9281 LeSaint Drive • Fairfield, Ohio 45014
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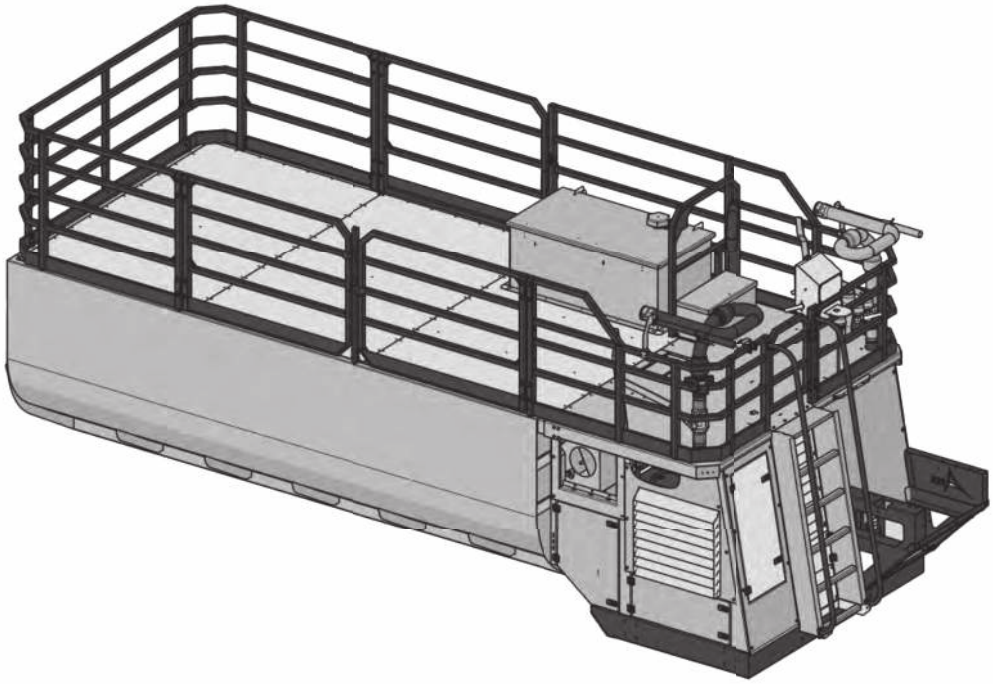

XA3300/XA4000/XA5000 Applicator

Operator Instructions and Parts Manual

Model _____ Serial No. _____

FOR OFFICE USE ONLY		
DATE	**UPDATE DESCRIPTION**	**CODE**
11/01/22	Initial release	OO1101

ACTIVATE YOUR EQUIPMENT WARRANTY

☞ It is the responsibility of the Dealer to register your Equipment shortly after the equipment start-up and operation overview. You must register your machine at time of purchase at www.apexseeder.com/warranty/ for warranty coverage.

Be sure to confirm with your sales representative that this has been done completely.

This registration process activates the Limited Warranty.

What should you do if you need repairs or parts under Warranty?

How to get parts and or repairs done under warranty:

Notify **YOUR DEALER** immediately when you discover a faulty material, workmanship, or faulty component. **Do not** wait weeks or months to get it reported. Be sure to tell the dealer that this is a failure that occurred under warranty.

NOTE: Warranty work must be done by an Authorized Dealer in order to be covered by the Warranty Program, unless otherwise approved by the Warranty Administrator.

Instructions to Dealer on processing warranty work:

Initiating a claim

1. Be sure to have the model, serial number and number of hours on unit.
2. A description of the problem as understood at the time.
3. Call the Warranty Administrator to secure warranty claim authorization number.
4. Confirm with Warranty Administrator that the unit is eligible for warranty coverage.
5. Any parts needed for the repair work should be placed with the Warranty Administrator instead of the parts department. These will be shipped to you at no charge pending the outcome of the investigation.
6. Labor hours must coincide with the published “Labor Schedule” or estimate approved by the Finn Warranty Administrator.
7. Once work is done, a Warranty Claim Form must be filled out and emailed along with any related receipts or invoices to the Warranty Administrator. We ask that this is done ASAP after work is completed.

Faulty or failed parts:

IF the Warranty Administrator wants you to return failed parts, you will receive a return shipping label in the package with new parts. On that Label will be marked a return authorization number. (Which is the same number as you claim number.)

Please also mark the outside of the package that you are shipping back (using a marker) with the claim/return number. **THESE PARTS MUST BE RETURNED WITHIN 10 DAYS!** Failure to do so can void warranty coverage.

NOTE: Further information and related forms can be found on the web site in the Dealer Portal warranty section.

LIMITED WARRANTY
EFFECTIVE 01/01/2021

WARRANTY PERIOD

Base Warranty: 12 months or 1000 hours.
Extended warranty: 24 months or 2000 hours.
Doosan: 3 year or 3000 hour
Cummins: 2 year or 2000 hours
Stainless Tank: 15-year corrosion. For purposes of this warranty, corrosion is defined as naturally occurring through-wall penetration of the stainless steel.

CONDITIONS FOR WARRANTY APPLICATION

- Provide a copy of the Warranty Registration received at the time of purchase.

  NOTE: In instances where there are discrepancies relating to the date of purchase, the Warrantor reserves the right to deny and/or charge back any warranty costs incurred outside the original warranty period.
- Provide proof (upon demand) that operational and maintenance guidelines specified in the technical publications were and are being respected.
- Vehicle servicing must be performed by an authorized Service Department or a service provider assigned by an authorized Warrantor agent.
- Return defective component with warranty tag to the Warranty Department within 30 days of the repair date.
- This limited warranty covers only new items manufactured. It does NOT extend to any used or rebuilt item, unless the sales order or contract for such item expressly provides for warranty coverage.

OEM WARRANTY

Parts which are manufactured by vendors or suppliers, but sold as part of the machine or as a repair/replacement part of the machine, are warranted to the limits of that manufacturer's product warranty.

BASE WARRANTY

Warrantor will repair and/or replace, at its discretion, all failures resulting from defects in material, design or workmanship for the first 12 months or 1000 hours from the in-service date of the product.

EXTENDED WARRANTY

Warrantor will repair and/or replace, at its discretion, failures resulting from defects in material, design or workmanship related to the powertrain components, frame and hydraulic components excluding hoses, seals and O-rings.

EXCLUSIONS – ARE NOT WARRANTED

- Engine, battery (Warranted to the limits of that manufacturer's product warranty.)
- Normal wear on all components (such as tires, engine belt, etc.)
- Replacement parts and/or accessories that are not genuine Warrantor parts and/or accessories.
- Damage resulting from installation of parts other than genuine Warrantor parts.
- Damage caused by failure to provide proper maintenance as detailed in Warrantor-provided technical publications.
- The costs of regular maintenance services including, but not limited to tune-ups, adjustments, parts, and lubricants. All optional accessories (as well as damages caused by optional accessories) installed on the machinery by any facility/shop other than Warrantor-approved.
- Damage resulting from but not limited to accidents, water intrusion, fire, misuse, abuse or neglect.
- Damage resulting from but not limited to operation of the machine in conditions incompatible with machine design as defined in the vehicle Operator's or Operator's/Service Guide.
- Damage resulting from modification to the vehicle not approved in writing by Warrantor.
- Damage or breakdown resulting from improper or inadequate storage by owner.
- Indirect or consequential losses incurred by the owner of the machine including but not limited to: travel time and mileage required for servicing product, transportation, towing or test drive, telephone/cellular calls and all electronic communications, taxis, rental or substitute vehicle, cost of service calls or any other incidental or consequential damages.
- Vehicle delivery inspections.

WARRANTY TRANSFER

The warranty described here and above is transferable to subsequent owner(s) for remainder of warranty period from original in-service date.

LIMITATIONS OF LIABILITY

THIS WARRANTY IS EXPRESSLY GIVEN AND ACCEPTED IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATIONS ANY WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE TO THE EXTENT THAT THEY CANNOT BE DISCLAIMED.

THE IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE LIFE OF THE EXPRESS WARRANTY, INCIDENTAL AND CONSEQUENTIAL DAMAGES ARE EXCLUDED FROM COVERAGE UNDER THIS WARRANTY.

No other person has been authorized to make any affirmation, representation or warranty other than those contained in this warranty, and if made, such affirmation, representation or warranty shall not be enforceable against Warrantor. Warrantor reserves its right to modify this warranty policy at any time, being understood that such modification will not alter the warranty conditions applicable to vehicles sold while this warranty is in effect.

LIMITATIONS ON OUR RESPONSIBILITY WITH RESPECT TO PRODUCTS PURCHASED

1. Normal wear parts, Allied Equipment, trade accessories not manufactured by Warrantor, such as but not limited to items such as various filters, fluids, brakes, clutch linings, coupler insert, belts, hoses, light bulbs, mechanical seal, over center clutches, tires, ignitions, starters, batteries, carburetors, engines or like or unlike equipment or accessories. (Such being subject to the warranty, if any, by their respective manufacture).
2. Secondhand, used, altered, or rebuilt machines or parts.
3. Defects, malfunctions or failures resulting from accidents, abuse, misuse, improper servicing, or neglect of required operational guidelines and maintenance service, as outlined in the Warrantor's Operators Manual(s).
4. Any defect or failure of products warranted arises out of or is caused by accessories or parts not manufactured or supplied by Finn Corporation, whether same are supplied by purchaser, dealers, or any other party.

THE REMEDIES OF THE USER SET FORTH HEREIN ARE EXCLUSIVE, WITHOUT REGARD TO WHETHER ANY DEFECT WAS DISCOVERABLE OR LATENT AT THE TIME OF DELIVERY OF THE PRODUCT TO THE PURCHASER.

ALL WARRANTY REPAIR MUST BE DONE BY A WARRANTOR-AUTHORIZED SERVICE PROVIDER OR AUTHORIZED REPAIR SHOP OF WARRANTOR'S CHOICE.

TRANSPORTATION, HAULING, STORAGE, OR OTHER SIMILAR COSTS ARE NOT PART OF WARRANTOR'S OBLIGATION UNDER THE LIMITED WARRANTIES AND IS THE RESPONSIBILITY OF THE EQUIPMENT OWNER.

THE ESSENTIAL PURPOSE of this exclusive remedy shall be to provide the original purchaser with repair or replacement of parts that prove to be defective within the period and under the conditions previously set forth. This exclusive remedy shall not have failed of its essential purpose (as that term is used in the Uniform Commercial Code) provided Finn remains willing to repair or replace defective parts within a commercially reasonable time after it obtains actual knowledge of the existence of a particular defect.

IN NO EVENT shall the Warrantor be liable for any special, consequential, incidental or indirect damages, including lost profits or lost commercial opportunities, with respect to the sale of the above warranted product or anything done in connection therewith, or for property damage sustained by a person claiming to be a third party beneficiary of a surviving warranty under the law of any jurisdiction.

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Continued...

INDEX (Continued)

SAFETY FIRST

With any piece of equipment, new or used, the most important part of its operation is **SAFETY!**

Apex encourages you and your employees to familiarize yourselves with your new equipment and stresses safe operation.

The first pages of this manual are a summary of the main safety aspects associated with this unit. Be sure to read and understand completely before operating the machine.

The symbols below are used throughout the operation and maintenance sections of this manual to call attention to safety procedures.

⚠ DANGER ***Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.***

⚠ WARNING ***Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.***

⚠ CAUTION ***Caution indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.***

NOTICE ***Notice indicates important information, that if not followed, MAY cause damage to equipment.***

NOTE: This is helpful information.

The **DANGER**, **WARNING**, **CAUTION** and **NOTICE** notifications and instructions in this manual *cannot* cover all possible conditions and situations that may occur.

It must be understood by the operator that caution is a factor which *cannot* be built into this product; caution must be supplied by the operator.

CALIFORNIA PROPOSITION 65

⚠ WARNING ***The engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm. Wear protective equipment. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle.***

⚠ WARNING ***Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.***

- ***Always start and operate the engine in a well-ventilated area.***
- ***If in an enclosed area, vent the exhaust to the outside.***
- ***Do not modify or tamper with the exhaust system.***
- ***Do not idle the engine except as necessary.***

⚠ WARNING ***Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.***

⚠ WARNING ***This product can expose you to chemicals, including lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. Go to www.P65Warnings.ca.gov for more information.***

SAFETY SUMMARY SECTION

It is important that all operators of this machine are familiar with all safety aspects covered in this section and have read the entire Operator's Manual before operating the machine. Always keep a copy of this manual with the machine. It is the responsibility of the operator of the machine to fully understand this safety summary section. Remember that YOU are the key to safety. Good safety practices protect not only you but also the people working with and around you. Keep in mind that this safety section is written for this type of machine only. Practice all other usual and customary safe working precautions. Above all, remember that safety is up to you.

The Apex XA Series Applicator is designed to mix and apply water, seed, fertilizer, agricultural lime, and hydraulic mulch to the prepared seedbed. The resultant slurry from mixing one or more of the above materials may react, causing harmful or deadly gasses within the tank. Heat, evaporation, or extended emptying period can/will accelerate the formation of these gasses. Please contact your supplier(s) of these slurry components regarding their potential reactivity.

I. PRIOR TO OPERATION

1. Read this manual in its entirety and follow ALL safety procedures

2. Check all lubrication points and fluid levels. See lubrication section for specific lubrication points and fluid specifications.

3.Inspect all fasteners for tightness with the power turned off.

Obey all of the safety labels on the applicator. They are provided for your protection. If any labels are removed, damaged or made unreadable in any way, contact Apex for a replacement.

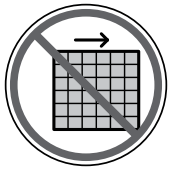
If the applicator is equipped with any options, read and understand ALL of the safety precautions and warnings for that particular option BEFORE performing maintenance or operating.

II. GENERAL PRECAUTIONS

1. Empty the tank daily to prevent stored material from producing hazardous gases. Some gases produced by stored material can be harmful or deadly.
2. Never enter the tank of the applicator before performing the proper lockout/tagout procedure. Use lockout/tagout procedure 29 CFR 1910.147 during inspection or maintenance.

3. Tag the engine operating area to show that the applicator is being serviced. Use lockout/tagout procedure 29 CFR 1910.147 during inspection or maintenance.
4. Stop all action, read and observe the operation and safety manual in its entirety, following all safety precautions before operating or performing maintenance.

5. Do not operate the applicator without all guards in place. Always use safe operating practices.



6. Hydraulic fluid is under high pressure. Always use safe operating procedure.

7. Keep a sufficient distance away from all electrical power lines.

8. Operators of the applicator should never ride on the machine at speeds greater than 5 mph (8 kmh).

9. Use proper means (steps, ladder) for mounting and dismounting of the applicator. Never mount or dismount a moving machine.

II. GENERAL PRECAUTIONS (Continued)

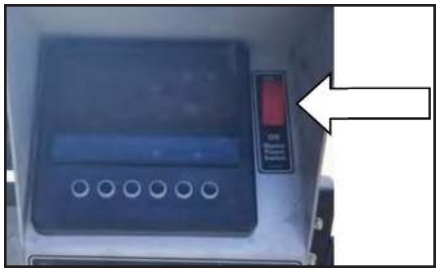
10. Always wear safety goggles when operating the applicator. Other safety attire such as safety shoes, ear protection, gloves, hard hats, dust masks, etc, should be worn as required by warning decals on the machine, in the operator's manual or specific job site requirements. Avoid loose fitting clothing that may get caught in rotating machinery. Remove watches, rings, etc.

11. Do not load the applicator while in transit. Load only when parked and unit is as level as possible. Take care not to drop foreign objects into the tank, such as pens, lighters, etc, as the objects could plug the slurry system. Should any object be dropped into the tank, DO NOT reach into the tank to retrieve the object. See the Maintenance section before allowing any personnel to enter the tank.
12. The driver of the carrying or towing vehicle is responsible for the safety of the operator(s) of the applicator. Make sure the driver is aware and avoids all possible hazards to the operator(s), such as low tree limbs, low power lines, etc. Vehicles on which the applicator is mounted must be stopped and started gradually. Avoid abrupt starts and stops. Never operate on a slope or a hill that may endanger the driver and/or the operator(s). All personnel should review and be familiar with stop and start signals between the driver and the operator(s) before going into operation. Only the operator should be located on the platform during operation.
13. Never operate this or any other machine when fatigued, tired, under the influence of alcohol, illegal drugs or medication. All personnel must be in good physical and mental condition to operate this applicator.
14. Make sure the area to be sprayed is clear of all persons and animals.

III. WELDING PRECAUTIONS

Never perform welding on the XA Series Applicator without disconnecting the following:

1. Move the Master Power Switch to the OFF position.



2. Disconnect the Apex display by disconnecting the connector inside the Operator Control Box.

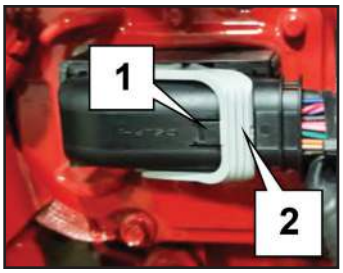
   Remove the 4 bolts on the back of the Operator Control Panel to access the connector on the display.

3. Disconnect the batteries, located on the right side of the unit, behind the engine door.

   Remove the positive battery cable from both batteries.

4. Disconnect the MC2 Apex microcontroller. Locate the microcontroller on the engine frame on the right side of the engine, accessible through the engine access door.

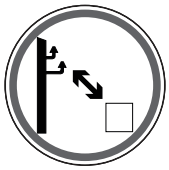
5. Disconnect both connectors on the engine ECU.
   1. Depress the button (1) to allow the clasp to raise.
   2. Raise the clasp to remove the controller connector (2).



