEVATED DRIVE SPEED

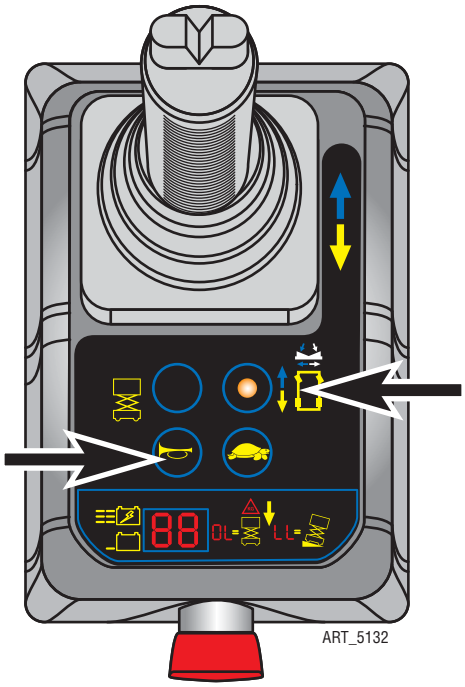
This parameter controls drive speed when the platform is elevated.

1. Press the Drive Mode Select button. The button will light up, indicating this mode is active.
2. Press and hold the Low Speed Mode Select button (turtle icon). The button will light up, indicating this mode is active.
3. Adjust the speed using the steer left and steer right buttons on top of the Control Handle.
4. Elevated Drive Speed can be set from 00 to 9°9, **but must not be set higher than 50.** Factory setting is 50.

DANGER

DO NOT ADJUST THE SETTING HIGHER THAN 50.

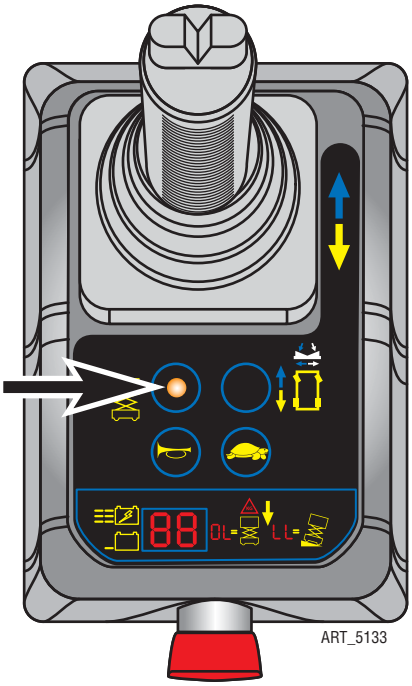
5. Save the new setting (see "Saving New Values" on page 2-8).



LIFT SPEED

This parameter controls the speed at which the platform elevates.

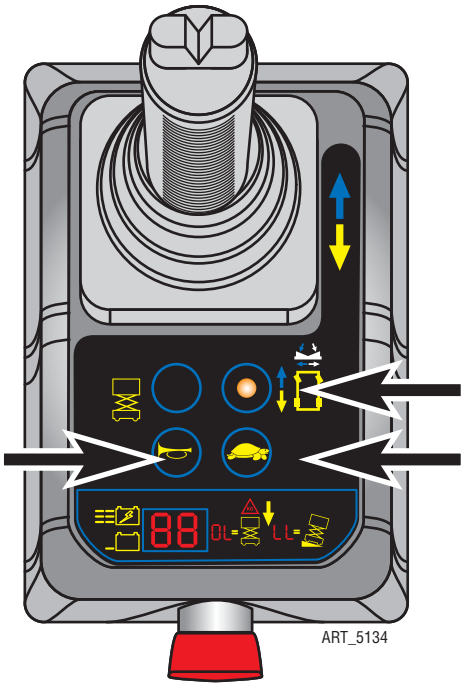
1. Press the Lift Mode Select button. The button will light up, indicating this mode is active.
2. Adjust the speed using the steer left and steer right buttons on top of the Control Handle.
3. Elevated Drive Speed can be set from 00 to 9°9. Factory setting is 9°9.
4. Save the new setting (see "Saving New Values" on page 2-8).



