SCAG®
POWER EQUIPMENT

OPERATOR'S MANUAL

RC Extreme Slope Mower

Model: SRC-52D-37BV-EFI

Congratulations on owning a Scag RC Extreme Slope Mower! This manual contains the operating instructions and safety information for your Scag remote controlled mower. Reading this manual can provide you with assistance in maintenance and adjustment procedures to keep your machine performing at maximum efficiency. The specific models that this book covers are listed on the inside cover. Before operating your machine, please read all the information enclosed.

Scag Power Equipment
Division of Metalcraft of Mayville, Inc.

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⚠ WARNING

FAILURE TO FOLLOW SAFE OPERATING PRACTICES MAY RESULT IN SERIOUS INJURY OR DEATH.

- Read this manual completely as well as other manuals that came with your remote controlled mower.
- DO NOT operate on slopes steeper than the mower is rated for.
- ALWAYS FOLLOW OSHA APPROVED OPERATION.
- Before performing any maintenance or service, stop the machine and remove the ignition key.
- If a mechanism becomes clogged, turn the machine off before cleaning.
- Keep hands, feet and clothing away from moving parts.
- DO NOT ride the remote controlled mower (no passengers)
- DO NOT Zero-Turn on slopes or soft ground.

REMEMBER - YOUR REMOTE CONTROLLED MOWER IS ONLY AS SAFE AS THE OPERATOR!

HAZARD CONTROL AND ACCIDENT PREVENTION ARE DEPENDENT UPON THE AWARENESS, CONCERN, PRUDENCE, AND PROPER TRAINING OF THE PERSONNEL INVOLVED IN THE OPERATION, TRANSPORT, MAINTENANCE, AND STORAGE OF THE EQUIPMENT.

This manual covers the operating instructions and illustrated parts list for:		
SRC-52D-37BV-EFI	**with a serial number of**	**Z6600001 to Z6699999**
Always use the entire serial number listed on the serial number tag when referring to this product.		

Table of Contents

GENERAL INFORMATION

1.1 INTRODUCTION

Your mower was built to the highest standards in the industry. However, the prolonged life and maximum efficiency of your mower depends on you following the operating, maintenance, and adjustment instructions in this manual.

If additional information or service is needed, contact your Authorized Scag Power Equipment Dealer.

We encourage you to contact your dealer for repairs. All Scag dealers are informed of the latest methods to service this equipment and provide prompt and efficient service in the field or at their service shop. They carry a full line of Scag service parts.

- IMPORTANT -

The replacement of any part on this product by other than the manufacturer's authorized replacement part may adversely affect the performance, durability, or safety of this product.

USE OF OTHER THAN ORIGINAL SCAG REPLACEMENT PARTS WILL VOID THE WARRANTY.

When ordering parts, always give the model and serial number of your mower. The serial number plate is located on the inside of the frame by the deck lift actuator on the operator (Left) side as shown in Figure 1-1.

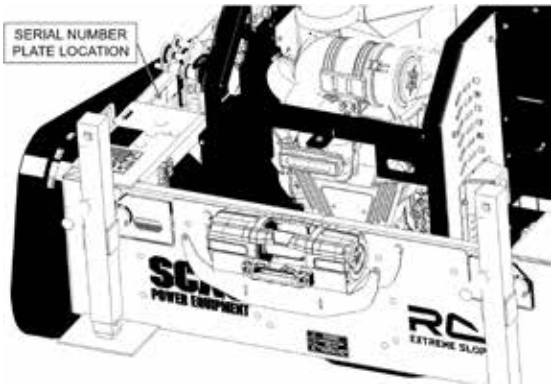


Figure 1-1. Mower Serial Number Plate Location

USE ONLY SCAG APPROVED ATTACHMENTS AND ACCESSORIES.

Attachments and accessories manufactured by companies other than Scag Power Equipment are not approved for use on this machine. Be aware that using attachments with the mower may affect stability. Be sure to follow the directions found in the operator's manual.

⚠ WARNING

For pictorial clarity, some illustrations and figures in this manual may show shields, guards or plates open or removed. Under no circumstances should your mower be operated without these devices properly in place.

All information is based upon product information available at the time of approval for printing. Scag Power Equipment reserves the right to make changes at any time without notice and without incurring any obligation.

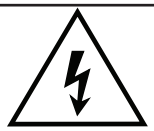
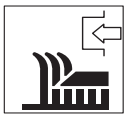
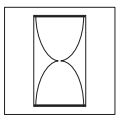
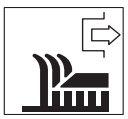
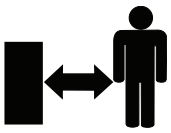
1.2 DIRECTION REFERENCE

The “Right” and “Left”, “Front” and “Rear” of the machine are referenced from the operator standing at the "Rear" of the machine looking forward at the engine. The "Front" of the machine is the direction the machine would travel forward if moving directly away from the operator. The "Rear" of the machine is the area closest to the operator with access to the engine air filter. The "Left" and "Right" sides of the machine are to the "Left" and "Right" of the operator when looking directly at the "Rear".

1.3 SERVICING THE ENGINE, BATTERY, AND DRIVE TRAIN COMPONENTS

The detailed servicing and repair of the engine, battery, drive train, and electrical components are not covered in this manual; only routine maintenance and general service instructions are provided. For service of these components during the limited warranty period, it is important to contact your authorized Scag dealer or find a local authorized servicing agent of the component manufacturer. Any unauthorized work done on these components during the warranty period may void your warranty.

1.4 SYMBOLS

	DESCRIPTION	SYMBOL	DESCRIPTION
	Disposal		Deck Motor Drive
	Parking Brake		Spinning Blade
	On/Start		Shock Hazard
	Off/Stop		Recycle
	Charging From Alternator		Thrown Object Hazard
	Charging From Wall Charger		Spring Tension on Idler
	Continuously Variable - Linear		Cutting Element - Basic Symbol
	Pinch Point		Cutting Element - Engage
	Hour meter/Elapsed Operating Hours		Cutting Element - Disengage
	Keep Bystanders Away		Read Operator's Manual

SAFETY INFORMATION

2.1 INTRODUCTION

Your mower is only as safe as the operator. Carelessness or operator error may result in serious bodily injury or death. Hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of the personnel involved in the operation, transport, maintenance, and storage of the equipment. Make sure every operator is properly trained and thoroughly familiar with all of the controls before operating the mower. The owner/user can prevent and is responsible for accidents or injuries occurring to themselves, other people, or property.

This product is capable of amputating hands and feet and throwing objects. Always follow all safety instructions on this product and in the manual to avoid personal injury or death.

READ, UNDERSTAND, AND FOLLOW ALL INSTRUCTIONS ON THE MACHINE AND IN THIS OPERATOR'S MANUAL BEFORE ATTEMPTING TO OPERATE YOUR MOWER.

MAKE SURE THAT EVERYONE KNOWS WHERE THE MANUAL IS LOCATED AND KEEP A RECORD OF EACH EMPLOYEE THAT HAS READ THE MANUAL.

A replacement manual is available from your authorized Scag Service Dealer or by contacting Scag Power Equipment, Service Department at P.O. Box 152, Mayville, WI 53050 or contact us via the Internet at www.scag.com. The manual for this machine can be downloaded by using the model and serial number or use the contact form to make your request. Please indicate the complete model and serial number of your Scag product when requesting replacement manuals.

2.2 SIGNAL WORDS

This symbol means **"Attention! Become Alert! Your Safety is Involved!"** The symbol is used with the following signal words to attract your attention to safety messages found on the decals on the machine and throughout this manual. The message that follows the symbol contains important information about safety. To avoid injury and possible death, carefully read the message! Be sure to fully understand the causes of possible injury or death.

SIGNAL WORD:

It is a distinctive word found on the safety decals on the machine and throughout this manual that alerts the viewer to the existence and relative degree of the hazard.

⚠ DANGER

The signal word "DANGER" denotes that an extremely hazardous situation exists on or near the machine that could result in high probability of death or irreparable injury if proper precautions are not taken.

⚠ WARNING

The signal word "WARNING" denotes that a hazard exists on or near the machine that can result in injury or death if proper precautions are not taken.

⚠ CAUTION

The signal word "CAUTION" is a reminder of safety practices on or near the machine that could result in personal injury if proper precautions are not taken.

Your safety and the safety of others depends significantly upon your knowledge and understanding of all correct operating practices and procedures of this machine.

2.3 BEFORE OPERATION CONSIDERATIONS

⚠ WARNING

Check all electrical connections for tightness. Inspect all electric cables to ensure they are in good condition before operating. When checking electrical connections, always ensure the key is removed and the EStop is engaged and check if there is power to the system from the batteries.

1. NEVER allow children to operate this remote controlled mower.
2. Do not mow when children and/or others are present. Keep children indoors, out of the mowing area and in the watchful care of a responsible adult, other than the operator, when the mower is being operated.
3. Be alert and turn machine off if a child or other person enters the area.
4. DO NOT allow children to ride or play on the machine, it is not a toy.
5. Instruct all operators not to give children a ride on machine or attachment.
6. NEVER carry children on a machine or attachment, even with the blades off.
7. DO NOT tow children in a cart or trailer. They can fall off and be seriously injured or interfere with safe machine operation.
8. Children who have been given rides in the past may suddenly appear in the mowing area for another ride and be run over or backed over by the machine.
9. NEVER use the machine as a recreational vehicle or to entertain children.
10. Use extreme care when approaching blind corners, shrubs, trees, or other objects that may block your view of a child.
11. Be aware of what is in the path of the machine at all times, in front and behind the machine.
12. Keep keys and remote stored in a safe location, not accessible to children, when the machine is not in use
13. Maintain or replace safety and instruction labels as necessary.
14. Only allow responsible adults who are familiar with the instructions to operate the machine.
15. Be sure the area is clear of bystanders and pets before operating. Stop the machine if anyone enters the area.
16. Inspect and clear the area to be mowed of objects that could be picked up and thrown by the cutter blades such as rocks, wire, toys, etc.
17. DO NOT ride on the machine or allow others to ride on the machine.
18. DO NOT operate the machine under the influence of alcohol or drugs.
19. Lightning can cause battery fires and explosions resulting in risk of injury or death. If lightning is seen or thunder is heard, DO NOT operate the machine and seek shelter.
20. If the operator(s) or mechanic(s) cannot read English, it is the owner's responsibility to explain this material to them in its entirety.
21. DO NOT wear loose fitting clothing. Loose clothing, jewelry or long hair could get tangled in moving parts. Do not operate the machine wearing shorts; always wear adequate protective clothing including long pants. Wearing safety shoes and a helmet is advisable and is required by some local ordinances and insurance regulations.

⚠ WARNING

Always wear eye and hearing protection when operating. Operating this machine over prolonged periods of time can cause loss of hearing.

22. Keep the machine and attachments in good operating condition. Keep all shields and safety devices in place. If a shield, safety device or decal is defective or damaged, repair or replace it before operating the machine.
23. DO NOT use the machine to tow, push, or pull other objects or equipment. The winch receptacles at the front and rear of the machine are only to be used with a Scag approved winch or shackle to free a stuck machine.
24. Fuel is flammable; handle it with care. Fill the fuel tank outdoors. Never fill it indoors. Use a funnel or spout to prevent spillage. Clean up any spillage before starting the engine or operating the machine.

25. DO NOT add fuel to a running or hot engine. Allow the engine to cool for several minutes before adding fuel. Never fuel indoors or inside enclosed trailers.
26. Keep flammable objects (cigarettes, matches, etc.), open flames and sparks away from the fuel tank and fuel container. Use only approved containers.
27. See Section 6.7 ENGINE FUEL SYSTEM for fueling procedure
28. Do not operate without the discharge guards installed. Check the discharge guards frequently and replace with manufacturer's recommended parts only, when necessary.
29. Never interfere with the intended function of a safety device or reduce the protection provided by the safety device. Check their proper operation regularly.
30. Equipment must comply with the latest requirements per SAE J137 and/or ANSI/ASAE S279 when driven on public roads.

- NOTE -

If the mower is driven on public roads, it must comply with state and local ordinances as well as SAE J137 and/or ANSI / ASAE S279 requirements. Contact your local authorities for regulations and equipment requirements.

31. Maintain safe distance between the machine and operator/bystanders. Scag Engineering recommends at least 15 feet when moving on flat ground and 50 feet while blades are operating
32. Check the blade mounting bolts at frequent intervals for proper tightness.
33. Make sure all electrical connections are tight and cables are in good condition before starting the machine.
34. Check hardware in critical locations such as on engine, battery, roll cage, track, traction motor, deck motor, and heatsink mounting bolts frequently to ensure integrity and safety of the machine.
35. Check connection of antennas on the remote and machine. Weak or lost connection between the remote and machine will cause the machine to enter the Emergency Stop state.

⚠ WARNING

This machine is equipped with an interlock system intended to protect the operator and others from injury. This is accomplished by preventing the machine from turning on and the engine from starting unless the guarding is properly installed, and the operator completes the startup procedure correctly. The system does not allow the machine to operate if the guarding is removed and/or proper startup procedure is not followed. Never operate equipment with the interlock system disconnected or malfunctioning.

36. Test the operation of the safety interlock system. See Section 2.4, Page 5.
37. Be sure the interlock switches are functioning correctly.

2.4 TESTING THE SAFETY INTERLOCK SYSTEM

Test the safety interlock system before you use the machine each time. If the safety interlock system does not operate as described below, DO NOT use the machine and contact your local Authorized Scag Power Equipment Dealer immediately for repair of the safety interlock system.

1. Engage the PTO switch to the ON (pulled out) position. Turn on the machine, and attempt to turn on the blade motors. The blades should not turn on.
2. Remove the guard that depresses the guarding switch. Try to turn on the machine, the system should not turn on.
3. Move the Emergency Stop (red button) switch to the OFF (pushed in) position. Try to drive the machine and turn the deck on, the machine should not drive and the deck should not turn on.
4. With the machine turned on, the deck on and machine moving, move the Emergency Stop (red button) switch to the OFF (pushed in) position. The deck and drive motors should shut off.

2.5 SAFE HANDLING AND USE OF BATTERIES

⚠ DANGER

To avoid personal injury or property damage, use extreme care in handling batteries. Batteries when abused may pose fire, explosion and severe burn hazard. Handle with caution.

1. DO NOT touch any live connections on the machine.
2. Avoid transportation or mechanical impact that may physically damage the batteries.
3. Battery terminals should only be cleaned with compressed air or dry towel.
4. DO NOT use batteries that are not designed for use with this machine. Severe damage to the machine can occur.
5. DO NOT expose the batteries to temperatures above 60° C (140° F) or lower than -20° C (4° F). Temperatures outside this range will impact the batteries' life cycle and integrity.
6. Avoid storing the batteries in direct sunlight.
7. Store batteries in a clean, dry place.

2.6 OPERATION CONSIDERATIONS

1. Know the function of all controls and how to stop quickly.
2. NEVER operate the machine in a closed area.
3. Keep hands and feet away from cutter blades. Contact can cause injury or death.
4. DO NOT put hands or feet near rotating parts or under the machine.
5. Keep clear of the discharge openings and exhaust.
6. Follow the manufacturer's recommendations for track tension and attachment weights.
7. DO NOT connect the AC charger to the machine while it is running. Wait for the machine to completely shut down before connecting the AC charger.
8. DO NOT Zero-Turn on slopes or soft ground.

⚠ WARNING

DO NOT operate on steep slopes exceeding the rated maximum. To check a slope, attempt to back up it (with the cutter deck down). If the machine can back up the slope without the tracks slipping, reduce speed and use extreme caution. Under no circumstances should the machine be operated on slopes greater than 45 degrees. See Figure 2-2 to determine approximate slope of area to be mowed or use a straight edge and an app on your cell phone. ALWAYS FOLLOW OSHA APPROVED OPERATION.

9. Reduce speed, lower deck height, and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing directions on slopes.
10. Stay two cut widths away from drop offs, ditches, water and retaining walls.
11. Never operate in standing water or mud due to risks of electric shock and becoming stuck.
12. To prevent tipping or loss of control, start and stop smoothly, avoid unnecessary turns and travel at reduced speed. Use caution when operating the mower on an incline.
13. Immediately push the emergency stop button and turn off the key switch if you lose control while operating. Inspect the machine and correct the problem before continuing to operate.
14. Never operate with the discharge of material toward anyone. Avoid discharging material against a wall or obstruction. Material may ricochet toward operator or damage property.
15. Before attempting to turn the machine on, with the operator in the defined operator zone, disengage the PTO switch, turn the remote unit on and hold it with no buttons or joysticks engaged.
16. Shut off the machine, remove the ignition key, ensure the batteries are powered down, and wait for all movement to stop before cleaning the machine, performing checks and maintenance, or unclogging the discharge guards.
17. NEVER leave the machine on or leave the key in the machine when not attended. A machine left on for extended periods of time at low SOC (State of Charge) may cause its batteries to become unusable.

18. NEVER have two remotes that are paired with the same machine on or usable at the same time. Unpredictable or hazardous conditions are possible.

⚠ WARNING

DO NOT use your hand to dislodge the clogged discharge guards. Use a stick or other device to remove clogged material after the machine has shut off and the blades have stopped turning.

19. Be alert for holes, rocks, roots and other hidden hazards in the terrain. Keep away from any drop-offs. Beware of overhead obstructions (low limbs, etc.) and underground obstacles (sprinklers, pipes, tree roots, etc.). Cautiously enter a new area. Be alert for hidden hazards. It is best practice to survey a new area completely on foot, noting or removing obstacles and hazards prior to cutting.
20. Disengage power to cutter deck before maneuvering where the discharge directions could point in hazardous directions.
21. DO NOT turn or maneuver sharply. Sharp turns can cause damage to property and may result in thrown object hazards in unsafe directions.
22. Disengage power to cutter deck before crossing roads, walks, or gravel drives.
23. Watch for traffic when operating near or crossing roadways.
24. Mow only in daylight or good artificial light.
25. NEVER raise the deck higher than the material being cut with the blades engaged.
26. NEVER leave the machine running unattended.
27. Disengage the mower deck, lower the deck, and engage the traction motor brakes before approaching the machine.
28. Disengage the deck motors when transporting or when not in use.
29. The machine and attachments should be stopped and inspected for damage after striking a foreign object, and damage should be repaired before restarting and operating the machine.
30. Use care when cutting and maneuvering near blind corners, blind hills, shrubs, trees, or other objects that may obscure vision.
31. DO NOT run the machine if the batteries are on different firmware versions.
32. DO NOT run the machine with less than 3 batteries connected and functioning.

2.7 TRANSPORTING THE MOWER

1. Transport the mower using a heavy duty trailer or truck. Ensure the trailer or truck has all of the necessary lighting and markings as required by laws, codes, and ordinances. Secure to a trailer with safety chains.
2. Clean the machine of debris with a leaf blower or compressed air prior to putting the machine on a trailer.
3. Be cautious when loading and unloading onto trailers or trucks. Use only a full width ramp. Ramp angle should be no more than 30 degrees.
4. When transporting the mower, make sure the machine is off with the key removed and the tracks have been blocked.
5. Tie the mower down securely using straps, chains, cables, or ropes. Both front and rear straps must be directed down and outward from machine. Ensure all tie-downs are hooked through the tie-down points, up and around the upper frame tube located in each corner of the outer frame. DO NOT hold the machine down by the inner roll cage. See Figure 2-1.

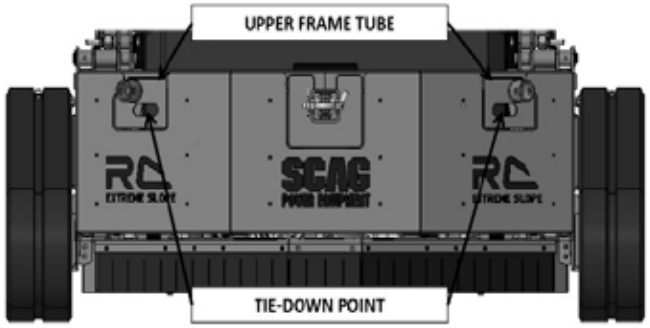


Figure 2-1. Machine Tie-Down Points

⚠ WARNING

Be cautious when loading and unloading onto trailers or trucks.

Use only a full width ramp.

Ramp angle should be no more than 30 Degrees. See Figure 2-2 to help determine approximate slope or use a striaght edge and an app on your cell phone.

2.8 MAINTENANCE CONSIDERATIONS & STORAGE

1. Never make adjustments to the machine with the machine running unless specifically instructed to do so. If the machine is running, keep hands, feet, and clothing away from moving parts.
2. Park the machine on level ground, and push the emergency stop button prior to storage, cleaning, or repair.
3. Disengage PTO, lower the deck, stop the machine, remove key, push the emergency stop button and disconnect the main leads from the 12V and 48V battery systems to prevent accidental starting when servicing or adjusting the machine. Wait for all movement to stop before adjusting, cleaning or repairing.
4. Disconnect batteries before making any repairs. Disconnect the negative terminal first and the positive last. Reconnect the positive first and the negative last
5. Remove the key, push the emergency stop button and disconnect the batteries before making any repairs. Reconnect the batteries once repairs have been completed.
6. Keep all nuts, bolts and screws tight, to ensure the machine is in safe working condition. Check blade mounting bolts frequently to be sure they are tight.
7. To reduce fire hazard, keep the cutting units, alternator, engine, and drive motors free of grass, leaves, excessive grease, oil, and dirt. Blow off the loose debris with a leaf blower or compressed air and allow the machine to cool before storing.
8. DO NOT spray water on a hot engine or other hot components.
9. NEVER spray water on any electronic components .
10. NEVER allow untrained personnel to service the machine.
11. Use care when checking blades. Use a Blade Buddy (P/N 92125), wrap the blade(s) or wear gloves and USE CAUTION when servicing blades. Only replace blades. NEVER straighten or weld blades.
12. Keep all parts in good working condition. Replace all worn or damaged decals.
13. Use jack stands to support components when required.
14. Carefully release pressure from components with stored energy such as springs, cylinders, and belts.
15. Avoid storage in direct sunlight.
16. Let the engine cool before storing.
17. DO NOT expose the batteries to temperatures above 55° C (130° F) or lower than -20° C (4° F). Temperatures outside this range will impact the batteries life cycle.
18. Store batteries in a clean, dry place.
19. DO NOT store the machine or fuel near an open flame or other heat source.
20. Shut off fuel while storing or transporting.
21. DO NOT drain fuel indoors.
22. Charge batteries in an open, well ventilated area, away from spark and flames. Unplug charger before connecting or disconnecting from battery. Wear protective clothing and use insulated tools.

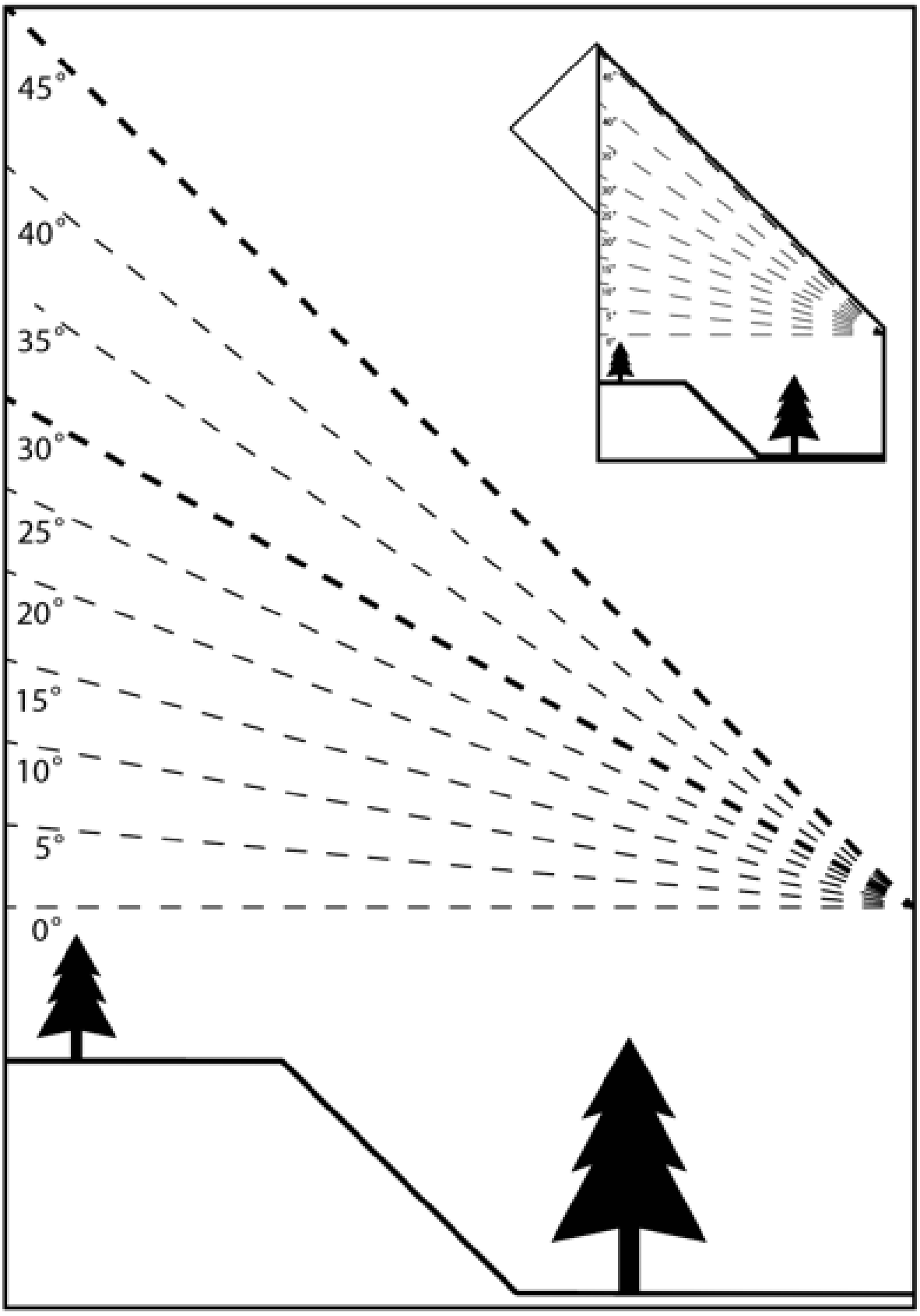
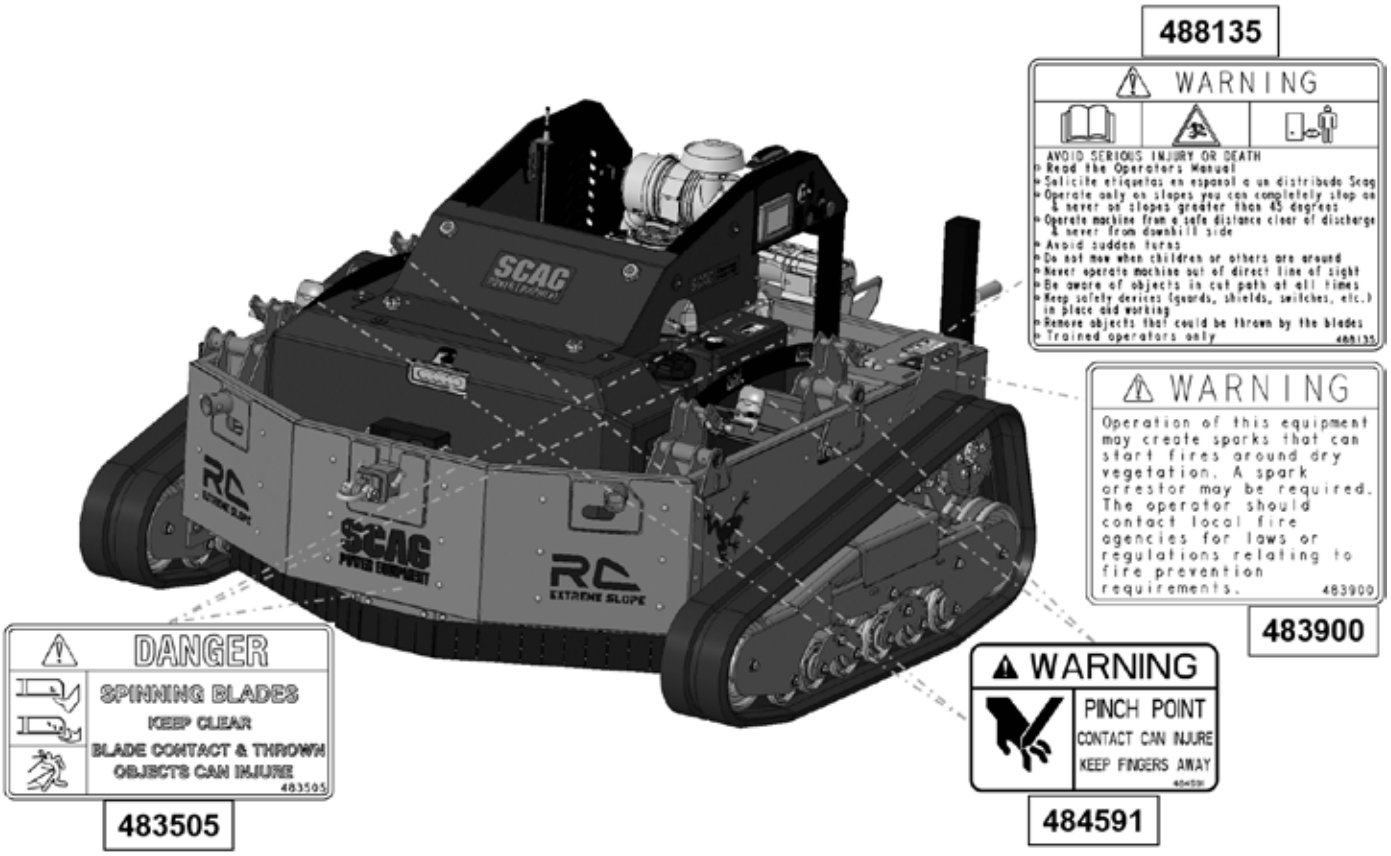


Figure 2-2. Angle Reference

2.9 SAFETY DECAL LOCATION



SPECIFICATIONS

3.1 BATTERY/ENGINE

48V Battery System:

Battery Type	Alliance I48-3.0 Lithium Ion
Battery Voltage	48 Volt
Total Battery Capacity	9 kWh
Number of Batteries on Machine	3
Battery Fixed / Removable	Removable
Limp Mode	Yes
Charging Method	48 Volt Alternator, Optional Wall Charger

12V Battery System:

Battery Type	Lead-Acid
Battery Voltage	12 Volt
Number of Batteries on Machine	1
Charging Method	12 Volt Alternator, Standard 12 Volt Battery Charger

Engine:

Engine Model	Briggs & Stratton Vanguard Oilguard 37HP ETC EFI
Engine Displacement	993cc
Engine Type	Heavy Duty Industrial/Commercial Gasoline
Engine Speed	3600 RPM
Engine Cylinders	2 with Cast-Iron Sleeves
Engine Fuel	Non-Leaded Gasoline with a Minimum Octane Rating of 87
Engine Oil Grade and Capacity	See Engine Manufacturer's Specifications
Engine Starter	Electric Starting with Solenoid Shift Starter
Fuel Tank Capacity	8 Gal (30.3L)

3.2 CHARGING

Charge Time - Optional AC Charger	5 Hours (Approximate - Varies based on conditions)
Charge Time - On-Board Alternator	5-6 Hours (Approximate - Varies based on conditions)
On-Board / Off-Board Charging	Alternator On-Board - Charger Off-Board
Alternator Rated Output	7kW

3.3 ELECTRICAL / INSTRUMENTATION

Interlock Switches	Guarding, Emergency Stop, Mower Engagement (PTO), Remote Presence/E Stop
Instrument Panel	Operator Information Display, Key Switch, PTO Switch, E-Stop Switch, Light Switch, Winch Port
Fuses	3 Amp, 5 Amp, 20 Amp, 150 Amp & 200 Amp Fuses Provided
Relays	Engine Start, Engine Stop, Battery Power, DC Key & ACC, HZD, ALT IGN, and Actuator Power
Ingress Protection	Tested to IPX4 per IEC 60529 for Protection Against Splashing Water from Normal use

3.4 MOWER

Traction Drive System	Electric Drive Motors
Traction Drive Motors	Omni PMAC Motors
Traction Drive Motor Gearbox Oil Grade	EP85W-140 (GL-5)
Traction Drive Motor Gearbox Oil Capacity	1.06 QTS
Traction Drive Motor Gearbox Gear Ratio	26:1
Traction Drive Motor Rated Output Power	3 kW

Parking Brake ..... Internal / Electrically Activated
Parking Brake Setup/Override ..... Normally Engaged / Automatically Disengaged / Hand Lever Manual Override

Steering/Travel Control ..... Fort Safety Remote Joystick Steering Control with Individual Control to Each Track

Tracks:
(2) Drive ..... OTR C Track - 180mm Width/72 mm Pitch/3240mm Length

Travel Speed:
Forward ..... 0 up to 3 MPH
Reverse ..... 0 up to 3 MPH

-NOTE-
The machine will travel up to 3 mph for transport purposes. For best cutting performance the travel speed should be adjusted depending upon the cutting conditions.