SAFETY SUMMARY SECTION (CONTINUED)

IV. OPERATION SAFETY

1. The noise level of the applicator at the operator station, unshielded, is above 80 dBA. Take the following precautions:
   - Always keep doors and windows of the tow vehicle closed
   - Use ANSI S3 19-1975 approved hearing protectors with a noise reduction rating (NRR) of 25 dB (A)
   - Ear plugs (disposable or re-useable)
2. Avoid Power Lines. Serious injury or death can result from contact with electric lines. Never move any part of the equipment closer than 10 ft. (3 m) plus twice the line insulator length to an electric line. Use a signal person to guide the operator. Use shrouds or insulators as necessary.



3. It is the operator's responsibility to ensure the tow vehicle is properly maintained, including safety lighting and notifications. Do not use a tow vehicle before properly testing the road-worthiness.
   - Tire Pressure
   - Functioning traffic lights
   - Properly attached
   - Break-Away Switch
   - Tongue weight

⚠ WARNING ***Ensure that the tow vehicle has the capacity to control the fully-loaded XA unit. Applicator weights are listed in this manual.***

4. Handle the battery with care. When removing or installing the battery, check which is the negative and positive terminal.

   Removing Batteries:
   1. Disconnect the (-) terminal connected to the ground wire
   2. Disconnect the (+) terminal connected to the starter

   When installing the batteries, follow this procedure in reverse order.

   Tighten the battery terminals securely; check that the terminals are not lose by trying to move the cables by hand. Loosened cables can generate sparks and lead to an explosion.
5. Never enter the tank through the loading hatch or riser atop the tank. Remove the fasteners securing the access panel adjacent to the loading hatch and utilize a ladder or steps to enter here.

   Your slurry tank may be considered a confined space by OSHA under 29 CFR 1910.146. Before entering any confined space, your company must develop a procedure for safe entry. Make sure your company's plan meets all the requirements of 29 CFR 1910.146, and/or all applicable laws and regulations.
6. Before loosening any clamps or opening any valves, determine if material in the line is hot by feeling the pipe. Do NOT allow material to come in contact with personnel. Severe bodily injury could result.
7. Radiator maintenance: Liquid cooling systems build up pressure as the engine gets hot. Before removing radiator cap, stop the engine and let the system cool. Remove radiator cap only after the coolant is cool.
8. Filling of fuel: Never fill the tank with the engine running, while smoking, or when near an open flame. Never smoke while handling fuel or working on the fuel system. The fumes in an empty fuel container are explosive. Never cut or weld on fuel lines, tanks, or containers. Move at least 10 ft. (3 m) away from fueling point before starting engine. Wipe off any spilled fuel and let dry before starting engine.

   IMPORTANT: Be careful not to allow fuel, lubricant, hydraulic fluid, or cooling fluids to penetrate into the ground or be discharged into the water system. Collect all fluids and dispose of them in accordance with all applicable laws and regulations.
9. To prevent fires, remove all fiber mulch, leaves, paper and other flammable material accumulated in the engine compartment or other places on the applicator. This could cause a fire.

   Marshland, when dry, is highly flammable. Marshland can self-ignite even in low temperatures. Always keep the engine compartment and engine clean.

TRAINING

BEFORE operating this equipment read the following guidelines. This will help to you to minimize the hazards associated with the use of the XA Series Applicator. Not all situations will apply to your unit since the applicator configuration and specific job requirements will vary considerably.

- The XA Series Applicator must only be operated by a trained and qualified operator who is familiar with the controls and their use.
- Read the Operation Section PRIOR to operating the machine in order to learn how to use the control devices properly.
- Be sure you understand the meaning of the WARNING signs and other CAUTION messages throughout this manual.
- Remember the check points and the method for checking fluid levels.
- Visually inspect the machine and check the function of all lighting and instruments before use.
- Frequently check the instrument panel. Do not operate the XA Series Applicator when the display indicates a malfunction or error.

HAULING AND TOWING

The following items should be checked before transporting the applicator. These safety items are in place to protect personnel during operation as well as during transportation between jobsites.

- Check that all turn signals and brake lights are functioning properly. Correct any nonfunctioning lights immediately.
- Check tires for proper inflation (110 psi).

⚠ WARNING ***Operating or transporting with faulty safety devices is extremely dangerous. Failure to correct any of these components could result in severe personal injury or death.***

SAFETY WHILE REFUELING

Diesel fuel is flammable and explosive under certain circumstances. Observe these safety practices:

- Always handle fuel in a well-ventilated area.
- Do not smoke or allow open flames or sparks in the vicinity.
- Do not refuel with the engine hot or running.
- Avoid physical contact with diesel fuel.
- Regularly inspect fuel system components.
- If fuel or fumes are noted while operating the XA4000, the cause should be determined immediately.
- Never open the fuel lines or loosen the injectors if the applicator runs out of fuel.
- Avoid inhalation of exhaust particulate dust. Wear a dust mask. If respiratory irritation or discomfort occurs, leave the dusty area. Utilize breathing assistance or oxygen if necessary.
- Elevated concentrations of metals in the form of dust, soot, and contaminates are contained in these filters. Health regulations may exist for the materials found in these filters such as Zinc, Molybenum, polynuclear aromatic sulfur, and iron.
- Proper disposal of the exhaust dust and filter are required. Dispose of in accordance with local and environmental regulations.
- Diesel particulate filter maintenance MUST be completed by appropriately trained personnel.

PRE-OPERATION INSPECTIONS

The Pre-Operation Inspection that an operator does before starting a piece of equipment is the single most important responsibility of the day. The operator is the key component in the walk-around and it is their responsibility to solicit help as required if areas of distress or concern are noted. Cell phones and digital pictures are extremely helpful when communicating potential problems or concerns.

Many operators overlook vital aspects of the walk-around such as fluid type and quantity. To maximize the effectiveness of a fluid it must be the proper viscosity and quality at starting temperatures. Next in degree of importance is the fluid quantity. Too much fluid can be as harmful as too little fluid. Be sure all fluids are in the proper level range and refer to the Fluid Specifications and Tank Capacities Chart of this manual whenever replacing or adding fluids.

- The walk-around should be performed before each shift and before moving the machine or even starting the engine.
- The following describe in detail the recommended items to be checked, whether it is a daily check (every 8 hours) or a weekly check (every 40 hours).

Once the Pre-Operation Walk-Around is complete a final inspection should be done by operating the applicator for a short period of time. Stop the unit and check the gauges and display screen.

PRE-OPERATION CHECKLIST

Before operating the applicator it is important to inspect the following items for safety and performance.

- CHECK EVERY 8 HOURS (DAILY)
  - ☐ Refill Fuel and DEF
  - ☐ Check engine oil level
  - ☐ Check engine coolant level
  - ☐ Check hydraulic fluid level
  - ☐ Check fuel/ water separator
  - ☐ Check hydraulic filter restriction indicators
  - ☐ Verify that all lighting is in working order
  - ☐ Inspect that all railings are in place and secure
  - ☐ Inspect that all safety guards are in place
  - ☐ Inspect that the mixing tank is free from foreign objects
- CHECK EVERY 40 HOURS (WEEKLY)
  - ☐ All Safety Decals
  - ☐ Safety surfaces for wear
  - ☐ Check hydraulic hoses for any wear
  - ☐ Check engine air filter for clogs and debris

PRE-OPERATION INSPECTIONS (CONTINUED)

RE-FILLING FUEL

Always use fresh diesel fuel when re-fueling the XA Series Applicator. The fuel tank is sized to allow for continuous work for 16-20 hours between fill-ups. The fuel tank fill is located on the front of the unit, on the left side. The sight gauge is located on the front of the fuel tank.

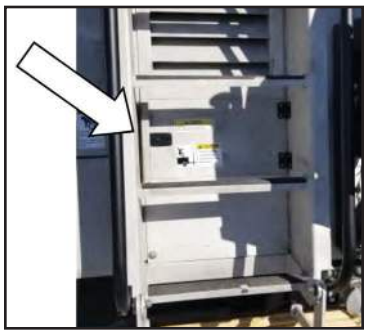
DEF LOCATION

The DEF tank is located on the left side of the applicator, in the engine compartment. Refill the fuel tank and DEF tank at the same time. Apex recommends refilling both tanks at the end of the day to prevent moisture buildup in the system.

CHECK ENGINE OIL LEVEL

Check the engine oil level daily prior to starting the engine. The applicator should be on a level surface when checking the oil level.

1. To access the engine oil dipstick, open the engine compartment door behind the ladder.



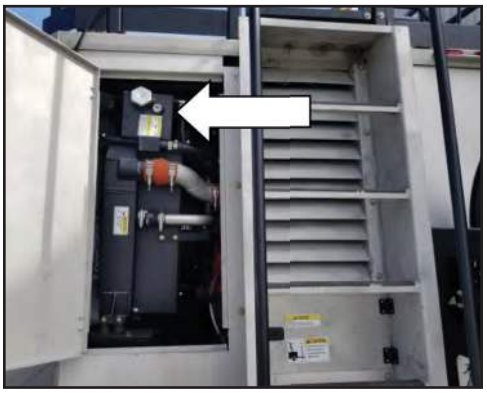
2. Remove the engine dipstick and check the level. The oil level should be between the “ADD” mark and the “FILL” mark. If the oil level is low add oil through the fill port to the proper level.

PRE-OPERATION INSPECTIONS (CONTINUED)

CHECK ENGINE COOLANT LEVEL

Check the engine coolant level daily before starting the engine. The applicator should be on a level surface and the coolant should be cold.

1. The coolant reservoir is located in the engine compartment, behind the engine access door to the left of the ladder.
2. Check that the reservoir bottle is half-full.
3. Fill the coolant through the fill cap, located on the top of the engine radiator.

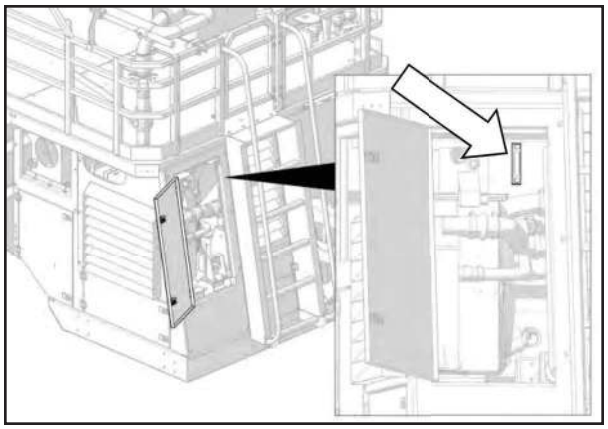


⚠ WARNING ***Never remove the coolant reservoir cap when the engine is hot. To avoid severe burns, do not inspect the coolant system or attempt to add coolant if the engine is hot.***

⚠ CAUTION ***Failure to correct any problem causing a coolant leak can result in severe engine overheating. Any coolant leaks should be corrected immediately.***

RE-FILLING DEF

Check the hydraulic oil level daily prior to operation. The applicator should be on level surface and the oil should be cold. Open the rear door to visually check the sight gauge, which is located on the hydraulic tank.



⚠ CAUTION ***Failure to correct any problem causing a coolant leak can result in Improper oil type can cause damage to the hydraulic system and shorten component life. Use the appropriate oil for your application and environment and follow the recommended service intervals.***

FUEL/WATER SEPARATOR

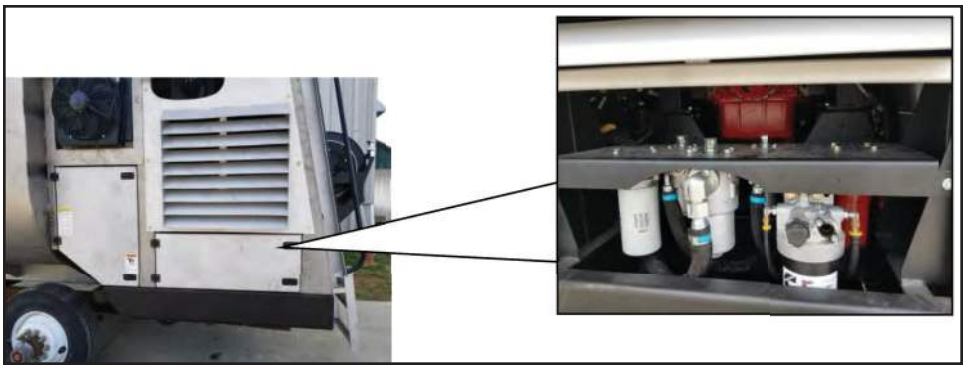
Drain the fuel/water separator as needed. Depending on working conditions and fuel suppliers, it is possible for water to become mixed with fuel. This could be caused by normal temperature changes throughout the day or a contaminated fuel source.

1. The fuel/water separator is located in the engine compartment, on the left side of the applicator.
2. Loosen the drain at the bottom of the filter housing and drain the water into a suitable catch basin. Dispose of properly.
3. Be sure to tighten the drain after servicing to avoid introducing air into the fuel system.

Refer to the Maintenance section for details on servicing the fuel/water separator.

PRE-OPERATION INSPECTIONS (CONTINUED)

CHECK HYDRAULIC FILTER RESTRICTION INDICATORS



There are three hydraulic filters in the engine compartment on the XA Series: one charge filter for each agitator circuit and one charge filter for the slurry hydraulic circuit. There is also one return filter mounted in the top of the hydraulic tank. Each filter has a mechanical restriction indicator that will indicate when the filter is in need of service. The operator should visually check these filters daily.

VERIFY LIGHTING

The XA Series is equipped with a warning beacon light to alert bystanders. The strobe light has an adjustable pattern for work area identification. The strobe sequence can be changed via a button inside the Operator's Control Panel.

GENERAL OPERATOR SAFETY GUIDELINES

The following guidelines will support the safe and efficient operation of the XA Series Applicator. All operators should read them and commit them to memory.

- Do not carry passengers on the machine.
- Do not operate the XA Series Applicator with bystanders nearby.
- Only operate the XA Series Applicator at speeds under 5 mph when personnel are present.

APPLICATOR PREPARATION AND MAINTENANCE

1. Shut-off the engine. Park the applicator in manner that it is immobilized.
2. Wait until all machine components have completely stopped before touching them.
3. Use lockout/tagout procedure 29CFR 1910.147 during any inspection or maintenance.
4. Periodically remove debris and dust from the applicator. Remove fibrous material build-up between hoses, pumps, lines, and other confined areas. Use a blower to remove the dust and fibrous material off the entire unit at least twice per day. This is essential to continued successful operation and fire prevention.
5. Open all compartments and remove all flammable debris such as fiber mulch, leaves, twigs, pine needles, wood chips, dust and any leaking or spilt oil or fuel.
6. Upon discovery of oil or fuel leaks, repair and clean up immediately. Oil attracts dust and creates a fire hazard by insulating lines causing excess heat generation. Inspect and clean all dust from fittings and lines.
7. Clean the radiator as required to avoid overheating.
8. Use water only if it can dry thoroughly before operating. Dust clings to anything wet and a wet radiator can quickly become a problem.
9. Contain and dispose of any petro-chemical runoff through a licensed processing facility. Do not dispose of petro-chemical runoff into municipal waste.

PRE-OPERATION INSPECTIONS (CONTINUED)

APPLICATOR PREPARATION AND MAINTENANCE (CONTINUED)

10 Do not use high pressure washer directly on electrical contacts.

11. Be careful using high-pressure washers, which may bend and split the radiator fins.

12. Refer to the Safety Section of this manual for more information.

PREVENTATIVE MAINTENANCE

Proper preventive maintenance will help ensure that the applicator will perform to its full capabilities and eliminate unnecessary breakdowns due to neglect. The manufacturer's warranty is conditional upon following all maintenance recommendations.

1. Dismantle the unit only on flat and firm ground.
2. Always double-check the stability of the machine before reaching under or into the machine.

SAFETY WHILE MAINTAINING

- Be sure the applicator is parked and immobilized before performing any maintenance.
- Do not bypass the safety features.
- Never modify the safety railing.
- Never jump on or off the unit.
- Always clean off grease, oil, ice, snow and dirt to avoid slippery surfaces.

ENTERING AND EXITING THE OPERATOR STATION

- Always use handles and steps when entering and exiting the Operator's Station.
- ENSURE SAFETY, maintaining at least three-point contact of hands and feet with handles and steps.

OPERATION AND MAINTENANCE MANUAL

This manual gives you step-by-step instructions for the operation and maintenance of the Apex XA Series Applicator. For best results and to ensure longer life of the equipment, please follow these instructions carefully. For your safety, read the entire manual before operating this unit.

EQUIPMENT DESCRIPTION

The Apex XA Series is a self-contained applicator. The Apex XA Series Applicator is used to apply liquid-based materials to any commercial, residential, mining sites, landfills, golf courses, rail lines, oil/gas wells and lines; as well as any locations where a liquid-based material is required. The Apex XA Series Applicator is used to mix and apply dust control palliative, all types of hydraulic mulches (wood and paper and blends), BFM (Bonded Fiber Matrix), ADC (Alternative Daily Cover), and all types of seeds, fertilizers and lime.

The Apex XA Series Applicator uses a pair of bladed hydraulically-driven agitators within the tank that is variable speed and reversible. The mixing system is engineered to quickly blend the thickest materials used in the industry. The Apex XA Series Applicator's stainless steel tank provides many years of corrosion-resistance when cleaned after every use. The Apex XA Series Applicator's vortex slurry pump will discharge a variety of materials at distances up to 325 feet (99 meters) without modification to the pump or adjusting the mixing instructions and is engineered to allow the complete emptying of the mixing tank.