STEERING SPEED

This parameter controls speed at which the steering wheels turn.

1. Press the Drive Mode Select button. The button will light up, indicating this mode is active.
2. Press **and hold** the Horn button and the Low Speed Mode Select button (turtle icon).
3. Adjust the speed using the steer left and steer right buttons on top of the Control Handle.
4. Steering Speed can be set from 00 to 9°9. Factory setting is 30.
5. Save the new setting (see "Saving New Values" on page 2-8).



NOTES:

Section 3

SCHEMATICS

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HYDRAULIC SCHEMATIC

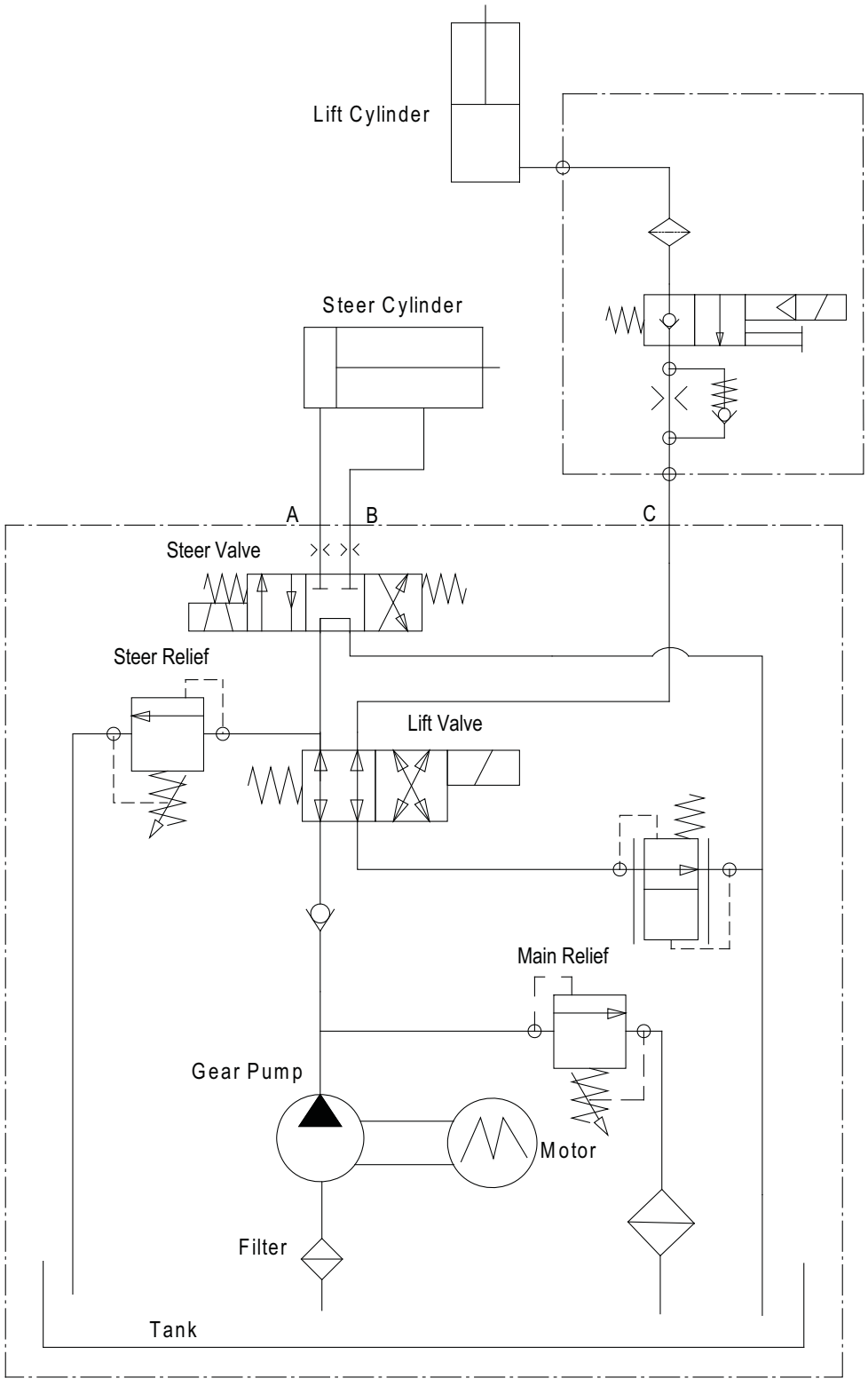

ILLUSTRATION No.
ART_5053

1330SE HYDRAULIC SCHEMATIC

HYDRAULIC UNIT