3.5 CUTTER DECK

Type ..... Floating, Adjustable, Patented Designs
Construction ..... Commercial grade with reinforcement throughout the deck motor area

True Cutting Width:
SRC ..... 52" (132 cm)

Cutting Height Adjustment ..... Remote Operated Deck Height Actuators

True Cutting Height Range ..... 3" up to 12"

Cutter Blades ..... 0.197in Thick, Milled Edge, Wear Resistant

Blade Engagement ..... Electric PMAC Motors with Control Panel Engagement (PTO) Switch and Remote Activation
KW per Spindle Motor ..... 2.3 KW (peak)

Blade Motor Housing ..... Cast Aluminum

Discharge Opening ..... Symetrical Front and Rear Discharge Openings to allow for Bidirectional cutting
Discharge Guard ..... Discharge Flaps, Flexible

3.6 WEIGHTS AND DIMENSIONS

Length:
SRC ..... 75.4"
Overall Width:
SRC ..... 70"
Overall Height:
SRC ..... 41"-50"
Operating Weight:
SRC ..... 2400 lbs

OPERATING INSTRUCTIONS

⚠ WARNING

Do not attempt to operate this mower unless you have read this manual. Learn the location and purpose of all controls and instruments before you operate this mower.

4.1 CONTROLS AND INSTRUMENT IDENTIFICATION

Before operating the mower, familiarize yourself with all mower and remote controls. Knowing the location, function and operation of these controls is important for safe and efficient operation of the mower.

1. **Key Switch (Figure 4-2).** The ignition switch is used to turn the machine on and has three positions; OFF, ON, and ENGINE START. The OFF position commands the 48V batteries to stop supplying power.
2. **PTO Switch (Figure 4-2).** Used to engage and disengage the mower deck system. Pulling out on the switch with the remote engaged will allow the remote to engage the deck drive motors. Pushing in the switch will disengage the deck drive motors.
3. **Emergency Stop Switch (Figure 4-2).** Used to engage and disengage Drive and Deck motor function to the machine. Pulling out on the switch will allow the drive and deck motors to function. Pushing in the switch will stop the motors from functioning. Switch must be in the pulled out position to operate the machine. The machine must be key cycled after the ESTOP is used to clear the fault that is produced. NOTE: Battery power IS NOT controlled by ESTOP
4. **Light Switch (Figure 4-2).** Used to turn the work lights ON and OFF.

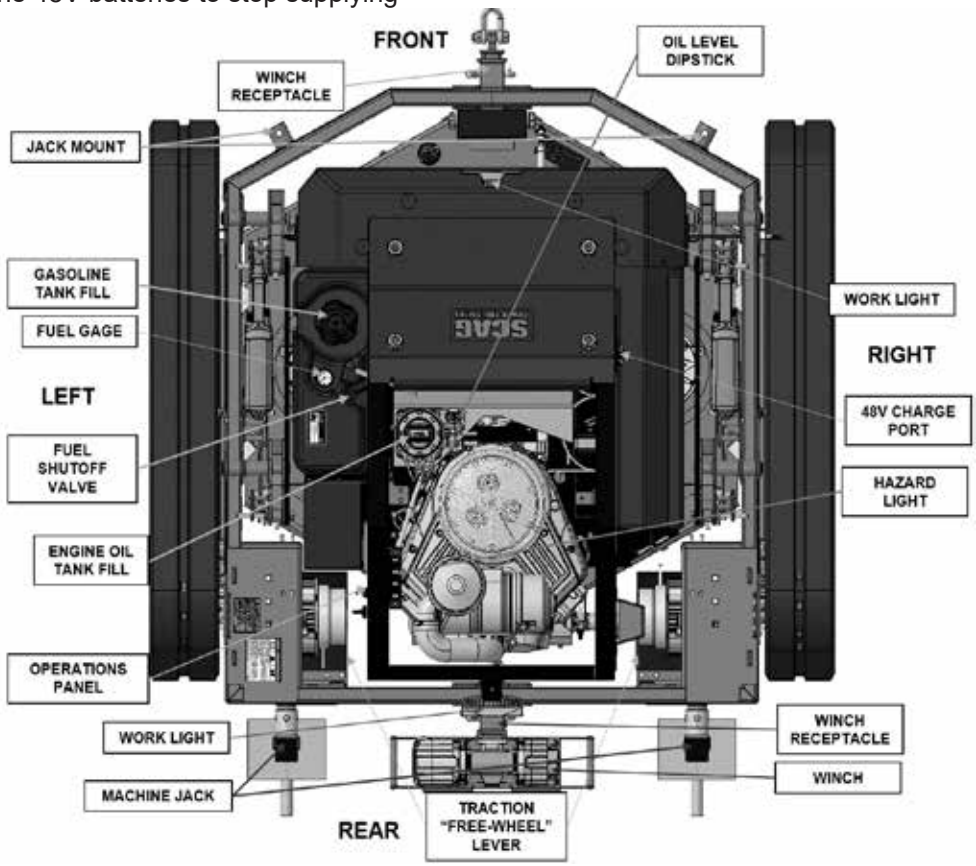


Figure 4-1. Machine Overview

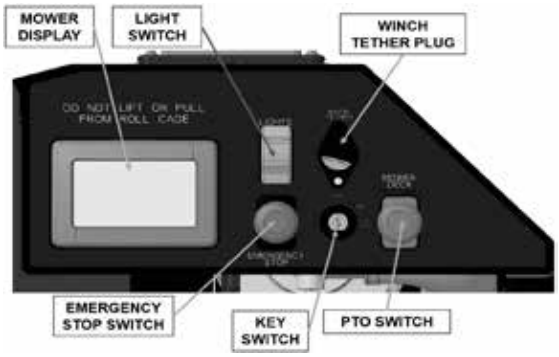


Figure 4-2. Operations Panel

5. **Winch Tether Plug (Figure 4-2).** Used to plug the optional WARN winch control into when using the winch on the machine. When not in use, cover with the attached rubber cover.
6. **Fuel Shutoff Valve (Figure 4-1).** Used to shut off fuel supply to the engine. Rotate the valve counter clockwise to supply fuel from the tank to the engine. Rotate the valve clockwise to shut off the fuel supply to the engine.
7. **Fuel Gage (Figure 4-1).** Indicates the amount of fuel in the fuel tank.
8. **Oil Level Dipstick (Figure 4-1).** Used to check the level of oil in the oil tank.
9. **48V Charge Port (Figure 4-1).** Used to connect the optional charger to the machine to charge the hybrid batteries. Only use Scag approved charger.

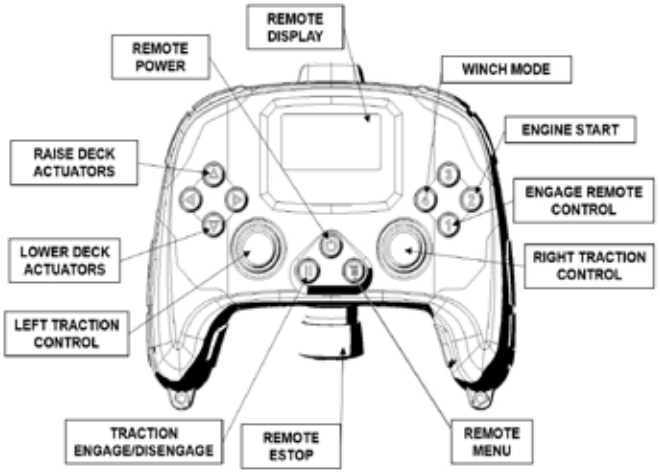


Figure 4-3. Fort Remote Controls

10. **Traction "Free Wheel" Levers (Figure 4-1).** Used to disengage the motor brakes allowing the unit to "free wheel" and be moved by a winch or hand. To operate, pull the lever out of the horizontal position to release the motor brake and return the lever to the horizontal position to restore the motor brakes in standard operation. Note: DO NOT operate the machine with the motor brakes disengaged. Free Wheeling should only be done to make adjustments or move a stuck machine.
11. **Gasoline Tank Fill (Figure 4-1).** Used to fill the machine with fuel.
12. **Engine Oil Tank Fill (Figure 4-1).** Used to fill the engine oil tank on the machine and access the oil filter.
13. **Operations Panel (Figure 4-1).** Hosts operator controls and information on the machine.
14. **Winch Receptacle (Figure 4-1).** Used to connect the Scag approved winch and tow shackle. DO NOT use to tow other equipment or attach attachments that are not approved by Scag Power Equipment.
15. **Winch (Figure 4-1).** Used to recover the machine when stuck. Has attached Bluetooth HUB receiver for wireless control with cell phone (See Section 4.18). DO NOT use to tow or pull other equipment. Engine must be running when using the winch to tow the machine.
16. **Jack Mount (Figure 4-1).** Used to connect the machine jacks to the machine for use and transport.
17. **Machine Jack (Figure 4-1).** Used to lift the machine for easy maintenance. Use only on flat ground. DO NOT put any body parts under the machine while it is jacked up. Remove jacks from machine if climbing slopes greater than 30 degrees.
18. **Hazard Light (Figure 4-1).** The hazard light turns on to warn when the machine is in a potentially hazardous state including when the controllers are powered and when there is a fault during charging.
19. **Work Lights (Figure 4-1).** Used to provide illumination to a work area. The attached lights may not be sufficient to properly light a work area alone. DO NOT operate the machine in poorly lit conditions where you cannot clearly see potential hazards.

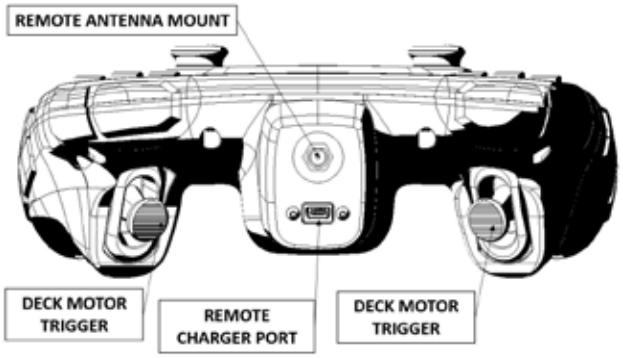


Figure 4-4. Fort Remote Controls Cont.

20. **Mower Display (Figure 4-2).** Used to display the machine conditions including the number of hours the machine and engine have been operated, state of battery charge, and fault codes. It operates whenever the ignition key switch is in the ON position.
21. **Left Traction Control (Figure 4-3).** Joystick used to control the mower's left track when traveling forward or reverse.
22. **Right Traction Control (Figure 4-3).** Joystick used to control the mower's right track when traveling forward or reverse.
23. **Traction Engage/Disengage (Figure 4-3).** Used to pause the traction and deck motor operations and all remote input. Remote must be engaged for this function to work. Note: Stop Deck motors with triggers prior to pausing operation to prevent a sequence fault that requires key cycle.
24. **Remote Estop (Figure 4-3).** Used to disable the traction and deck motors when pressed in. Rotate and pull the button out to reset the button. Note: The machine will require a key cycle to resume operation.
25. **Remote Menu (Figure 4-3).** Used to access the settings menu of the controller to change settings such as brightness and sleep timing. Note: Some vital safety settings are automatically set by the machine and cannot be changed.
26. **Remote Power (Figure 4-3).** Used to turn the remote on and off.
27. **Winch Mode Button (Figure 4-3).** Used to turn the gasoline engine on and off in order to use the winch without over discharging the 12V battery. Press and hold the button for 2 seconds and then wait for the engine to turn on or off.
28. **Engage Remote Control (Figure 4-3).** Used to enable remote control of the machine once the remote connects to the receiver on the machine. The remote display will show a prompt when connected.
29. **Remote Display (Figure 4-3).** Used to display machine specific information and status of the remote's connection.
30. **Raise Deck Actuators (Figure 4-3).** Used to raise the deck height. Note that the remote must be connected and enabled.
31. **Lower Deck Actuators (Figure 4-3).** Used to lower the deck height. Note that the remote must be connected and enabled.
32. **Remote Antenna Mount (Figure 4-4).** Used to attach the supplied antenna to the remote.
33. **Remote Charger Port (Figure 4-4).** Used to attach the remote to a charging cable to charge its internal battery. Only use a USB Mini B charging cable on a 5V output USB Charger.
34. **Deck Motor Triggers (Figure 4-4).** Used to turn the deck motors on and off. Flip and hold both triggers down for 2 seconds to turn the deck on and flip either trigger up or down to turn the deck motors off. Note: PTO switch must be engaged (Pulled out) after the machine is turned on and remote is engaged for the deck motors to be started.
35. **Engine Start Button (Figure 4-3).** Used to turn the gasoline engine on and off if the machine is in the charging window between 20% and 90% State of Charge (SOC). Press and hold the engine start button for 2 seconds and then wait for the engine to turn on or off. Note: It may take up to 10 seconds for the engine to turn on and off when commanded by the remote due to the remote starting sequence and safety checks.

4.2 MOWER DISPLAY

This machine is equipped with a display that will monitor the condition of the battery pack as well as various Fault Codes. With the emergency shutoff switch in the pulled out position and the key in the on position, the mower display will first show the Scag Power Equipment logo briefly (See Figure 4-5) then proceed to the main display screen (See Figure 4-6). If any of these screens are not shown in this condition, service is needed. Contact your Scag Power Equipment Dealer.

Figure 4-5. Scag Power Equipment Logo Screen

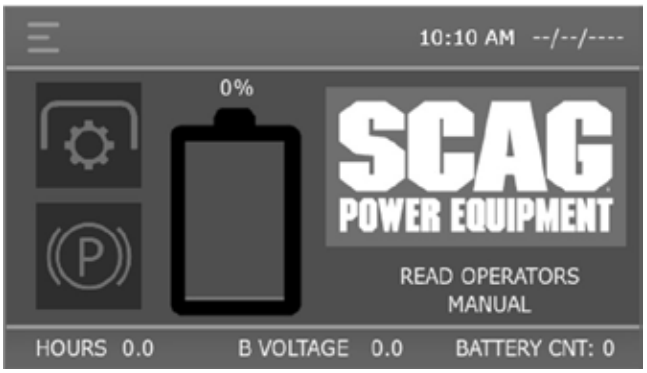


Figure 4-6. Mower Display Main Screen

The Menu Button in the upper left corner of the screen will access the following screens on the mower display.

1. **Brightness.** See Figure 4-8. Used to adjust the brightness of the display screen.
2. **Time & Date.** See Figure 4-9. Used to adjust the time and date shown on the display.
3. **Information.** See Figure 4-10. Reference screen for the mower information.
4. **Diagnostics.** See Figure 4-10. Used to display battery and engine information and to log and store Fault Codes.

To access these screens, tap the Menu Button in the upper left corner of the display and select the desired screen from the list on the left side of the display. See Figure 4-7.

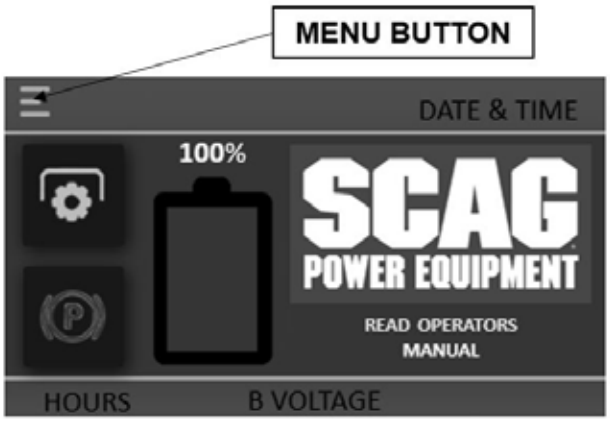


Figure 4-7. Mower Display Menu Button

Adjusting the brightness of the mower display screen.

1. Select the Brightness screen using the Menu button.
2. Use the positive (+) and negative (-) buttons on the screen to increase or decrease the display screen brightness to the desired setting. See Figure 4-8.

Figure 4-8. Brightness Screen

Adjusting the time and date of the mower display screen.

1. Select the Time & Date screen using the Menu button.
2. Use the arrow buttons to set the time and date to the desired setting and press "Set Clock" when done.

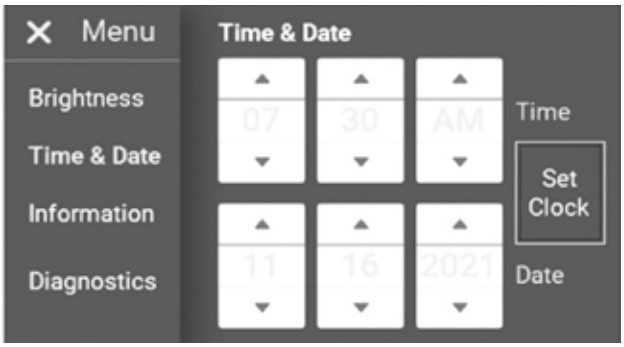


Figure 4-9. Time & Date Screen

The information screen on the mower display will reference to see the operator's manual for mower information. See Figure 4-10. No other information will display on this screen.

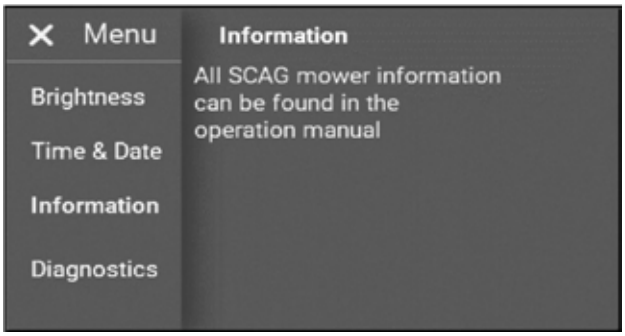


Figure 4-10. Information Screen

The Diagnostic Menu on the mower display screen will show the gas engine hours and 12V battery voltage as well as provide access to the following screens on the mower display.

1. **Battery Pack.**
2. **Faults.**

To access the current information about the battery on the display screen.

1. Select the Diagnostics screen using the Menu button.
2. Select the battery Screen using the Battery Pack button. See Figure 4-11.
3. The battery information will be shown. See Figure 4-12.
4. Use the Exit button to return to the Diagnostics screen.

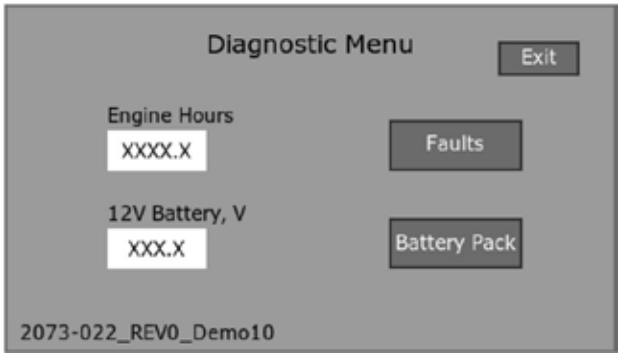


Figure 4-11. Diagnostics Screen

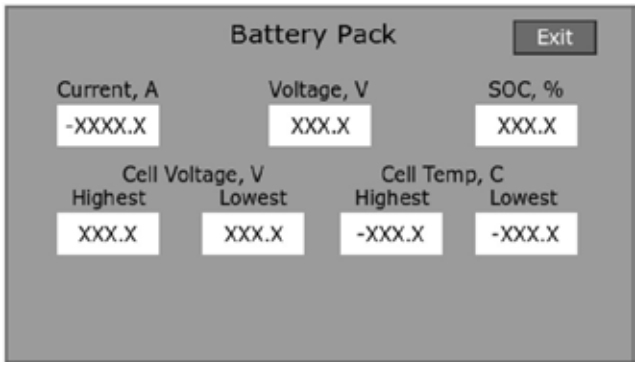


Figure 4-12. Battery Screen

To access the Fault Codes of the machine on the display screen.

1. Select the Diagnostics screen using the Menu button.
2. Select the Fault Codes Screen using the Faults button. See Figure 4-11.
3. If there are any Fault Codes on the system, they will be shown and can be expanded to get additional information by tapping the fault. See Figure 4-13.
4. Use the OK button to return to the Diagnostics screen.

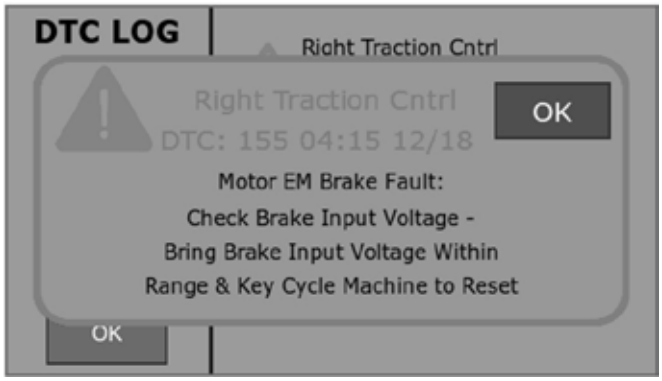


Figure 4-13. Fault Code Screen

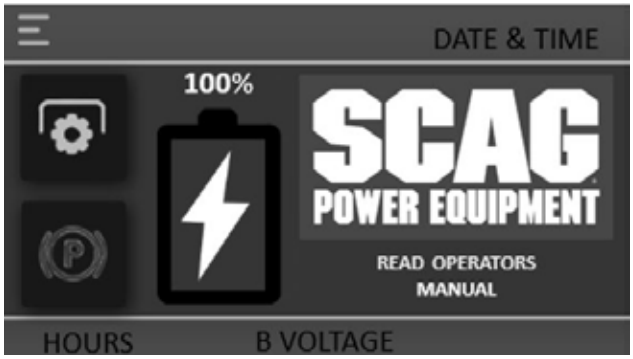


Figure 4-14. Charging From Alternator

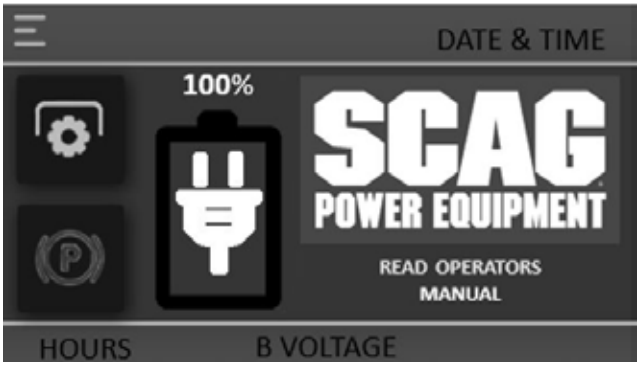


Figure 4-15. Charging From External Charger

The machine will show if the batteries are charging on the display screen.

1. If the machine is charging from the alternator a lightning bolt icon will overlay the battery icon on the main screen. See Figure 4-14.
2. If the machine is charging from an optional external charger a power cord plug icon will overlay the battery icon on the main screen. See Figure 4-15.

4.3 SAFETY INTERLOCK SYSTEM

The mower is equipped with a safety interlock system that prevents the machine from being Active to Drive unless the emergency stop switch is engaged, safety guarding is in place, and remote connection is established. The interlock system shuts off the key circuit if the guarding is not correctly in place.

4.4 TESTING THE SAFETY INTERLOCK SYSTEM

Test the safety interlock system before you use the machine each time. If the safety interlock system does not operate as described below, DO NOT use the machine and contact your local Scag Power Equipment Dealer immediately for repair of the safety interlock system.

1. Engage the PTO switch to the ON (pulled out) position. Turn on the machine, and attempt to turn on the blade drive motors. The blades should not turn on.
2. Remove the guard that depresses the guarding switch. Try to turn on the machine, the system should not turn on.
3. Move the Emergency Stop (red button) switch to the OFF (pushed in) position. Try to drive the machine and turn the deck on, the machine should not drive and the deck should not turn on.
4. With the machine turned on, the deck on and machine moving, move the Emergency Stop (red button) switch to the OFF (pushed in) position. The deck and drive motors should shut off.

⚠ WARNING

Never operate the mower with the interlock system disconnected or malfunctioning. Do not disengage or bypass any switch; injury to yourself and others or property damage could result.

4.5 INITIAL RUN-IN PROCEDURES

FIRST WEEK OF USE OR APPROXIMATELY 50 HOURS

1. Check all battery cables and electrical connections for tightness at 8 and 20 hours.
2. Check for loose hardware at 8 and 20 hours. Tighten as needed.
3. Check interlock system for proper operation. (See Section 4.4.)
4. Check track tension at 2, 4, 8, and 12 hours. Adjust if necessary. (See Section 7.5.)
5. Check alternator belt for alignment and wear at 2, 4, and 8 hours.

6. Check Fuel and Oil systems for leaks at 8 and 20 hours.
7. Change engine oil and oil filter after the first 50 hours of operation. (See Section 7.9.)
8. Change traction motor gearbox oil after the first 50 hours of operation. (See Section 7.10.)

4.6 STARTING THE SYSTEM

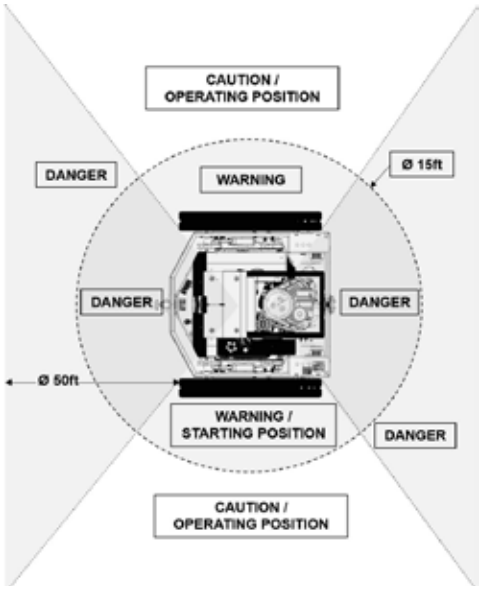


Figure 4-16. Operator Area

1. Stand in the Starting Position near the operation panel.
2. Place the Emergency Stop Switch in the pulled out position.
3. Place the PTO switch in the disengaged (pushed in) position.
4. Turn on the remote control with the Remote power button.
5. Turn the ignition key to the ON position and wait approximately 5-10 seconds for the electrical system to turn on and the remote to connect. Note: The remote will give a prompt on its screen when a connection is established.

4.7 GROUND TRAVEL AND STEERING

- IMPORTANT -

If you are not familiar with the operation of a machine with individual stick track steering, the steering and ground speed operations should be learned and practiced in a flat open area, away from buildings, fences, or obstructions.

Learn the operation on flat ground before operating on slopes or around obstacles.

Start practicing with a slow forward travel speed.

Learn to feather the steering joysticks to obtain a smooth operating action.

Practice operating the mower until you are comfortable with the controls before proceeding to mow.

TRAVEL

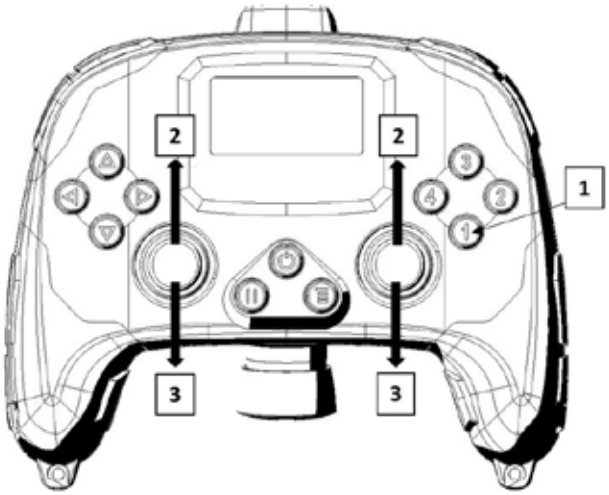


Figure 4-17. Travel Controls

1. Engage the remote control with the "1" button when prompted on the remote display. Note: Make sure Joysticks are in the neutral position when pressing the "1" button
2. Forward travel.
3. Reverse travel.

To travel forward with the mower, slowly push the traction control joysticks forward an equal distance. The further the joysticks are pushed forward the greater the forward speed will be. To increase the speed, push the joysticks further forward and to decrease the speed, pull the joysticks back.

To stop the forward travel, release the joysticks so they travel back to the neutral position.

To steer the mower left while traveling forward, pull the left joystick back. The further the joystick is pulled back, the quicker the mower will turn left.

To steer the mower right while traveling forward, pull the right joystick back. The further the joystick is pulled back, the quicker the mower will turn right.

- NOTE -

Smooth operation of the steering joysticks will produce smooth mower operation. While learning the operation of the steering controls, keep the travel speed low.

Aggressive turning with the track system can cause damage to the grass or ground that the machine is operating on. Turn gently when on soft ground

- IMPORTANT -

Do not travel quickly over a curb. The mower may crash over the curb when it pivots over it. Raise the deck slightly and travel over the curb slowly at a slight angle.

⚠ CAUTION

Before moving and cutting, observe the area for persons and obstructions. Clear the area before moving and cutting. Possible injury or property damage could occur.

To travel in reverse, pull both joysticks back.

- NOTE -

The mower may not travel straight with the joysticks equally engaged. Slight adjustments may need to be made using the steering controls.

To steer left while traveling in reverse, allow the left joystick to move forward. The further the joystick is allowed to move forward, the quicker the mower will turn left.

To steer right while traveling in reverse, allow the right joystick to move forward. The further the joystick is allowed to move forward, the quicker the mower will turn right.

To stop the reverse travel, allow the joysticks to return to the neutral position. If the mower is to be parked, press the pause button on the remote to engage traction motor brakes and prevent accidental remote inputs.

4.8 ENGAGING THE DECK MOTORS (CUTTER BLADES)

1. With the machine powered on and remote engaged, pull out the yellow PTO switch, located on the operator panel, to the engaged position. See Figure 4-2.
2. Move to a safe distance and position (at least 50 feet from the machine, uphill if possible, and out of the path of discharge at the front and back of the machine).
3. Flip both of the Deck Motor Triggers down and wait a few seconds for the deck motors to spool up. Then release the triggers. See Figure 4-4.
4. To disengage the deck drive, flip either of the Deck Motor Triggers up or down and wait for the motors to stop rotating.
5. In emergencies pressing in the PTO switch, Estop switch, or remote Estop switch will disable the deck motors. Note: DO NOT approach the machine with its blades running except for in emergencies.

- NOTE -

For safety, the SRC has a PTO sequence requirement that helps prevent unwanted initiation of the deck motors. The PTO switch needs to be disengaged (pushed in) when the machine is turned on and the remote is connected and engaged. Then the PTO switch can be engaged (pulled out). The operator can then enter the Operator zone and start the deck motors with the remote.

If the machine enters a PTO sequence fault, key cycle the machine following the correct sequence.

4.9 SLOPE OPERATION

Slopes are a major factor related to loss of control and tip over accidents, which can result in severe injury or death. Operation on all slopes requires extra caution. If you can not maintain traction and control on a slope or feel uneasy, do not mow it.

⚠ WARNING

DO NOT operate on steep slopes. To check a slope, attempt to back up it (with the cutter deck down). If the machine can back up the slope without the tracks slipping, reduce speed and use extreme caution. Under no circumstances should the machine be operated on slopes greater than 45 degrees. See Figure 2-1 to help determine the approximate slope of the area to be mowed or use a straight edge and an app on your cell phone. ALWAYS FOLLOW OSHA APPROVED OPERATION.

1. This mower has been designed for good traction and stability under normal mowing conditions. However, caution must be used when traveling on slopes, especially when the grass is wet or subsoil is loose.
2. DO NOT mow wet grass. Wet grass reduces traction and steering control.
3. Stay two cut widths away from drop offs, ditches, water and retaining walls.
4. Watch for holes, ruts, bumps, rocks, or other hidden objects. Uneven terrain on a slope could overturn the machine. Tall grass can hide obstacles.
5. NEVER stand directly below the machine when it is operating on a slope. It is best to stand above the slope the machine is cutting if possible. Otherwise stand at the bottom of the slope at least 50 feet off to the side of the machine's most direct path down the slope.
6. Choose a low ground speed on a slope to make stopping easier if necessary.
7. DO NOT cut slopes that exceed the rated limit of this machine.
8. NEVER operate the machine on a slope above bystanders in the possible path of a rolling machine.
9. To prevent tipping or loss of control, do not start or stop suddenly, avoid unnecessary and aggressive turns and travel at reduced speed. If tracks lose traction, disengage blades and proceed slowly off the slope.
10. Avoid sudden starts when mowing uphill. Sudden starts may cause the machine to tip or lose traction.
11. Keep all movement on slopes slow and gradual.
12. DO NOT make sudden changes in speed or direction, which could cause the machine to roll over.
13. Loss of traction may occur when traveling down hill. Weight transfers to the front of the machine and may cause the tracks to slip causing loss of braking or steering.
14. Keep tracks properly tensioned.
15. Use caution when traversing across slopes. Material may lodge into tracks and cause detracking.
16. DO NOT attempt zero turning on slopes as it can cause detracking, instability, and damage to the ground.
17. When cutting slopes, it is best to cut in both the forward and reverse directions, avoiding complete turns if possible.
18. DO NOT attempt to save a machine that is starting to roll over. A rolling machine may trap, crush, and injure those in the path.
19. Watch the tracks for signs of detracking while operating across or turning on steep slopes or when the tracks are on two different slopes concentrating the weight of the machine to one side of the track. If signs of detracking are occuring, carefully get the machine to flat ground and check track tension before attempting to cut the slope again or in the other direction.
20. To reduce the detracking risk in steep slope conditions, it is best to reduce the side-load on the tracks by mowing the hill at an angle rather than horizontally across.
21. Avoid running over objects such as rocks and logs that concentrate force on one side of a track. Detracking and damage to the tracks and rollers could result.
22. DO NOT run the machine across two different grades where force would only be applied to the inside or outside corner of the tracks.
23. If the machine detracks on a slope or other area where it would be unsafe to fix it, use the winch to get the machine to a safe area.
24. When operating on slopes over 30 degrees remove mounted jacks to prevent damage to the jacks.
25. When operating on slopes over 35 degrees, set the deck height below 6 inches to lower the machine's center of gravity and prevent instability or roll-overs.
26. DO NOT Zero-Turn on slopes.