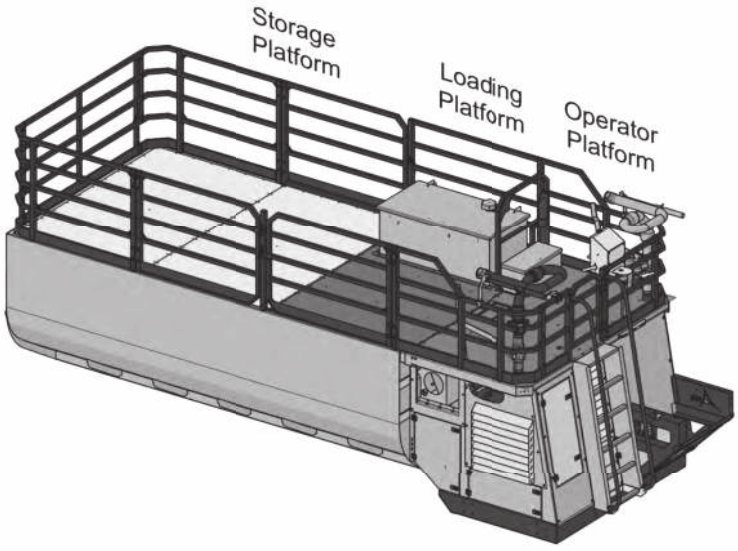
REFERENCE INFORMATION

Each Apex Applicator has an identification plate with its model number, serial number, and other related information. This plate is located on the left-hand side of the unit, from the operator's perspective. Use the serial number on this plate to identify the most applicable version of the operator's manual. There is a space provided on the front cover to write down your model number and serial number.

ORIENTATION

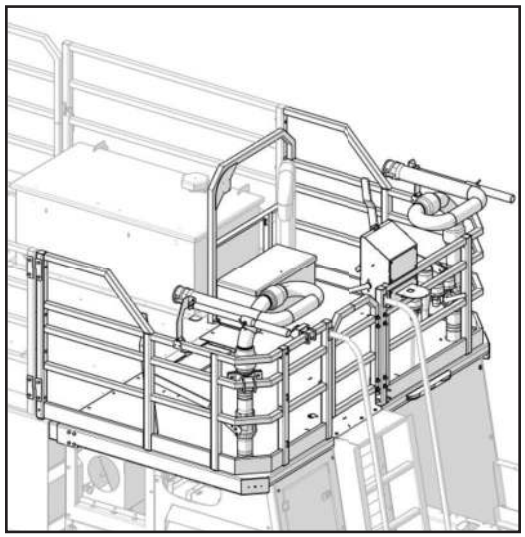
For the sake of this manual, the XA Series Applicator is referenced from the drivers seat in the host vehicle. The rear of the machine is equipped with a ladder. The left, right, top and bottom are referenced from the driver's position seated in the driver's seat, with his back towards the side with the ladder. Additionally, The Operators Control Panel will be referred to as Driver Side and Passenger Side, as referenced from the driver's seat in the host vehicle.

There are three areas of the top platform, the Storage Platform, the Loading Platform and the Operator Platform. These areas are referred to as Driver Side and Passenger Side, as referenced from the driver's seat in the host vehicle.



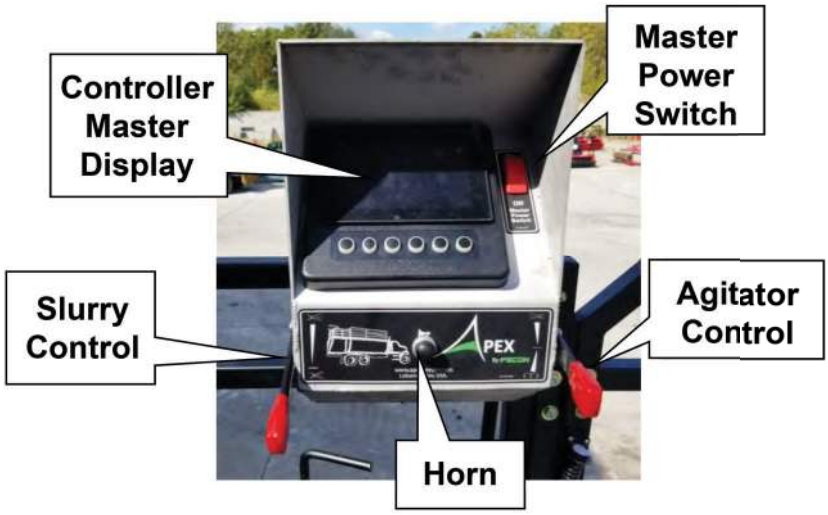
OPERATOR PLATFORM

The operator platform consists of the Operator Control Panel, the Primary Boom and the Secondary Boom (if equipped).



OPERATOR CONTROL PANEL

The Operator Control Panel is located on the Operator Platform, near the ladder. All of the functions can be controlled from this panel, including the agitator speed and direction, the horn, the slurry pump engage and disengage and starting and stopping the engine.



CONTROLLER MASTER DISPLAY

The XA Series utilizes a Controller Master Display to communicate with the engine and other systems on the applicator. This allows for easy adjustments to the agitator pump, slurry pump and other outputs This display will also alert the operator to any error messages it detects. This display is mounted in the Operator Control Panel at the Operator Platform and functions via the touchscreen or the buttons, for gloved use.

Functions that are in, but not limited to, the Controller Master Display:

- Engine RPM
- Hydraulic oil temperature
- Engine coolant temperature
- DEF level

Warnings that are in, but not limited to, the Controller Master Display:

- Hydraulic temperature
- Engine coolant temperature
- Low engine oil pressure

OPERATOR CONTROL PANEL (CONTINUED)

HOME SCREEN

The Home Screen displays the engine RPM, hydraulic oil temperature, coolant temperature, DEF level, the agitator engage percent and the slurry pump engage percent.

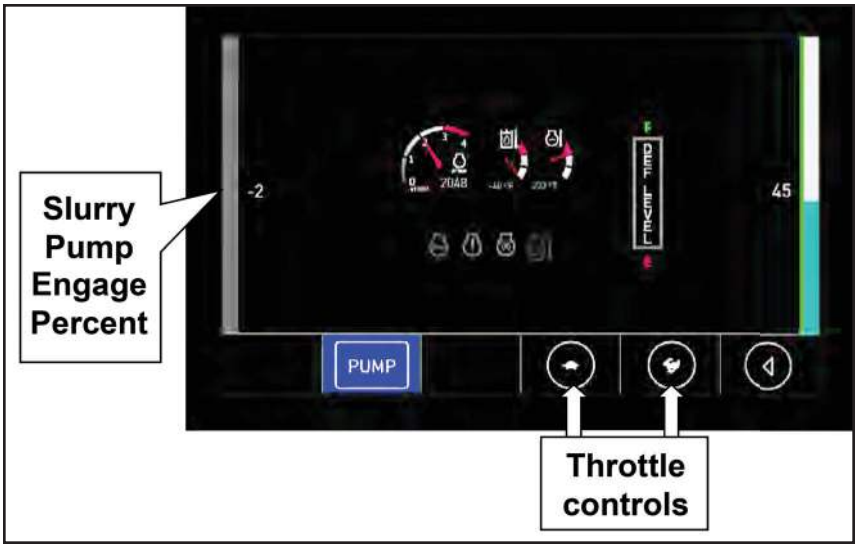
From the Home Screen, the operator can access other screens that display pertinent data along with adjustments to suit the operator or the specific jobsite.

The ***Check Engine Lamp (CEL)*** and ***Stop Engine Lamp (SEL)*** are located on the Home Screen. Further information on these lamps is located on the Engine Screen.

Press the ***START*** button to start the engine.

Press the ***STOP*** button to turn the engine off.

SLURRY PUMP CONTROL



The Pump Control Screen is accessed by pressing the ***RUN*** button on the Home Screen. Press the green PUMP button to engage the slurry pump. Press the ***PUMP*** button to disengage the slurry pump. Use the ***TURTLE*** and ***RABBIT*** arrow buttons to decrease or increase the speed of the engine.

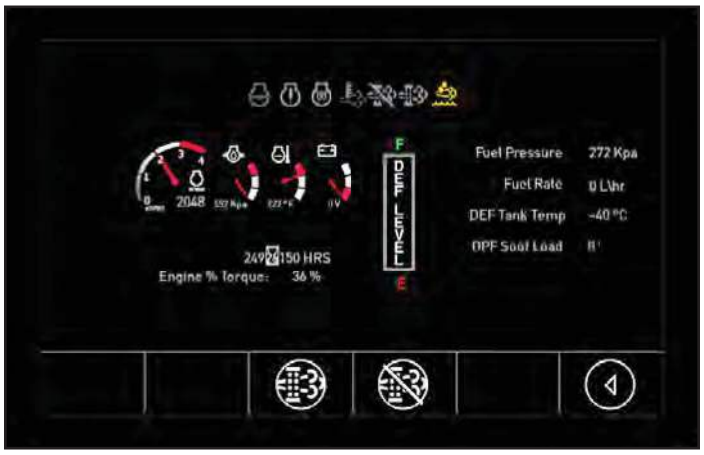
The pump control will default to the minimum setting to avoid accidental discharge of material at engine startup.

Pressing the back button will return to the Home Screen.

OPERATOR CONTROL PANEL (CONTINUED)

ENGINE SCREEN

The Engine Screen displays additional information about the engine systems, as well as the aftertreatment warning lights.



ENGINE LAMPS

Below is an explanation of the Engine Lamps and Exhaust System Cleaning Lamps.

	***Wait To Start Lamp*** The Wait To Start lamp will illuminate when the ambient temperature is cold enough to require the intake grid heater to activate. If the Wait To Start lamp is ON, the engine cannot be started. Once the lamp is no longer displayed, the engine can be started.
	***Check Engine Lamp (CEL)*** The Check Engine lamp will illuminate if there is an issue with the engine which, if left un-corrected, could cause engine damage.
	***Stop Engine Lamp (SEL)*** The Stop Engine lamp will illuminate if there is an issue with the engine that could cause severe engine damage. This lamp will be accompanied by an Engine Horsepower De-rate.
	***DEF Lamp ON (not flashing)*** Illuminates when the DEF level is LOW.
	***DEF Lamp Flashing*** Illuminates when the DEF level is VERY LOW.
	***DEF Lamp Flashing with Check Engine Lamp ON*** Illuminates when the DEF level is CRITICALLY LOW.
	***DEF Lamp Flashing with Check Engine and Stop Engine Lamps ON*** Illuminates when the DEF level is Empty. Engine will De-rate.

OPERATOR CONTROL PANEL (CONTINUED)

ENGINE LAMPS (CONTINUED)

	***High Exhaust System Temperature (HEST) Lamp ON*** Illuminates due the higher than normal exhaust temperature during exhaust System Cleaning.
	***Exhaust System Cleaning Lamp ON (not flashing)*** Illuminates when the exhaust system is UNABLE to complete an Automatic Exhaust System Cleaning event.
	***Exhaust System Cleaning Lamp Flashing*** Illuminates when a Stationary Exhaust System Cleaning event is initiated using the Exhaust System Cleaning “Start” switch. This lamp will continue to flash until the stationary cleaning event is complete.
	***Exhaust System Cleaning Lamp with a Check Engine Lamp*** If and Exhaust System Cleaning is not performed in a timely manner after the Exhaust System Cleaning lamp illuminated, the Check Engine Lamp will illuminate, and the engine will De-rate.
	***Exhaust System Cleaning Stop Lamp*** Illuminates when the Exhaust System Cleaning switch is in the STOP (Re-Gen Inhibit) position, preventing a cleaning event.

REGENERATION CYCLE

Part of the emissions standards for the Stage 4 engines require the engine to perform an automatic Regeneration Cycle (Regen Cycle). This is a normal function of all diesel engines, which is designed to produce exhaust heat equal to the heat in a ‘maximumload’ situation, to eliminate un-burned fuel in the exhaust. The operator will be notified, via the display, before this cycle begins. If the XA unit cannot be moved to a safe place immediately, press the ***REGEN INHIBIT*** button to delay this Regen Cycle.

REGENERATION INHIBIT

The Regeneration Inhibit function will delay the need for an automatic Regen Cycle for a few hours. The operator can delay the Regen Cycle up to 5 times before the engine will de-rate the horsepower output. Once the Regen Cycle has been completed the engine will return to full horsepower.

⚠ WARNING ***Continuous use of the Regen Inhibit function could lead to engine damage.***

NOTICE ***The Regen Inhibit is used to delay a Regen Cycle while performing service, re-fueling or other unwanted times.***

OPERATOR CONTROLS

AGITATOR CONTROL

The Agitator Control lever is located on the driver side of the Operator Control panel. The agitator is in neutral when the lever is centered. Move this lever downward to engage the *MIX MODE*. Moving the lever further DOWN increases the agitator RPM in the *MIX MODE*. Move this lever UP to engage the *SPRAY MODE* mode. Moving the lever further UP increases the agitator RPM in the *SPRAY MODE*.

NOTICE ***Be careful to mix materials at the proper agitator RPM. Mixing materials at too high of an RPM could cause clumping, excessive air in the material or other issues.***

SLURRY CONTROL

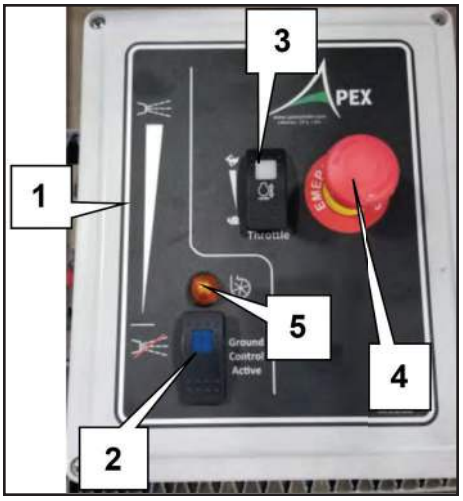
The slurry pump is controlled by the lever on the passenger side of the Operator Control Panel. The engagement percentage is displayed on the left side of the Controller Master Display.

The slurry pump is disengaged with the handle all the way down. Raising the handle engages the slurry pump. Raising the handle higher will discharge material further.

GROUND LEVEL CONTROLS (*if equipped*)

If equipped, the Apex XA Series uses a secondary control panel that is accessed from the ground. This is useful when spraying with the hose or trouble shooting a problem.

The Ground Level Controls (GLC) consists of an engine throttle switch, and E-Stop button and slurry pump control lever.



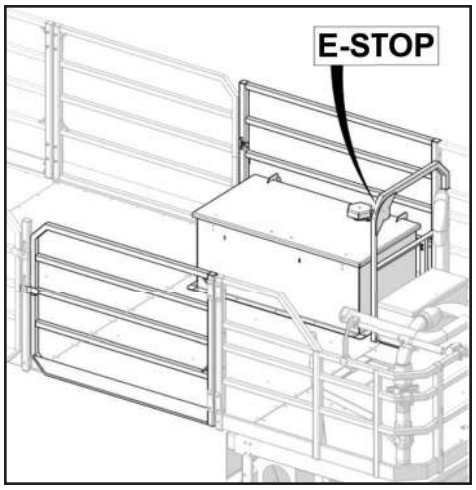
1. The Slurry Pump is controlled by the lever on the left side of the GLC. The slurry pump is disengaged with the handle all the way down. Raising the handle engages the slurry pump. Raising the handle higher will discharge material further.
2. Pressing the ***GROUND CONTROL ACTIVE*** button will enable the functions on the GLC, and disable the functions at the Operators Control Panel. The blue light on the ***GROUND CONTROL ACTIVE*** button indicates the GLC is enabled and the Operator Control Panel is deactivated.
3. The ***ENGINE THROTTLE*** button controls the engine RPM. Pressing the Rabbit raises the engine RPM. Pressing the Turtle lowers the engine RPM.
4. Press the ***E-STOP*** button to shut off the engine in the event of an emergency. Twist the ***E-STOP*** button clockwise to reset. The engine will not start with the ***E-STOP*** button depressed.

⚠ CAUTION ***Use the Emergency Stop Button only when immediate and definite danger to personnel or machine damage are imminent. Shutting off the engine at high RPM can cause engine damage.***

5. The Discharge light will blink whenever the slurry pump is engaged, whether at the Operator Control Panel or the GLC.

LOADING PLATFORM

The Loading Platform is where the Loading Hatch is located. There is an ***E-STOP*** button located within easy reach of the Loading Hatch.



EMERGENCY STOP (E-STOP) BUTTON

The ***EMERGENCY STOP (E-STOP)*** button is located on the railing separating the Loading Platform from the Operator Platform. Depressing the button will shut off the engine immediately. Twist clockwise to reset.

⚠ CAUTION ***Use the Emergency Stop Button only when immediate and definite danger to personnel or machine damage are imminent. Shutting off the engine at high RPM can cause engine damage.***

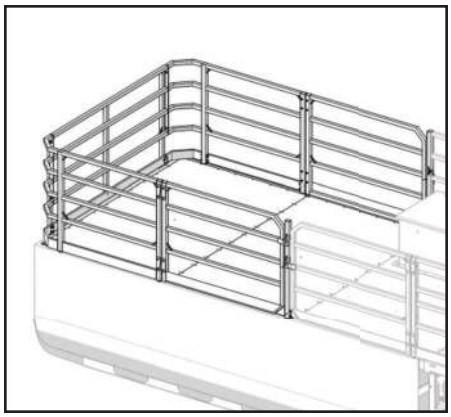
LOADING HATCH

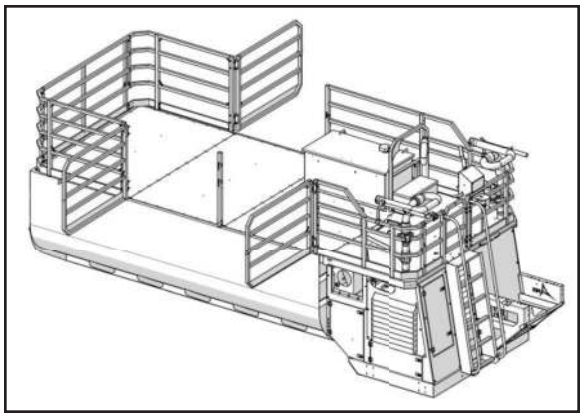
Add materials through the Loading Hatch. Open the hatch by lifting the two rubber latches.