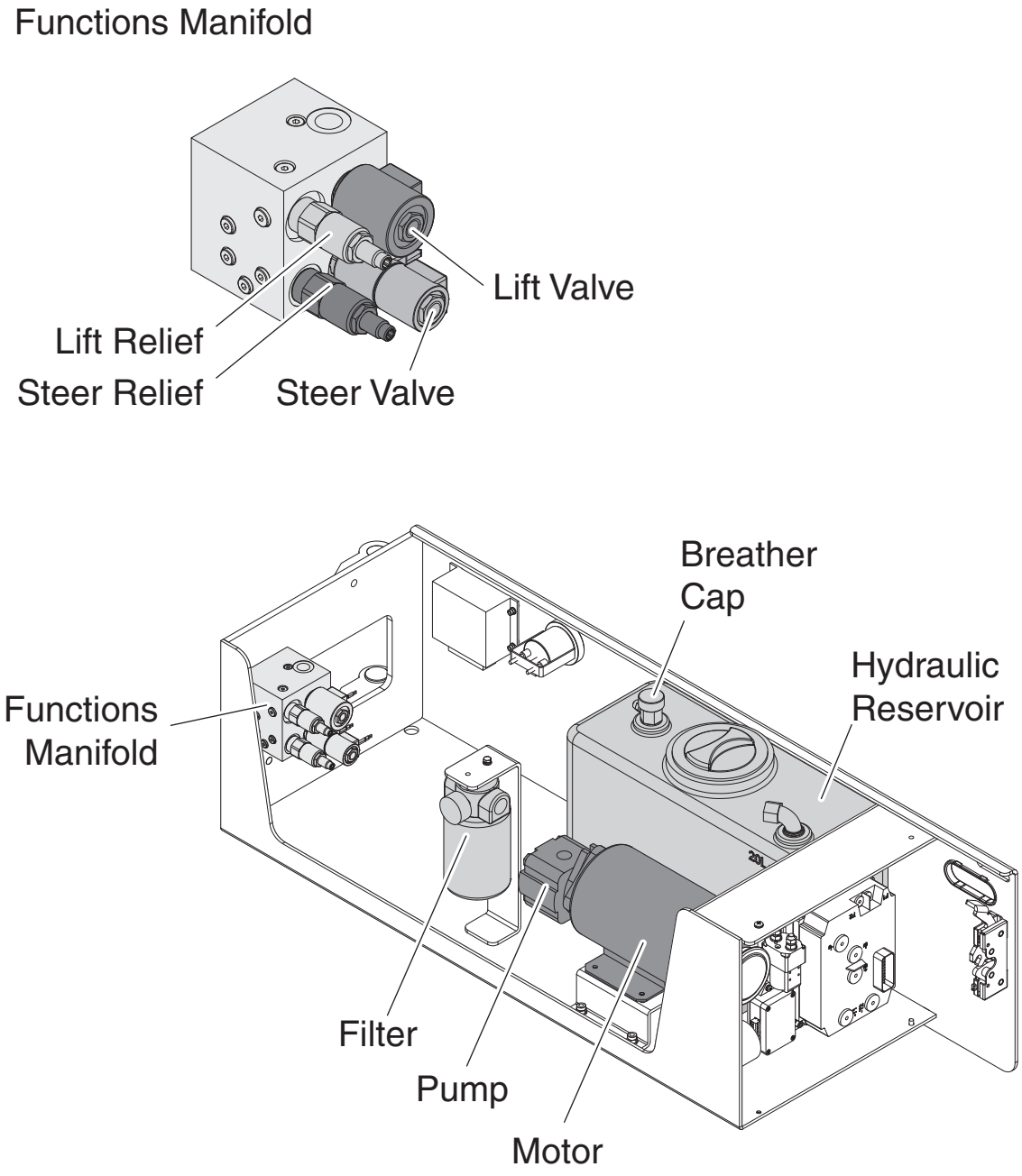

ILLUSTRATION No. ART_5136

4555SE HYDRAULIC COMPONENTS

ELECTRICAL SCHEMATIC, 1 OF 2

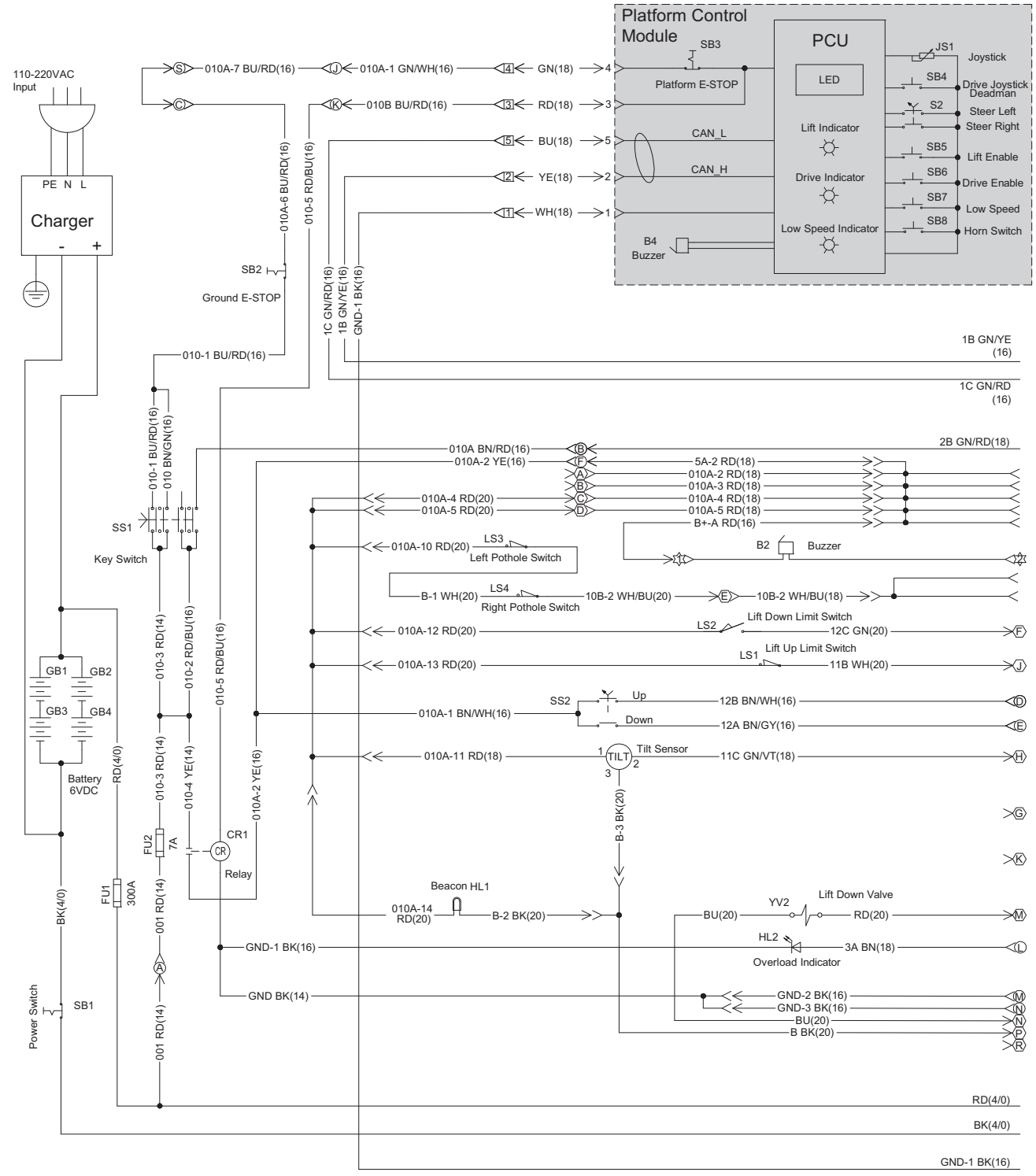

ILLUSTRATION No. ART_5141

4555SE ELECTRICAL SCHEMATIC, 1 of 2