⚠ WARNING

Reduce speed when turning, operating on slopes, slick or wet surfaces. Allow extra distance to stop.

DO NOT mow near drop-offs, ditches or embankments. The machine could suddenly roll over if a track goes over the edge or if the edge caves in.

Operate the machine smoothly, no sudden turns, starts or stops on a slope.

NEVER tow on slopes. The weight of the towed equipment may cause loss of traction and loss of control.

DO NOT permit untrained personnel to operate the machine.

Be cautious when loading and unloading onto trailers or trucks.

Use only a full width ramp.

Ramp angle should be no more than 30 degrees. See Figure 2-1 to help determine approximate slope or use a straight edge and an app on your cell phone.

4.10 PARKING THE MOWER

1. Park the machine on a flat, level surface only. Do not park the machine on an incline.
2. DO NOT park the machine in areas exposed to direct sun or rain for extended periods
3. Press in the PTO switch.
4. Turn the key switch to the OFF position, remove the key and press in the emergency stop switch.
5. Store the remote separately from the the machine to help prevent unauthorized use.

4.11 AFTER OPERATION

1. Clean the entire mower after each use using compressed air or a hand held blower.

-IMPORTANT-

Do not use water, high pressure spray or direct the spray onto electrical components. Water will damage the electrical components.

2. Keep the entire mower clean to inhibit fires and serious heat damage to the engine, batteries, electric motors, and electrical circuits.
3. Check alternator belt tension and adjust if necessary.

⚠ DANGER

To avoid injury from burns, allow the mower to cool before removing the fuel tank cap and refueling.

4. Check the track tension. Adjust tension if necessary.

4.12 REMOVING CLOGGED MATERIAL

⚠ DANGER

ROTATING BLADES

NEVER PUT YOUR HANDS INTO THE DISCHARGE AREA FOR ANY REASON!

Shut off the machine, remove the key, press the emergency stop switch and only then use a stick or similar object to remove material if clogging has occurred.

1. If the discharge area becomes clogged, navigate to a flat clear area, raise the deck to its highest setting and move the machine forwards and backwards to attempt to clear the material.
2. If the discharge area remains clogged, shut off the machine, remove the key, and press the emergency stop switch. Using a stick or similar item, dislodge the clogged material. Then resume normal mowing.

4.13 MOVING MOWER WITH THE MACHINE SHUT OFF

To “free-wheel” or move the mower around without turning the machine on, rotating the levers on the back of each traction motor out of the horizontal position will allow the mower to be moved by hand (free-wheel position). See Figure 4-1. When the machine is in the desired position, place the 'free wheel' levers in the DRIVE position by rotating the levers back to a horizontal position to allow the unit to move under electric power with proper braking. The free wheel levers must be returned to the DRIVE position to drive the mower safely.

4.14 RECOMMENDATIONS FOR MOWING

1. Do not mow with dull blades. A dull blade will tear grass, resulting in poor lawn appearance, reduced mowing power, and increased power consumption.

⚠ WARNING

DO NOT operate without Discharge Guards properly installed.

2. The discharge guards must not be removed and must be properly installed to deflect grass clippings and thrown objects downward. Direct the discharge areas away from sidewalks or streets to minimize cleanup of clippings. When mowing close to obstacles, direct the discharge areas away from the obstacles to reduce the chance of property damage by thrown objects.
3. Cut grass when it is dry. Mow frequently for the best results.
4. Keep mower and discharge guards clean.
5. When mowing thick or tall grass, mow the grass twice. Raise the mower to a higher setting for the first pass and then make a second pass to the desired height.
6. Use a slow travel speed for trimming purposes.
7. Use the alternate stripe pattern for best lawn appearance. Vary the direction of the stripe each time the grass is mowed to avoid wear patterns in the grass.
8. When cutting thick grass aggressively, manually turn on engine if battery SOC is below 75 percent and pay attention to battery SOC. If SOC drops below 30 percent while the alternator is running, attempt to raise the deck and take multiple passes over an area to reduce the load on the deck.
9. Only use Scag approved low lift blades (PN 482000) on this machine for best performance. The use of incorrect blades will cause excess power consumption, excessive material buildup on the deck and muffler, and poor cut quality.
10. For best efficiency when cutting, passes should be done in both the forwards and backwards directions by the machine to prevent time loss and lawn damage caused by turning at the end of each pass.

4.15 ADJUSTING CUTTING HEIGHT

The mower deck can be adjusted from a height of 3 inches to 12 inches on a linear scale controlled by the remote. To adjust the cutting height:

⚠ WARNING

DO NOT adjust the cutting height with the mower blades rotating. Disengage the power to the cutter blades and then adjust cutting height.

DO NOT adjust cutting height above tall grass or obstacles. Adjust height on level ground above an area cleared of obstacles.

1. Disengage the cutter blades.
2. Push the cutting height adjustment arrow buttons on the remote to move the deck height up and down. See Figure 4-3.
3. Hold the height adjustment button until the desired height is reached and then release the button.

4.16 CHARGING THE BATTERY WITH OPTIONAL AC CHARGER

The use of unauthorized battery chargers will cause severe damage to the battery and/or machine.

In normal operation the engine and alternator will charge the battery automatically or when commanded as described in Section 4.17.

⚠ WARNING

Only use with Scag approved chargers. Unapproved chargers can result in battery failure, fire or explosion. Before you use the charger, completely read, understand, and obey all requirements as specified in the Battery Charger Operator's Manual.

-IMPORTANT-

The recommended ambient temperature charge range is 50°F (10°C) to 122°F (50°C). Charging the battery at 32°F (0°C) to 50°F (10°C) could cause a derating of device operation.

DO NOT discharge or charge the battery outside the specified temperature range, or accelerated battery degradation could occur.

If any of the batteries look abnormal or produce an unusual smell, immediately stop charging the batteries.

1. Park the machine on a flat level surface, and remove the key.
2. Connect the DC output connector / plug to the charge port on the machine. See Figure 4-1.

-IMPORTANT-

Avoid using electrical extension cords when charging the battery unless it's absolutely necessary. If an extension cord must be used, it must be 3-conductor, 12 AWG (2.5mm²) minimum for 120Vac input heavy-duty cord with ground.

3. Connect the charger power cord of the optional DeltaQ Charger available from Scag to a 120 volt wall outlet. When the charger starts, the display on the operation panel will turn on and indicate the charging status.
4. If the charger must be disconnected from the charge port while the charge cycle is in progress, it is best to first disconnect the AC power cord from the AC outlet.
5. The charge cycle will terminate when the battery reaches full charge.

-NOTE-

The charge time of the battery is affected by numerous factors, including battery amp-hour capacity, depth of discharge, battery temperature, and battery age / usage.

6. Before operating the machine, disconnect the DC connector from the machine and allow the machine to completely power down before inserting the key.
7. DO NOT attempt to operate the machine with the battery charger connected.

4.17 STARTING THE ENGINE

⚠ CAUTION

DO NOT USE STARTING FLUIDS. Use of starting fluids in the air intake system may be potentially explosive or cause a "runaway" engine condition that could result in engine damage and/or personal injury.

1. Be sure the fuel shutoff valve, located at the top of the gas tank, is in the fully open position.
2. With the Emergency Stop switch pulled out and guarding in place, turn the key to the ON position.
3. In standard operation the engine will be turned on automatically when the battery percentage gets to 20 percent and run until the battery charges to 90 percent. Note: The remote will vibrate and the remote screen will show a message to warn the user that the engine is about to start
4. The engine can be started manually to start charging the machine using the remote. When the machine is in the charging window, between 20 and 90 percent, press and hold the "2" button for two seconds, then release it and wait for the engine to turn on. This can only be done while the remote is connected and engaged. Note: It may take up to 10 seconds for the engine to start after it is commanded by the remote. The engine will shut off once the machine reaches 90% SOC

5. The engine can be started manually to supply 12V power to the winch using the remote. When you are prepared to use the winch, press and hold the "4" button for two seconds, then release it and wait for the engine to turn on. This can only be done while the remote is connected and engaged. Winch mode can be entered at any SOC and should not be used for cutting or any operations other than using the winch. Note: It may take up to 10 seconds for the engine to start after it is commanded by the remote. The machine will attempt to charge if the machine is in the charge window.
6. The engine can be manually turned on for troubleshooting by turning the key past the ON position into the ENGINE START position to run the starter until the engine starts. Release the key back to the ON position quickly once the engine starts to avoid damaging the starter. Note: This method should only be used if winch mode failed to turn the engine on, or when troubleshooting the engine.

Figure 4-18. Remote Engine Start/Stop Button

4.18 WINCH MODE

The winch on the machine utilizes the 12V system that the engine starter also uses. To avoid starting issues and degrading the 12V battery, the engine should be run when using the winch except for in situations where it would be impossible or dangerous to do so. Follow the steps below for standard winch operation.

1. Turn the machine key into the ON position.
2. Connect to the winch through the Bluetooth HUB or external teather remote.
3. Turn the engine on manually by holding the 4 button for 2 seconds. The remote will vibrate after releasing.
4. Check that the installation of the winch and its connectors is correct and secure.
5. Ensure the tie-off point of the winch is stable and suitable to help avoid injury and property damage.
6. Ensure the operator and bystanders are clear of hazards from winch cable failure at all times during operation.

-NOTE-

Read all instructions from the winch manufacturer for best practices and safety procedures.

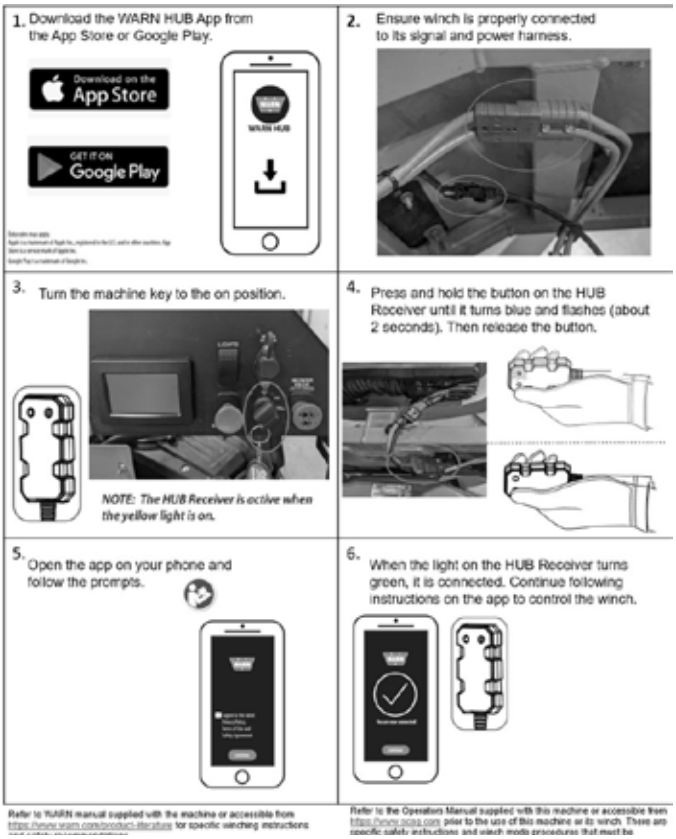


Figure 4-19. Remote Engine Start/Stop Button

4.19 LIMP MODE

The machine will enter limp mode (blades will no longer engage and max travel speed is reduced) when any of the following conditions are met:

1. The machine, with the engine and alternator running, reaches a SOC of 15%.
2. The engine does not turn on after 3 attempts from the auto start at 20% SOC or remote command.

3. The machine goes over its maximum allowable operating angle of 45 degrees.
4. The batteries are in a state where they would not be capable of accepting the regeneration current from a deck shutdown. This is most commonly associated with the batteries being at their thermal limits.

A machine in limp mode will require a key cycle to clear and may need the conditions that caused the machine to enter limp mode to be corrected.

The limp mode feature prevents the operator from continuing to operate the machine in hazardous conditions. It provides warning when the machine detects unsafe conditions and allows the operator sufficient time to return the unit to the trailer or charger for maintenance to occur if the engine starting or charging systems have failed.

4.20 TURNING OFF THE ENGINE

There are 6 scenarios that will turn off the gasoline engine on this machine in standard operation:

1. Turn the machine key into the OFF position. Note: this will turn off the entire machine system
2. Press the Estop switch in. Note: this will stop the deck and traction motors from functioning as well.
3. Press and hold the "2" button on the remote for 2 seconds and then release if charging from engine.
4. Press the "4" button on the remote for 2 seconds and then release if in winch mode.
5. Allow the alternator to charge the battery system to 90% and the engine will shut off automatically.
6. The machine angle necessitates the engine to shut down to preserve engine manufacturer warranty. Note: The engine will shut off or be prevented from turning on if the machine gets over 45 degrees of incline, or above 40 degrees of incline for a period defined by the engine manufacturer. In the event of an engine shut down due to machine angle and "Eng Angle Warning" message will be shown on the hand held remote's display. To start the engine again, bring the machine below 40 degrees for the duration of the engine manufacturer's cool down period until the remote message clears and manually turn the engine on, or key cycle the machine while below 40 degrees of incline.

The engine will also shut down if a fault occurs on the system that is programmed to shut the engine off.

ADJUSTMENTS

5.1 TRACK TENSION ADJUSTMENT

⚠ CAUTION

Shut off the machine, remove the key, and press the emergency stop switch before making any adjustments. Wait for all moving parts to come to a complete stop before beginning work.

- NOTE -

Before proceeding with this adjustment, be sure that the machine is on flat, firm ground that won't give away under the machine's weight.

Track tension may need to be adjusted if the track has slack on the top side, rattles against the sprocket or track assembly, tightly snaps on the sprocket teeth, or droops below the rollers when the machine is jacked up or suspended between the idlers.

The track tension is set from the factory, however after the first 2, 4, 8, and 12 hours of operation, the tension should be checked for proper tension, proper alignment, and wear. Thereafter, check the tracks after every 8 hours of operation or daily. Check tracks for proper tension immediately after each stalling or track jumping event or after remaining parked on a 30 degree or higher incline for more than 5 minutes. If you experience frequent track wear and tension changes, see your authorized Scag service center.

1. Before adjusting the track tension, shut off the machine, remove the key, press the emergency stop switch, and ensure the machine is fully shutdown and all parts have stopped moving.
2. With the machine on level ground, use the supplied frame mounted machine jacks, an automotive jack below the frame, or a crane and straps on the frame lift points to lift the side of the machine that needs its tracks tensioned until all rollers are off the ground. Note: When lifting with a jack, it is recommended to lift the rear corner and place it on blocks or a stable jack stand and then lift the front corner with the jack until the entire track on that side is off of the ground.

⚠ WARNING

NEVER work under a suspended machine or component. Failure of the lifting method can cause serious injury or death due to crushing.

Never leave a suspended machine unattended. Bystanders and children may not understand the danger and get seriously injured.

3. Use the lever on the traction motor on the side you are tensioning to "Free-Wheel" the sprocket for proper adjustment (see Sec 4.13).
4. Using a wrench or socket, remove the bolts that hold the guard plate over the tensioner zerk and remove the plate.
5. Wipe the zerk and surrounding area clean and determine if the track must be tensioned or loosened. See Figure 5-1.
6. Proper tension is reached when there is no gap between the top of the track and a 3ft rigid straight-edge that is laid over the top of the track. See Figure 5-1.
7. To apply tension, use a hand grease gun to pump grease into the grease zerk until the desired gap is measured.
8. To remove tension, use a 3/4" wrench to turn the large hex insert counter clockwise. Grease will extract during this process. Reinstall the insert and re-tension.
9. Once proper tension is reached, use the lever on the traction motor to stop the motor from "Free-Wheeling" and lower the machine reversing the order that it was put up in.
10. Drive the machine back and forth on flat ground a few times and recheck the tension of the tracks with the straight-edge while the machine is on the ground. If there is a sag in the tracks add an additional pump of grease and repeat this step. If there is no sag, replace the guard plate.

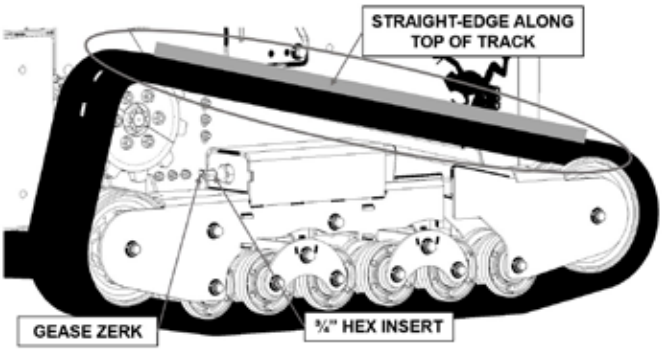


Figure 5-1. Tension Adjustment Components

- NOTE -

If making the adjustment as outlined does not correct the track tension, contact your local Authorized Scag Power Equipment Dealer.

5.2 CUTTER DECK ADJUSTMENTS

Cutter deck level, pitch, and height are set at the factory. However, if these adjustments should ever need to be made, the following procedures will aid in obtaining the proper cutter deck adjustment.

- NOTE -

Before proceeding with the cutter deck adjustments, be sure that all tracks are properly tensioned. If any of these procedures do not achieve proper cutter deck level, pitch or height, please contact your authorized Scag dealer.

Make sure the machine is off for all adjustments.

CUTTER DECK LEVEL

The cutter deck should be level from side-to-side for proper cutting performance. To check for level, be sure that the mower is on a flat, level surface, the tracks are properly tensioned and the cutter deck is set at the most common cutting height that you will use. On the RH side of the machine, check the distance from the top of the cutter deck to the floor. Next check the distance from the top of the cutter deck to the floor on the LH side of the machine. Both measurements should be the same. If the two measurements are different, the cutter deck level must be adjusted as follows:

1. If the cutter deck is lower on one side, loosen the elastic stop nuts securing the deck level links in the front and rear of the lower side. See Figure 5-2.

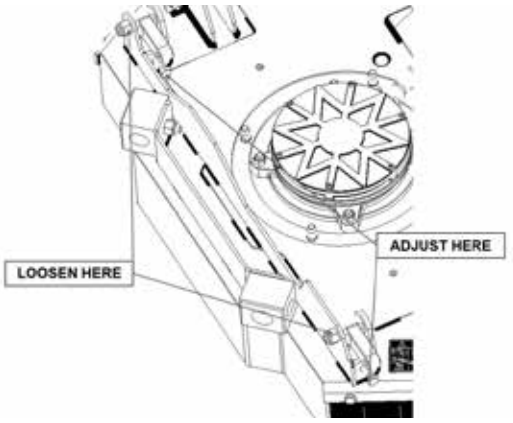


Figure 5-2. Cutter Deck Level Adjustment

2. Turn the adjustment bolts on the front and rear deck level links clockwise until the cutter deck is level between both sides. See Figure 5-2.
3. Tighten the two (2) elastic stop nuts to secure the cutter deck in the proper position.

CUTTER DECK PITCH

The pitch of the cutter deck should be equal between the front and rear of the cutter deck for proper cutting performance. To check for proper deck pitch, be sure that the mower is on a flat, level surface and the tracks are properly tensioned.

Check the distance from the top of the cutter deck to the floor at the rear RH side of the cutter deck directly behind the cutter deck hanging link. Next check the distance from the top of the cutter deck to the floor at the front RH side of the cutter deck directly in front of the cutter deck hanging link. The measurement at the front of the cutter deck should be the same as the rear of the deck. Make these measurements at the LH side of the cutter deck also. If the measurement at the front of the deck is not the same, the cutter deck pitch must be adjusted as follows:

1. Loosen the elastic stop nuts securing the deck level links on the front of the cutter deck on both sides. See Figure 5-3.

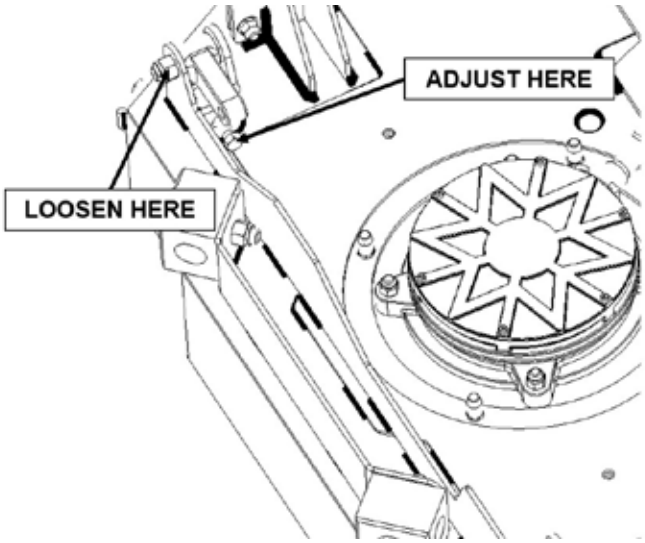


Figure 5-3. Cutter Deck Pitch Adjustment

2. Turn the adjustment bolts on both sides either clockwise to raise or counter-clockwise to lower the front of the cutter deck until the measurements are equal. Tighten the elastic stop nuts.

- NOTE -

To prevent the cutter deck from teetering, all four (4) cutter deck hanging links must have tension on them. If all four links do not have tension on them and the deck teeters, you must readjust the cutter deck as outlined in the procedures above. All measurements should be taken from the top edge of the deck as the deck has an uneven bottom edge.

Ensure all elastic stop nuts are tightened until they are seated on the hanger mounting plate. If the elastic stop nuts are not securely tightened against the plate, adjustment bolt failure may occur.

CUTTER DECK HEIGHT DISPLAY

- NOTE -

The deck height readout on the remote display is calculated on the machine controller and sent to the remote. The deck height is set and calibrated at the factory. If the cut height becomes inaccurate due to deck adjustments, your Authorized Scag Power Equipment service center has the required tools to make the adjustment to recalibrate the display readout to the actual cut height of the machine.

5.3 BELT ADJUSTMENTS

The alternator drive belt tensioner is spring loaded and set from the factory, however after the first 2, 4, 8, and 12 hours of operation, the belt should be checked for proper tension, proper alignment, and wear. Thereafter, check the belt after every 40 hours of operation or weekly. If you experience frequent belt wear, misalignment, and tension changes, see your authorized Scag service center.

⚠ WARNING

Before removing any guards, shut the key off, press the emergency stop button in, and remove the key.

⚠ WARNING

DO NOT lift or pull the machine by the internal roll cage tubes. Only lift and pull the machine by the lift points and tow points on the outer frame.

CHECK AND ADJUST BELT TENSION

Belt condition can be inspected from the rear of the machine by looking behind the muffler. In order to best access the belt tensioner to adjust tension, the deck assembly should be disconnected and separated from the frame and track assembly. Be sure to disconnect all mechanical and electrical connections between the deck and frame assemblies before lifting them apart to prevent damage and injury.

Note: It is important that proper lifting devices and techniques are used to prevent injury.

Note: Your local Scag authorized service center is best-suited for completing all necessary maintenance and repairs on the alternator, engine, and belt tensioner assembly.

After gaining access to the belt and tensioner assembly use the following steps to set the belt tension:

1. Loosen the set bolt until the tensioner assembly can freely rotate around the set bolt. See Figure 5-4.
2. Use a wrench on the tensioner nut to rotate the tensioner pulley against the belt until the top notch of the tensioner is aligned with the 3rd notch on the lower part of the assembly. See Figure 5-4.
3. Fully tighten the set bolt while holding the tensioner in the correct position to set the tensioner in place. See Figure 5-4.

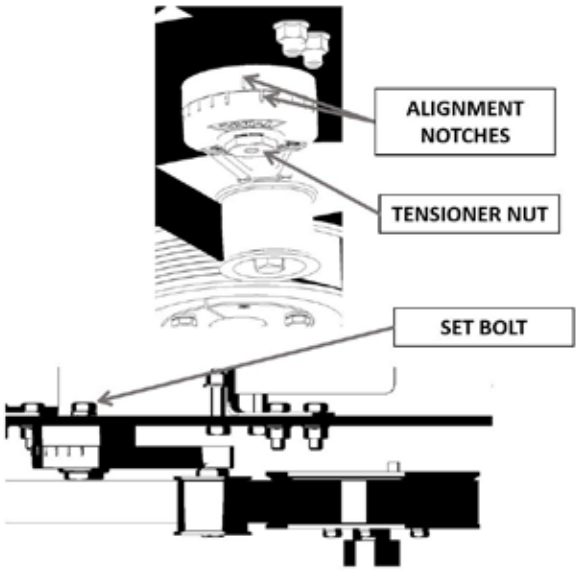


Figure 5-4. Alternator Belt Tensioner Adjustment

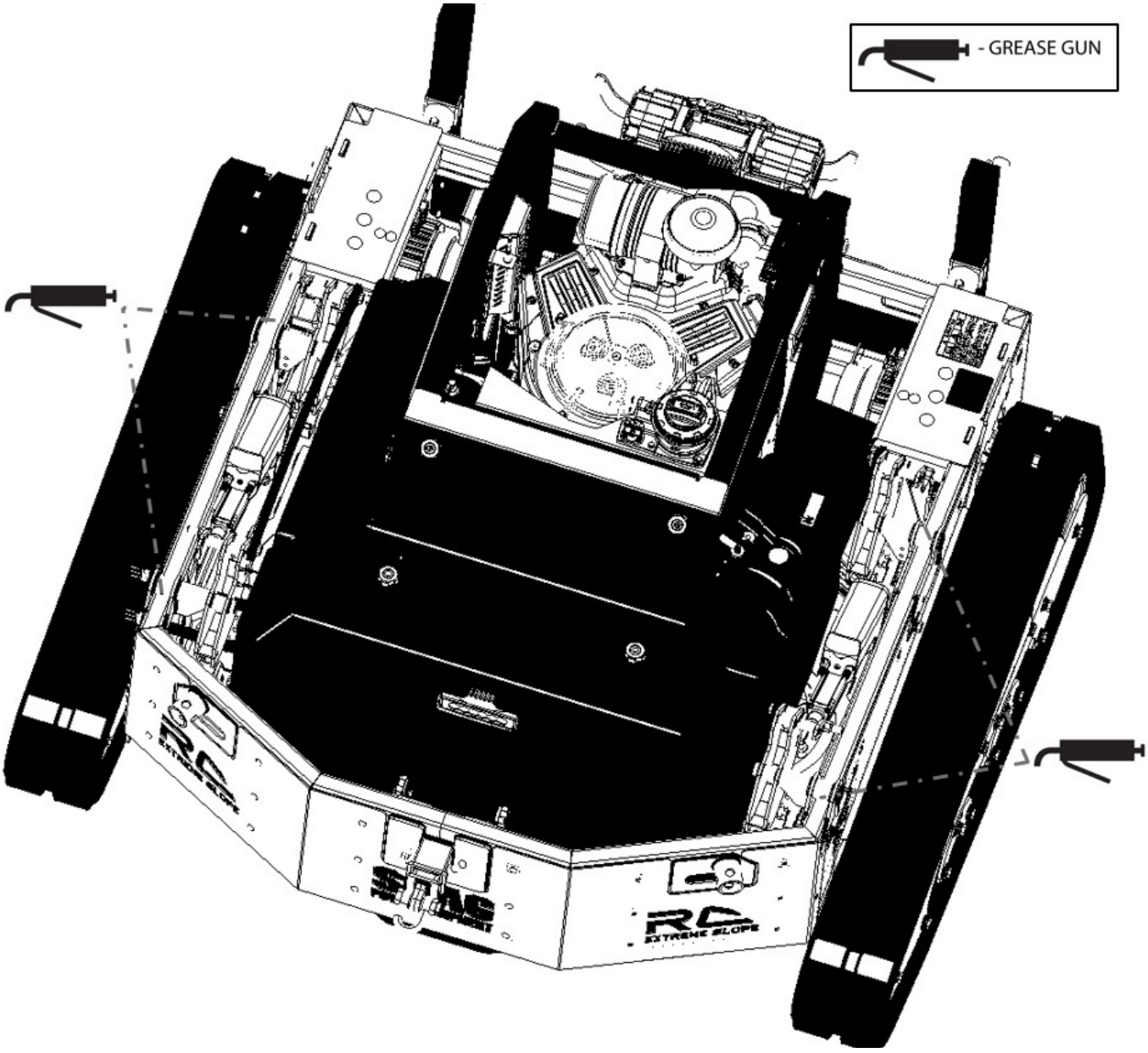
MAINTENANCE

6.1 MAINTENANCE CHART - RECOMMENDED SERVICE INTERVALS

HOURS								PROCEDURE	COMMENTS
BREAK-IN (FIRST 10)	8	40	BREAK-IN (FIRST 50)	100	200	500	1000		
X								Check all hardware for tightness	
X								Check batteries, battery terminals and cables	See paragraph 6.3
X								Check engine oil tank, hoses, and connections for leaks	
X								Check alternator belt for tension and alignment	See paragraph 5.3
X								Check fuel system connections, hoses, and tank for leaks	
X								Check condition of all fuses and relays	
	X							*Clean mower	See paragraph 6.6
	X							Check condition of blades	See paragraph 6.4
	X							Check track tension	See paragraph 6.5
	X							Check engine oil level	
	X							Check all oil and fuel hoses for leaks and deterioration	
	X							Check safety interlock system	See paragraph 4.4
		X						Check batteries, battery terminals and cables	See paragraph 6.3
			X			X		Change engine oil and filter	
			X				X	Change traction motor gearbox oil	
				X				Grease cutter deck bellcranks	See paragraph 6.2
				X				*Clean or change engine air filter	
				X				Check condition of all fuses and relays	
					X			Check all hardware for tightness	
						X		Change engine fuel filter	

* Perform these maintenance procedures more frequently under extreme dusty or dirty conditions

6.2 GREASE FITTING LOCATION CHART



6.3 BATTERIES

Refer to the Battery Operator's Manual supplied with this machine for additional information regarding the batteries used in this product.

⚠ WARNING

To reduce the risk of injury, read the battery instruction manual supplied with this machine. DO NOT throw battery into fire.

⚠ WARNING

Risk of fire, explosion or burns. DO NOT disassemble, crush batteries, expose batteries to heat above 140°F (60°C), or incinerate batteries.

⚠ WARNING

To prevent risk of explosion, use and keep batteries in an area with good airflow, away from sparks, open flames, or excessive heat.

⚠ WARNING

DO NOT use the machine if the battery becomes wet or flooded with water. Contact an Authorized Scag Power Equipment Dealer for instructions.

⚠ WARNING

Electrolytes from the battery can cause blindness and burns. DO NOT use battery if there is damage, leakage, or burns. DO NOT use the battery if you hear unusual noises, see smoke or smell odors. DO NOT use the battery if the casing is cracked, gashed , bulging, or warped.

1. DO NOT use the battery outside of the operating range of 32°F (0°C) to 140°F (+60°C).
2. DO NOT bump or hit the battery. Keep battery away from hard objects.
3. DO NOT connect the batteries in series with each other. The batteries on this machine are only designed to be connected in parallel.
4. DO NOT press the buttons on the batteries unless instructed to do so by this manual.
5. The buttons on the batteries have flashing lights on them to indicate their state and SOC. Green and Yellow flashing lights indicate the batteries are in drive mode and are actively providing power. Blue flashing lights indicate that the batteries are in charge mode where they accept charge from the optional charger and also actively supply power. White flashing lights means that the batteries are communicating with each other but no power is being supplied. Red flashing lights indicate the batteries are off or in a faulted state and no power is being supplied.

A. CHARGING THE LITHIUM BATTERIES

Refer to Section 4.16 CHARGING THE BATTERY and the battery charger’s manual for specific instructions.

⚠ WARNING

Only use with Scag approved chargers. Unapproved chargers can result in battery failure, fire or explosion. Before you use the charger, completely read, understand, and obey all requirements as specified in the Battery Charger Operator's Manual.

B. LITHIUM BATTERY MAINTENANCE

When servicing the batteries, ALWAYS disconnect the main battery connections.

1. Turn off the machine.
2. Disconnect the charger if connected.
3. Disconnect the main battery connections.
4. Make sure that zero voltage is present across the positive and negative terminals.

-NOTE-

If voltage is present, press and hold the button on the battery until it flashes red, then release and check again. If voltage remains present, immediately contact an Authorized Scag Power Equipment Dealer.

⚠ WARNING

The batteries have a risk of high short circuit current.

Remove watches, rings, or other metal objects.

Wear safety glasses or approved eye protection when you work near the battery.

Use tools that have insulated handles.

Disconnect the charging source before you connect or disconnect the battery terminals.

DO NOT put tools or metal parts on top of the battery.

C. LITHIUM BATTERY INSPECTION

⚠ WARNING

Electrolytes from the battery can cause blindness and burns. DO NOT use the battery if there is damage, leakage or burns. DO NOT use the battery if you hear unusual noises, see smoke, or smell odors. DO NOT use the battery if the casing is cracked, gashed, bulging, or warped.