⚠ DANGER ***Operating the applicator with the hatch open is extremely dangerous and could result in severe injury or death. Be careful to keep all personnel a safe distance from the open hatch.***

STORAGE PLATFORM

The Storage Platform is used to stage materials to be used during the job. Apex offers two type of access railings for this area, sliding rails and swinging rails.





STARTING PROCEDURE

⚠ CAUTION ***Do not operate the starter for more than ten (10) seconds at a time. If engine does not start, allow at least sixty (60) seconds cool-down period between starting attempts. Not following these guidelines may cause damage to the starter.***

⚠ CAUTION ***If the ignition button is released before the engine has started, allow the starter and engine to completely stop before re-engaging the starter. This will prevent possible damage to the starter and/ or engine flywheel.***

To start the engine, perform the following steps:

1. Switch the Master Power Switch to the ON position.
2. Wait for the Home Screen to appear and verify the system is ready.
3. Press the RUN button and hold until the engine starts.

NOTICE ***In cold start situations, the display will show the "Wait to Start" message. Wait until this message disappears to crank the engine.***

PRE-OPERATION WARM-UP

Allow the cold engine to run at idle for five (5) minutes or more while the engine coolant and hydraulic temperatures rise to the operating temperature. In extremely cold conditions it may take thirty (30) minutes or more for all fluids to reach normal temperature levels.

STARTING PROCEDURE (CONTINUED)

STARTING WITH JUMPER CABLES

⚠ WARNING ***Batteries emit flammable fumes that are explosive, resulting in injury. Prevent sparks near batteries. They could cause vapors to explode.***

⚠ WARNING ***Do not allow the jumper start cables to contact each other or the applicator.***

⚠ WARNING ***Always wear eye protection when starting with jumper cables.***

⚠ WARNING ***Improper jump start procedures can cause an explosion resulting in personal injury. Always connect the battery positive (+) to battery positive (+) and the battery negative (-) to the battery negative (-).***

⚠ WARNING ***Only jump start with an energy source the same voltage as the stalled applicator.***

⚠ WARNING ***Turn OFF all lights and accessories on the stalled applicator. Otherwise, they will operate when the energy source is connected.***

NOTICE ***When starting from another machine, make sure the two machines do NOT touch. This will prevent possible damage to engine bearings and electrical circuits.***

The XA Series uses a 12 volt starting system. Use the same voltage for jump starting.

1. Turn the Master Power Switch of the stalled unit to the "OFF" position.
2. Move the power source machine to a location close enough to the stalled unit that the cables can reach the batteries. Do not allow the machines to touch.
3. Turn off the engine on the power source machine.
4. Connect the red jumper cable to the positive terminal (+) on one battery of the stalled unit.
5. Connect the other end of that cable to the positive terminal (+) on the power source machine.
6. Connect the black cable to the negative terminal (-) on the other battery on the stalled unit.
7. Connect the other end of the black cable to the negative terminal (-) on the other battery on the power source machine.
8. Start the engine of the power source machine.
9. Allow the power source machine to charge the stalled unit for a few minutes. Start the engine of the stalled unit.
10. Wait approximately two (2) minutes after the stalled unit starts and remove the battery cables in the reverse order they were installed.

STOPPING THE ENGINE

⚠ WARNING ***Severe machine damage can result if the engine is not properly cooled before shutdown. Allow the engine to run at idle for at least five (5) minutes to allow a gradual uniform cool down.***

Before stopping the engine, perform the following steps:

1. Be sure the slurry pump is turned off and the agitator has stopped spinning.
2. Close all slurry valves.
3. Lower the engine RPM to idle for at least five (5) minutes to allow the proper cool down.
4. To stop the engine, press the ***STOP*** button on the Home Screen.

OPERATING INSTRUCTIONS

FILLING THE TANK

⚠ CAUTION ***Prior to adding materials, ensure that the tank and plumbing (discharge) systems are clear of any obstructions. Failure to do so could result in damage to the applicator.***

1. Connect a hose to the fill port on the passenger side of the unit.

2. Open the Loading Hatch and position the fill port to begin filling the tank with water.
3. Start the engine and run at idle RPM until the engine reaches normal operating temperature.

4. Once the water level has reached the top of the agitators engage the agitators in the *MIX MODE* direction by lowering the lever on the Driver Side of the Operator Control Panel.

5. Begin adding materials through the Loading Hatch and mix per the job requirements. See Mixing Materials Section for instructions on proper method to add material.

MIXING MATERIALS

⚠ DANGER ***Contact with rotating equipment can cause serious injury or death. Do NOT wear loose clothing or jewelry that could get caught in the agitator.***

⚠ DANGER ***Hydroseed material can produce gases that are harmful or deadly if inhaled. Empty the slurry tank daily to prevent build-up of these gases.***

⚠ DANGER ***Do not store material for long periods of time in the slurry tank. Harmful or deadly gases could result.***

⚠ CAUTION ***Take care not to drop objects into the tank. Failure to do so could result in minor to moderate personal injury. Failure to comply could also result in product or property damage.***

OPERATING INSTRUCTIONS (CONTINUED)

MIXING MATERIALS (CONTINUED)

⚠ CAUTION ***Keep operators and bystanders away from moving parts.***

As the ratio of water and materials changes, it may become necessary to suspend mixing and allow the water level to increase in the slurry tank. Return the Mix control to NEUTRAL to do this. Once the water level reaches an appropriate level simply engage the controls to MIX and allow product to blend within the tank.

NOTE: If filling water from a pond or stream it is recommended that a suction strainer be used to prevent any foreign objects from entering the tank. These objects could cause damage to the pump. Additionally, it is imperative that all local laws and codes be followed if filling the tank from a public water source.

Begin by adding the lightest materials first. If using powdered products (lime, seed, tackifiers) add these first to prevent any “gumming” of product. This will also insure equal dispersion of the product.

Only when adding hydraulic mulches, BFM’s or baled type products, open the grate on the hatch.

⚠ DANGER ***Operating the applicator with the hatch open is extremely dangerous and could result in severe injury or death. Be careful to keep all personnel a safe distance from the open hatch.***

APPLICATION OF PRODUCT

Determine Application Rate

The following guidelines are based on rates in pounds-per-acre (lbs./acre):

1. Multiply the total square feet to be covered by desired mulch rate in lbs./acre.
2. Divide the answer to Step 1 by 43560 (square feet in 1 acre).
3. Divide the answer to Step 2 by the number of pounds per bag. This equals the number of bags per load.

Material Rates are supplied on most mulch product packaging. Generally, the rates for wood mulches are 50 pounds of mulch per 100 gallons of water. BFM’s and more viscous materials are generally 40 pounds of mulch to 100 gallons of water. Confirm these rates with the specific manufacturer of the mulching material. For hose reel applications use the 40/100 gallon mix rate.

Use the chart below to create a guideline for standard mixing materials.
Confirm these rates with the product supplier.

SEED (lbs.)	FERTILIZER (lbs.)	MULCH (lbs.)	NUMBER OF BAGS (50 lb. bags)	COVERAGE AREA (sq./ft.)

OPERATING INSTRUCTIONS (CONTINUED)

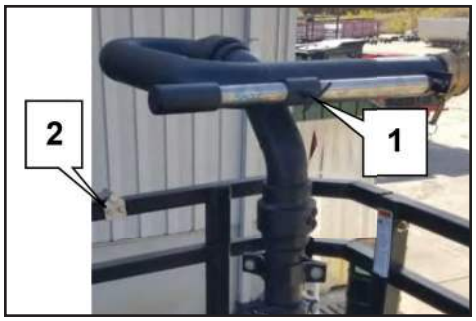
APPLICATION OF PRODUCT (CONTINUED)

Application from Discharge Boom

⚠ DANGER ***Serious injury or death can result from contact with electric lines. NEVER move any part of the equipment closer than 10 ft. (3 meters) plus twice the line insulator length to an electric line. Use a signal person to guide the operator.***

⚠ DANGER ***Do not aim the discharge spray toward power lines, transformers or other high voltage electrical conductors. Also, do not aim the discharge spray towards people, animals or anything other than the intended application area.***

1. Observe the application area for any obstructions that might be present.
2. Determine with driver signals, when to move, stop or back up as well as a means to communicate between the driver and the operator.
3. Unlatch the discharge boom from its transport location:
   a. Rotate item 1 counter-clockwise to loosen the fastening screw.
   b. Rotate the handle to unlatch from the keeper plate (item 2).
   c. Slide the handle to allow the discharge boom to pivot.
   d. Rotate the boom nozzle to disengage the tab from the keeper.



⚠ CAUTION ***Be sure the boom is aimed at a vacant area free of all personnel. Pressurized water from the boom could cause minor to moderate personal injury. It is the Boom Operator's responsibility to ensure personnel on the ground do not enter the spray zone.***

4. Choose the appropriate nozzle and install on boom. Confirm the gasket is correctly in place before connecting.
5. Engage the agitators in the SPRAY direction by raising the Driver Side of the Operator Control Panel.

6. Open the primary ball valve via the hand lever located just below the primary boom sprayer.

7. Aim discharge boom at the area where product is to be applied.
8. Firmly hold the discharge boom handle.

OPERATING INSTRUCTIONS (CONTINUED)

APPLICATION OF PRODUCT (CONTINUED)

Application from Discharge Boom (Continued)

9. Raise the lever to engage the Slurry Pump to the desired spray distance.

   NOTE: Prior to engaging the Slurry Pump, it is recommended to cycle the Agitation Control Lever several times and confirm that all bales are completely in suspension.

10. Apply product evenly along the area.

    NOTE: It may be necessary to apply the product in multiple directions to completely cover the ground.

The XA Series can be operated in a stationary condition or a mobile condition. Both applications will require personnel be stationed at the Loading Station, Storage Station and Operating Station while applying material. The safety of these passengers is dependent upon the safe operation and common sense of the host vehicle operator. Operating the host vehicle at excessive speeds (above 5 mph) or excessive slopes and uneven ground could lead to personal injury or death.

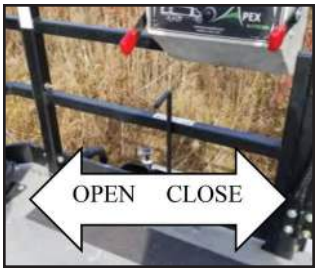
⚠ WARNING ***Do not exceed 5 mph operating speed. Excessive speed could cause severe injury or death.***

⚠ WARNING ***Take note of uneven ground or obstacles that the operator may not notice and communicate them immediately. Operating on unstable surfaces could cause severe injury or death.***

Application from Hose Reel (Optional)

1. Observe the application area and make note of any obstructions that might be encountered.
2. Using the hose reel control lever mounted on the hose reel mount, unroll the hose to the farthest point from the Applicator. Work back towards the Applicator to limit the foot traffic on the areas with product already applied.

3. Select the appropriate nozzle.
4. Open the recirculation ball valve.



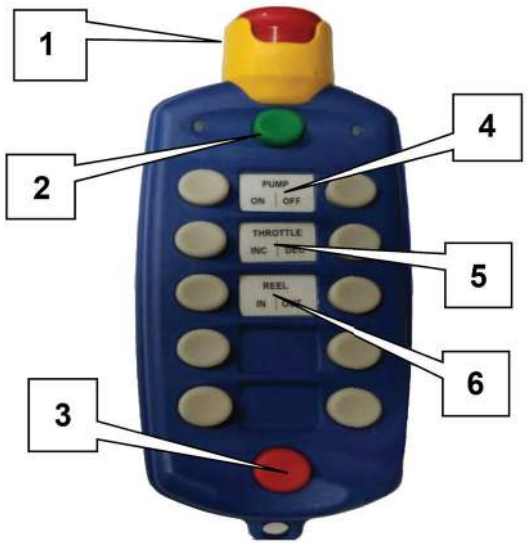
5. Open the hose reel ball valve.
6. Engage the Slurry Pump to the desired setting.
7. Open the remote valve on the end of the hose to begin discharging material.
8. Moving along the seedbed, the operator should move the discharge nozzle back and forth in a slow, even arc to ensure even distribution of the material.

OPERATING INSTRUCTIONS (CONTINUED)

APPLICATION OF PRODUCT (CONTINUED)

Hose Work with Radio Transmitter (Optional)

The Apex XA Series applicator can be equipped with a radio remote to allow for one-man operation of the hose reel with greater control of the discharge of material.



1. ***Emergency Stop (E-STOP) Button:*** Press the ***E-STOP*** button to shut off the engine in the event of an emergency. Twist the ***E-STOP*** button clockwise to reset. The engine will not start with the ***E-STOP*** button depressed

⚠ CAUTION ***Use the Emergency Stop Button only when immediate and definite danger to personnel or machine damage are imminent. Shutting off the engine at high RPM can cause engine damage.***

2. ***Remote ON Button:*** Pressing this button will turn the remote ON.
3. ***Remote OFF Button:*** Pressing this button will turn the remote OFF.
4. ***Pump Controls:*** Pressing the button on the left will engage the slurry pump at full output. Regulate the distance by changing the engine rpm. Pressing the button on the right will turn the slurry pump OFF.
5. ***Engine Throttle Controls:*** Pressing the button on the left will *INCREASE* the engine rpm. Pressing the button on the right will *DECREASE* the engine rpm. Each press of the buttons will change the engine rpm.
6. ***Hose Reel Controls:*** Pressing the button on the left will spool the hose reel *IN*. Pressing the button on the right will spool the hose reel *OUT*.

⚠ CAUTION ***When using the radio remote control option, the secondary operator(s) must be aware that the machine can be remotely activated at any time. If any maintenance or troubleshooting needs to be performed while the engine is running, the Remote On/Off switch must be in the OFF position. Failure to comply could result in minor personal injury or product or property damage.***

OPERATING INSTRUCTIONS (CONTINUED)

RELOADING PROCEDURE

It is very important to clean and purge the tank and discharge plumbing after each load. This will prevent ‘clumping’ of material, which could result in a blockage in the discharge plumbing.

1. Fill the tank to the bottom of the agitator shafts with water.
2. Engage the agitator in both directions to dislodge material in the tank.
3. Begin by spraying water through the primary and secondary discharge cannons. Continue spraying until the discharge water is clear.
4. Spray water through the discharge hose. Continue spraying until the discharge water is clear.
5. Open the recirculation valve and cycle material through the recirculation plumbing until the water is clear.
6. Follow steps for **Mixing Materials** Section listed earlier in this manual.

CLEANING AND MAINTENANCE

DAILY

After the last load of the day, fill the tank with sufficient water to rinse the inner tank walls. Purge the discharge plumbing with water (Steps 1 through 5 in the **Reloading Procedure** Section) to remove the mulch materials from the pipes.

If hose work was undertaken, rinse the interior of the hose as well.

⚠ DANGER ***Hydroseed material can produce gases that are harmful or deadly if inhaled. Empty the slurry tank daily to prevent build-up of these gases. Do not store material for long periods of time in the slurry tank. Harmful or deadly gases could result.***

1. Turn off the slurry pump, move the valve handle to the DISCHARGE position, move the agitator handle to NEUTRAL and turn off the engine.
2. Always remove the main drain plug and allow the tank to drain.
3. In freezing weather, leave the main drain plug out and remove the pump drain plug. Move all slurry valves to the OPEN position.
4. Rinse the outside of the applicator to remove any excess materials.
5. Make sure all the tank vents are clean and open. DO NOT plug or cap.

NOTE: Lubrication should be performed IMMEDIATELY AFTER cleaning of equipment. Refer to **Lubrication** Section for details on lubricating the applicator.

WEEKLY

1. Clean the air cleaner following the instructions in the Engine Operator's Manual.
2. Lubricate all the points on the applicator as outlined in **DAILY** subsection.
3. Check the level in the hydraulic oil reservoir.
4. Check coolant level.
5. Inspect the slurry tank for buildup of residue in the suction area and clear if necessary.
6. Check and clean engine radiator. Flush with clear, low-pressure waterspray and blow dry with compressed air. Do NOT use high-pressure water spray.

MONTHLY

1. Lubricate the agitator shaft bearings located on the outside front and rear of slurry tank.
2. Lubricate the two pump bearings (use the lube points on the rear lube manifold).

CLEANING AND MAINTENANCE (CONTINUED)

FLUIDS AND COMPONENTS

		U.S. GALLONS	IMPERIAL GALLONS	LITERS	TYPE
XA3300	Engine Oil	2.25	1.9	8.5	15w-40
	Hydraulic Oil	50	46.7	159	AW46
	Fuel	85	71.2	140	Ultra Low Sulfur Diesel
	Engine Coolant	2.5	2.1	9.4	50/50 glycol
XA4000	Engine Oil	2.25	1.9	8.5	15w-40
	Hydraulic Oil	50	46.7	189	AW46
	Fuel	85	71.2	321.6	Ultra Low Sulfur Diesel
	Engine Coolant	2.5	2.1	9.4	50/50 glycol
XA5000	Engine Oil	2.25	1.9	8.5	15w-40
	Hydraulic Oil	50	46.7	189	AW46
	Fuel	85	71.2	321.6	Ultra Low Sulfur Diesel
	Engine Coolant	2.5	2.1	9.4	50/50 glycol

Engine Oil

Be sure to check the engine oil before operation. Add oil if the level is low. Refer to the engine Operator Manual for engine oil dipstick location, special instructions and engine oil specifications.

ENGINE SPECIFICATIONS	
Make	Cummins
Model	QSB 4.5
Rated HP	173HP (130KW @ 2500 RPM
Rated Torque @ RPM	520 lb/ ft (705 Nm) @ 1500 RPM

Engine Fuel

Always use premium diesel fuel. Refer to the engine Operator Manual for recommended fuel types.

Hydraulic Oil

The XA Series is factory filled with AW46 hydraulic oil. This provides the proper operating characteristics over a wide range of temperatures. Improper oil type can cause damage to the system and shorten component life. Use the appropriate oil for each application and follow the fluid specifications and tank capacity referenced above.