ELECTRICAL SCHEMATIC, 2 OF 2

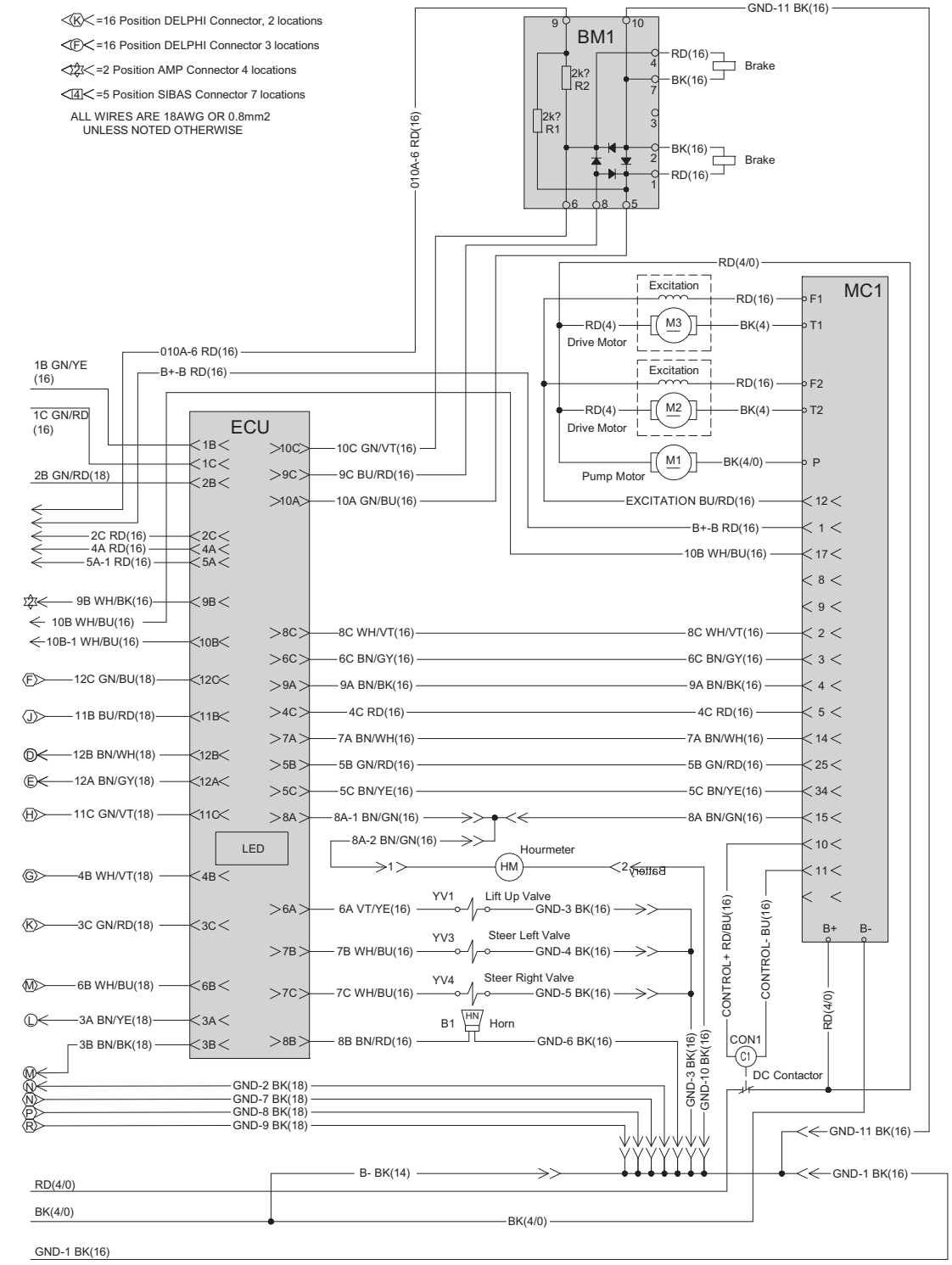

ILLUSTRATION No. ART_5142

4555SE ELECTRICAL SCHEMATIC, 2 of 2

WIRING DIAGRAM

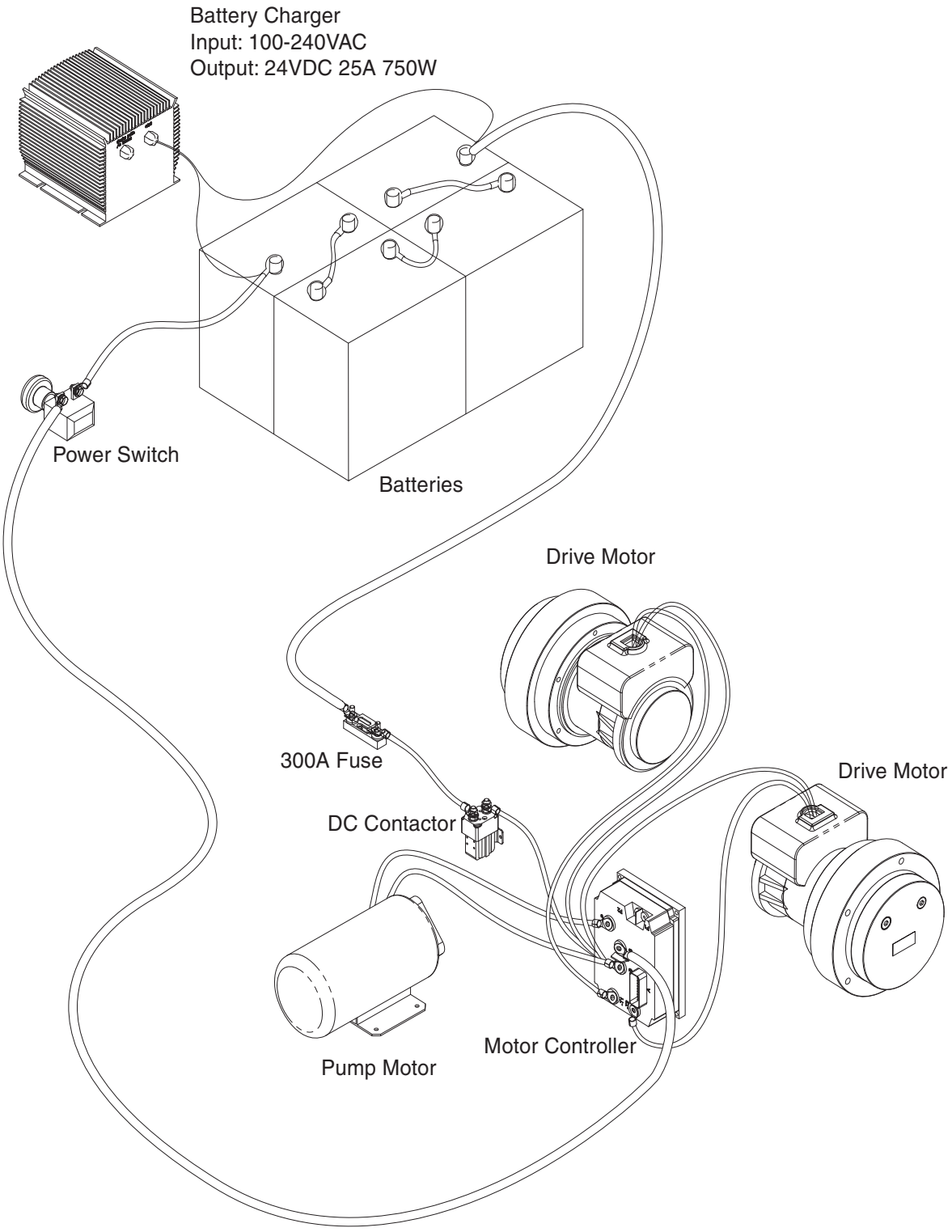

ILLUSTRATION No. ART_5143

4555SE WIRING DIAGRAM