Inspect the batteries for damage. Do not use a battery if the casing is cracked, gashed, bulging, warped, or damaged. *Contact an Authorized Scag Power Equipment Dealer.*

D. CLEANING AND STORING THE LITHIUM BATTERIES

-NOTE-

When you clean the battery, the battery connections must remain attached to make sure its connections have an environmental seal.

⚠ WARNING

Keep the battery in a dry, clean area away from flammable materials, such as newspapers, trash, leaves, and other debris.

DO NOT use harsh chemicals or powder abrasives to clean the battery.

Clean the battery more frequently in coastal environments that have sea salt spray.

Use of a pressure washer is NOT permissible on the batteries, avoid direct spray at battery cables and connections. Use compressed air to remove debris from the batteries and then wipe down with a damp towel.

-NOTE-

Incorrect storage can cause battery damage, permanent loss of battery capacity, or cause the battery to be unserviceable. If a fully discharged battery is in storage, the battery will become permanently unserviceable. Do not exceed the storage temperature limits. Ensure machine is stored completely shutdown and without its key.

1. For storage up to 1 month, keep the equipment at the recommended range of -20°C to +60°C (-4°F to +140°F). For storage up to 1 year, keep the equipment at the recommended range of 0°C to +25°C (32°F to +77°F).
2. Do not remove the battery or disconnect it from the equipment.
3. Do not keep the battery in long-term storage with the battery connected to the charger, or a reduction in battery cycle life could occur.
4. When the battery is not used for more than one month, charge or discharge it to a state of charge of 40-70%. Check the state of charge every month during storage and charge if needed.

E. CHARGING THE LEAD-ACID BATTERY

⚠ WARNING

Lead-acid batteries produce flammable and explosive gases. To avoid personal injury when checking, testing or charging batteries, DO NOT use smoking materials near batteries. Keep arcs, sparks and flames away from batteries. Provide proper ventilation and wear safety glasses.

⚠ WARNING

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to cause cancer and reproductive harm. Wash hands after handling.

⚠ WARNING

Electric storage battery fluid contains sulfuric acid which is POISON and can cause SEVERE CHEMICAL BURNS. Avoid contact of fluid with eyes, skin, or clothing. Use proper protective gear when handling batteries. DO NOT tip any battery beyond 45° angle in any direction. If fluid contact does occur, follow first aid suggestions below.

BATTERY ELECTROLYTE FIRST AID

External Contact — Flush with water.

Eyes — Flush with water for at least 15 minutes and get medical attention immediately.

Internal — Drink large quantities of water. Follow with Milk Of Magnesia, beaten egg, or vegetable oil. Get medical attention immediately. In case of internal contact, DO NOT give fluids that would induce vomiting.

⚠ WARNING

BATTERIES PRODUCE EXPLOSIVE GASES. Charge the battery in a well ventilated space so gases produced while charging can dissipate.

Refer to the battery charger's manual for specific instructions.

Under normal conditions the engine's alternator will have no problem keeping a charge on the battery. If the battery has been completely discharged for a long period of time, the alternator may not be able to recharge the battery, and a battery charger will be required.

DO NOT charge a frozen battery. It may explode and cause injury. Let the battery warm before attaching a charger.

Whenever possible, remove the battery from the mower before charging.

Charging rates between 3 and 50 amperes are satisfactory if excessive gassing or spewing of electrolyte does not occur or the battery does not feel excessively hot (over 125°F). If spewing or gassing occurs or the temperature exceeds 125°F, the charging rate must be reduced or temporarily stopped to permit cooling.

F. JUMP STARTING THE LEAD-ACID BATTERY

1. The booster battery must be a 12 volt type. If a vehicle is used for jump starting, it must have a negative ground system.
1. When connecting the jumper cables, connect the positive cable to the positive battery post, then connect the negative cable to the negative battery post.

6.4 CUTTER BLADES

A. BLADE INSPECTION

1. Raise the mower deck to the highest position. Place blocks or a jack stand under the cutter deck to prevent it from falling.
2. Remove the key switch and press the Emergency Stop switch in before servicing the blades.

⚠ WARNING

Mower blades are sharp. Always wrap blades, and wear proper hand and eye protection when working with cutter blades.

3. Check the cutter blades for straightness. If the cutter blades appear bent, they will need to be replaced.
4. Check the cutter blades for wear. If any part of the cutter blade is worn to 1/2 its original thickness, replace the cutter blade.

⚠ WARNING

Do not attempt to straighten a bent blade, and never weld a broken or cracked blade. Always replace it with a new blade to assure safety.

5. If a blade cutting edge is dull or nicked, it should be sharpened. Remove the blades for sharpening. See "Blade Replacement."

- NOTE -

The cutter blades are specifically designed for use on this electric mower. Do not use cutter blades other than specified or battery life and / or performance will suffer.

-NOTE-

Keep the blades sharp. Cutting with dull blades not only yields a poor mowing job, but slows the cutting speed of the mower and causes extra wear on the blade drive motors by making them work harder.

B. BLADE SHARPENING

- NOTE -

If possible, use a file to sharpen the blade. Using a wheel grinder may burn the blade.

- NOTE -

DO NOT sharpen the blades beyond 1/3 of the width of the blade. See Figure 7-1.

1. Sharpen the cutting edge at the same bevel as the original. See Figure 7-1. Sharpen only the top of the cutting edge to maintain sharpness.

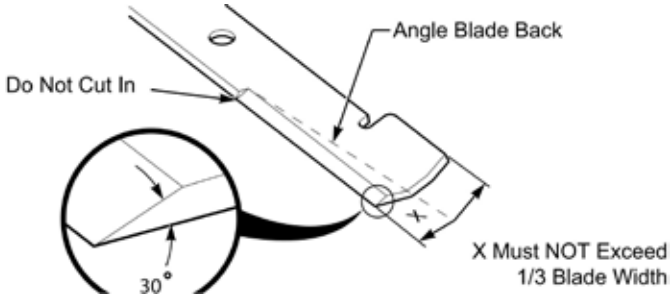


Figure 6-1. Blade Sharpening

2. Check the balance of the blade. If the blades are out of balance, vibration and premature wear can occur. The cutter blades should be balanced to 1-1/2 oz-in. See your authorized Scag dealer for blade balancing or special tools, if you choose to balance your own blades.

C. BLADE REPLACEMENT

⚠ WARNING

Mower blades are sharp. Always wrap blades, wear proper hand and eye protection when working with cutter blades.

1. Raise the mower deck to the highest position. Place blocks or a jack stand under the cutter deck to prevent it from falling.
2. Remove the key and press in the Estop switch before replacing the blades.
3. Secure the cutter blades to prevent them from rotating, (use the optional Blade Buddy tool P/N 9212, to assist in securing the cutter blades), remove the blade attaching bolt. Remove the cutter blade, bolt, lock washer, blade spacer, and flat washer from the deck motor shaft. See Figure 6-2.

⚠ CAUTION

Inspect the cutter blade spacer(s) and washer for wear and/or cupping. Replace the worn parts. Worn spacer(s) and/or washer will not allow proper tightening of the cutter blade and can lead to cutter blade failure, personal injury, or property damage.

4. To install the new cutter blade, put the lock washer and flat washer onto the blade bolt and slide the bolt into the hole in the cutter blade, blade spacer, and motor shaft.

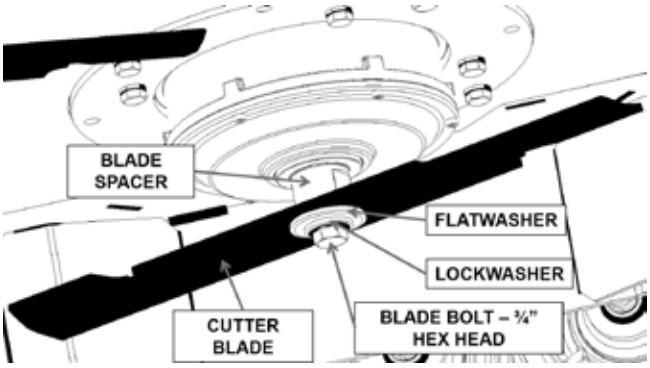


Figure 6-2. Blade Replacement

- NOTE -

Be sure that the blade is installed with the lift wing toward the top and that the spacer, blade, flat washer, and lock washer are in the correct order shown above.

5. Install the cutter blade onto the deck motor shaft. Secure the blade and motor from rotating and torque the bolt to 80 ft/lbs. See Figure 6-2.

6.5 TRACKS

The track tension is set from the factory, however after the first 2, 4, 8, and 12 hours of operation, the tension should be checked for proper tension, proper alignment, and wear. Thereafter, check the tracks after every 8 hours of operation or daily. If you experience frequent track wear and tension changes, see your authorized Scag service center.

Track is tensioned when there is no gap between the top of the track and a 3ft rigid straight-edge that is laid over the top of the track.

See Sec 5.1

A. TRACK REMOVAL/INSTALL

1. Before servicing the tracks, shut off the machine, remove the key, press the emergency stop switch, and ensure the machine is fully shutdown and all parts have stopped moving.
2. To remove a track, loosen the tensioner on a jacked up machine per Sec 5.1 until the tensioner assembly sits against the track roller weldment.
3. Carefully turn the machine on and use the remote to rotate the drive sprocket until one half of it is fully disengaged from the track. Note: Use extreme caution when rotating the sprocket with the remote as to not rotate the other track on the machine. Make sure that yourself, others, and all objects are clear of the track and suspended machine prior to turning the machine on to rotate the track. Power down the machine and remove the key after rotating the sprocket before working on the track assembly
4. Remove the 3 lug nuts from half of the sprocket that is not engaged with the track.
5. Repeat steps 3 to disengage the other half of the drive sprocket from the track.
6. Remove the track from the machine.
7. Drape the track you wish to install around the drive motor hub, track weldment rollers, and tensioner weldment rollers keeping the slack near the drive motor. See Figure 6-3.

8. Carefully turn the machine on and use the remote to rotate the drive motor until the half of the drive sprocket it is fully engaged with the track. Note: Use extreme caution when rotating the sprocket with the remote as to not rotate the other track on the machine. Make sure that yourself, others, and all objects are clear of the track and suspended machine prior to turning the machine on to rotate the track. Power down the machine and remove the key after rotating the sprocket before working on the track assembly.
9. Replace the other half of the drive sprocket, tighten the lug nuts on the sprocket, and tension the track per Sec 5.1.

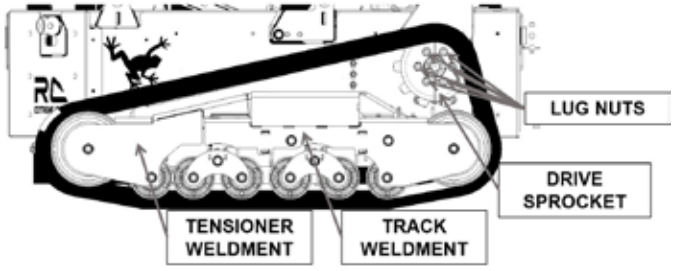


Figure 6-3. Track Assembly

6.6 BODY AND DECK

⚠ CAUTION

Do not wash any portion of the equipment while it is hot. Do not wash the electrical components; use compressed air.

1. After each use, wash the mower and cutter deck. Use cold water and automotive cleaners. Do not use pressure cleaners.
2. Do not spray electrical components.
3. Repair damaged metal surfaces using Scag touch-up paint (P/N 48521 -Aerosol Can & 484540-01- 0.6fl.oz. Bottle with brush) available from your authorized Scag dealer. Wax the mower with an automotive paint wax for maximum paint protection.

6.7 ENGINE FUEL SYSTEM

⚠ DANGER

To avoid injury from burns, allow the mower to cool before removing the fuel tank cap and refueling.

A. FILLING THE FUEL TANK

Fill the fuel tank to the bottom of the filler neck insert at the beginning of each operating day. DO NOT overfill. Use clean, fresh unleaded gasoline with a minimum octane rating of 87 and a maximum of 10% ethanol.

DO NOT use E85 fuel. Using E85 fuel will cause severe damage to the engine.

To avoid personal injury or property damage, use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive.

When filling the fuel tank follow the below precautions:

1. Extinguish all cigarettes, cigars, pipes and other sources of ignition.
2. Use only an approved gasoline container.
3. Never remove the gas cap or add fuel with the engine running. Allow the engine to completely cool before fueling.
4. Never fuel the machine indoors or in an enclosed trailer.
5. Never store the machine or fuel container where there is an open flame, spark or pilot light such as on a water heater or other appliances.
6. Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.
7. Remove the machine from the truck or trailer and fuel on the ground. If this is not possible, then refuel the machine with a portable container, rather than from a gasoline dispenser nozzle.
8. Keep the nozzle in contact with the rim of fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.

9. If fuel is spilled on clothing, change clothing immediately and wash affected skin.
10. Replace gas cap and tighten the fuel cap until it ratchets.

B. REPLACING IN-LINE FUEL FILTER

The engine fuel filter should be replaced every 500 hours of operation or annually, whichever occurs first. See Figure 6-4.

1. Close the shutoff valve. Locate the fuel filter and remove the two clamps securing the fuel filter to the fuel hose. Remove the fuel filter.
2. Install a new fuel filter. Be sure it is installed in the proper direction. Secure to the fuel hose using the two clamps.

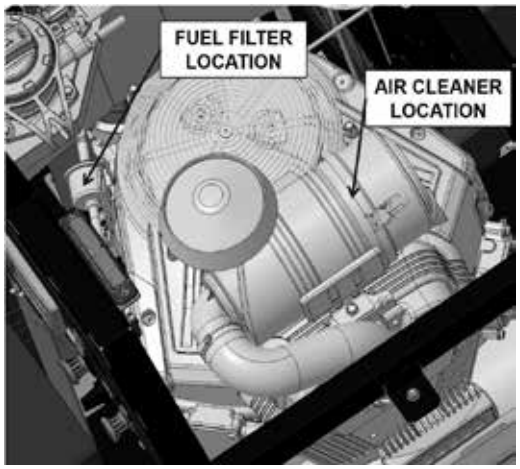


Figure 6-4. Fuel Filter and Air Cleaner Location

6.8 ENGINE AIR CLEANER

A. CLEANING AND/OR REPLACING AIR CLEANER ELEMENT

For any air cleaner, the operating environment dictates the air cleaner service periods. Inspect and clean the air cleaner element after every 100 hours of operation or monthly, whichever occurs first and replace the element if required. See Engine Owner's Manual for service information. See Figure 6-4.

- NOTE -

In extremely dusty conditions it may be necessary to check the element once or twice daily to prevent engine damage.

1. Snap open the two clips securing the air cleaner cover to the air cleaner box. Remove the air cleaner cover, clean the duckbill vent of any dust or debris and set the cover aside.
2. Remove the air cleaner and inspect.
3. Clean or replace the air cleaner as recommended by the engine manufacturer. Replace the air cleaner cover and secure.
4. Replace the air filter cover and be sure to snap the two clips closed.

6.9 ENGINE OIL

⚠ DANGER

To avoid injury from burns, allow the mower to cool before changing the oil and removing the filter.

NOTE: The oil tank may hold heat longer than other parts of the machine.

A. CHECKING ENGINE OIL LEVEL

The engine oil level should be checked after every 8 hours of operation or daily as instructed in the Engine Operator's Manual furnished with this mower.

The engine oil level dipstick is located on the top of the oil tank next to the fill cap (Figure 4-1).

B. CHANGING ENGINE OIL

After the first 50 hours of operation, change the engine oil and replace the oil filter. Thereafter, change the engine oil after every 500 hours of operation or annually, whichever occurs first. Refer to the Engine Operator's Manual furnished with this mower for instructions.

The oil drain hose is routed to the front of the machine and is mounted to the top of the deck. To drain the oil, route the hose into an oil drain pan, take off the hose cap, open the oil fill cap, and open the valve.

C. CHANGING ENGINE OIL FILTER

After the first 50 hours of operation, replace the engine oil filter. Thereafter, replace the oil filter after every 500 hours of operation or annually, whichever occurs first. Refer to Engine Operator's Manual for instructions.

The engine oil filter is located under the oil fill cap on the oil tank (Figure 4-1).

6.10 TRACTION GEARBOX OIL

After the first 50 hours of operation, change the traction gearbox oil in both gearboxes. Thereafter, change the gearbox oil after every 1000 hours of operation or after 2 years of use, whichever occurs first.

The gearbox oil plugs located on the perimeter of the outer face of the traction motor gearbox are used to both drain and fill the gearbox with oil. They are the flat faced allen bolts as shown in Figure 6-5.

A. CHANGE TRACTION GEARBOX OIL

1. Remove the key switch and press the Emergency Stop switch in before servicing the track motors.
2. Remove the tracks per Sec 6.5 A along with the drive sprockets
3. Remove the rear frame guard plate and skid plates.
4. Loosen and remove the lowest gearbox oil plug and drain it into a drain pan. Note: Oil will run down off of the bracket directly below the lower drain plug.
5. Replace the lower oil plug and fill through the topmost plug using a flexible tube with 1 quart of EP85W-140 oil is added. Then ensure all plugs are installed and properly tightened.
6. Reinstall the metal guards and skid plates, and remount the tracks, following the instructions in Sec 6.5

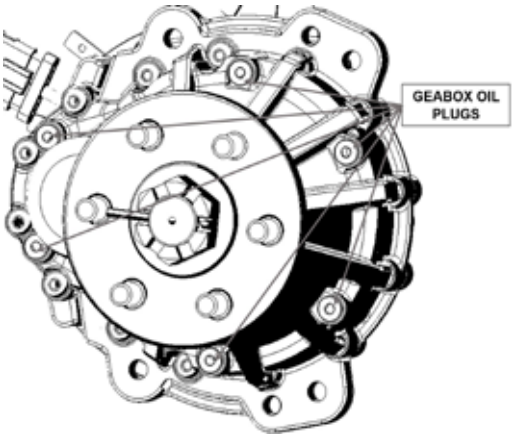


Figure 6-5. Gearbox Oil Plug Locations

6.11 FUSES AND RELAYS

Fuses and relays are integral to the safety and operation of the mower. Check that the fuses and relays are mounted and functioning properly after the first 10 hours of machine operation. Thereafter, check the fuses and relays every 100 hours of operation, replacing any components, covers, or mounting hardware that are not functioning properly.

Check fuses by confirming continuity across the two terminals with a multimeter. Relay functionality can be primarily checked by operating the features they control. When troubleshooting a suspected faulty relay in the covered fuse box, it is recommended to swap the relay in question with a known functioning one. This is done by swapping the suspect relay with one that is known to work, such as the hazard light relay. By doing so, you can isolate the suspected faulty relay and determine if the issue follows the relay to its new circuit. If the issue does not persist with the replacement relay, it suggests that original relay may be the cause of the problem. If the issue persists after swapping the relays, it is likely that the problem lies elsewhere in the system.

⚠ DANGER

To avoid injury from electric shock and potential damage to the machine, allow the mower to completely power down before checking or changing the fuses or relays.

NEVER attempt to operate the machine with a bypassed fuse or relay, or with missing fuse and relay covers.

A. FUSE AND RELAY BOX

The fuse and relay box on the machine, located on the front left side of the machine under the top guarding panel, houses the majority of the machine's relays and fuses in a sealed enclosure. Ensure the cover is securely sealed and locked prior to replacing the guarding panel.

Refer to Figure 6-6 and the numbered list below to identify the fuses and relays in the box and their functions.

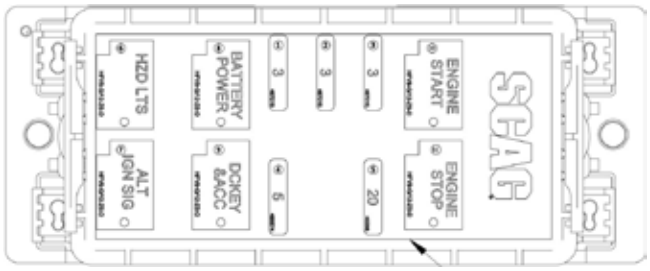


Figure 6-6. Fuse and Relay Box

1. Left & Right Traction Controller KSI 3A Fuse - Supplies 48VDC power to the left, and right traction controller key switch input. The key switch input feeds the controller's internal power supplies, the Coil Supply output, and the main-capacitor bank's precharge circuit.
2. Front, Left, Right, & Rear Deck Controller KSI 3A Fuse - Supplies 48VDC power to the front, left, right, and rear deck controller key switch input. The key switch input feeds the controller's internal power supplies, the Coil Supply output, and the main-capacitor bank's precharge circuit.
3. Front & Rear LED Worklight 3A Fuse - Supplies 48VDC power to the front, and rear LED work lights.
4. 12VDC Power 5A Fuse - Supplies 12VDC power to the machine display, Fort receiver, and hazard light.
5. Voltage Converter & Deck Actuator 20A Fuse - Supplies 48VDC power to the 48VDC/12VDC voltage converter, and deck actuators.
6. HZD LTS Relay - Turns ON/OFF the hazard light.
7. ALT IGN SIG Relay - Turns ON/OFF the alternator's voltage filter, and regulator circuit.
8. BATTERY POWER Relay - Turns ON/OFF the 48VDC battery pack.
9. DCKEY & ACC Relay - Turns ON/OFF the front, left, right, and rear deck controller's key switch circuit. The front, and rear LED work lights are also powered by this relay.
10. ENGINE START Relay- Allows power to the starter solenoid of the gas engine.
11. ENGINE STOP Relay - Shuts down the gas engine if it's running.

B. ENGINE FUSES

The engine fuse holder, located on the left side of the machine below the operator panel and next to the 12V battery, houses the fuses for the gas engine in a sealed enclosure. Ensure the fuses are properly inserted and locked in their holder after checking them.

Refer to Figure 6-7 and the numbered list below to identify the fuses and their functions.

Figure 6-7. Engine Fuses

1. Gas Engine 20A Fuse - Supplies 12VDC power to the starter solenoid when cranking the gas engine. It is located in the SCAG double fuse cover mounted to the upright of the operator panel.
2. Winch 7.5A Fuse - Supplies 12VDC power to the winch's logic circuit, and Bluetooth module. It is located in the SCAG double fuse cover mounted to the upright of the operator panel.

C. FORT RECEIVER FUSE

The Fort receiver fuse holder, located on the front of the machine heatsink panel under the front guard, houses the fuse for the Fort receiver. Ensure the fuse is properly inserted and locked in its holder after checking it.

Refer to Figure 6-8 and the description below to identify the fuse and its function.

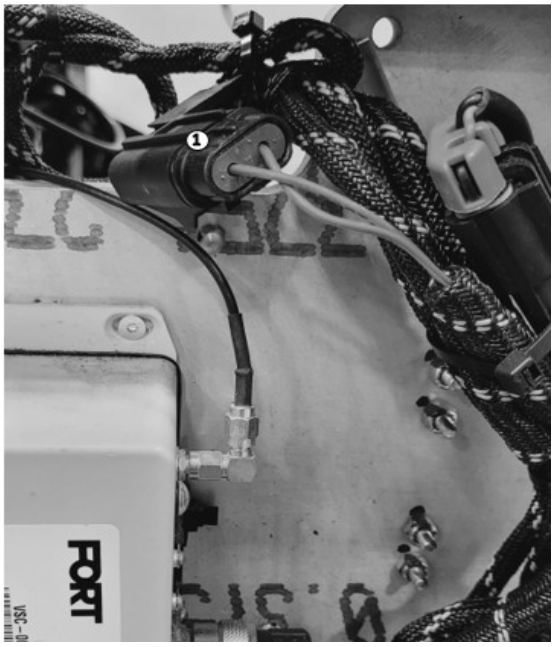


Figure 6-8. Fort Receiver Fuse

1. Fort Receiver 2A Fuse - Supplies 12VDC power to the Fort receiver (VSC). It is located in a SCAG single fuse cover zip tied to the main harness.

D. 48V RELAY AND CONTACTOR FUSES

The 48V relay and contactor fuses are located on the left side of the machine on the inside of the machine heat sink panel under the top guard. Ensure the relay is fully seated into its connector and the fuses are properly tightened to their studs with their covers in place after checking these components.

Refer to Figure 6-9 and the numbered list below to identify the relay and fuses and their functions.

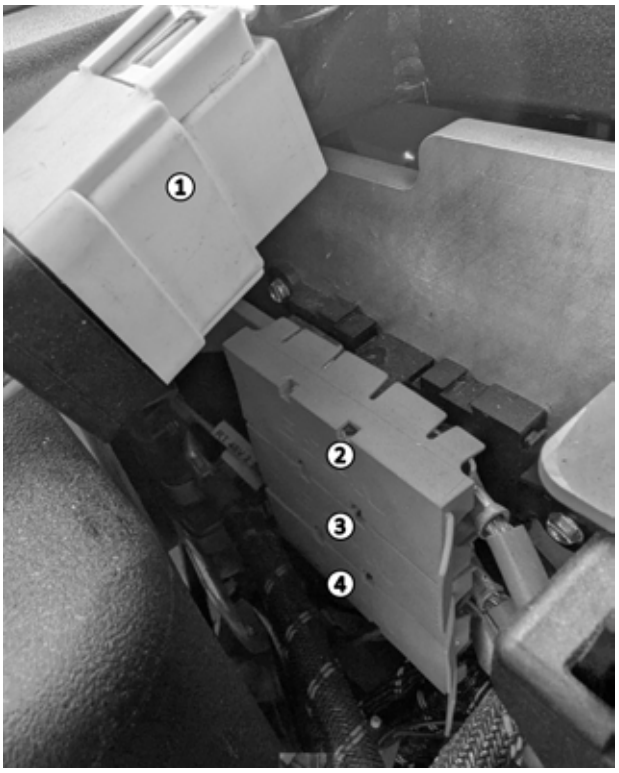


Figure 6-9. 48V Relay and Contactor Fuses

1. 48V_PWR_Relay - Turns ON/OFF the machines 48VDC/12VDC voltage converter, and deck actuators.
2. Right & Rear Deck Motor 150A Fuse - Supplies 48VDC to deck controller for right, and rear deck motors.
3. Front & Left Deck Motor 150A Fuse - Supplies 48VDC to deck controller for front, and left deck motors.
4. Left & Right Traction Motor 200A Fuse - Supplies 48VDC to traction controllers for left, and right traction motors.

E. 48VDC/12VDC VOLTAGE CONVERTER FUSE

The 48VDC/12VDC voltage converter fuse and holder are located on the front right of the machine heatsink panel under the front guard. Ensure the fuse is properly inserted and the cover is securely attached to the holder after checking it.

Refer to Figure 6-10 and the description below to identify the fuse and its function.

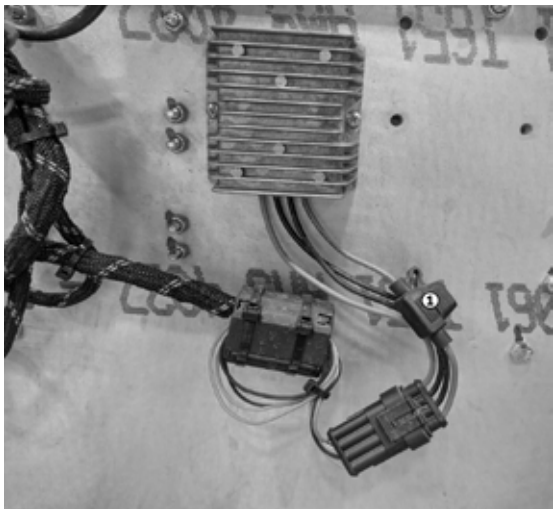


Figure 6-10. DCDC Converter Fuse

1. 48VDC/12VDC Voltage Converter 10A Fuse - Supplies 48VDC input power to the voltage converter.

ILLUSTRATED PARTS LIST

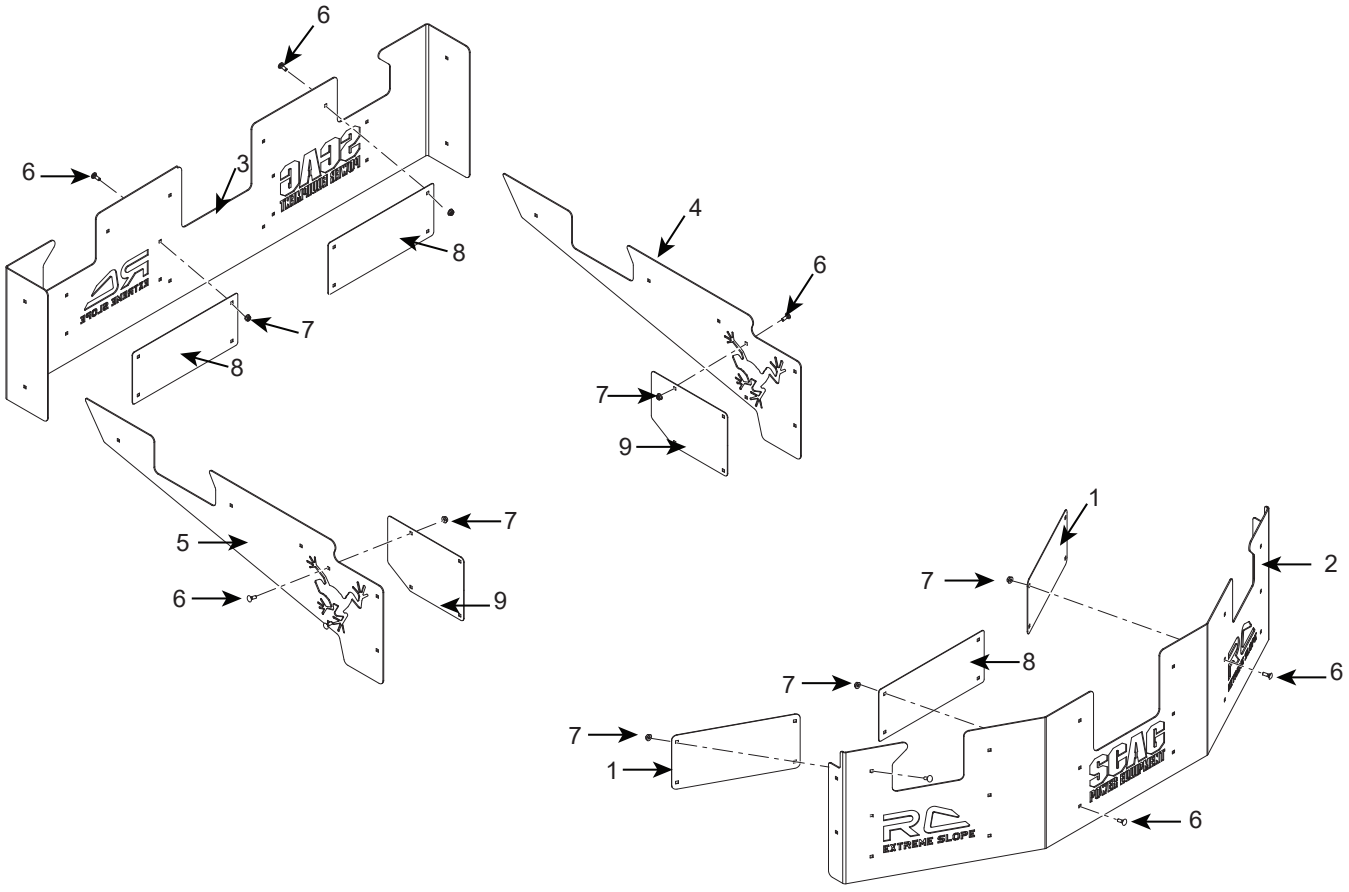
7.1 SCAG APPROVED ATTACHMENTS AND ACCESSORIES

Attachments and accessories manufactured by companies other than Scag Power Equipment are not approved for use on this machine.