Add hydraulic fluid through the fill port on top of the hydraulic tank, located on top of the applicator, under the plate labeled “Hydraulic Access”.

Engine Coolant Level

The XA Series is factory filled with 50/50 glycol/water mix. This provides freeze protection for the engine at temperatures down to -30° Fahrenheit. It may be necessary to change the coolant based on each machines’ application.

Check the engine coolant level daily before starting the engine. The applicator should be on a level surface and the coolant should be cold.

1. The coolant reservoir is located in the engine compartment, behind the engine access door to the left of the ladder.
2. Check that the reservoir bottle is half-full.
3. Fill the coolant through the fill cap, located on the top of the engine radiator.

CLEANING AND MAINTENANCE (CONTINUED)

FLUIDS AND COMPONENTS (CONTINUED)

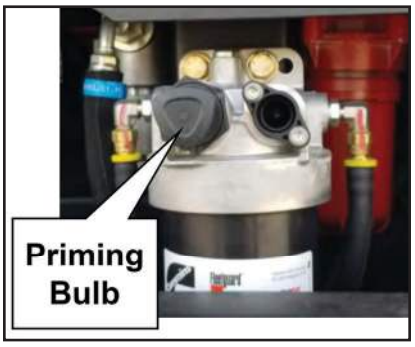
Servicing the Fuel/Water Separator

The primary fuel filter is the water separator, which should be drained periodically.

1. Place a suitable catch basin under the filter and loosen the drain plug on the bottom of the filter housing to remove the water.
2. Be sure to tighten the drain plug after servicing to avoid introducing air into the fuel system.

The primary filter also has a priming pump which can be used to prime the fuel system in the event the machine runs out of fuel or during filter servicing.

1. Rotate the primer knob counterclockwise.
2. Move the primer knob in and out several times until it becomes hard to compress.
3. Turn the primer knob clockwise to tighten.
4. Crank the engine with the keyswitch for 3-4 seconds.



⚠ CAUTION ***Be careful not to crank the engine for more than thirty (30) seconds without at least a 2 minute cool down period. This will prevent damage.***

⚠ CAUTION ***Do not prefill the filter element with fuel before installing. This could introduce dirt into the fuel system and damage engine components. Utilize the priming pump on the engine to fill the filter with fuel.***

Engine Air Filter

The XA Series is equipped with a dual stage engine air filter. Apex recommends replacing the inner filter every time the outer filter is changed.

Do not use compressed air to clean the filter between servicing. Cleaning the air filter can introduce dirt into the engine, causing severe damage.

LUBRICATING GREASE

The XA Series is completely serviced before leaving manufacturing. The operator should be familiar with all grease points and the proper grease type for each application. Apex uses NLGI #2 EP rated grease that provides the proper protection in a wide range of temperatures.

There are two grease banks on the driver's side of the applicator. One grease bank is in the front of the applicator and the other grease bank is at the rear of the unit.

CLEANING AND MAINTENANCE (CONTINUED)

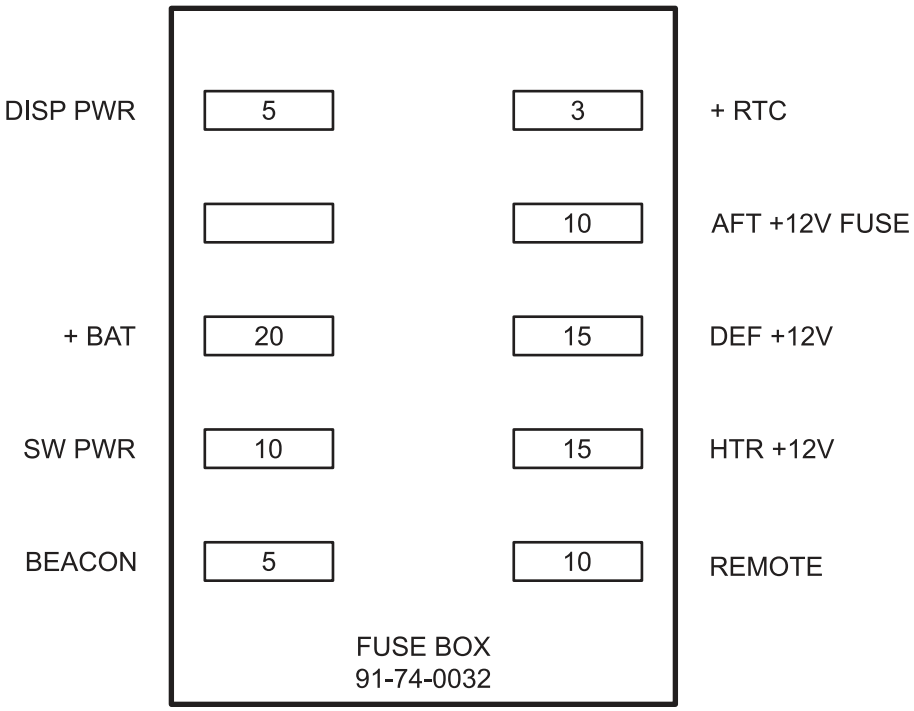
LUBRICATING GREASE (CONTINUED)

There are two grease points on the primary discharge boom swivel (and two on the secondary boom, if equipped).

There are two grease points on the hose reel, if equipped.

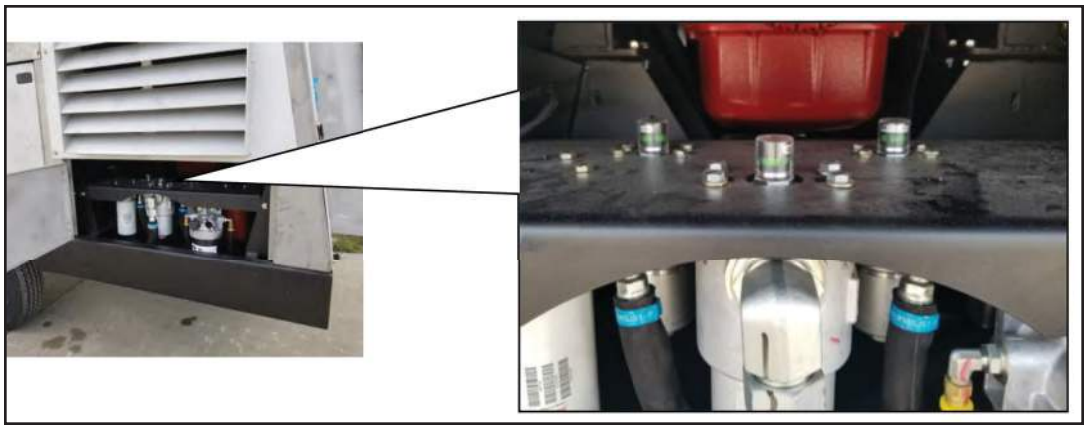
FUSE PANEL

The fuses for the XA Series are located inside the Ground Level Control box, on the passenger side of the applicator.



HYDRAULIC FILTER RESTRICTION INDICATOR

There are three hydraulic filters in the engine compartment on the XA Series, one charge filter for each agitator circuit and one charge filter for the slurry hydraulic circuit. There is also one return filter mounted in the top of the hydraulic tank. Each filter has a mechanical restriction indicator that will indicate when the filter is in need of service. The operator should visually check these filters daily.



CLEANING AND MAINTENANCE (CONTINUED)

SHORT TERM STORAGE

Drain the slurry tank of all water and material prior to storage and leave the drain plug uninstalled.

⚠ DANGER ***Hydroseed material can produce gases that are harmful or deadly if inhaled. Empty the slurry tank daily to prevent build-up of these gases. Do not store material for long periods of time in the slurry tank. Harmful or deadly gases could result.***

LONG TERM STORAGE

1. Drain the slurry tank of all water prior to storage and leave the drain plug uninstalled.
2. If possible, cover the machine with a tarp or park inside an enclosure.
3. Store the applicator with all of the slurry valve handles in the open position. To prevent damage from freezing, remove all of the slurry valves and store in a heated area.
4. Pour 1 quart (0.95 L) of mineral oil or environmentally safe lubricant into the pump housing and spin the pump to prevent rust in the pump. Remove the drain plug.
5. Lubricate all fittings.
6. Check the antifreeze in the radiator and add as necessary.
7. Lubricate the equipment again just prior to putting back into operation after having been in storage.
8. Change hydraulic oil and filter.
9. Disconnect the battery cables. In cold weather, remove the battery and store it in a safe, warm place.
10. Add fuel stabilizer to the fuel tank.

ENGINE STORAGE

The long term storage of an engine without adequate preparation will cause damages to external as well as internal components. Refer to the engine manufacturer documentation for the appropriate storage procedure.

DISPOSAL PROCEDURE

1. Do not discard into municipal waste stream.
2. Disassemble and contain hydraulic components in approved container.
3. Discard through a licensed processing facility.

MAINTENANCE CHART

Location	Description of Service	Frequency
Engine	Check oil level	Daily
Radiator	Check coolant level	Daily
Fuel Water Separator	Check for water and dirt	Daily
Engine Air Filter	Check dirt alarm and empty dust boot	Daily
Hydraulic Tank	Check oil level	Daily
Hydraulic System	Check for leaks or damage	Daily
Radiator/Air Cooler	Clean debris and check for leaks or damage	Daily
Hydraulic Cooler	Clean debris and check for leaks or damage	Daily
Agitator Bearing	Check and add grease	Daily
Engine Piping	Check inlet, exhaust, and ensure air clamps are tight; Check tubes for damage or leaks	Weekly
High Flow Filter	Change filter	100 hours, then every 500 hours
Return Hydraulic Filter	Change filter	100 hours, then every 500 hours
Engine Air Filter	Change primary and safety filter	As Indicated
Engine Oil	Change oil	50 hours, then every 500 hours
Engine Oil Filter	Change filter	50 hours, then every 500 hours
Fuel/Water Separator	Change filter	As Needed or every 250 hours
Hydraulic Oil	Change oil	100 hours, then every 500 hours; change as needed
Radiator	Flush coolant	2 years or 2000 hours

APPLICATOR DIMENSIONS

XA3300	
Weight Empty	12,620 lbs. (5714 kg)
Working Weight	40,004 lbs. (18144 kg)
Tank Capacity	3260 gallons (12340 liters)
Length	20 ft. 1 in. [240.8 in.] (6.12 meters)
Height	9 ft. 1 in. [108.88 in.] (2.77 meters) - overall
Width	8 ft. 5 in. [101.08 in.] (2.57 meters)

XA4000	
Weight Empty	13,380 lbs. (6059 kg)
Working Weight	46,620 lbs. (21145 kg)
Tank Capacity	3950 gallons (14952 liters)
Length	22 ft. 9 in. [272.81 in.] (6.93 meters)
Height	9 ft. 1 in. [108.88 in.] (2.77 meters) - overall
Width	8 ft. 5 in. [101.08 in.] (2.57 meters)

XA5000	
Weight Empty	14450 lbs. (6543 kg)
Working Weight	56000 lbs. (25400 kg)
Tank Capacity	4740 gallons (17943 liters)
Length	26 ft. 6 in. [317.63 in.] (8.07 meters)
Height	9 ft. 1 in. [108.88 in.] (2.77 meters) - overall
Width	8 ft. 5 in. [101.08 in.] (2.57 meters)

XA3300/XA4000/XA5000 Applicator

Parts Manual

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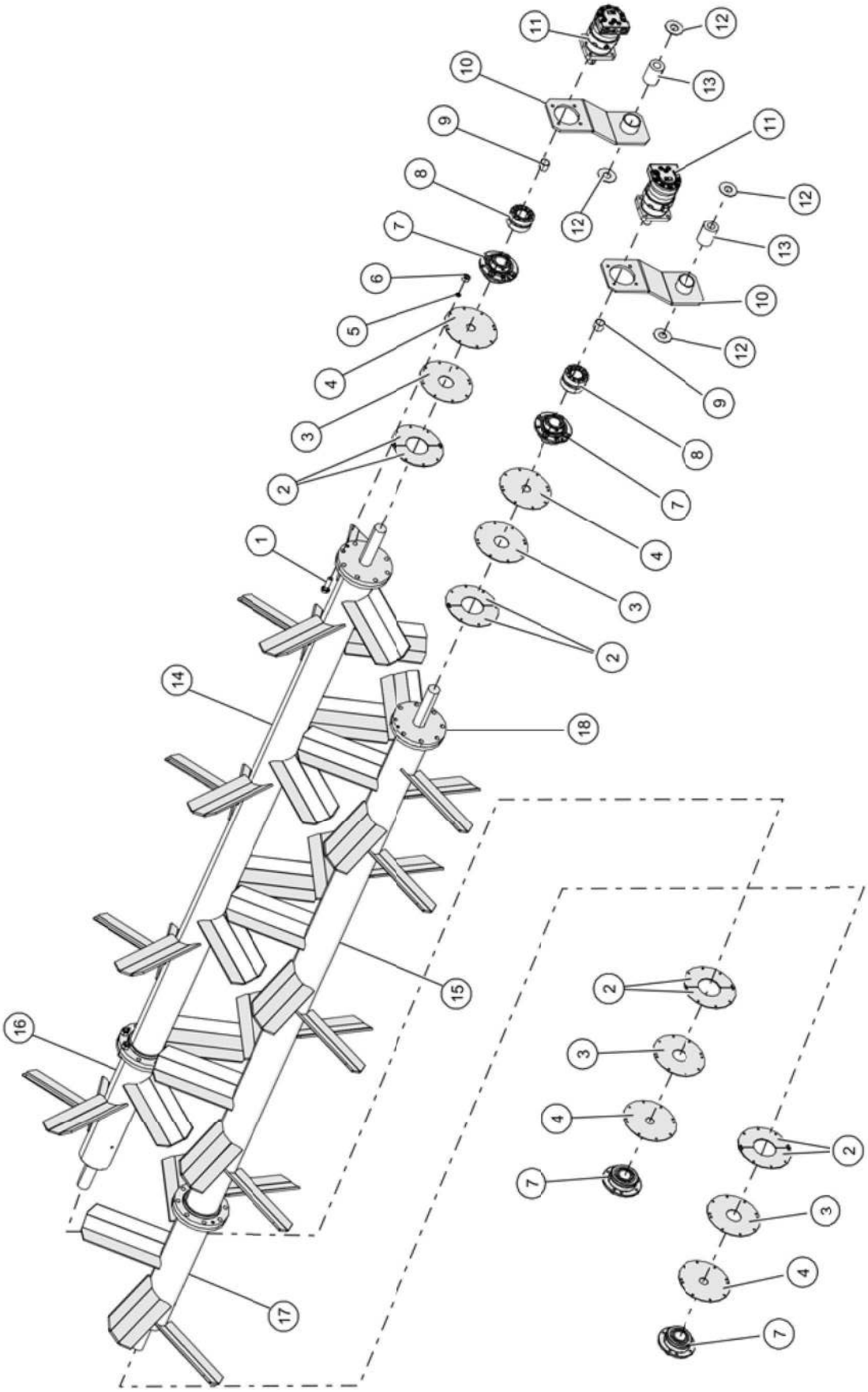
RAILINGS (XA3300, XA4000, XA5000)

XA3300 Part Number	XA4000 Part Number	XA5000 Part Number	Description	No. Req'd
91-23-0018	91-23-0018	91-23-0018	PHX Ladder Rail	2
91-33-0084	91-33-0084	91-33-0084	Front Rail Gen 3	1
91-33-0085	91-33-0085	91-33-0085	Swing Gate Right Hand Gen 3	2
91-33-0086	91-33-0086	91-33-0086	Swing Gate Left Hand Gen 3	1
91-33-0087	91-33-0087	91-33-0087	Rail Left Rear Gen 3	1
91-33-0088	91-33-0088	91-33-0088	Rail Right Rear Gen 3	1
91-33-0089	91-33-0089	91-33-0089	Rail Platform Left Hand Gen 3	1
91-33-0090	91-33-0090	91-33-0090	Rail Platform Right Hand Gen 3	1
91-33-0091	91-33-0091	91-33-0091	Rail Rear Right Gen 3	1
91-33-0092	91-33-0092	91-33-0092	Rail Rear Left Gen 3	1
91-33-0093	91-33-0093	91-33-0093	Post Latch Gen 3	1
91-33-0094	91-33-0094	91-33-0094	Gate Rear Gen 3	1
91-33-0095	91-33-0095	91-33-0095	Platform Gen 3	1
91-33-0096	91-33-0096	91-33-0096	Rail Safety Gen 3	1
91-33-0122	91-33-0082	91-33-0082	Front Rail Right Gen 3	1
91-33-0123	91-33-0083	91-33-0083	Front Rail Left Gen 3	1
----------	----------	91-33-0128	Rail Extension	2
91-33-0113	91-33-0113	91-33-0113	Toe Plate Front Weld	1
91-33-0114	91-33-0114	91-33-0114	Toe Plate Corner Weld	4
91-33-0116	91-33-0116	91-33-0116	Toe Plate Side Rear Weld	1
91-33-0117	91-33-0117	91-33-0117	Toe Plate Plat. Side Front Weld	2
91-33-0118	91-33-0118	91-33-0118	Toe Plate Plat. Side Rear Weld	2
91-33-0119	91-33-0119	91-33-0119	Toe Plate Plat. Right Rear Weld	1
91-33-0120	91-33-0120	91-33-0120	Toe Plate Plat. Left Rear Weld	1
91-33-0124	91-13-0015	91-13-0015	Toe Plate Side Front Weld	2
----------	----------	91-33-0129	Extension Toe Plate	2
91-35-0009	91-35-0009	91-35-0009	Gate Spring	1
91-35-0017	91-35-0017	91-35-0017	Split Ring	4
91-35-0023	91-35-0023	91-35-0023	Pin Snapper, 5/16 Dia x 1-1/8 in. Long	3
91-35-0027	91-35-0027	91-35-0027	Swing Gate Hinge	6
91-35-0028	91-35-0028	91-35-0028	Rear Gate Hinge	2
074-35-001	074-35-001	074-35-001	Nylon-Coated Lanyard, 12 in. Long	4

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

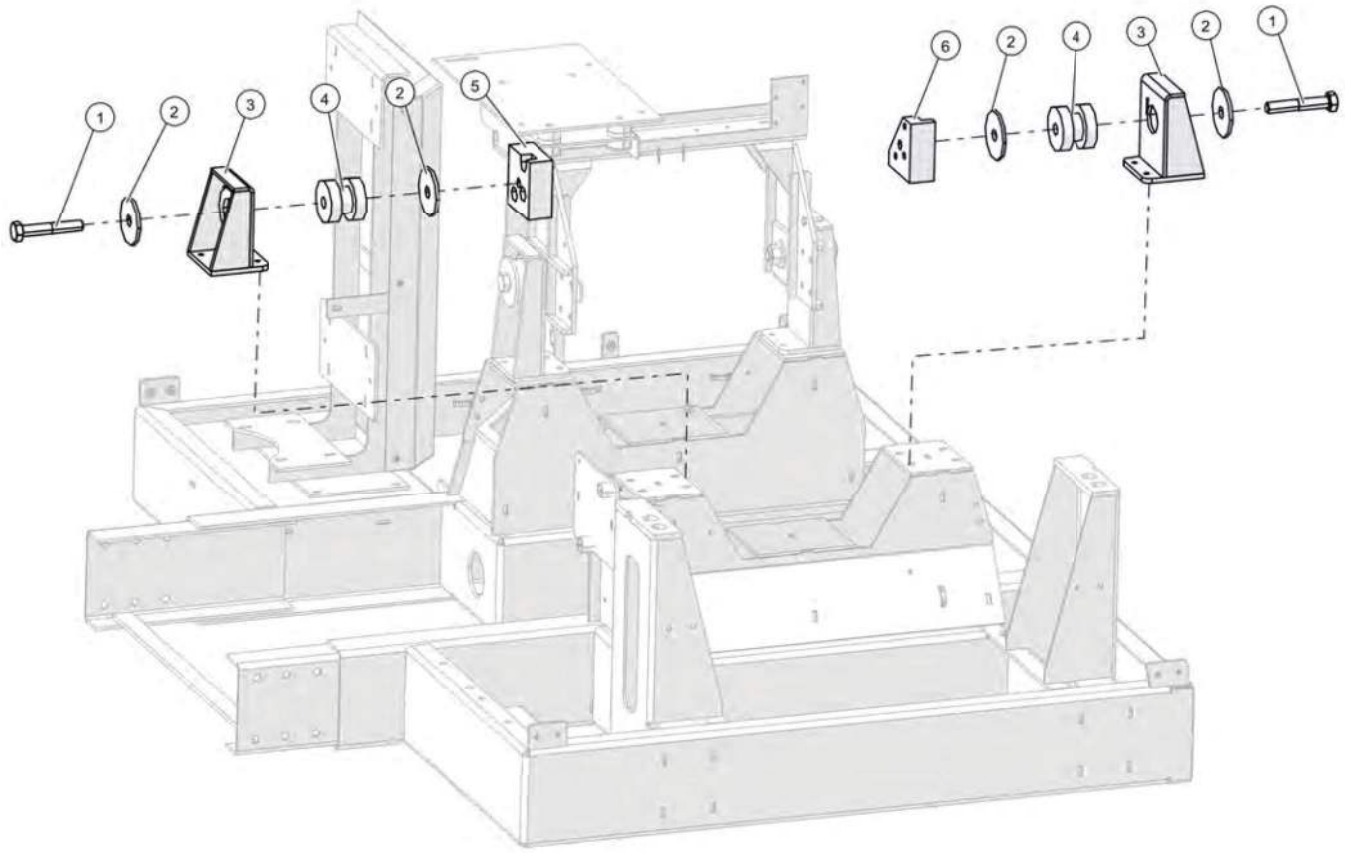
AGITATORS

Ref. No.	Part Number	Description	No. Req'd
1	B14-0912-8	Bolt	32
2	91-11-0066	Plate Agitator Bearing Seal	8
3	91-15-0009	Retainer Agitator Bearing Seal	4
4	91-15-0010	Seal Agitator Bearing	4
5	W14ML	Washer	32
6	N14-9-8	Nut	32
7	91-15-0003	Bearing Flange Cartridge	4
8	91-15-0014	Coupling Agitator-Hd	2
9	91-12-0011	Agitator Motor Spacer	2
10	91-13-0021	Mount Motor Gen. 2	2
11	91-65-0002	Motor Agitator Eaton VIS	2
12	91-11-0046	Snubbing Washer, 3-5/8 O.D. x 1-17/32 I.D.	4
13	91-12-0005	Torque Arrestor	2
14	91-14-0003	Right Hand Agitator, Machined	1
15	91-14-0002	Left Hand Agitator, Machined	1
16	91-14-0012	Shaft Extension (XA3300)	1
	91-14-0006	Shaft Extension (XA4000)	1
	91-14-0009	Shaft Extension (XA5000)	1
17	91-14-0012	Shaft Extension (XA3300)	1
	91-14-0005	Shaft Extension (XA4000)	1
	91-14-0008	Shaft Extension (XA5000)	1
18	91-14-0004	Agitator Stub Shaft, Machined	2
NOT SHOWN			
	91-11-0020	Paddle Agitator	42
	91-15-0016	Shaft Collar, 2-7/16 in.	4

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

ENGINE MOUNT PART 1

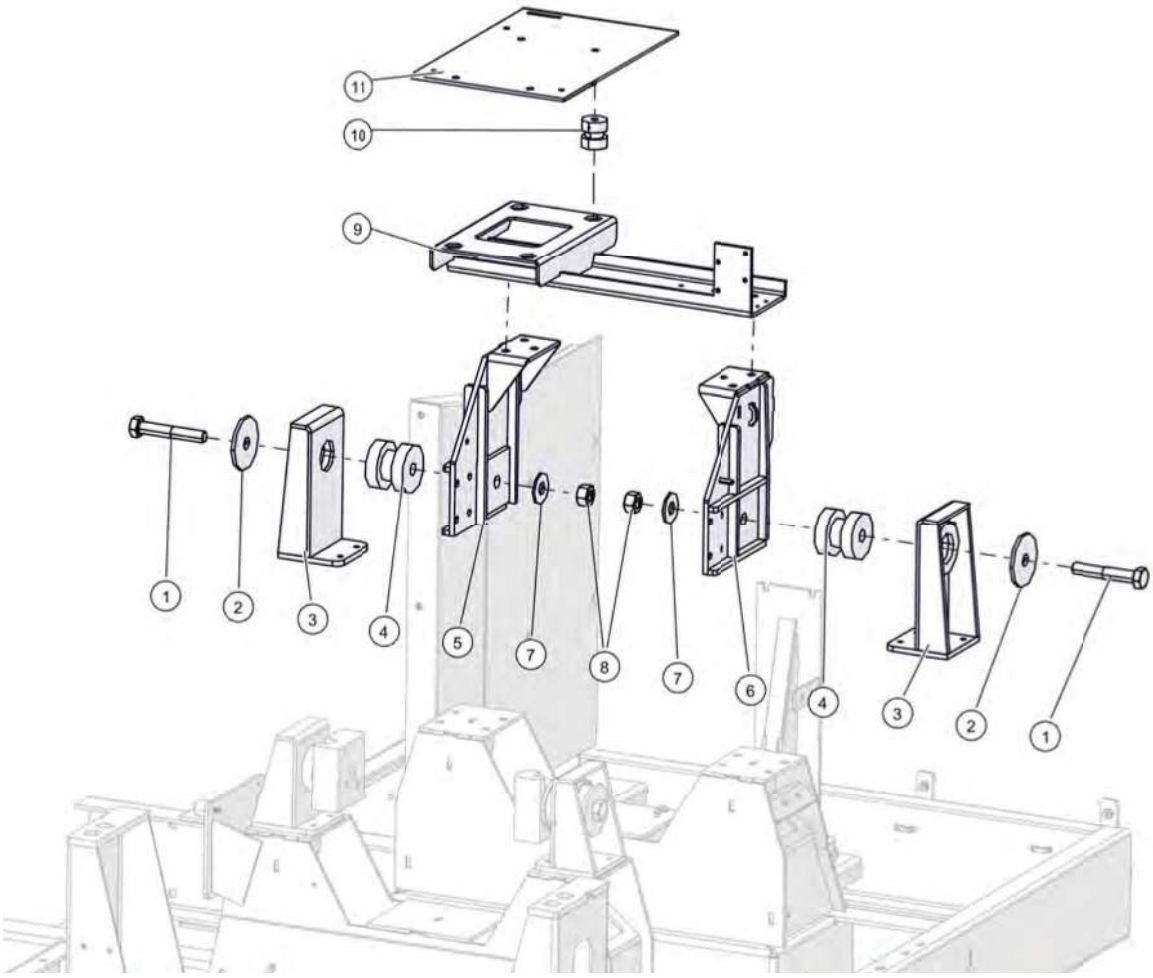
Ref. No.	Part Number	Description	No. Req'd
1	B14-0920-8	7/8-9 x 5 Long Hex Head Cap Screw, Grade 8	2
2	91-51-0048	Snubbing Washer, 3-7/8 O.D. x 15/16 I.D.	4
3	91-53-0016	Tower Front Engine Support	2
4	91-55-0027	Isolator Engine 60045	2
5	91-54-0002	Engine Foot Front Right	1
6	91-54-0003	Engine Foot Front Left	1



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

ENGINE MOUNT PART 2

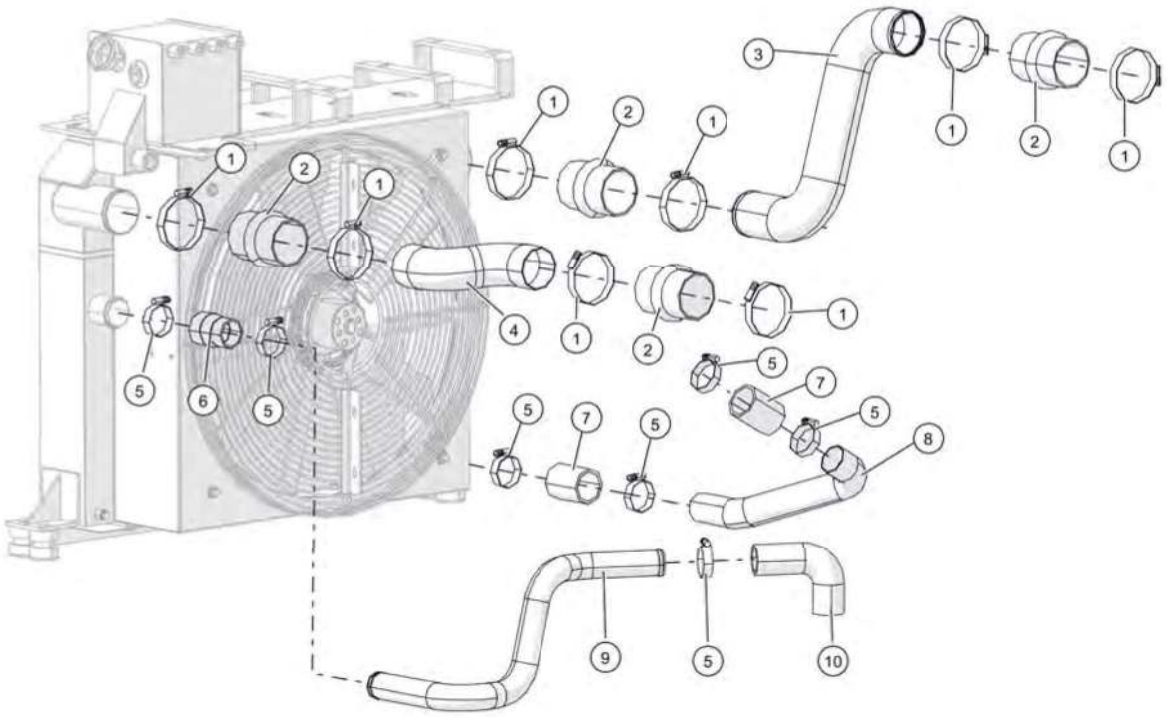
Ref. No.	Part Number	Description	No. Req'd
1	B14-0920-8	7/8-9 x 5 Long Hex Head Cap Screw, Grade 8	2
2	91-51-0048	Snubbing Washer, 3-7/8 O.D. x 15/16 I.D.	2
3	91-53-1001	Rear Engine Support T4	2
4	91-55-0027	Isolator Engine 60045	2
5	91-53-0013	Engine Mount Right Rear	1
6	91-53-0015	Engine Mount Left Rear	1
7	W14F	Flat Washer, 7/8 in.	2
8	N14-9-8	Nut	2
9	91-53-1002	DOC Support Weldment	1
10	410-55-022	Shock Mount Universal Type 125 Lbs	4
11	91-51-1006	Plate DOC Mount	1



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

RADIATOR HOSES

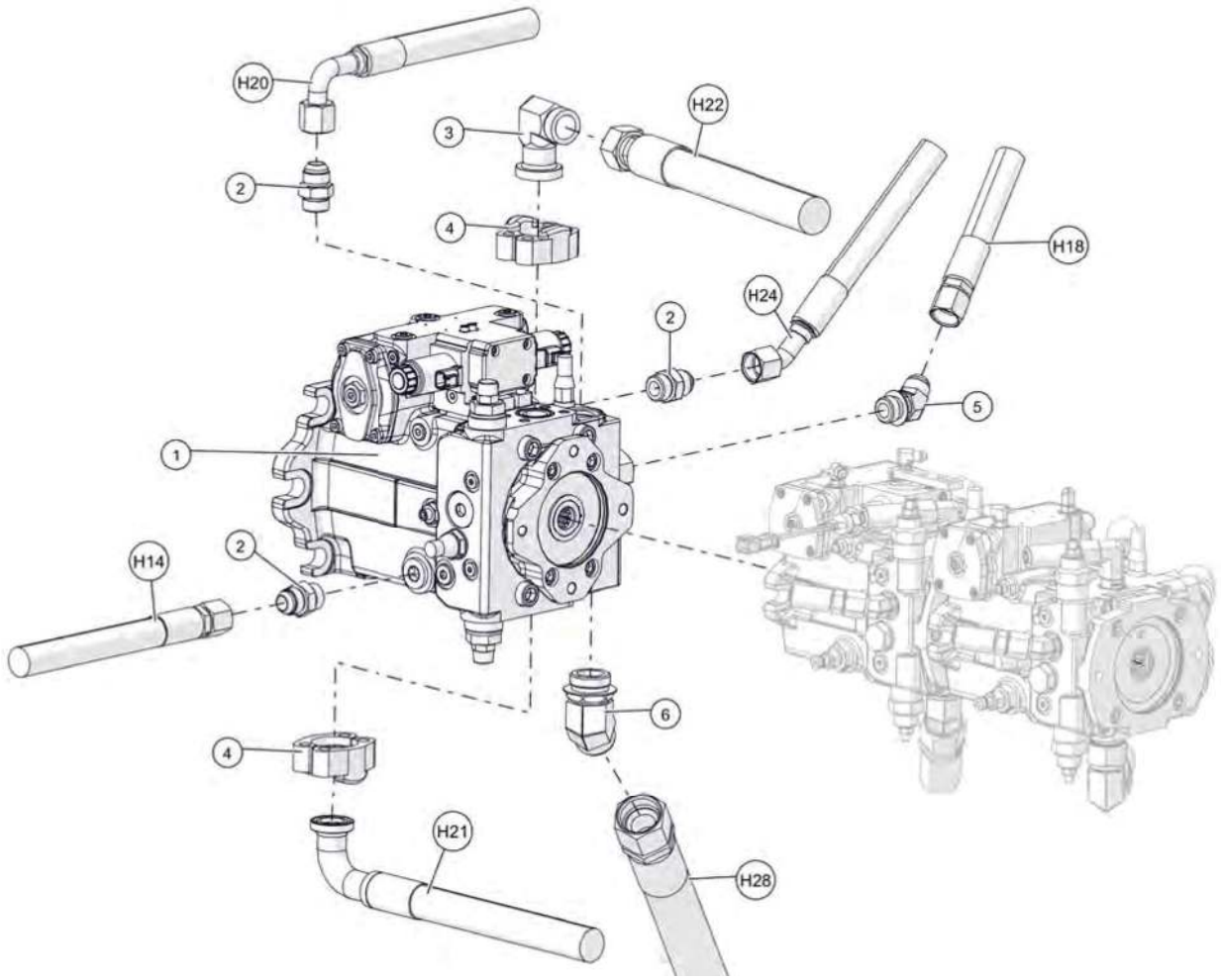
Ref. No.	Part Number	Description	No. Req'd
1	410-55-087	Clamp, 3-1/8 x 3-7/16, Constant Tension T	5
2	410-55-037	Hump Hose, 3 in. I.D., Silicone	4
3	91-55-1002	Pipe CAC Inlet, T4	1
4	91-55-1003	Pipe CAC Outlet, T4	1
5	410-55-041	CLAMP, 1 3/4-2 5/8, Constant Tension Worm	8
6	410-55-011	Reducer 2 in. x 1.75 in. I.D., Silicone	1
7	91-55-0022	Hose Radiator 2 in. x 3 ft.	2
8	91-53-0033	Pipe Radiator Outlet, T4	1
9	91-55-1005	Pipe Radiator Inlet, T4	1
10	----------	Pipe	1