Scag approved attachments and accessories:

Accessories	P/N
Scag Premium Lubricants	
Oil, 85W-140 Gearbox	488439
SRC Charger Kit	9710

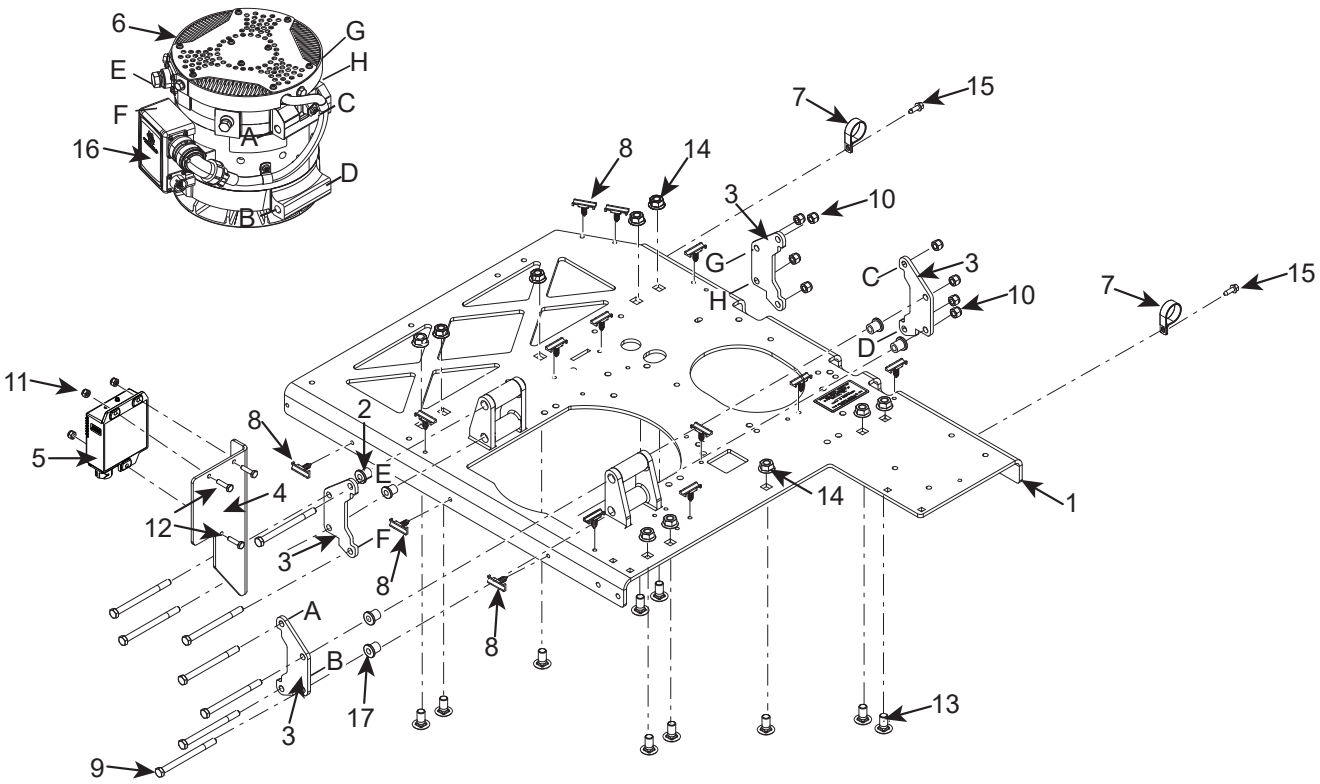
FRAME GUARD



FRAME GUARD

Ref. No.	Part No.	Description
1	4200211-B	Plate, Backer
2	463703	Front Panel Kit (Includes 6, 7, 8, 10)
3	463704	Rear Panel, SMRC - 52D (Includes 6, 7, 8)
	4200201	Bracket, Rear Shroud
4	463701	Side Panel, Kit LH SMRC - 52D (Includes 6, 7, 9)
	4200200	Plate, Side Shroud
5	463702	Side Panel, Kit RH SMRC - 52D (Includes 6, 7, 9)
	4200200	Plate, Side Shroud
6	04003-02	Carriage Bolt, 1/4 - 20 x .75 LG
7	04019-02	Nut, Serrated Flange Hex Head, 1/4 - 20
8	4200212-B	Plate, Center
9	4200217-B	Plate, Side Backer

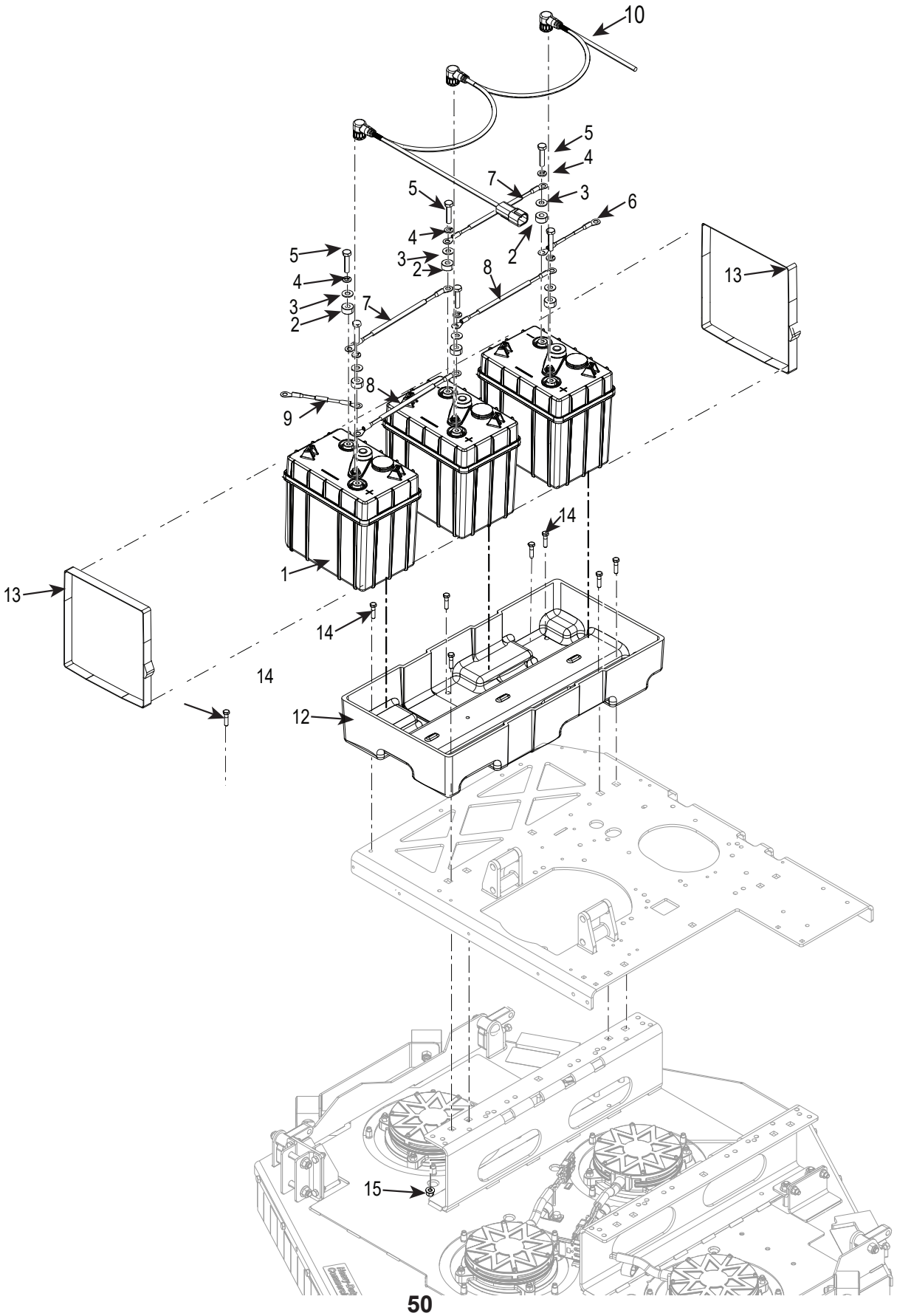
ALTERNATOR GROUP



ALTERNATOR GROUP

Ref. No.	Part No.	Description
1	463738	Motor Mount WLMT
2	488105	Plastic Bearing
3	4200044	Plate, Alternator Mount
4	4200166	Bracket Filter Mount
5	488074	Voltage Filter
6	488037	Alternator 7.0kWh
7	48030	Clamp, 1 1/4" Cable
8	481328	Clip, Wire Harness-Long
9	04001-198	HHCS, 3/8-16 x 4.75
10	04021-09	Locknut, 3/8-16 x 4.75 Elastic Stop
11	04021-08	Locknut, Elastic Stop 1/4-20
12	04001-14	HHCS, 1/4-20 x 1
13	04003-46	Carriage Bolt, 1/2-13 Serrated Flange
14	04019-06	Nut, 1/2-13 Serrated Flange
15	04011-14	Screw, 1/4-20 X .75 Taptite
16	488024	Alternator Regulator

BATTERY

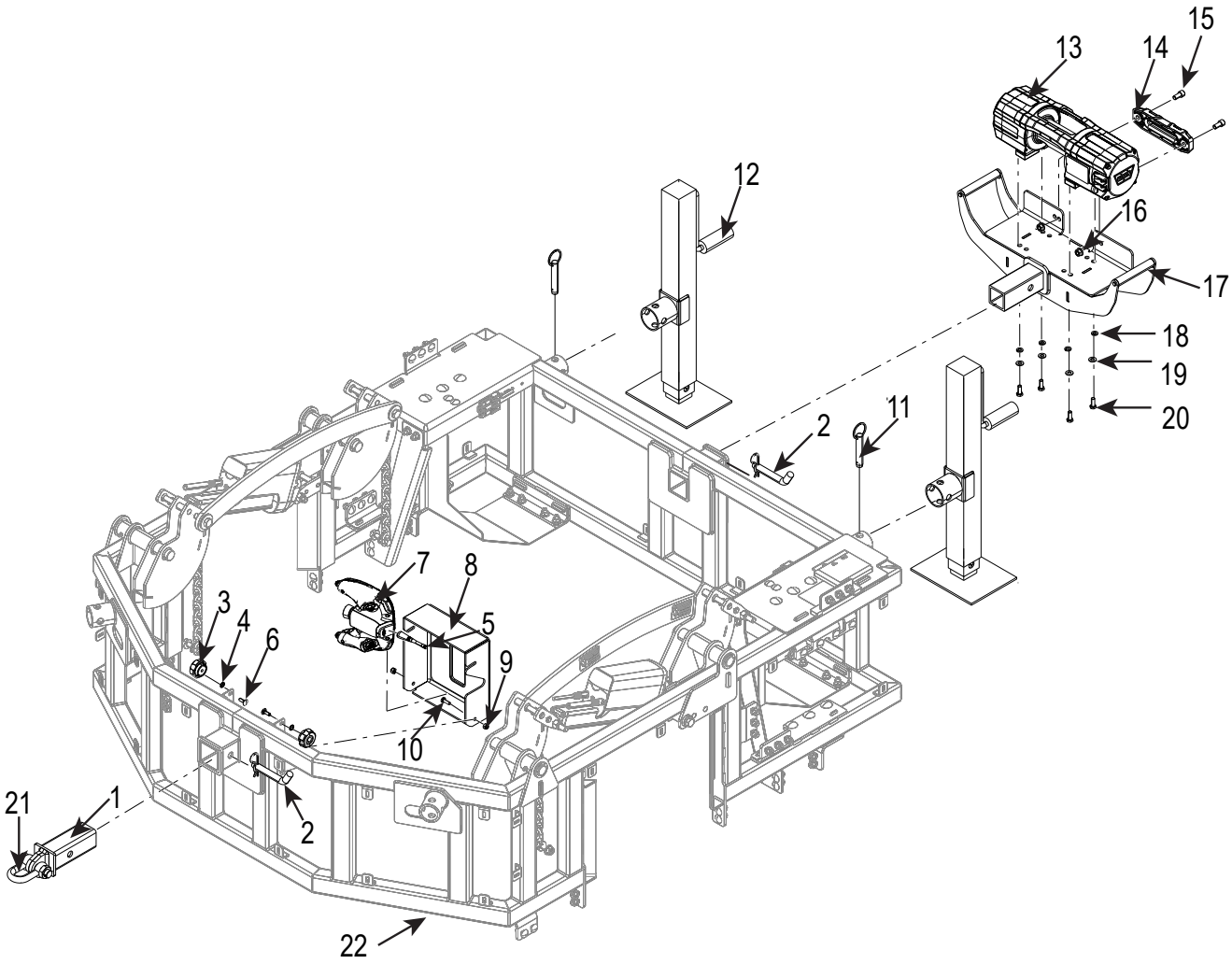


BATTERY

Ref. No.	Part No.	Description
1	487350*	ABS 3kW Battery
2	432027	Spacer, Bat Lug
3	04241-06	SS Flat Washer, 5/16"
4	04230-03	Ansi SS Helical Spring
5	04202-07	SS Metric HH Capscrew, M8-1.25 x 35 LG
6	48029-59	Battery Cable - Black, 66"
7	48029-40	Battery Cable - Black 9"
8	48029-39	Battery Cable -Red 9"
9	48029-58	Battery Cable - Red 66"
10	488117	GT - Com Cable
11	4200233	Cover, Battery
12	4200232	Holder, Battery
13	488131	Cinch Strap
14	04001-10	Capscrews HH, 5/16-18 UNC X 1.25
15	04019-03	Nut, Serrated Flange HH, 5/16 - 18

*Contact local distributor for replacement.

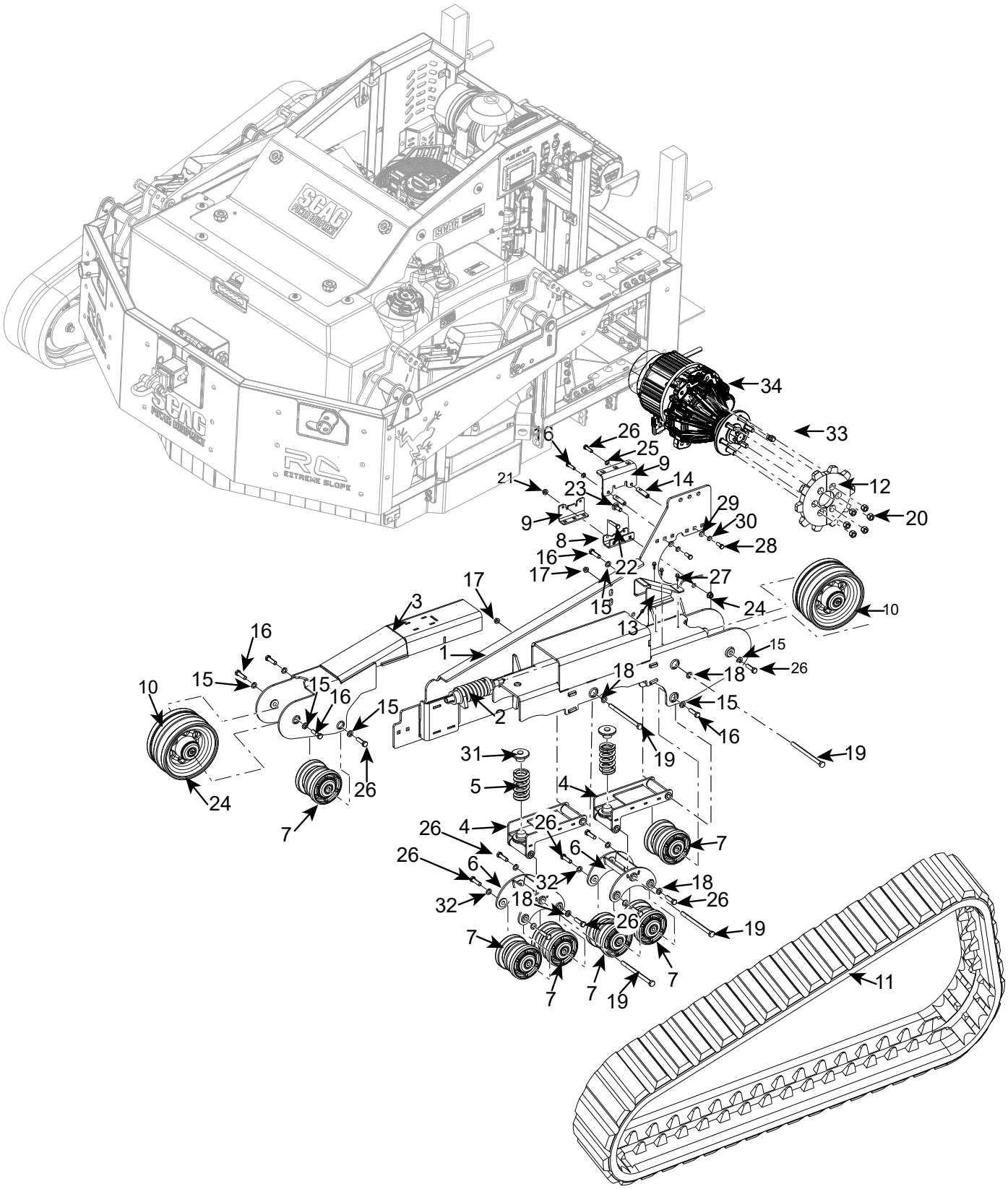
UTILITIES



UTILITIES

Ref. No.	Part No.	Description
1	454012	Shackle WLMT
2	488070	Bent-Pull Clevis Pin
3	481885-01	Knob Fluted
4	04024-04	Nut, Push-on
5	488047	Fort Antenna
6	04003-02	Carriage Bolt 1/4-20 X .75 LG
7	488046	Fort Transmitter
8	463693	Controller Door W/3M Guard
9	04021-08	Hex Lock Nut 1/4-20
10	04001-01	Capscrew, Hexhead 1/4-20 UNC X .75
11	488033	Jack Pin 5/8"
12	454003	Jack Stand
13	488106	Axon 45 Winch
14	*	Fairlead Long, Included in #13
15	04015-42	Capscrew, Socket HD, 3/8 - 16
16	04019-04	Nut, Serrated Flange HH, 3/8 x 16
17	463692	Winch Bracket w/Decal SMRC-52D
18	04033-01	Lockwasher, Metric Helical Sprg
19	04040-04	Washer, ANSI Plain Type A, 5/16"
20	04002-12	Metric HH Capscrew, 1.25 x 20 LG
21	488069	Shackle
22	463691	Frame w/Decals

TRACKS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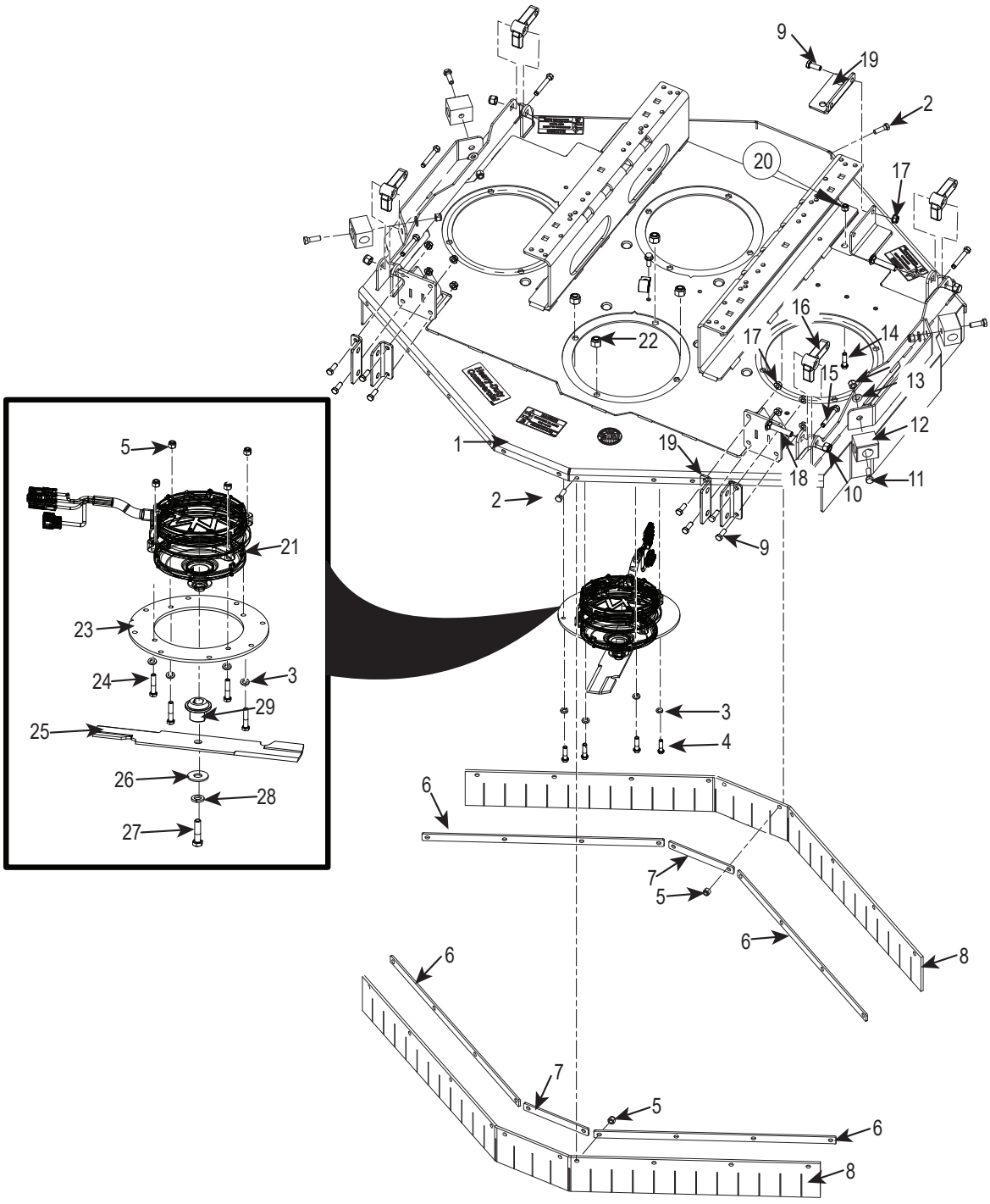
TRACKS

Ref. No.	Part No.	Description
1	454017	Track WLMT, LH
	454021	Track WLMT, RH
2	463661	Track Tension TF Assembly
3	454018	Track Sub WLMT
4	463697	Sub Arm w/Bushings
5	488097	Suspension Spring
6	454019	Track Roller WLMT
7	487560	Roller, Track
8	4200110	Bracket, Omni-U-Mnt
9	4200095	Bracket, Omni-L-Mnt
10	488027	Triple Flange Idler
11	488056	Rubber Track OTR
12	432006	Drive Sprocket
13	4200122	Bracket, Zerk Guard
14	432029	Spacer, Transaxel
15	4033-03	Lockwasher, M12 Helical Sprg
16	4002-26	Metric, HH Capscrew M12-1.75 x 40LG
17	4021-07	Locknut, 1/2-13 Elas Stop
18	04030-06	Lockwasher, 1/2 SPRG
19	04001-235	HH Capscrew, 1/2-13x7.00
20	4028-02	Wheel Nut
21	4019-04	Nut, 3/8-16 SERR FLG
22	04001-21	HH Capscrew, 3/8-13 x 1.75
23	04003-19	Carriage Bolt, 1/2-13 x 1.25
24	04019-06	Nut, 1/2-13 Serrated Flange
25	04033-02	Lockwasher, M10 Helical SPRG
26	04002-30	HH Capscrew Metric M10-1.5x35 LG
27	04011-14	Screw, Self Tapping 1/4-20 x .75
28	04001-19	HH Capscrew, 3/8-16 x 1.0
29	04040-05	Flat Washer, 3/8 - .406 x .812 x .065
30	04030-04	Lock Washer 3/8 SPRG
31	432039	Spring Retainer
32	04033-03	Lockwasher Metric Helical Sprg
33	488001	Oil Bleeder Valve
34	488276	SPI Drive Motor LH
	488130	SPI Drive Motor RH

DECK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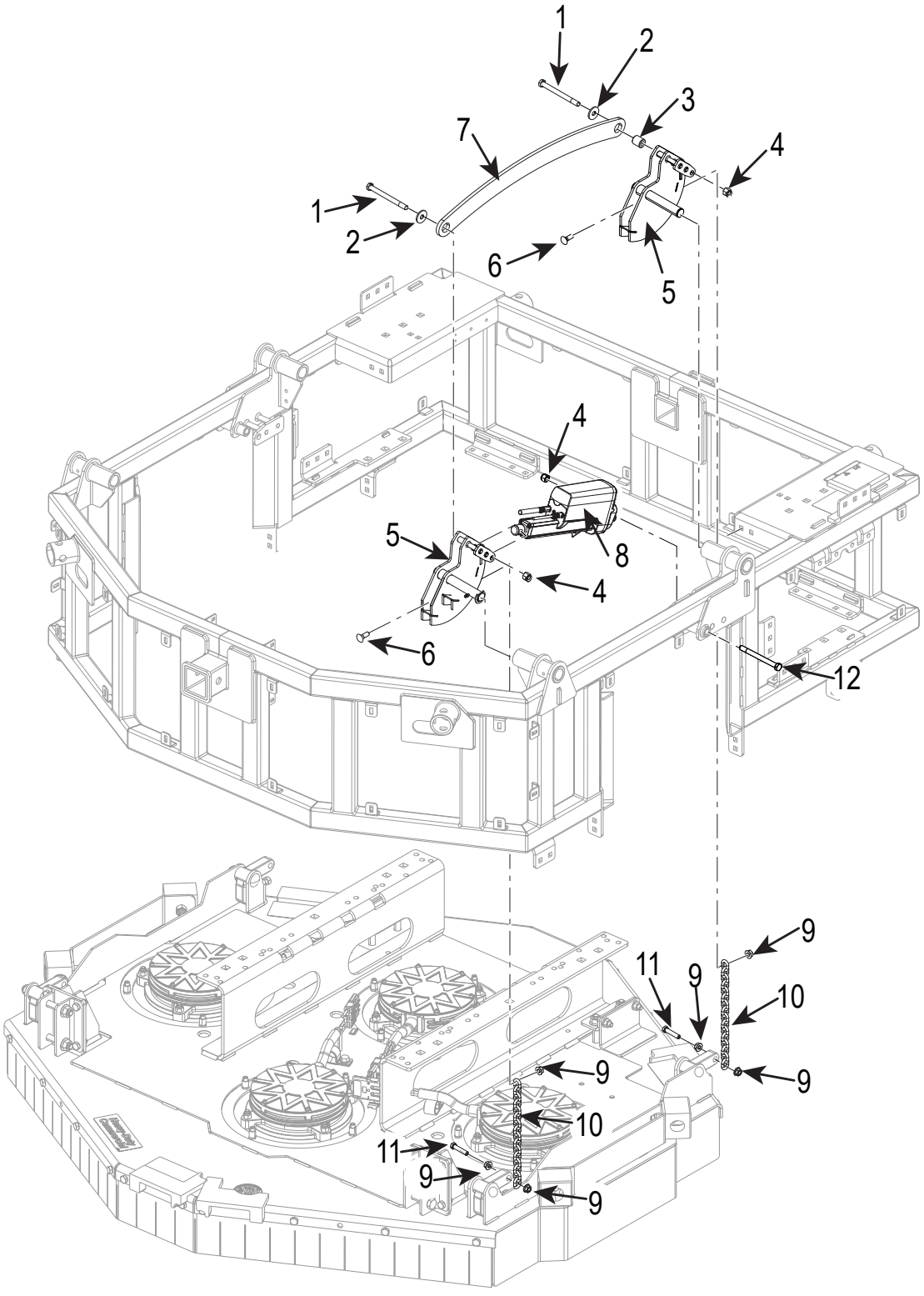
DECK

Ref. No.	Part No.	Description
1	463709	Deck WLMT, 52D w/decals
2	04001-32	HH Capscrew 3/8-16 X 1.25
3	04030-04	Lockwasher, 3/8
4	04001-20	HH Capscrew, 3/8-16 UNC X 1.50
5	04021-09	Lock Nut, 3/8 - 16
6	4200085	Plate, Backer Long
7	4200084	Plate, Backer Short
8	4200234	Rubber, Deck Guard 52D
9	04001-19	HH Capscrew, 3/8-16 UNC X 1.00
10	04021-07	Hex Lock Nut, 1/2 X 13
11	04001-71	HH Capscrew, 1/2-13 UNC X 1.50
12	488051	Deck Bumper
13	04040-07	Washer, ANSI Plain Type A, 1/2
14	04001-52	HH Capscrew, 1/2-13 UNC X 2.50
15	04107-05	HH Capscrew w/Special Lock, 3/8 - 16 X 2.50
16	4200130	Lever, Large Deck
17	04019-04	Nut Serrated Flange, 3/8 - 16
18	04003-59	Carriage Bolt 1/2 - 13 X 2.5 LG
19	4200079	Bracket, Roll Cage Tie
20	04019-06	Nut Serrated Flange, 1/2 - 13
21	495028	Omni Deck Assembly
22	04132-02	Hex Threaded Insert, 3/8 - 16
23	4200129	Plate, Omni Sub Mount
24	04001-21	HH Capscrew, 3/8-16 UNC X 1.75
25	482000	Cutter Blade, 18"
26	04043-08	Washers, Flat Hardened, 1/2"
27	04001-72	HH Capscrew, 1/2-13 UNC X 2.00
28	04030-06	Lockwasher, 1/2"
29	4200128	Omni Blade Driver

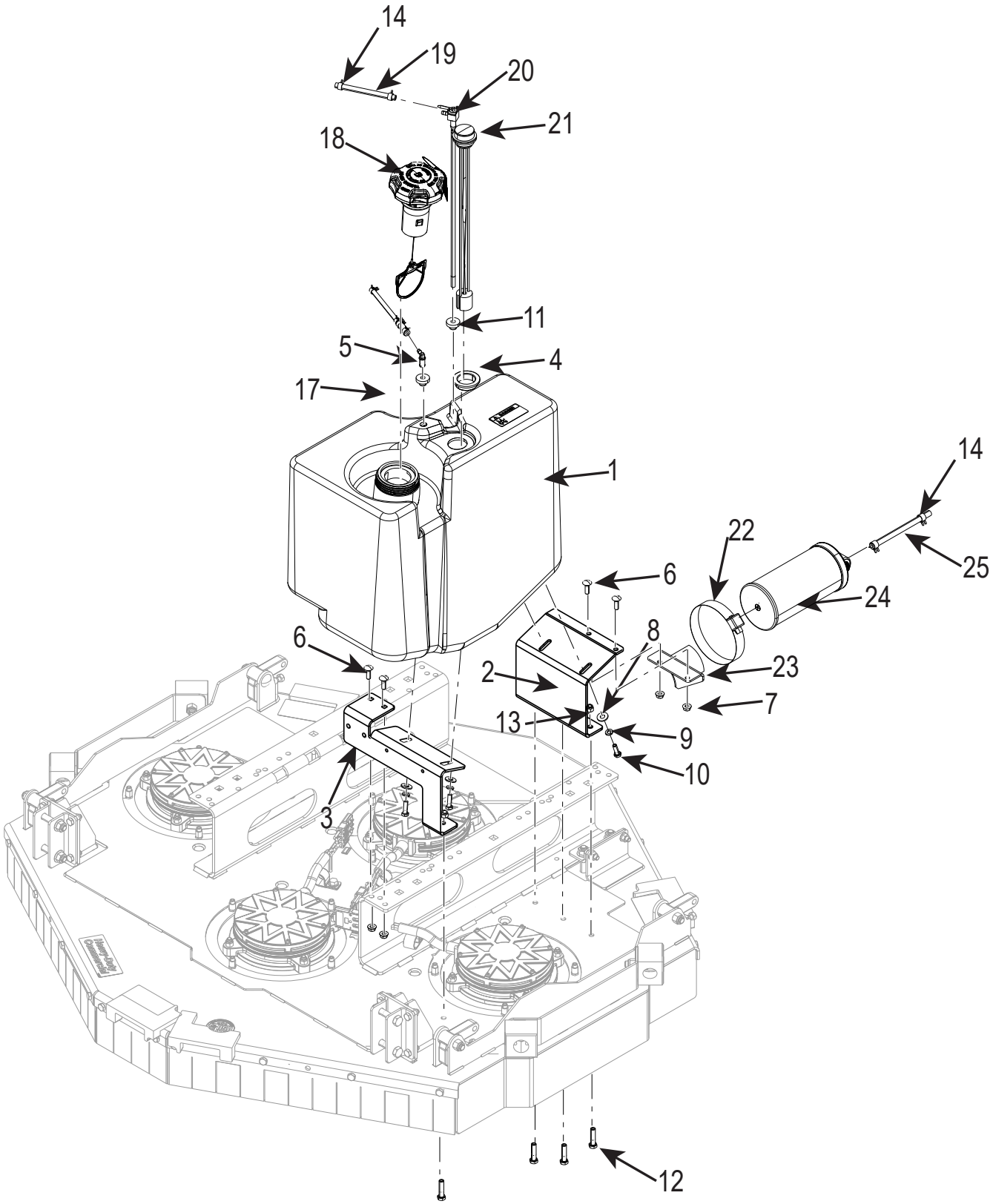
DECK LIFT



DECK LIFT

Ref. No.	Part No.	Description
1	04001-37	Capscrew Hex Head, 1/2-13 UNC X 5.5
2	4200043	Lift End Plate
3	432025	Spacer, Rod
4	04021-07	Hex Lock Nut, 1/2-13
5	454010	Lift WLMT, LH
6	04003-40	Carriage Bolt 7/16-14 X 1.25 LG
7	463712	Deck Tie Bar w/Decals RH
	463690	Deck Tie Bar w/Decals LH
8	488100	48V Actuator
9	04019-05	Nut Serrated Flange, 7/16 - 14
10	463706	Deck Lift Chain, SMRC 52D (Includes 9, 10, 11)
11	04001-236	Capscrew 7/16 - 14 X 2.00
12	04001-37	Capscrew 1/2-13 X 5.50

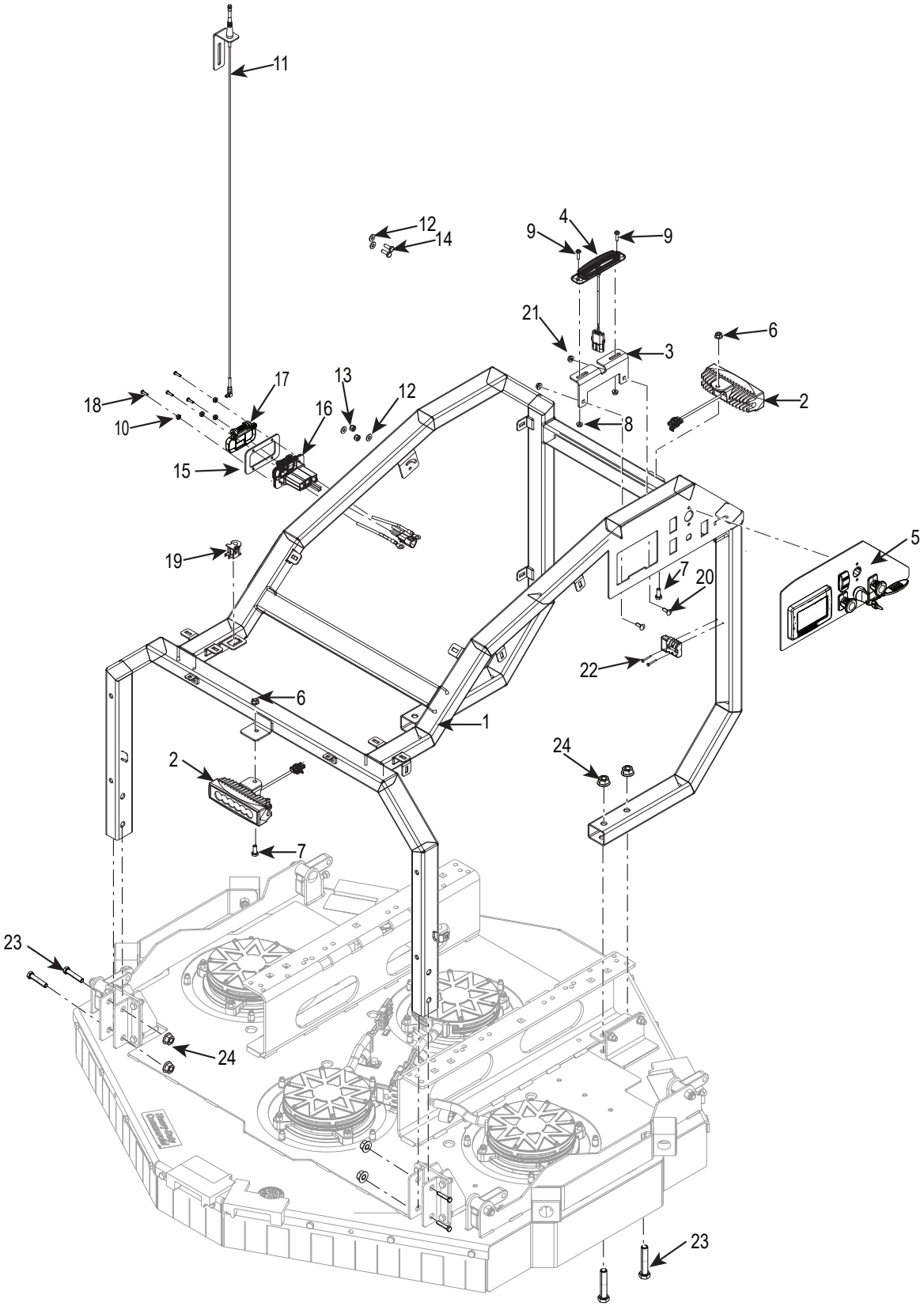
FUEL



FUEL

Ref. No.	Part No.	Description
1	463593	Tank Assembly
2	4200191	Bracket Tank Base A
3	4200192	Bracket , Tank Base B
4	484242	Seal, Fuel Gauge
5	486852	Remote Vent w/ No Valve
6	04003-04	Carriage Bolt
7	04019-03	Nut, Serrated Flange
8	04040-15	Washer
9	04030-03	Lock Washer
10	04001-09	Capscrew HH, 5/16-18 UNC X 1.00
11	482571	Bushing
12	04001-20	Capscrew HH 3/8-16 UNC X 1.50
13	04021-09	Hex Lock Nut
14	48059-01	Clamp, Fuel Hose 1/4
15	483617	Hose, Non Perm Fuel
16	483617-35	Hose, Non Perm Fuel 24.00
17	484279-03	Tube Fuel Inlet 3.0
18	484286	Fuel Cap w/Tether
19	495051	Vapor Line Assembly
20	486460	Valve Fuel Shutoff w/Pickup Line
21	488171	Fuel Gage Assembly
22	48136-17	Hose Clamp
23	425493	Bracket Canister
24	484287	Carbon Canister, 400CC
25	484345-26	Vapor Hose

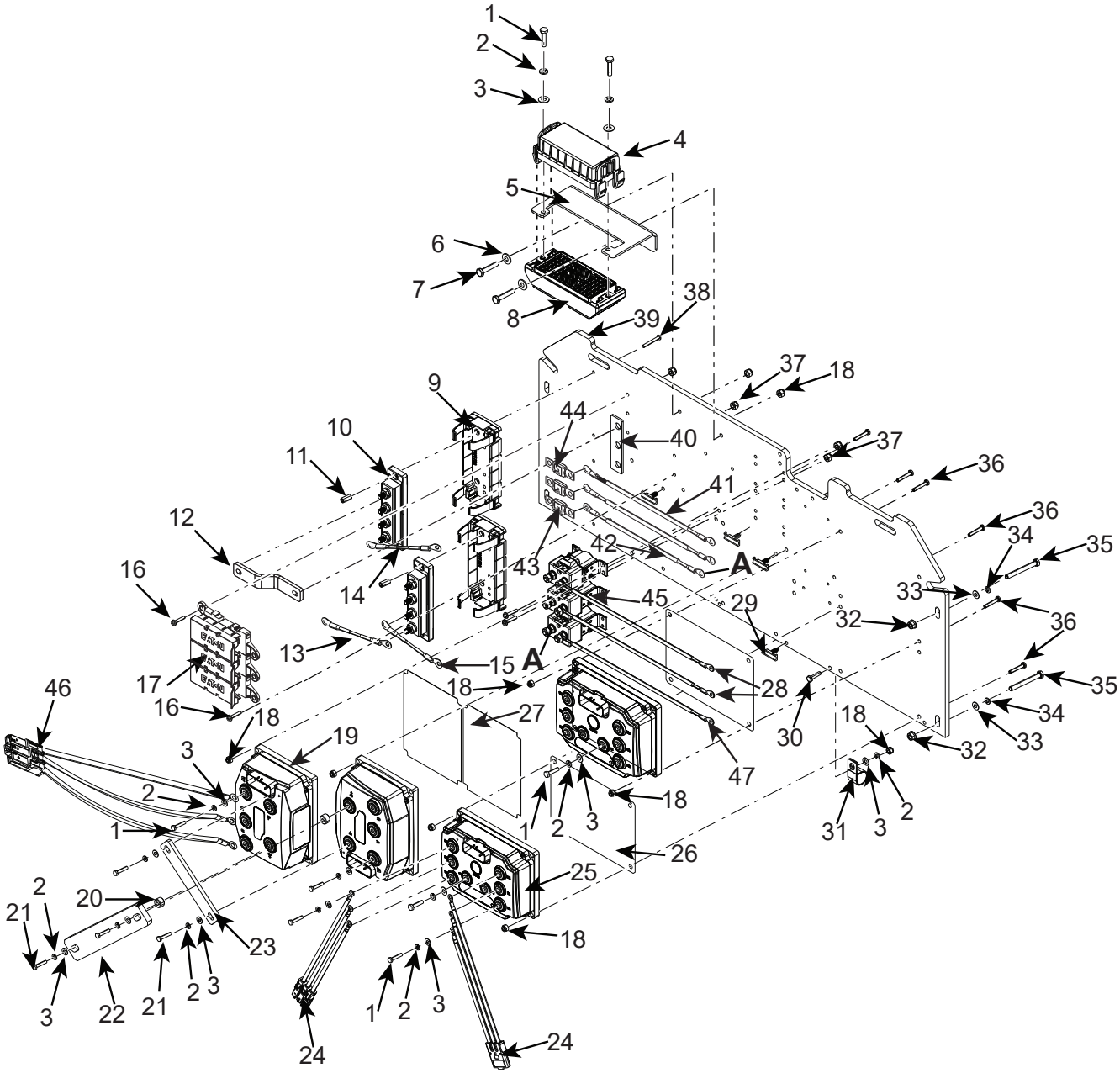
ROLL CAGE



ROLL CAGE

Ref. No.	Part No.	Description
1	463696	Roll Cage w/Decal
2	487187	Worklight 48V LED
3	4200138	Bracket Warning Light Mount
4	488012	Safety Light
5	495018	Operator Panel Assembly
6	04019-03	Nut Serrated Flange, 5/16 - 18
7	04001-08	Capscrew Hexhead, 5/16-18 X .75
8	04019-01	Nut, Serrated Flange, #10 - 32
9	04010-12	Machine Screw #10-32 X .75 LG
10	04020-24	Hex Nut #6-32
11	463710	Antenna w/Bracket
12	04040-03	Washer Plain Type A 1/4
13	04021-08	Hex Lock Nut 1/4-20
14	04001-01	Capscrew Hexhead 1/4-20 X .75
15	488112	Port Seal
16	488113	Charging Port Assembly
17	488065	Cover Receptacle
18	04010-18	Machine Screw 8 #6-32 X .50 LG
19	481638	Switch, N/O
20	04003-02	Carriage Bolt 1/4-20 X .75 LG
21	04019-02	Nut Serrated Flange, 1/4 - 20
22	04011-37	Self Tapping Screw, #4-24
23	04001-52	Capscrew Hexhead, 1/2-13 UNC X 2.50
24	04019-06	Nut Serrated Flange 1/2 - 13

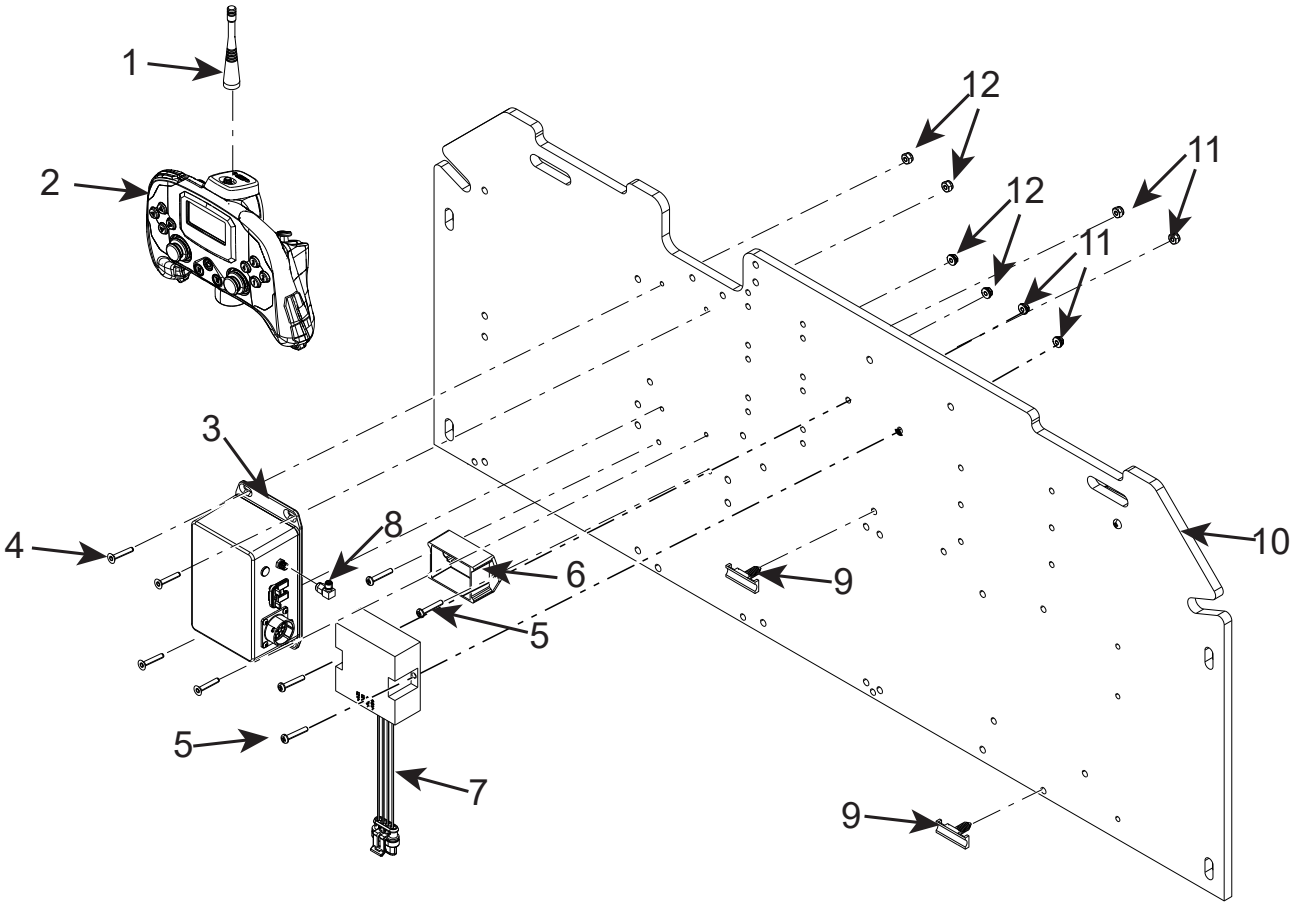
CONTROL PANEL GROUP



CONTROL PANEL GROUP

Ref. No.	Part No.	Description
1	04202-04	SS Metric Hexhead Capscrew, M6-1.0 X 25 LG
2	04230-02	Lockwasher ANSI SS Helical Spring, 1/4
3	04240-01	Washer, ANSI SS Plain, 1/4
4	488127	Relay Cover, Fuse C2878-1
5	4200218	Bracket, Fuse Shelf
6	04040-03	Washer, ANSI Plain Type A, 1/4
7	04001-59	Capscrew Hexhead, 1/4-20 UNC X 1.25
8	488126	Relay Box, Fuse C2883
9	487095	Enclosure, 4 Position Bus Bar
10	487097	Bus Bar, 4 Position
11	04137-01	Hex Nut, Coupling 10-24 UNC X .75
12	4200111	Bus Bar Jumper
13	48029-61	Battery Cable, 21" L, 2/0 AWG, Red
14	48029-56	Battery Cable, 21" L, 2/0 AWG, Black
15	48029-64	Battery Cable, 39" L, 4 AWG, Black
16	04010-47	Machine Screws, #10-24 X 1.00 LG, Hex washer HD-Slotted
17	488060	Eaton Fuse Housing
18	04021-08	Hex Lock Nut, 1/4-20
19	488067	Traction Controller, Curtis
20	432030	Spacer, Bus Bar Riser
21	04202-05	SS Metric Hexhead Capscrew, M6-1.0 X 30 LG
22	488068	Bus Bar, Red, F4-A
23	488085	Bus Bar , Black F4-4
24	488223	Whip, Deck Motor
25	487488	Deck Controller, F2-D 48-120-152
26	488102	Thermal Pad F2-D
27	488103	Thermal Pad F4-A
28	48029-63	Battery Cable, Red
29	481328	Clip, Wire Harness-Long
30	04001-14	Capscrew Hexhead, 1/4-20 UNC X 1.00
31	48030-24	Clamp, Cable
32	04109-04	Nut, Serrated Flange Hex Head, 3/8 - 16
33	04040-05	Washer, ANSI Plain Type A, 3/8
34	04030-04	Lockwasher ANSI SS Helical Spring, 3/8
35	04001-62	Capscrew Hexhead, 3/8-16 UNC X 3.25
36	04001-04	Capscrew Hexhead, 1/4-20 UNC X 1.50
37	04021-26	Hex Lock Nut #10-24
38	04010-08	Machine Screw, 3/8-16 X .50 LG
39	4200082	Electrical Heat Sink
40	488132	Bus Bar, Modular Fuse Holder
41	48029-60	Battery Cable, 12", 5/16, 5/16, 4 AWG, Red
42	48029-62	Battery Cable, 11", 5/16, 5/16, 2/0 AWG, Red
43	488077	Fuse 200 AMP
44	488078	Fuse 150 AMP
45	488058	Albright Contactor
46	488114	Harness, Traction Whip
47	48029-65	Battery Cable, Red

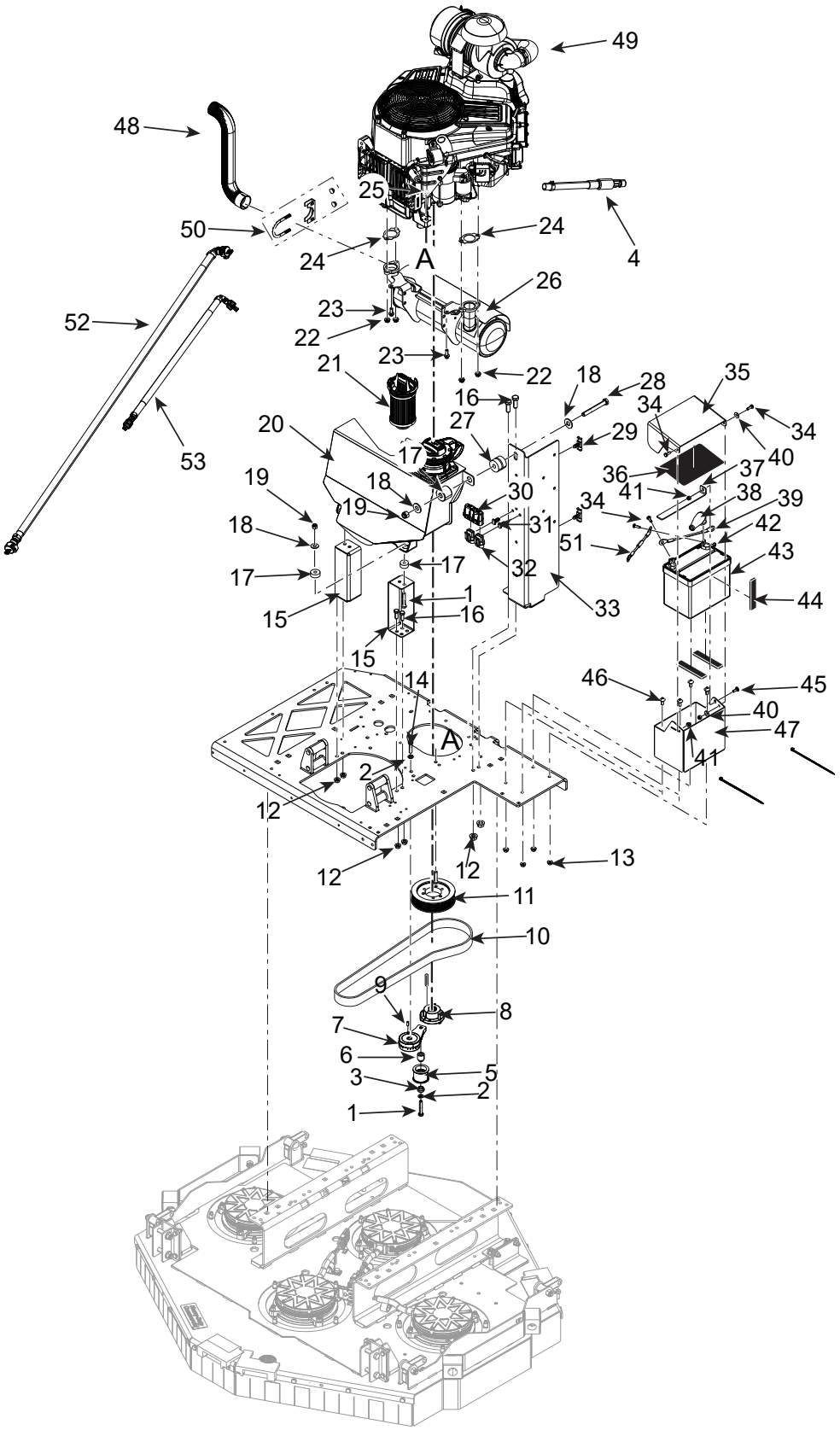
CONTROL PANEL GROUP



CONTROL PANEL GROUP

Ref. No.	Part No.	Description
1	488047	Fort Antenna
2	488046-01	Fort Transmitter
3	488045-01	Fort Receiver
4	04142-01	Capscrew, Metric Flat HD HexSoc
5	04010-52	Machine Screw, #8-32 X 1.00 LG
6	488128	Timed Relay
7	487249	Shadow Box Assembly 48 to 12 Volt
8	488079	SMA 90 Adapter
9	481328	Clip, Wire Harness-Long
10	4200082	Electrical Heat Sink
11	04021-17	Hew Lock Nut#8-32
12	04111-01	Nut, Metric Serrated Flang Hex Head

ENGINE INSTALL GROUP

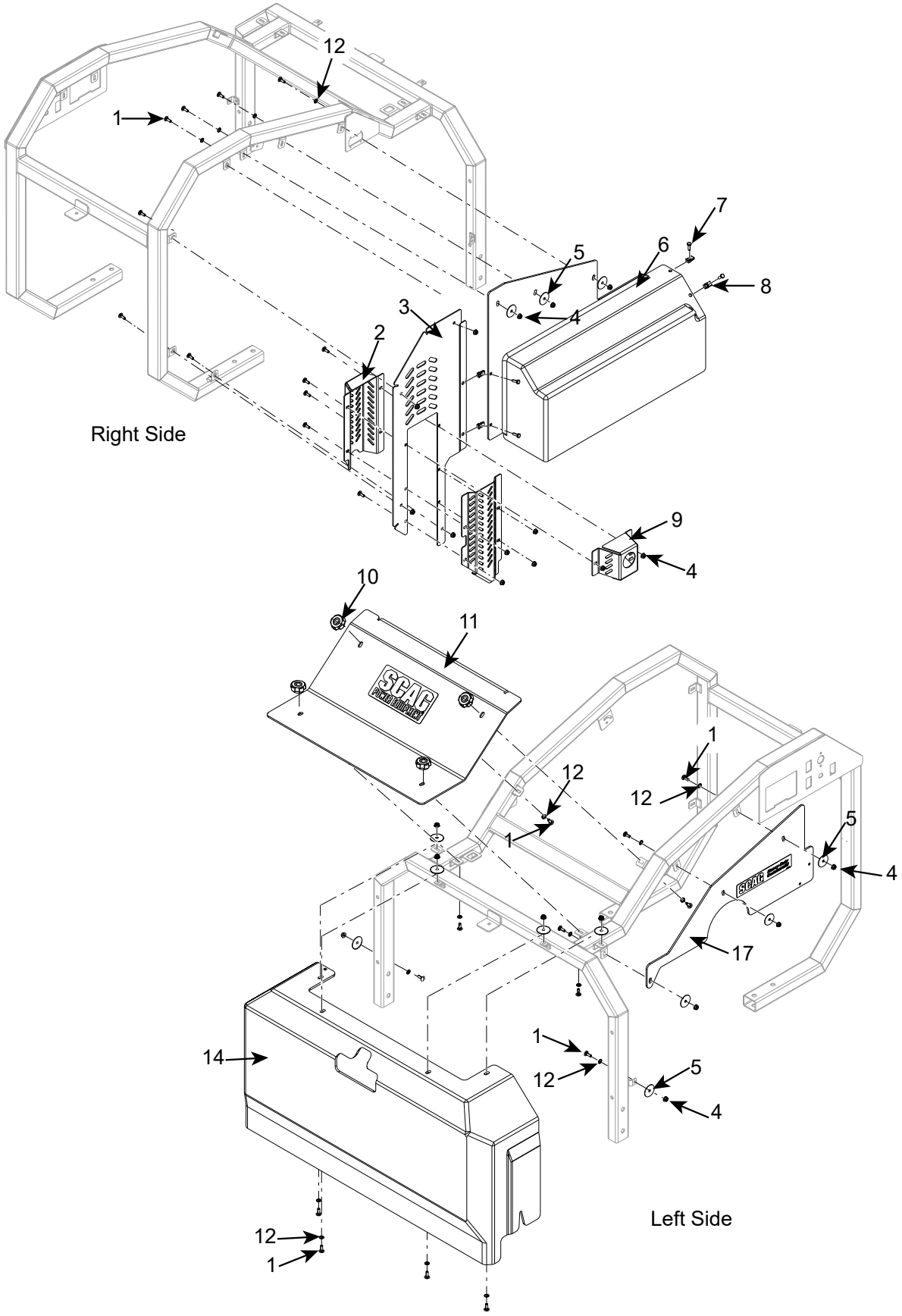


ENGINE INSTALL GROUP

Ref. No.	Part No.	Description
1	04001-45	Capscrew Hex Head, 3/8-16 UNC X 2.00
2	04030-04	Lockwasher, ANSI Helical Sprg, 3/8
3	432024	Spacer, Idler Short
4	488275	Hose Assembly, Oil Drain BV-EFI
5	488042	Idler Pulley
6	432023	Spacer, Idler Long
7	488043	Tension Arm
8	488101	QD Bushing
9	04135-02	Pin, Slotted Spring Metric. 6x16
10	488040	Micro Belt
11	488050	Drive Pulley
12	04019-04	Nut, Serrated Flange HH, 3/8 - 16
13	04019-03	Nut, Serrated Flange HH, 5/16 - 18
14	04001-20	Capscrew Hex Head, 3/8-16 UNC X 1.50
15	4200055	Bracket, Oilguard
16	04001-19	Capscrew Hex Head, 3/8-16 UNC X 1.00
17	488032	Vibration Mount Kit
18	04040-12	Washer, ANSI Plain Type A, 3/8
19	04021-09	Hex Lock Nut, 3/8 - 16
20	*	Wide Oilguard Tank, Briggs & Stratton 80099802
21	*	Oil Filter, Briggs & Stratton 80027620
22	04111-04	Nut, Metric Serrated Flange Hex Head, M8 X 1.25
23	04119-02	Nut, Serrated Flange HH, 1/4 - 20
24	483818	Gasket, Exhaust Manifold
25	04134-03	Locknut w/Flange Top Lock, 3/8 - 16
26	487617	Muffler
27	432008	Spacer, Oil Tank
28	04001-54	Capscrew Hex Head, 3/8-16 UNC X 3.00
29	481328	Clip, Wire Harness Long
30	483571	Fuse Cover
31	482588	Clip Wire Harness, Long
32	483629	Fuse Holder
33	4200059	Bracket, Oil Guard
34	04001-01	Capscrew Hex Head, 1/4-20 UNC X .75
35	428066	Battery Box, Upper
36	485692	Insulation, Battery Cover
37	427318	Battery Box, Latch
38	48126	Rubber Boot
39	48029-07	Battery Cable, Negative Black
40	04040-14	Washer, ANSI Plain Type A, 1/4
41	04021-08	Hex Lock Nut, 1/4 -20
42	04020-02	Hex Nut, 1/4 - 20
43	483665	Battery
44	48661	Pad, Rubber
45	04003-02	Carriage Bolt, 1/4-20 X .75 LG
46	04003-12	Carriage Bolt, 5/16-18 X .75 LG
47	427316	Battery Box, Lower
48	4200141	Muffler Extension, 37BV
49	*	Briggs & Stratton Vanguard Oilguard 37HP ETC EFI
50	484291	Muffler Clamp
51	48029-06	Battery Cable, Positive Red
52	*	Hose
53	*	Hose

*Available through engine manufacturer.

DECK GUARD GROUP



DECK GUARD GROUP

Ref. No.	Part No.	Description
1	04003-02	Carriage Bolt, 1/4-20 X .75 LG
2	4200226	Bracket, Inner Muffler
3	4200223	Bracket, Bottom Rear
4	04019-02	Nut, Serrated Flange 1/4 - 20
5	04041-49	Flat washer, 1/4
6	463698	Battery Cover w/Decal
7	04001-01	Hexhead Capscrew, 1/4-20 UNC X .75
8	04110-01	U-Nut, 1/4 - 20
9	4200224	Bracket, Upper Muffler
10	481885-01	Knoib 1/4 - 20
11	463699	Main Cover w/Decal
12	04024-04	Nut, Push-On 1/4
13	463700	Gas Tank Cover w/Decal
14	488184	Guarding, Front Panel

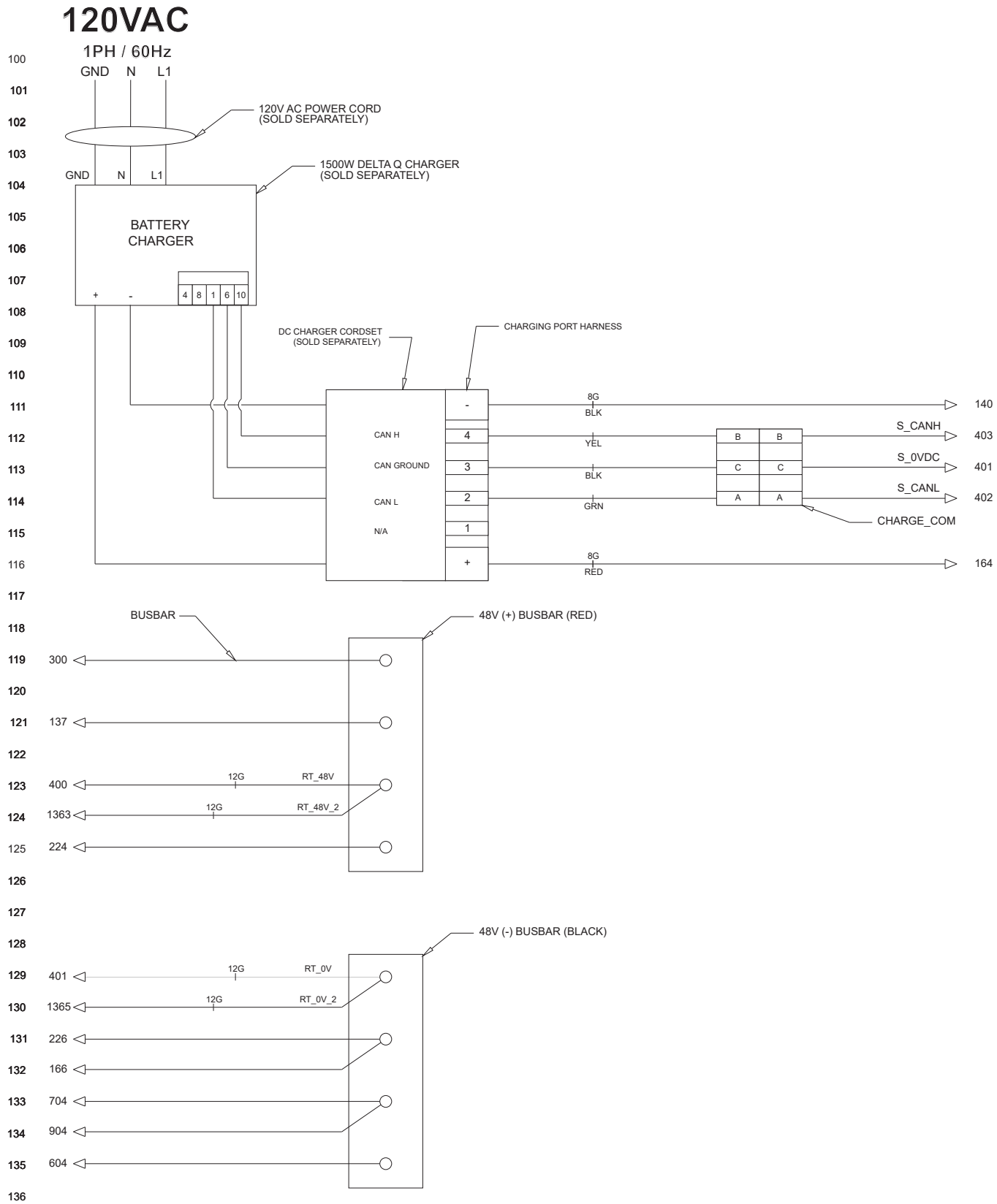
7.2 SCAG RC EXTREME SLOPE MOWER ELECTRICAL PRINTS

GENERAL NOTES

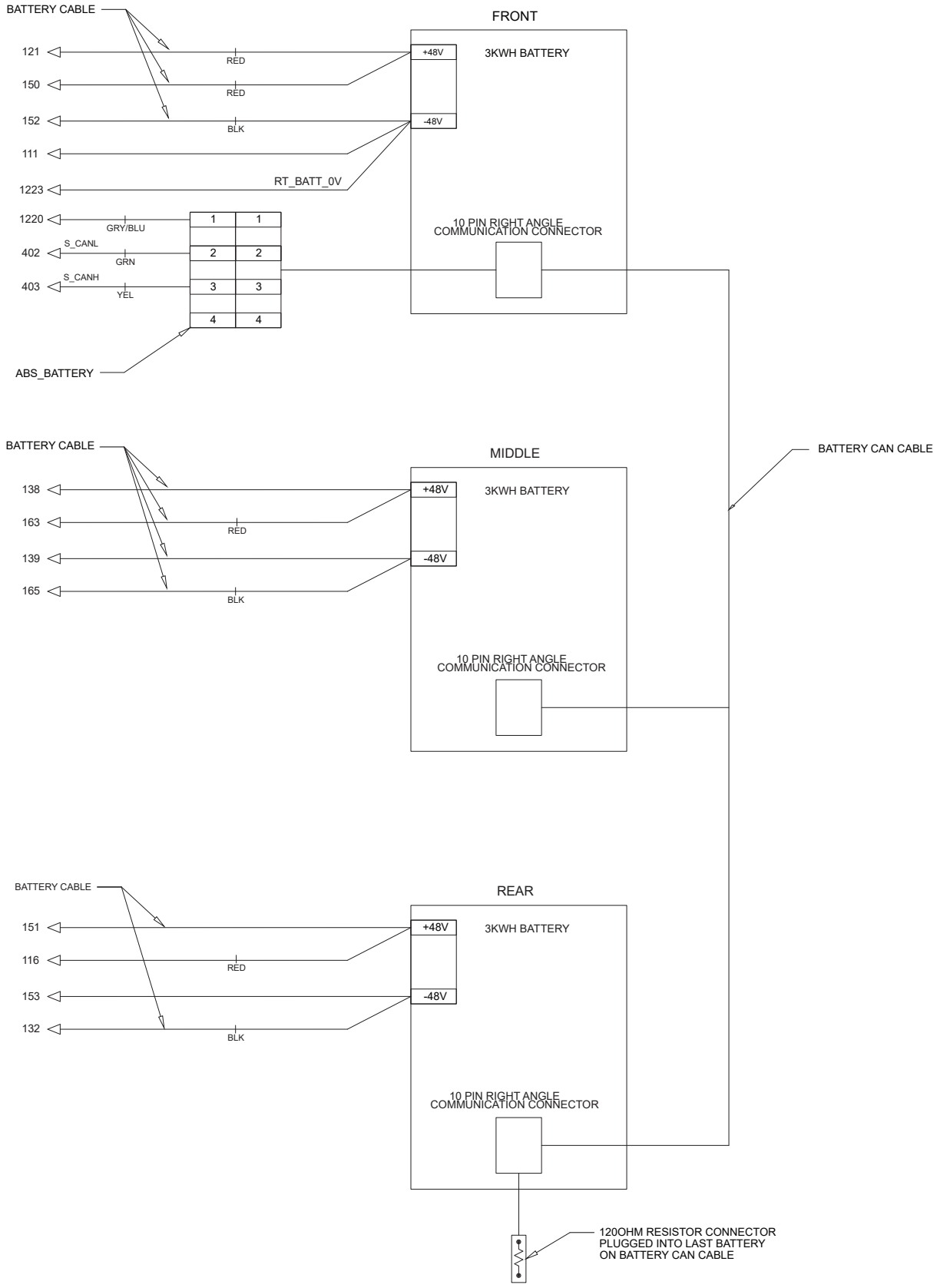
HARNESS WIRES

- 18AWG IS STANDARD WIRE SIZE UNLESS NOTED OTHERWISE.
- ALL WIRE COLORS ARE ORANGE UNLESS NOTED OTHERWISE.
- LASER ETCHING WILL INDICATE THE TERMINATION POINT ON EACH END OF THE WIRE.
- ALL WIRES THAT TERMINATE AT A SPLICE POINT ARE DESIGNATED WITH "S" FOLLOWED BY THE SPLICE NUMBER.
- ALL WIRES THAT TERMINATE TO A RING TERMINAL ARE DESIGNATED WITH "RT" FOLLOWED BY THE TERMINAL NUMBER.
- ALL WIRES THAT TERMINATE TO A QUICK CONNECT SPADE TERMINAL ARE DESIGNATED WITH "QC" FOLLOWED BY THE TERMINAL NUMBER.
- ALL 48V, 0V, & CAN WIRE SPLICES THAT START WITH "S2" HAVE CONTINUITY BETWEEN THEIR CORRESPONDING "S" SPLICES, BUT ARE SPLICED IN SEPARATE LOCATIONS ON THE HARNESS.
- WIRE COLORS, & WIRE SIZE ARE NOTED ONLY ONCE BETWEEN TERMINATION POINTS.