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

HYDRAULIC PUMP - SLURRY PUMP

Ref. No.	Part Number	Description	No. Req'd
H14	H12J035SJSJ	3/4 in. M500X35 JICFEMSWST to JICFEMSWST	1
H18	H12J089SJP1	3/4 in. M500X89 #12JICFMST to #16JICFM90S	1
H20	H12J092PJS1	3/4 in. M500X92 in. #16FJIC to #12JIC90	1
H21	H16C053SRS1-45	1 in. EFG6KX64 #16FMFSST to #16CD6290S	1
H22	H16C064SRSU-315	1 in. EFG6KX64 #16FMFSST to #16CD6260	1
H24	H16J056SJSJ-90	1 in. M500X56 #16JICFEMFS to #16JICFEMFS	1
H28	H20T055SJSJ	1-1/4 in. GMVX55"#20FJXST to #20FJXST	1
1	91-65-0013	Pump 90CC AA4VG Slurry, GEN 2	1
2	HFA3105-12	#12 MJIC to #12 SAE M ORB Straight	3
3	HF394-16-16	#16 FASEAL to #16 CD 61 Flange 90° Elbow	1
4	HF16SFX-2	1 in. CODE 62 Split Flange Half	4
5	HFA3355-12	#12 MJIC to #12 SAE ORB 45° Elbow	1
6	HFA3355-20	#20 MJIC to #20 SAE ORB 45° Elbow	1



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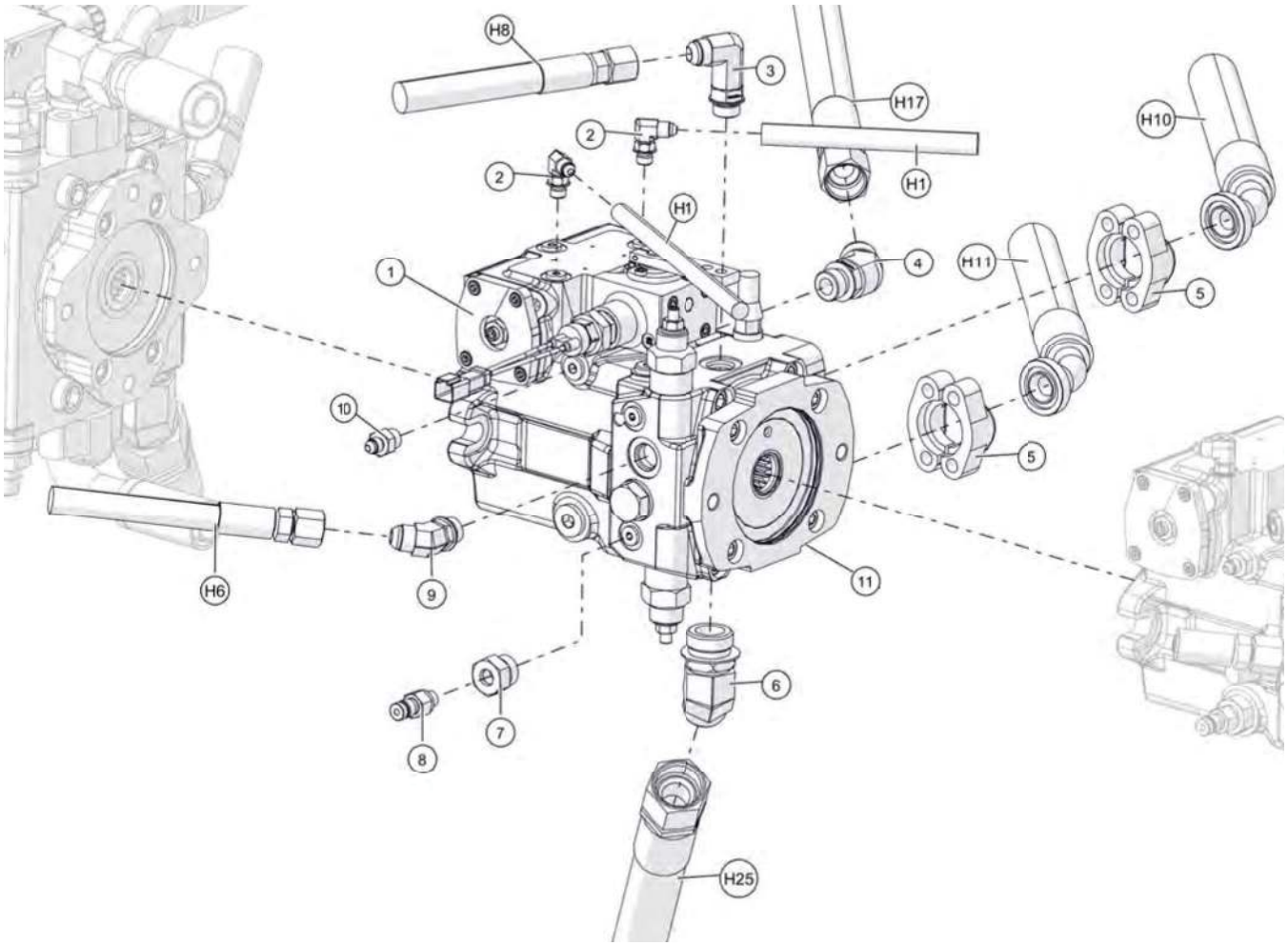

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

HYDRAULIC PUMP - LEFT AGITATOR

Ref. No.	Part Number	Description	No. Req'd
H1	H04E009SJSJ	1/4 in. G2X9 in. #4 FEMJICST to #4FEMJICST	2
H6	H08E090SJS1	1/2 in. G2X90 in. #8JICFMST to #8JICFM90S	1
H8	H08E102SJS1	1/2 in. G2X102 in. #8JICFMST to #8JICFM90S	1
H10	H12C058SZSV-30	3/4 in. EFG6KX58 #12FMFSST to #12CD6245	1
H11	H12C063SZSV-180	3/4 in. EFG6KX63 #12FMFSST to #12CD6245	1
H17	H12J076SJSJ	3/4 in. M500X76 #12JICFEMSWST to JICFEMSWST	1
H25	H16T054SJSK	1 in. GMVX48 #16JICSWST to #16JIC45	1
1	91-65-0014	Pump 45CC AA10VG Master, GEN 2	1
2	HFA3405-4	#4 MJIC to #4 SAE ORB 90° Elbow	2
3	HFA3405L-8	#8 MJIC to #8 Oring Long 90° Elbow	1
4	HFA3355-12-10	#12 MJIC to #10 SAE ORB 45° Elbow	1
5	HF12SFX-2	3/4 in. CODE 62 Split Flange Half	4
6	HFA3355-16	#16 MJIC to #16 SAE ORB 45° Elbow	1
7	HF10-4ARC	#10M to #4F Oring Adapter	1
8	HFPD341	Test Port Nipple #4 O-Ring	1
9	HFA3355-8	#8 MJIC to #8 SAE ORB 45° Elbow	1
10	HFA3105-4-6	#4 MJIC to #6 SAE ORB Straight	1
11	91-65-0014	Pump, 45CC AA10VG, Gen 2, Master	1

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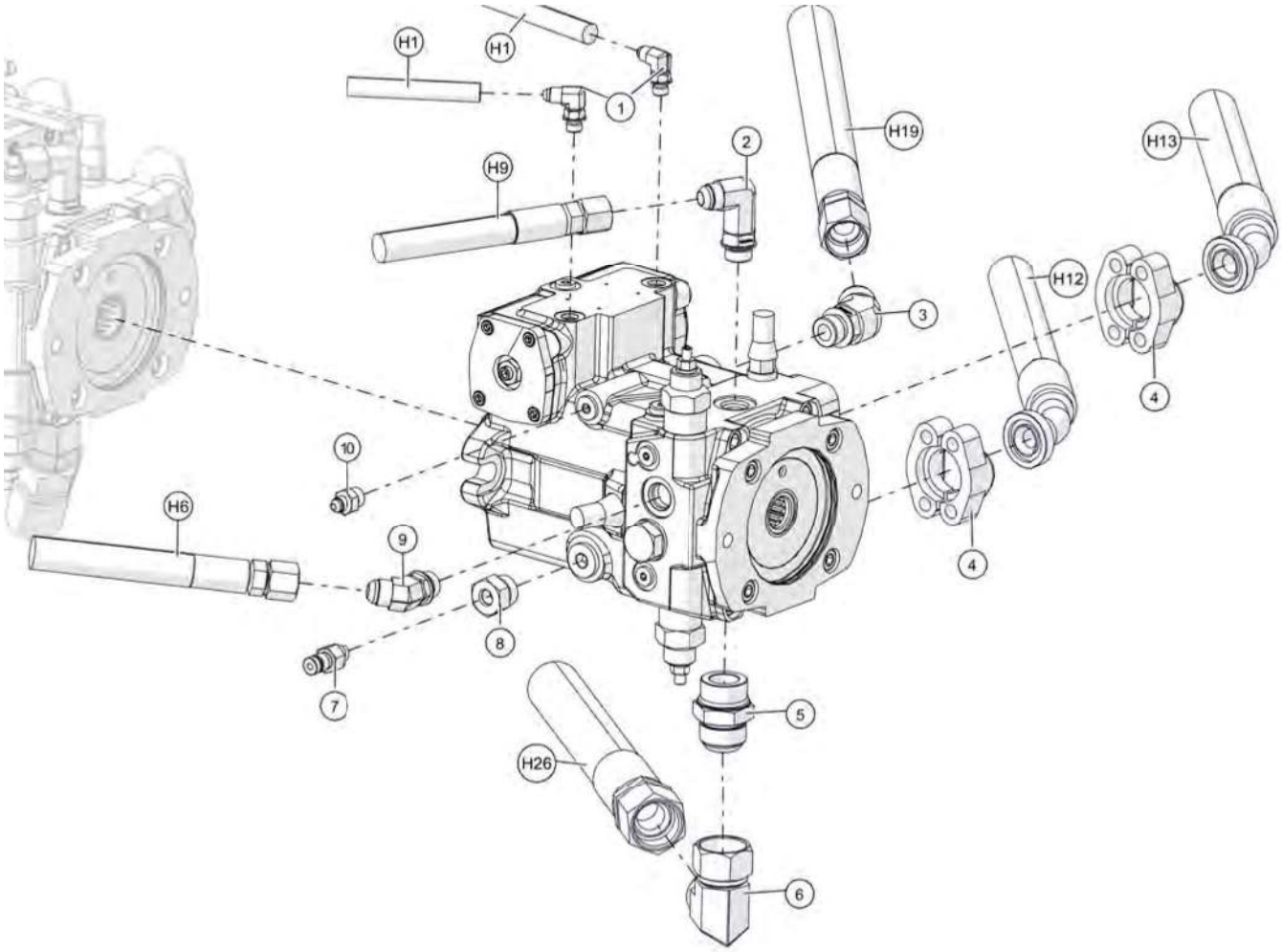


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

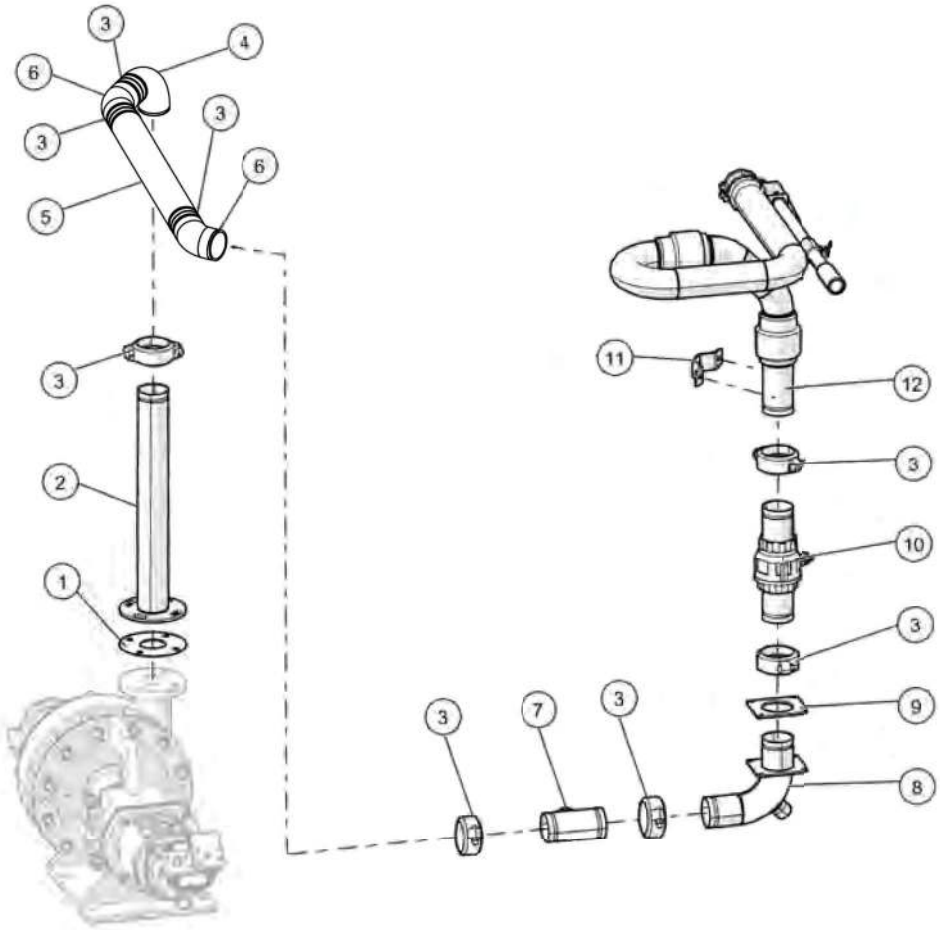
HYDRAULIC PUMP - RIGHT AGITATOR

Ref. No.	Part Number	Description	No. Req'd
H1	H04E009SJSJ	1/4 in. G2X9 in. #4 FEMJICST to #4FEMJICST	2
H6	H08E090SJS1	1/2 in. G2X90 in. #8JICFMST to #8JICFM90S	1
H9	H08E103SJS1	1/2 in. G2X103 in. #8JICFMST to #8JICFM90S	1
H12	H12C067SZSV-170	3/4 in. EFG6KX67 #12FMFSST to #12CD6245	1
H13	H12C068SZSV-200	3/4 in. EFG6KX68 #12FMFSST to #12CD6245	1
H19	H12J090SJSJ	3/4 in. M500X90 #12JICFEMSWST to JICFEMSWST	1
H26	H16T057SJSN-225	1 in. GMVX57 #16JICSWST to #16JICSW90	1
1	HFA3405-4	#4 MJIC to #4 SAE ORB 90° Elbow	2
2	HFA3405L-8	#8 MJIC to #8 Oring Long 90° Elbow	1
3	HFA3355-12-10	#12 MJIC to #10 SAE ORB 45° Elbow	1
4	HF12SFX-2	3/4 in. CODE 62 Split Flange Half	4
5	HFA3105-16	#16 MJIC to #16 SAE M ORB Straight	1
6	HF3505SW-16	#16 JIC Swivel 90° Elbow	1
7	HFPD341	Test Port Nipple #4 O-Ring	1
8	HF10-4ARC	#10M to #4F Oring Adapter	1
9	HFA3355-8	#8 MJIC to #8 SAE ORB 45° Elbow	1
10	HFA3105-4-6	#4 MJIC to #6 SAE ORB Straight	1
NOT SHOWN			
	91-65-0015	Pump, 45CC AA10VG Slave	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

PRIMARY DISCHARGE BOOM

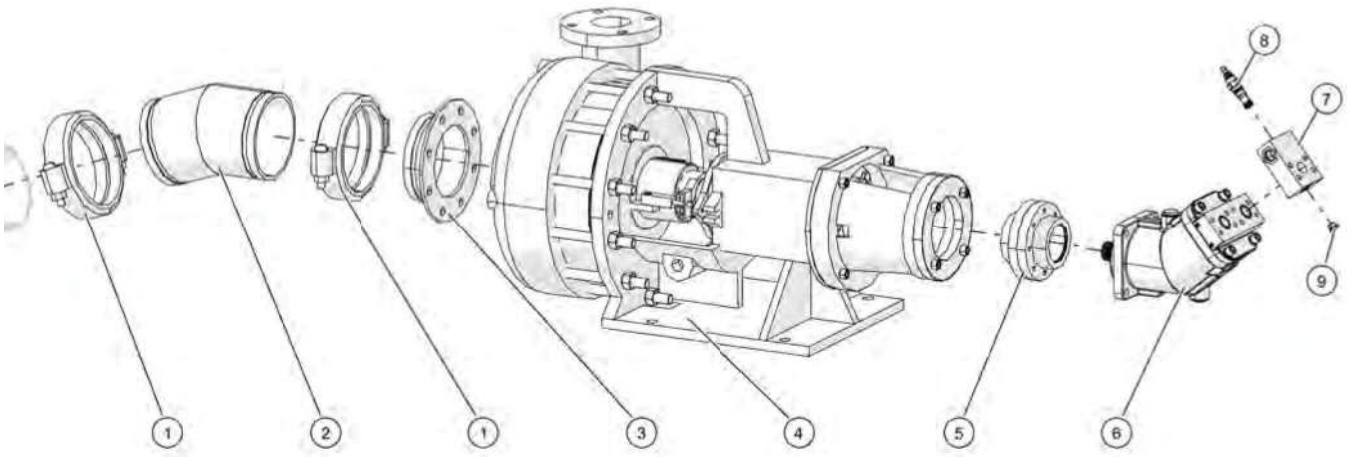
Ref. No.	Part Number	Description	No. Req'd
1	91-45-0031	Gasket Discharge	1
2	91-43-0066	Pump Discharge Pipe Weldment	1
3	080366	Victalic Clamp 3 in. 177 (2-Bolt)	8
4	91-45-0159	Elbow, 3 in. 90° Grooved End Long Radius	1
5	91-42-0087	3 in. SCH. 40 Pipe, 23-7/16 in. GBE	1
6	91-45-0160	Elbow, 3 in. 45° Grooved End Long Radius	2
7	91-43-0031	T-Pipe To Recirc Weldment	1
8	91-43-0030	Primary Boom To Hose Weldment	1
9	91-41-0001	Boom Pipe Mount	1
10	91-40-0023	Primary Boom Valve Assembly	1
11	91-31-0033	Strap Discharge Boom	1
12	91-40-0003	Right Hand Boom Assembly	1
NOT SHOWN			
	91-42-0010	Boom Valve Connector Pipe	2
	91-45-0020	Ball Valve 3 in. Brass	1
	91-43-0017	Boom Handle Weldment	1