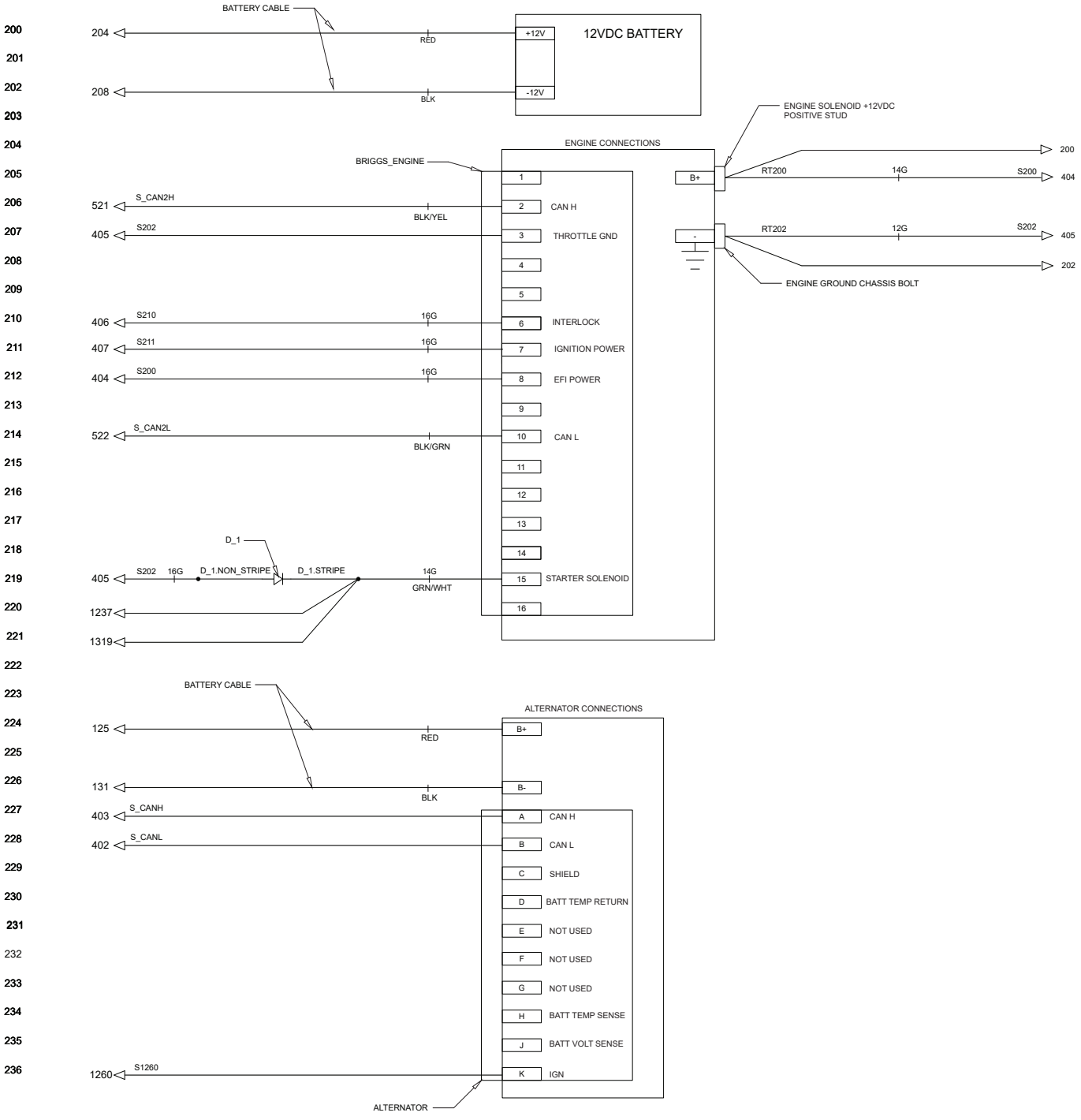
CHARGER, 48VDC BATTERIES, 48VDC & 0VDC BUS



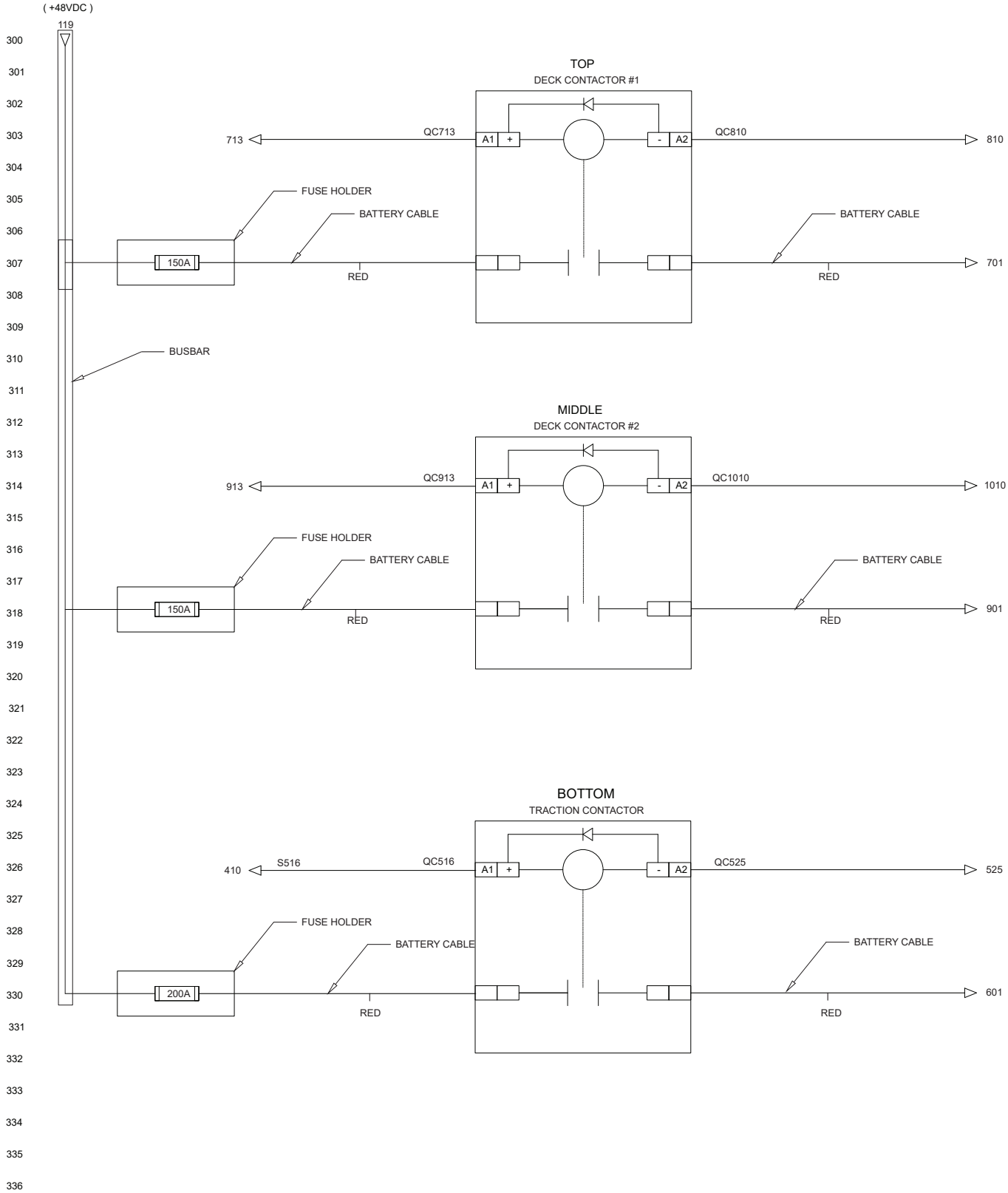
CHARGER, 48VDC BATTERIES, 48VDC & 0VDC BUS



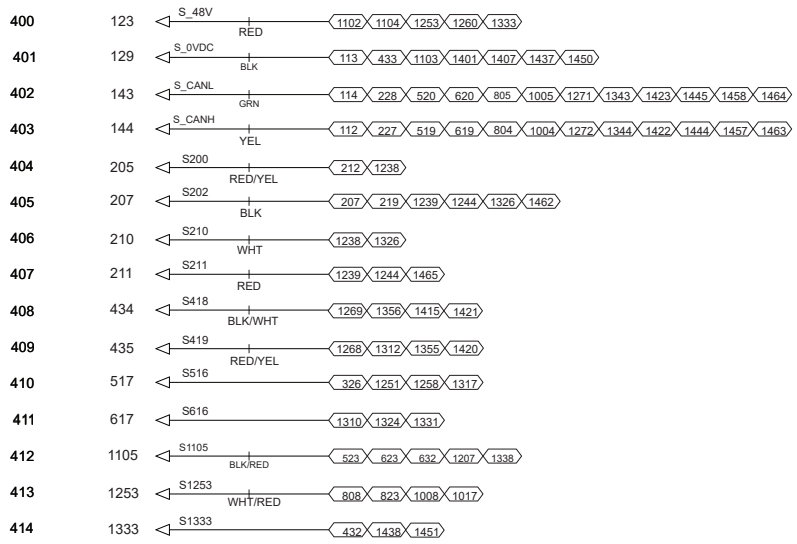
ICE & ALTERNATOR

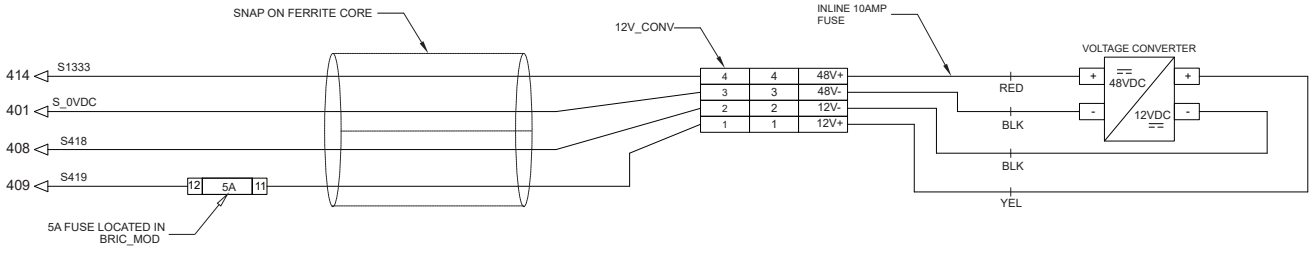


CONTROLLER CONTACTORS

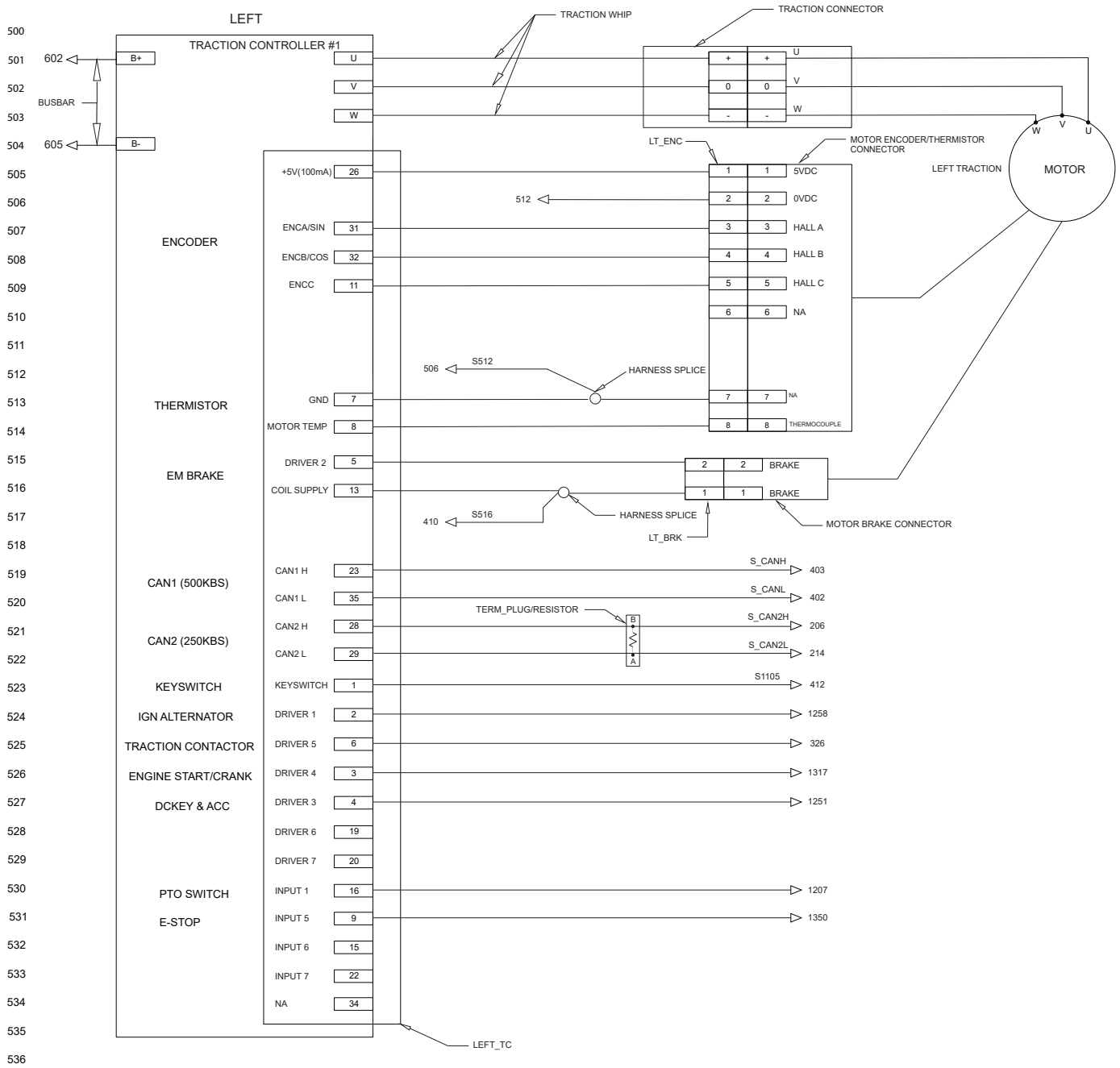


48VDC TO 12VDC CONVERTER & HARNESS SPLICES

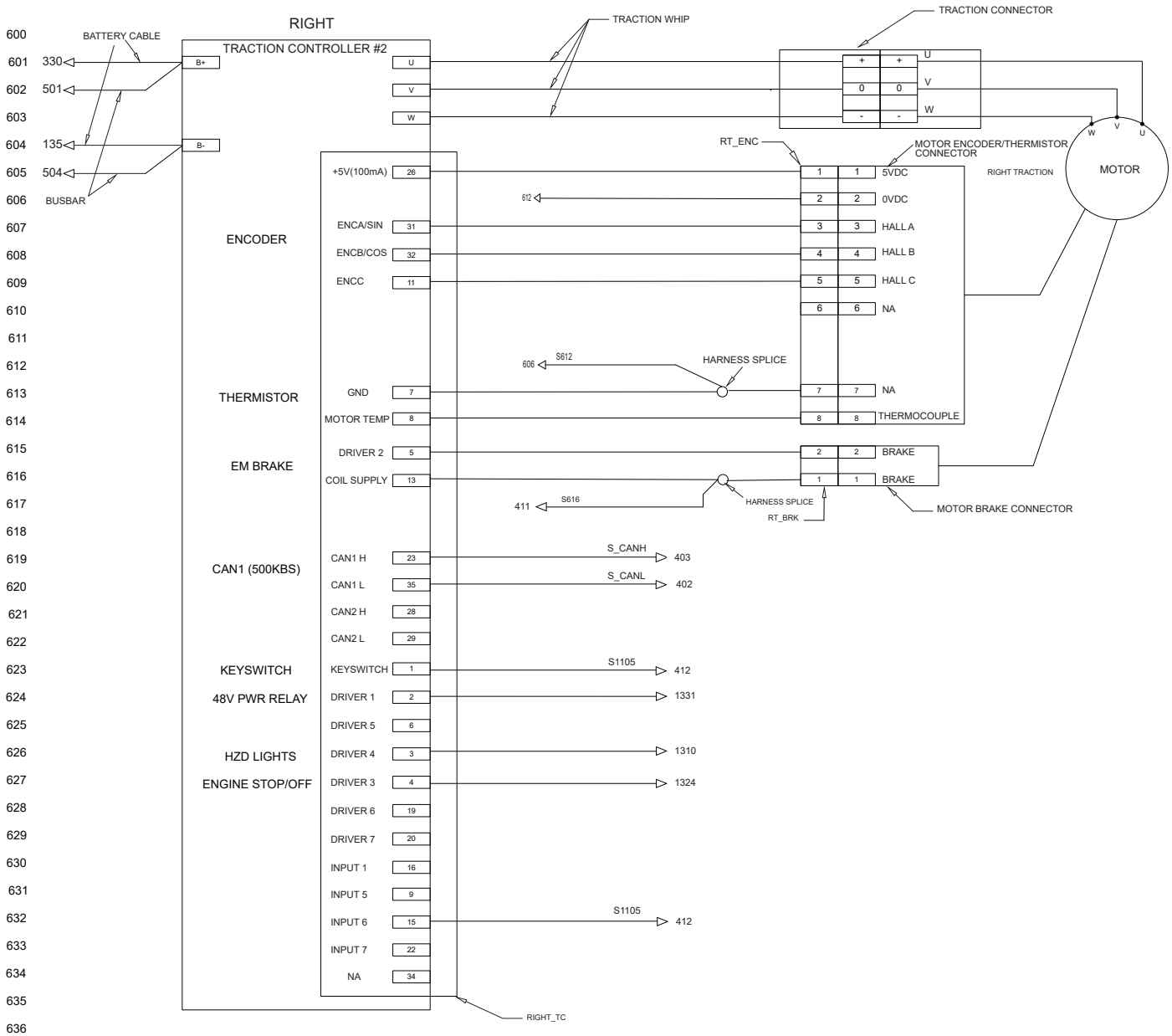




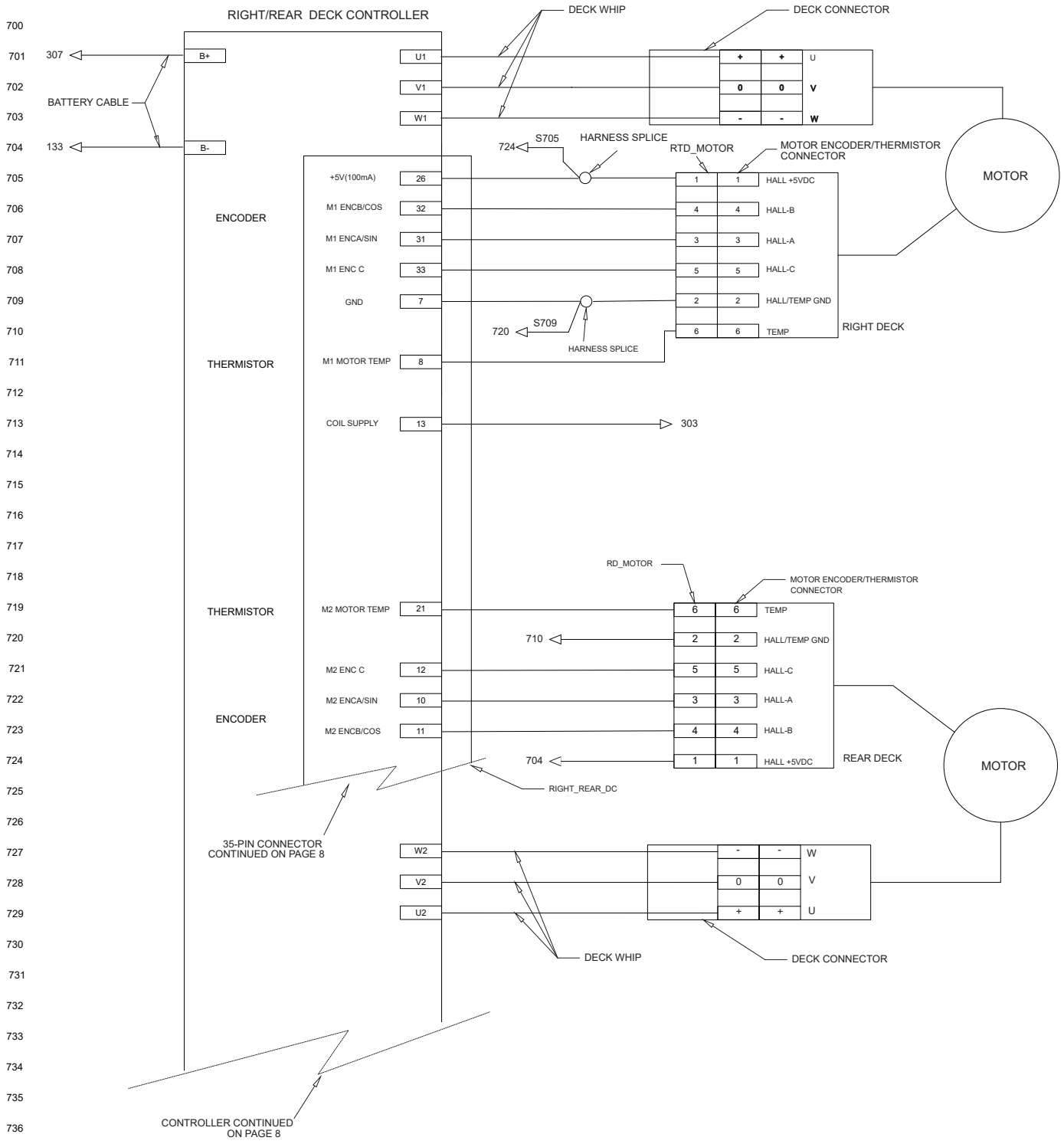
TRACTION CONTROLLER #1



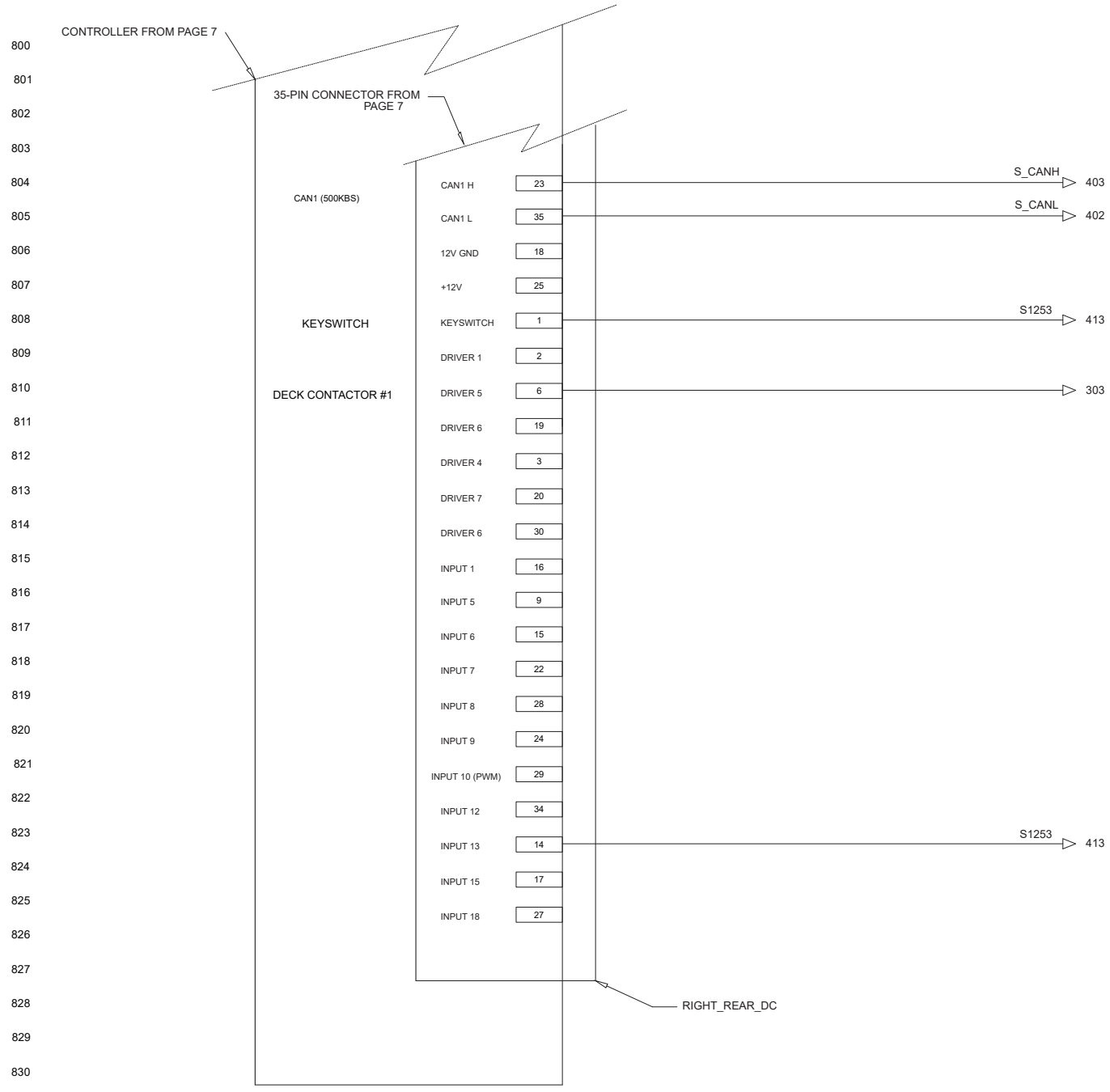
TRACTION CONTROLLER #2



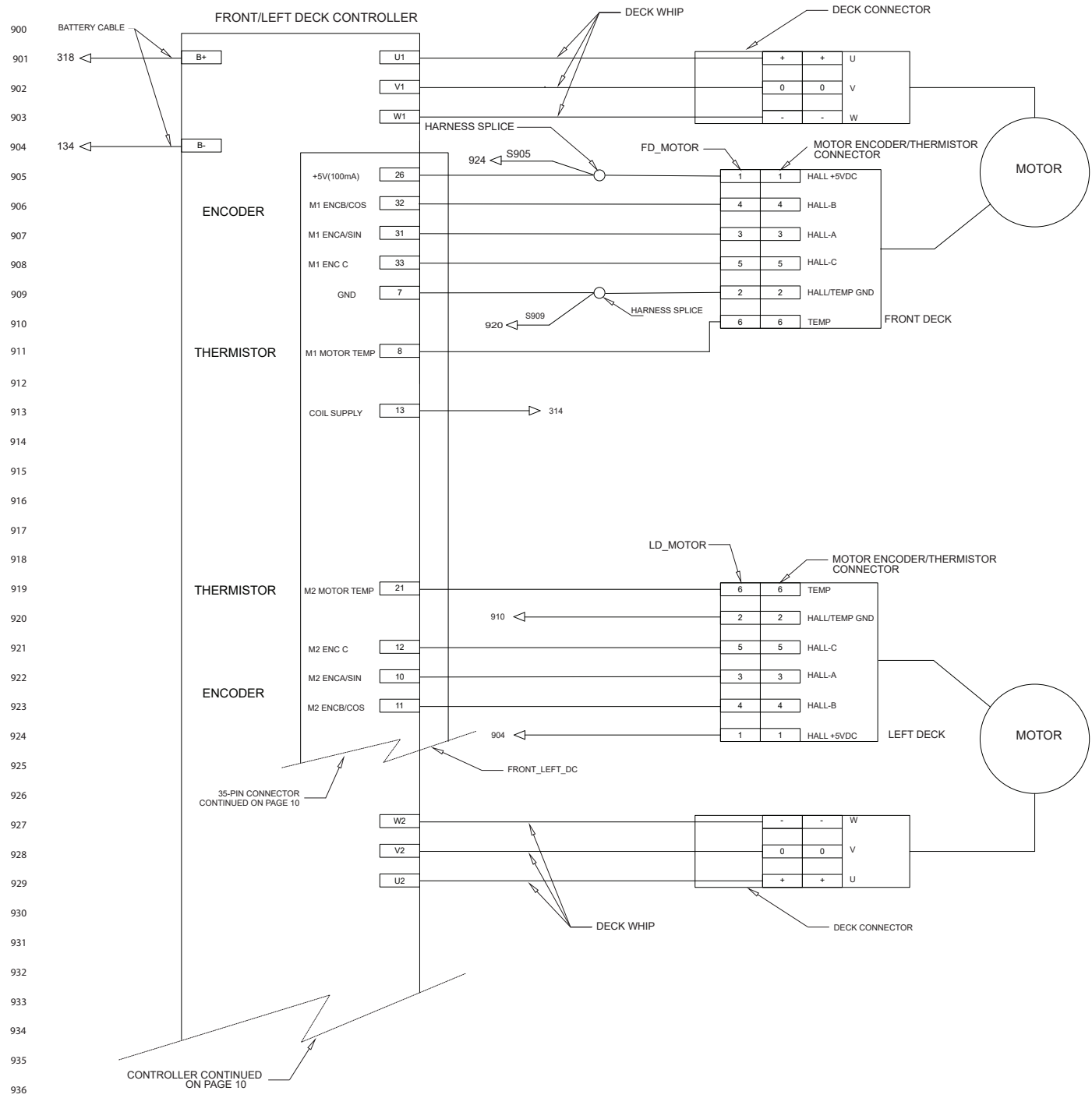
RIGHT / REAR DECK CONTROLLER



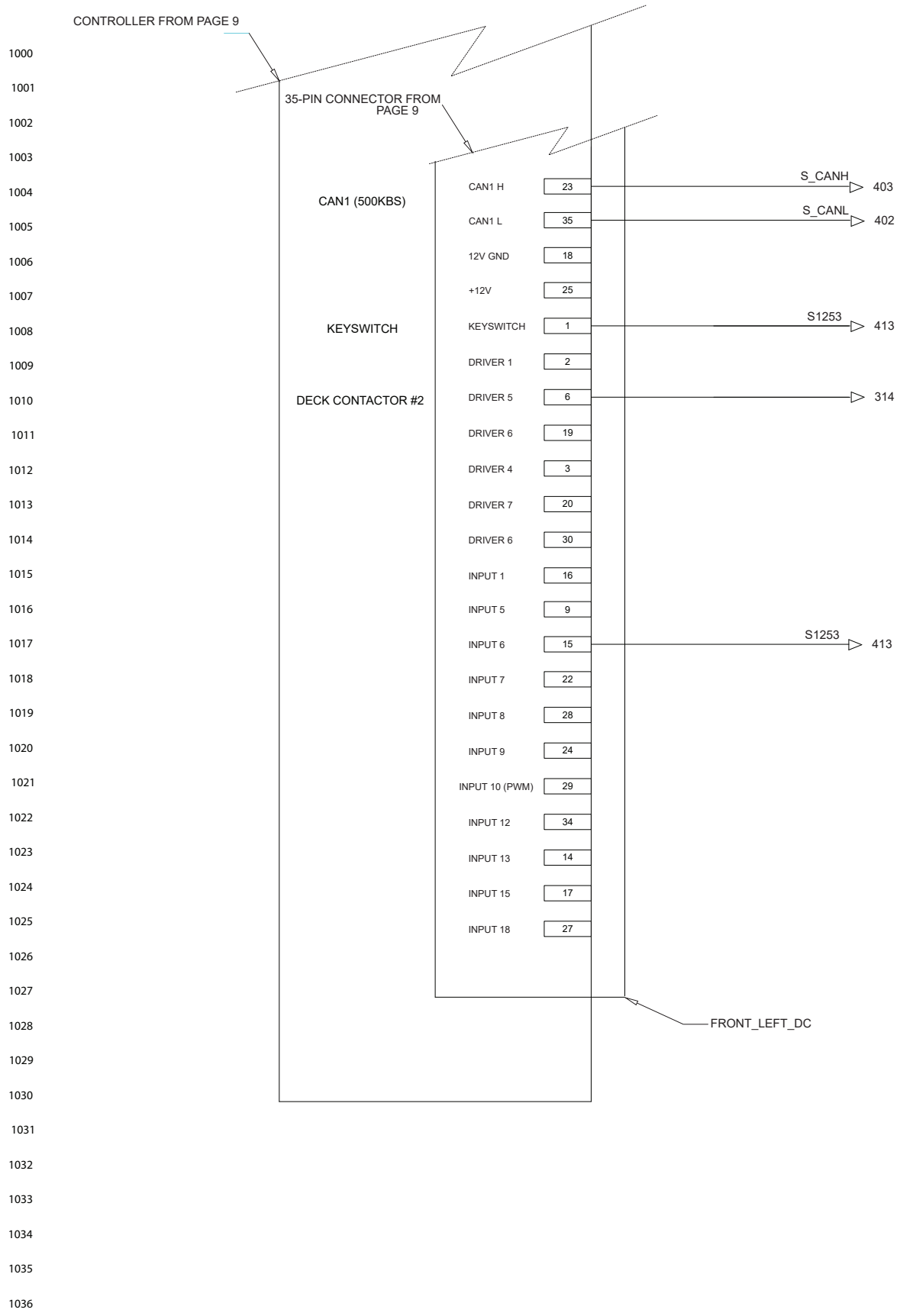
RIGHT / REAR DECK CONTROLLER



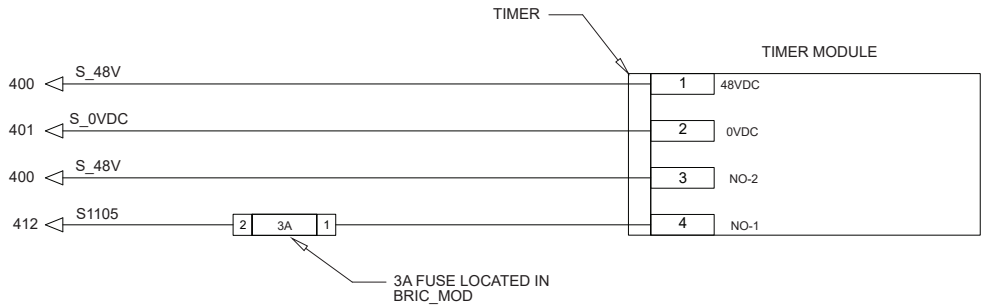
FRONT / LEFT DECK CONTROLLER



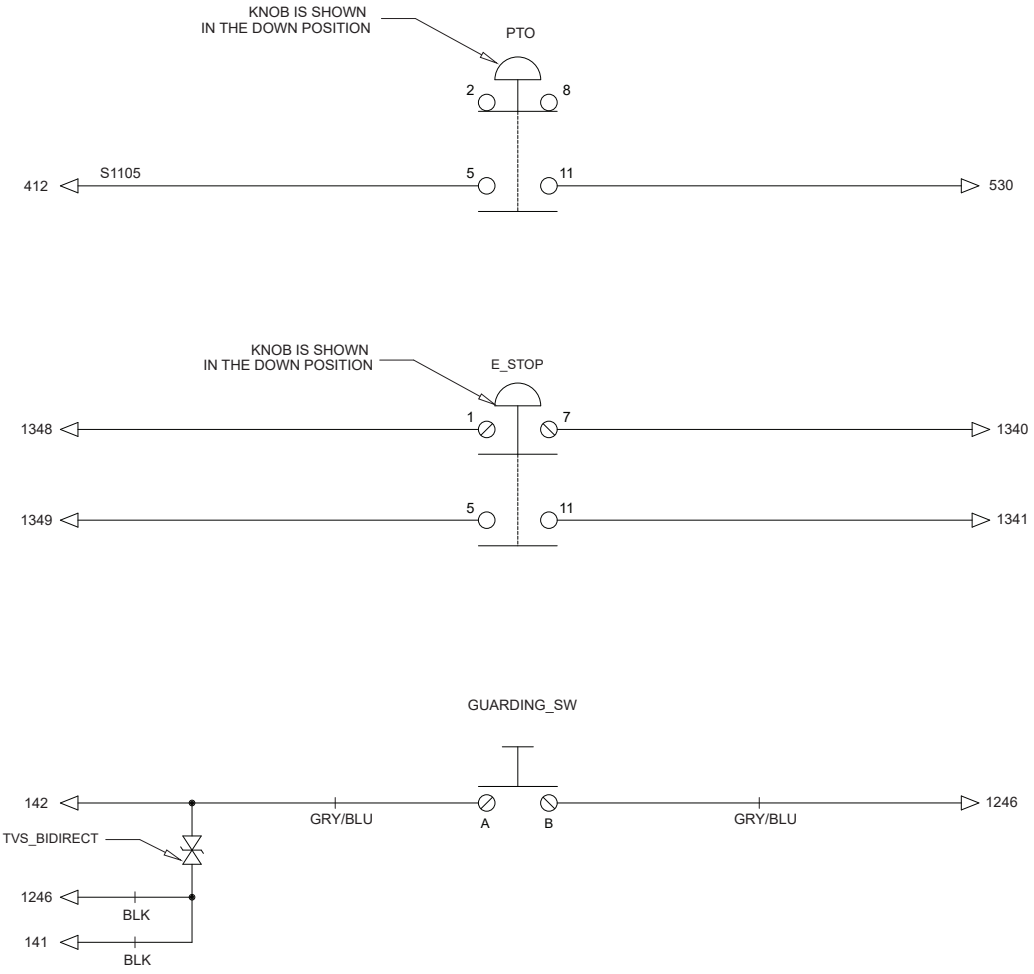
FRONT / LEFT DECK CONTROLLER



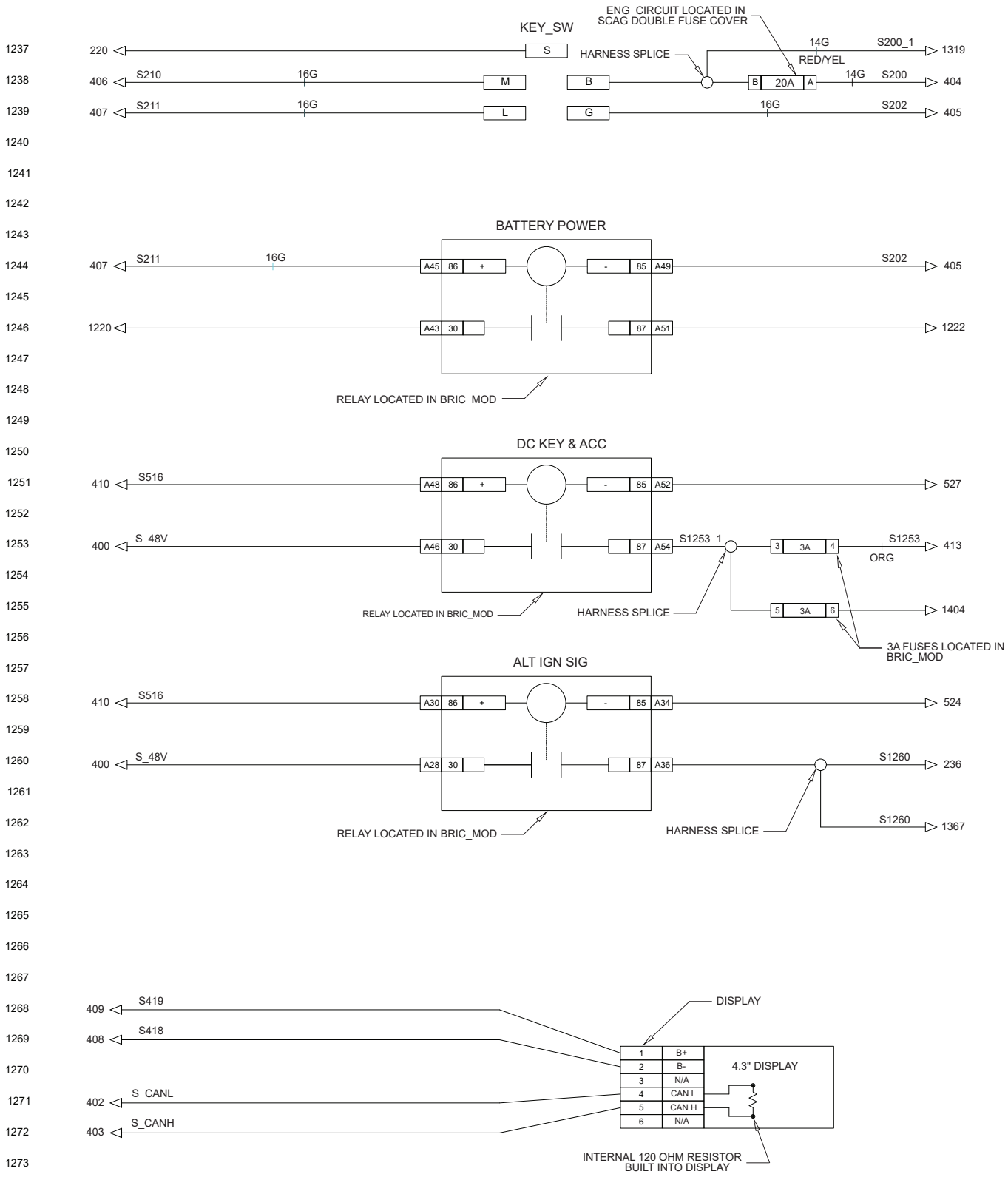
TIMER MODULE



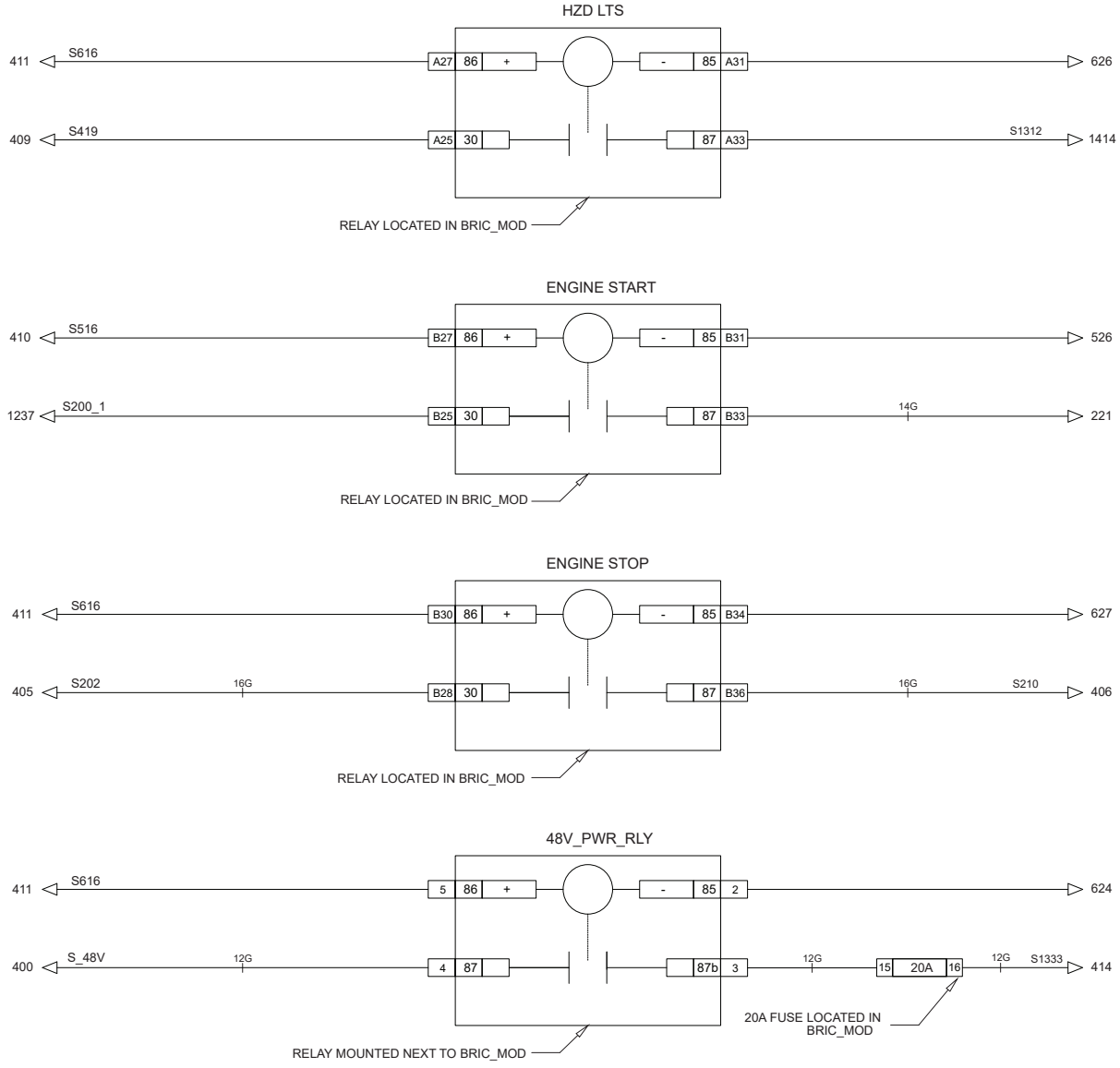
OPERATOR PANEL & RELAYS



OPERATOR PANEL & RELAYS



RELAYS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A27
86
+
-
85
A31
626
409
S419
A25
30
87
A33
S1312
1414
RELAY LOCATED IN BRIC_MOD
ENGINE START
410
S516
B27
86
+
-
85
B31
526
1237
S200_1
B25
30
87
B33
14G
221
RELAY LOCATED IN BRIC_MOD
ENGINE STOP
411
S616
B30
86
+
-
85
B34
627
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S202
16G
B28
30
87
B36
16G
S210
406
RELAY LOCATED IN BRIC_MOD
48V_PWR_RLY
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S616
5
86
+
-
85
2
624
400
S_48V
12G
4
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87b
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12G
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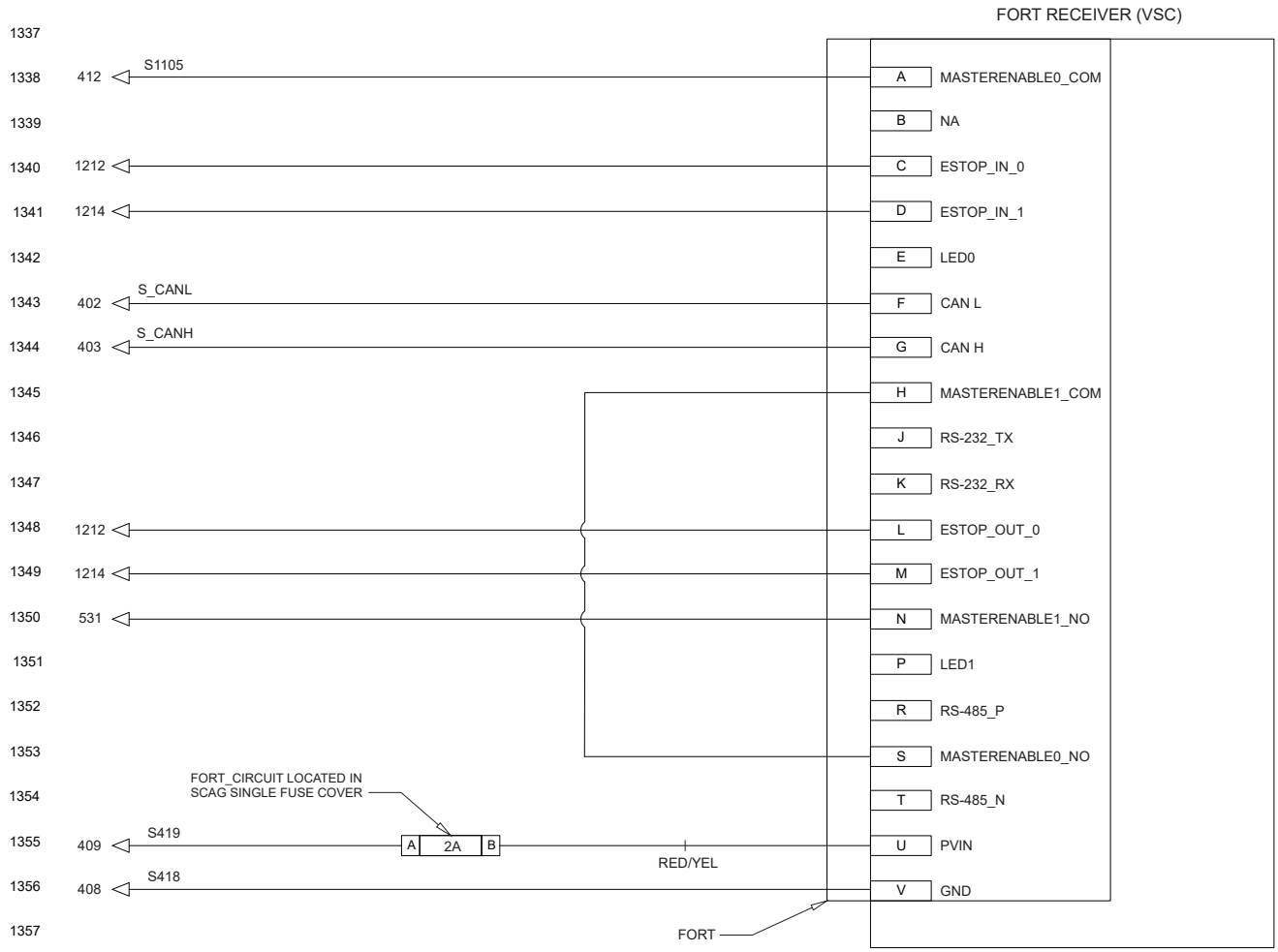
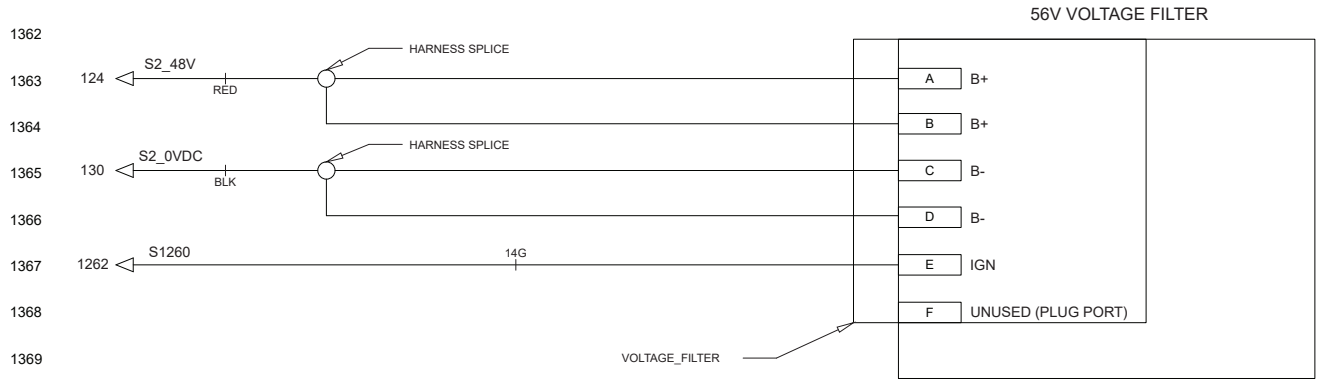
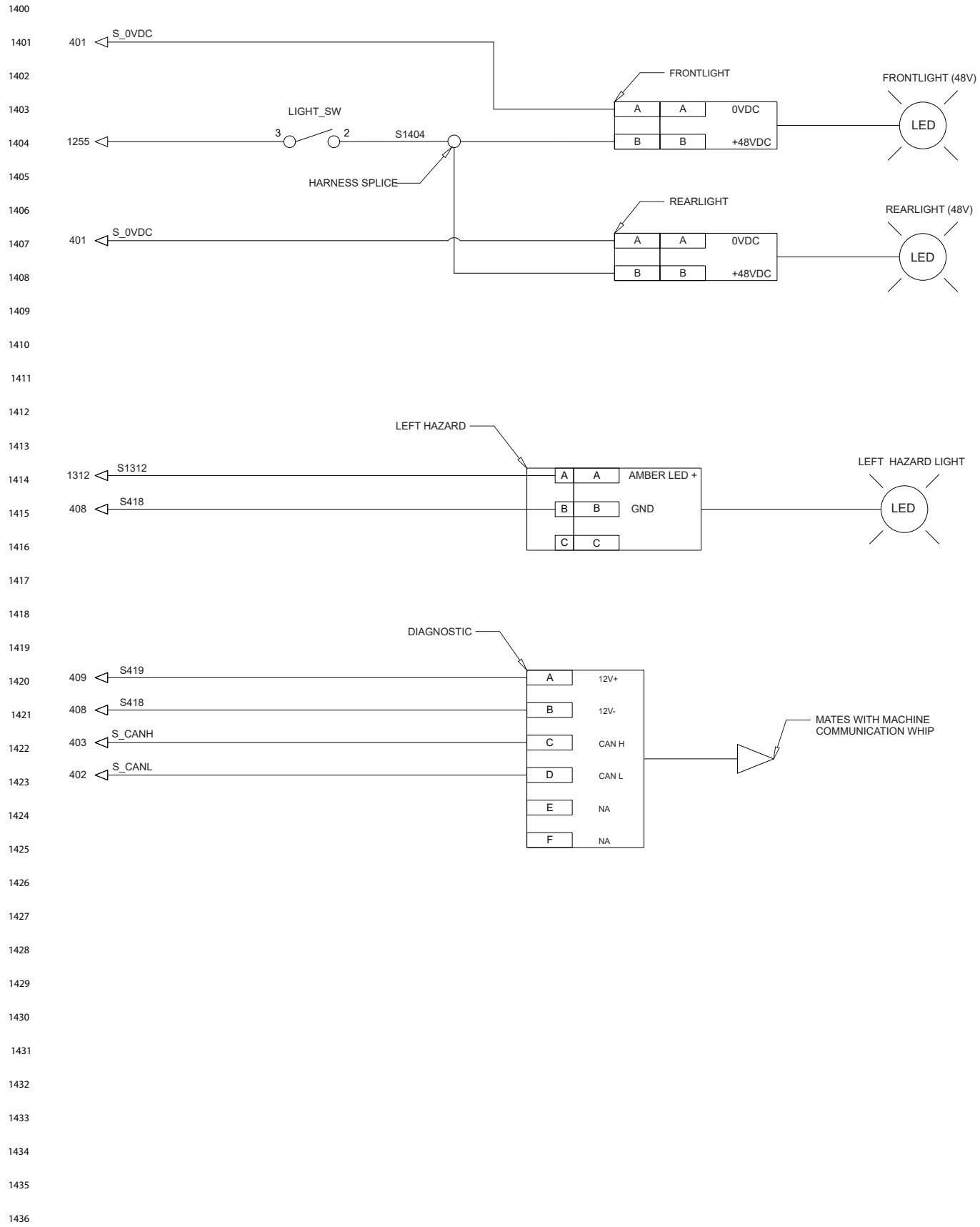
20A
16
12G
S1333
414
20A FUSE LOCATED IN BRIC_MOD
RELAY MOUNTED NEXT TO BRIC_MOD

FORT RECEIVER & VOLTAGE FILTER

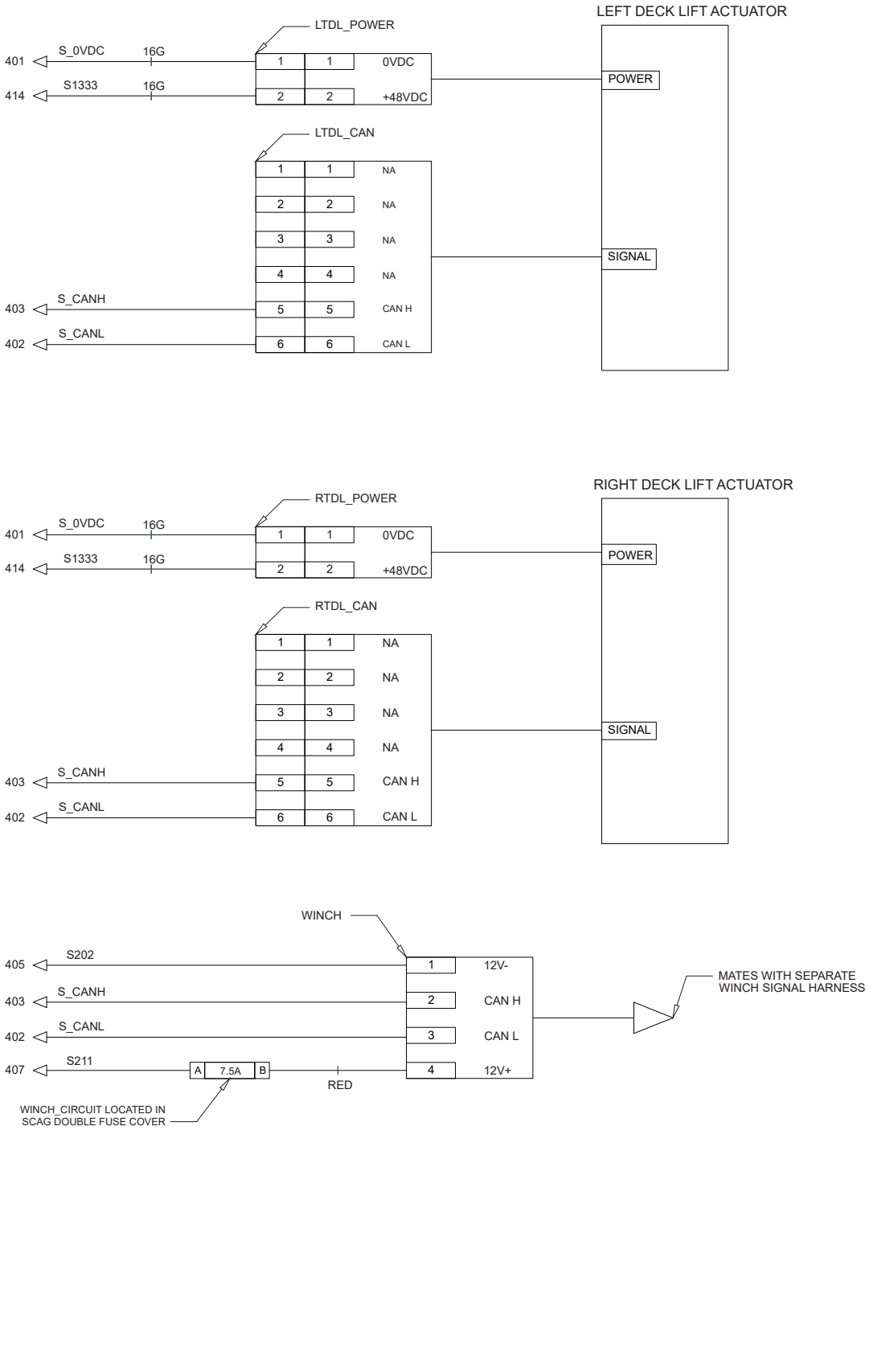




LIGHTS, DIAGNOSTIC PLUG



DECK LIFT ACTUATORS, & WINCH CONNECTION



LIMITED WARRANTY - RC MOWER

Any part of the Scag commercial mower manufactured by Scag Power Equipment and found, in the reasonable judgment of Scag, to be defective in materials or workmanship, will be repaired or replaced by an Authorized Scag Service Dealer without charge for parts and labor during the periods specified below. This warranty is limited to the original purchaser provided the product was purchased from an Authorized Scag Power Equipment Dealer and is not transferable. Proof of purchase will be required by the dealer to substantiate any warranty claims. All warranty work must be performed by an Authorized Scag Service Dealer. The replacement of any part on this product by other than the manufacturer's authorized replacement part may adversely affect the performance, durability or safety of this product. Use of other than original Scag replacement parts will void the warranty.

This warranty is limited to the following specified periods from the date of the original retail purchase for defects in materials or workmanship:

- Wear items including drive belts, hydraulic hoses, control cables (such as throttle), and tracks are warranted for ninety (90) days.
- Batteries are covered by the **battery manufacturer's warranty period**.
- Frame and structural components are warranted for one (1) year or 1,000 Hours (whichever comes first) (parts and labor) including Rental use.
- Cutter decks are warranted against cracking for a period of one (1) year or 1,000 Hours (whichever comes first) (parts and labor) for commercial use. The repair or replacement of the cutter deck will be at the option of Scag Power Equipment. We reserve the right to request components for evaluation. This warranty does not cover any mower that has been subject to misuse, neglect, negligence, or accident, or that has been operated in any way contrary to the operating instructions as specified in the Operator's Manual.
- Engines and electric starters are covered by the **engine manufacturer's warranty period.**
- Major drive system components are warranted for one (1) year or 1,000 Hours (whichever comes first) (parts and labor) including Rental use. The repair or replacement of the electric drive axles will be at the option of Scag Power Equipment. This warranty does not cover any mower that has been subject to misuse, neglect, negligence, or accident, or that has been operated in any way contrary to the operating instructions as specified in the Operator's Manual.
- Electric cutter deck drive motors have a Limited Warranty for one (1) year (whichever comes first) (parts and labor) including Rental use. Electrical components such as motor controllers, buss bars, and displays are warranted for one (1) year or 1,000 Hours (whichever comes first) (parts and labor) including Rental use.

The Scag mower, including any defective part must be returned to an Authorized Scag Service Dealer within the warranty period. The expense of delivering the mower to the dealer for warranty work and the expense of returning it to the owner after repair will be paid for by the owner. Scag's responsibility is limited to making the required repairs and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any Scag mower.

This warranty does not cover any mower that has been subject to misuse, neglect, negligence, or accident, or that has been operated in any way contrary to the operating instructions as specified in the Operator's Manual. The warranty does not apply to any damage to the mower that is the result of improper maintenance, or to any mower or parts that have not been assembled or installed as specified in the Operator's Manual and Assembly Manual. The warranty does not cover any mower that has been altered or modified, changing performance or durability. In addition, the warranty does not extend to repairs made necessary by normal wear, or by the use of parts or accessories which, in the reasonable judgment of Scag, are either incompatible with the Scag mower or adversely affect its operation, performance or durability.

Scag Power Equipment reserves the right to change or improve the design of any mower without assuming any obligation to modify any mower previously manufactured. All other implied warranties are limited in duration to the one (1) year or 1,000 Hours (whichever comes first) (parts and labor) incudling Rental use. Accordingly, any such implied warranties including merchantability, fitness for a particular purpose, or otherwise, are disclaimed in their entirety after the expiration of the one (1) year or 1,000 Hours (whichever comes first) including Rental warranty period. Scag's obligation under this warranty is strictly and exclusively limited to the repair or replacement of defective parts and Scag does not assume or authorize anyone to assume for them any other obligation. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Scag assumes no responsibility for incidental, consequential or other damages including, but not limited to, expense for gasoline, expense of delivering the mower to an Authorized Scag Service Dealer and expense of returning it to the owner, mechanic's travel time, telephone or telegram charges, rental of a like product during the time warranty repairs are being performed, travel, loss or damage to personal property, loss of revenue, loss of use of the mower, loss of time or inconvenience. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

For additional questions regarding the warranty terms and conditions contact Scag Power Equipment online at:

https://www.scag.com/company/contact-us/