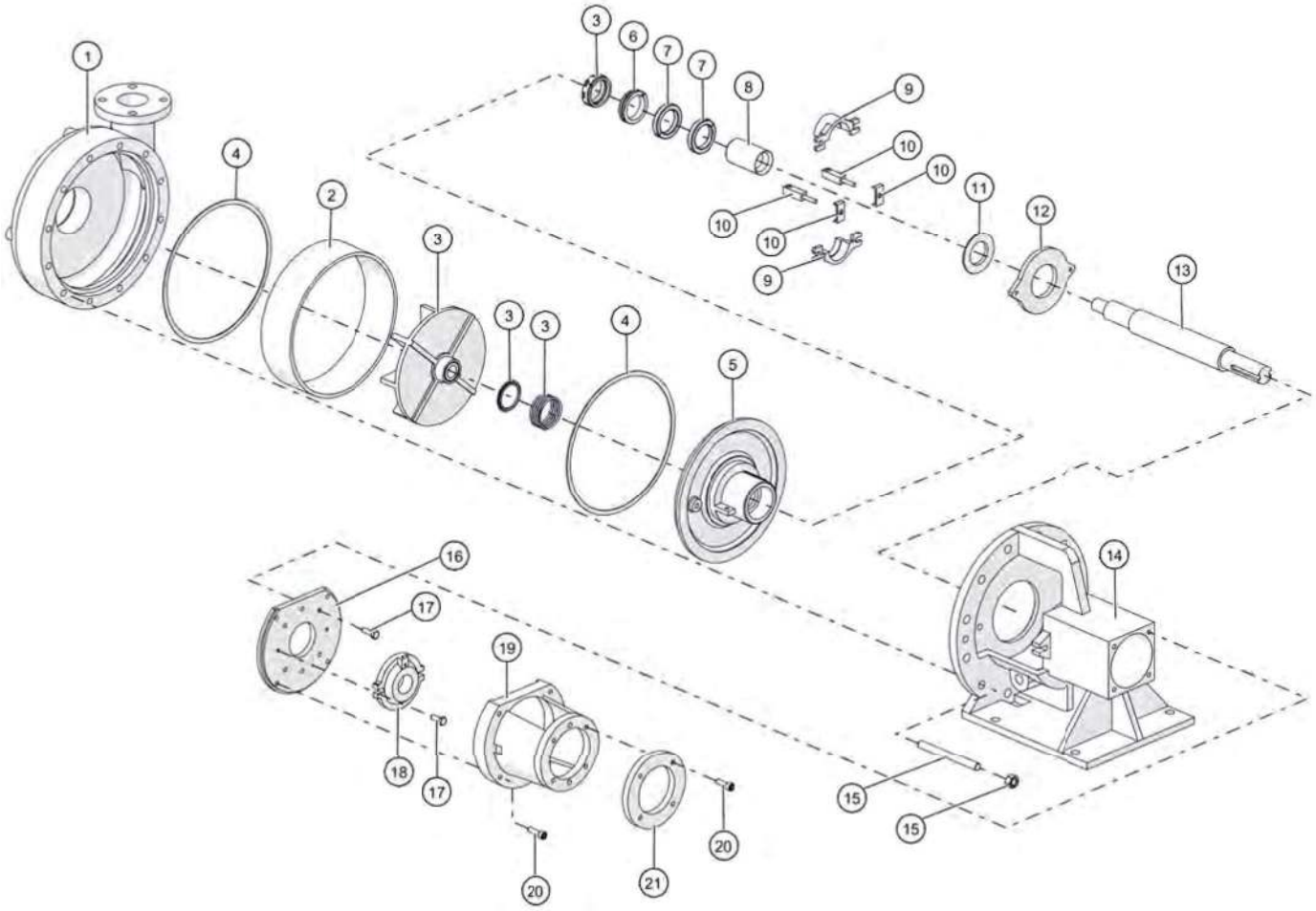
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

SLURRY PUMP ASSEMBLY

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	■	91-45-0019	Victaulic Clamp 6 in. with E-Gasket	2
2	■	91-43-0024	Pump Suction Pipe	1
3	■	91-43-0003	Weldment Pump Inlet	1
	■	91-45-0030	Gasket, Suction	1
4	■	91-44-0007	Modified Slurry Pump	1
5	■	91-55-0045	Gear Coupling Assembly Slurry Pump	1
6	■	508-05-007	Hydraulic Motor Hydro-Leduc 80CC Fixed	1
7		91-65-0022	Block	1
8		91-65-0023	Cartridge	1
9		HF6STP	Plug	1
KITS AND MARKERS				
	■	91-65-0021	Hot Oil Relief Valve Assembly	



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

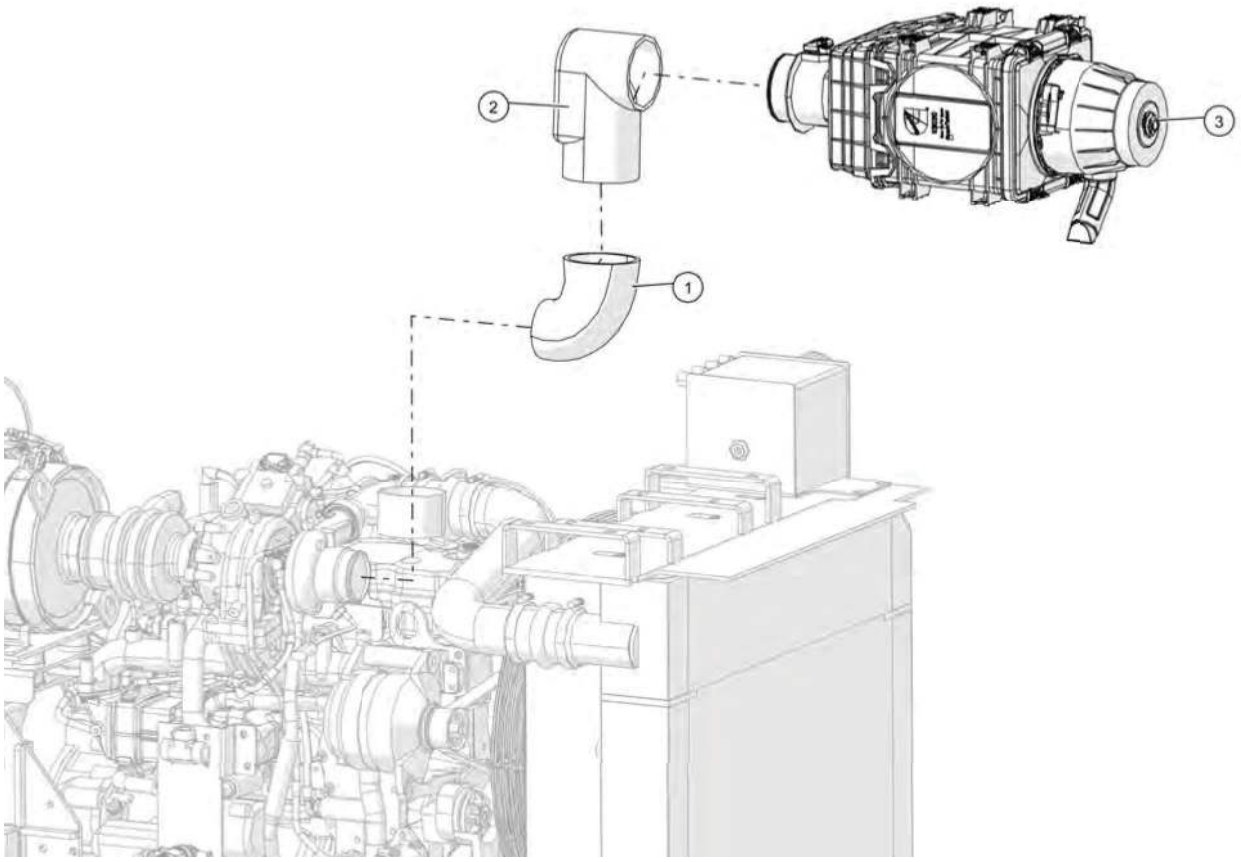
SLURRY PUMP

Ref. No.	Part Number	Description	No. Req'd
1	91-44-0005	Suction Housing	1
2	91-45-0014	Vortex Ring (for standard option)	1
	- OR -		
	91-44-0014NH	Vortex Ring (for Nitride Hardened option)	1
3	91-45-0015	Pump Impeller	1
4	91-45-0011	Housing Gasket	2
5	91-45-0144	Stuffing Box	1
6	91-45-0134	Mechanical Seal Tung/Tung 250 4 x 3 Vortex Pump includes Spring, Spring End Ring and Bellows	1
7	91-45-0143	Rope Packing	2
8	91-45-0136	Steel Shaft Sleeve	1
9	91-45-0146	Packing Gland	2
10	91-45-0068	Gland Swing Bolt and Positioning Bracket	2
11	91-45-0069	Slinger	1
12	91-45-0061	Pump Front Cover	1
13	91-45-0177	Pump Shaft	1
14	91-45-0062	Pedestal	1
15	91-45-0016	Threaded Rod, 8 in. x 3/4 in. with 3/4-10NC Hex Nut, Grade 8	12
16	91-44-0009	Pump to Housing Plate	1
17	B08-1306-8	1/2-13NC x 1-1/2 Hex Head Cap Screw, Grade 8	6
18	91-45-0078	Pump Rear Bearing Cap	1
19	91-44-010	Pump Shaft Housing	1
20	B08-1307A-8	1/2-13NC x 1-3/4 Allen Head Cap Screw, Grade 8	8
21	91-45-0168	Pump Adapter Plate	1
NOT SHOWN			
	91-45-0155	Suction Housing Replacement Wear Pad	1
	91-45-0135	Seal for Steel Shaft Sleeve	1
	91-45-0176	Bearing, Inboard MCM 250	1
	91-45-0178	Housing, Outboard Bearing 250	1
	91-45-0179	Bearing, Outboard MCM 250	1
	91-45-0137	Impeller Seal	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

AIR CLEANER

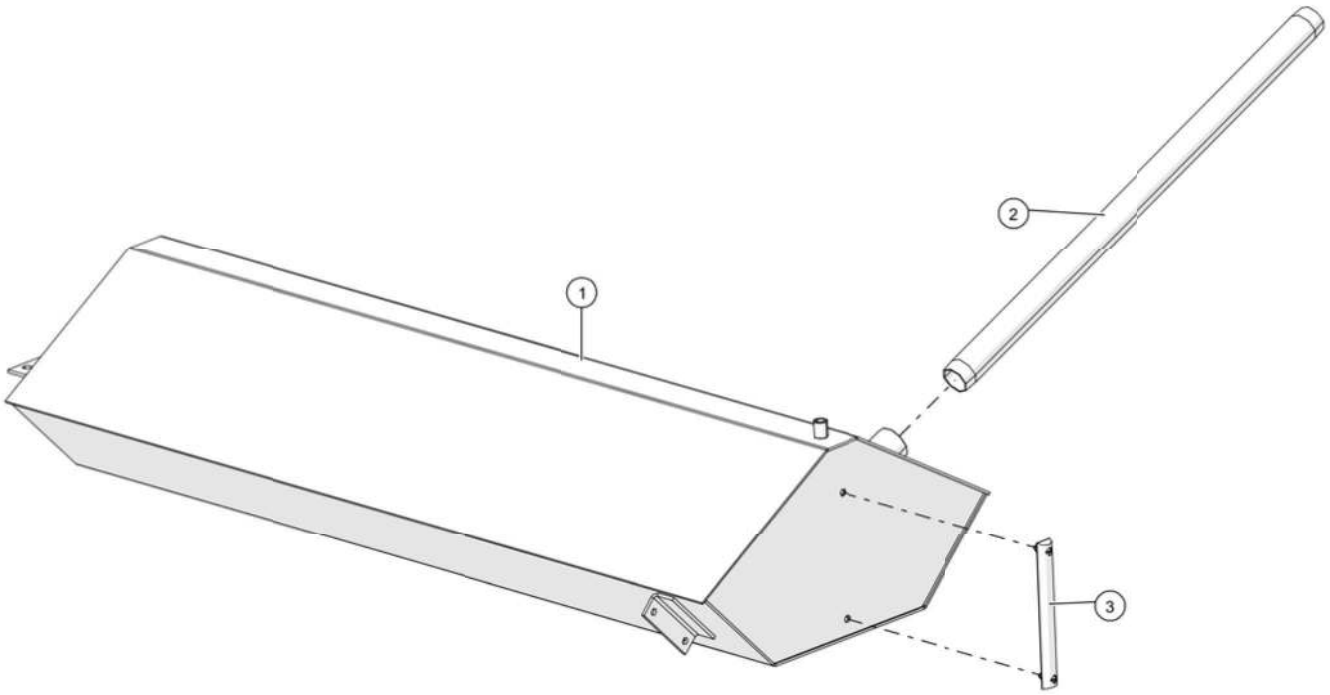
Ref. No.	Part Number	Description	No. Req'd
1	91-55-0021	Elbow 4 x 3 Reducer	1
2	440-46-040	4 in. Cobra Elbow	1
3	91-55-0055	Air Cleaner Assembly, Tier 4F Kit	1
NOT SHOWN			
	91-55-0057	Primary Filter Element	1
	91-55-0058	Secondary Filter Element	1



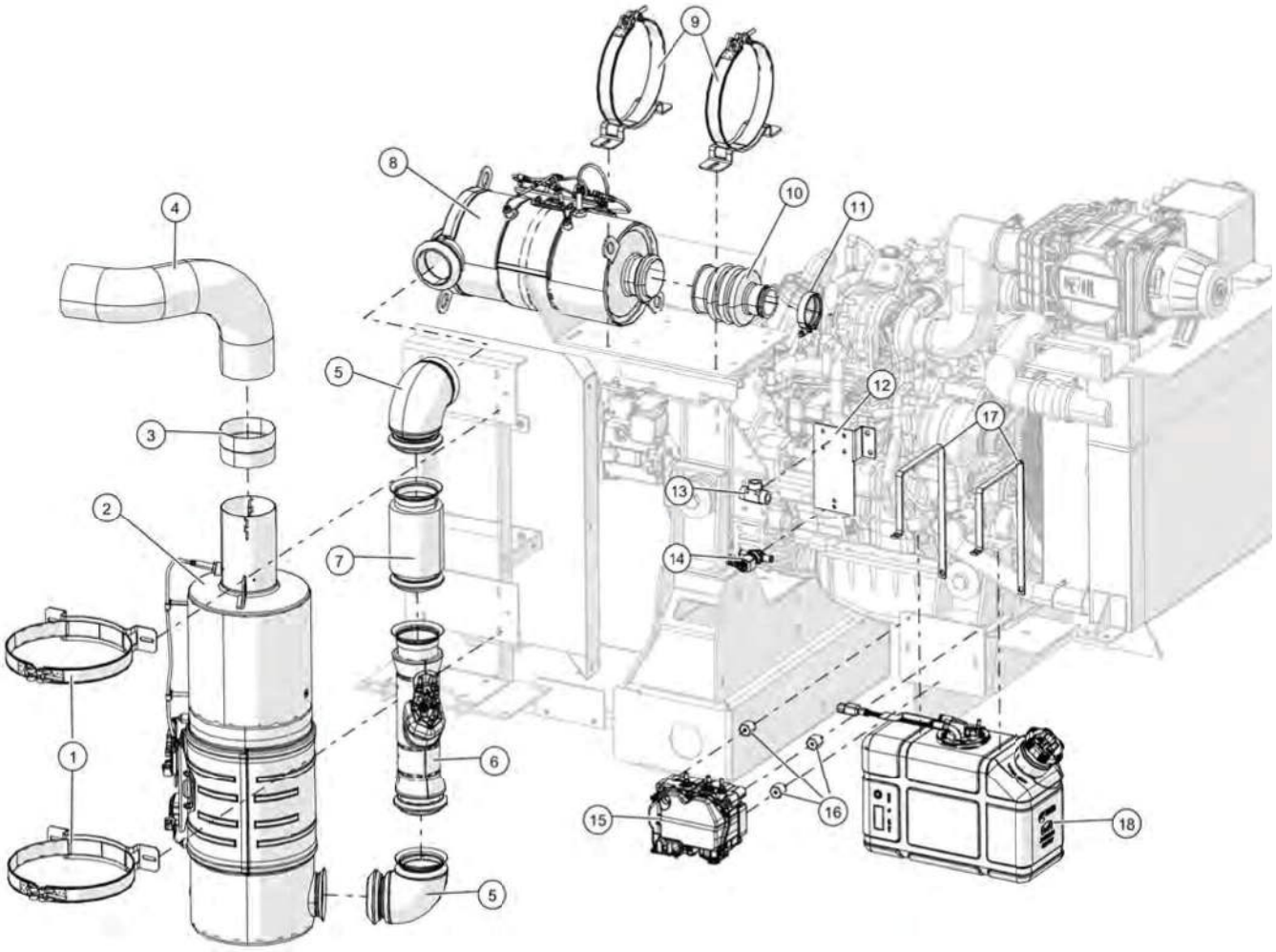
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

FUEL TANK

Ref. No.	Part Number	Description	No. Req'd
1	91-13-0024	Fuel Tank Weldment, 85 Gallon	1
2	91-12-0010	Fuel Fill Pipe	1
3	91-55-0039	Gauge Fuel Level 10 in.	1
NOT SHOWN			
	91-15-0017	Fuel Cap	1
	416-35-006	U-Bolt, 38-16 (for Fuel Pipe)	1



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

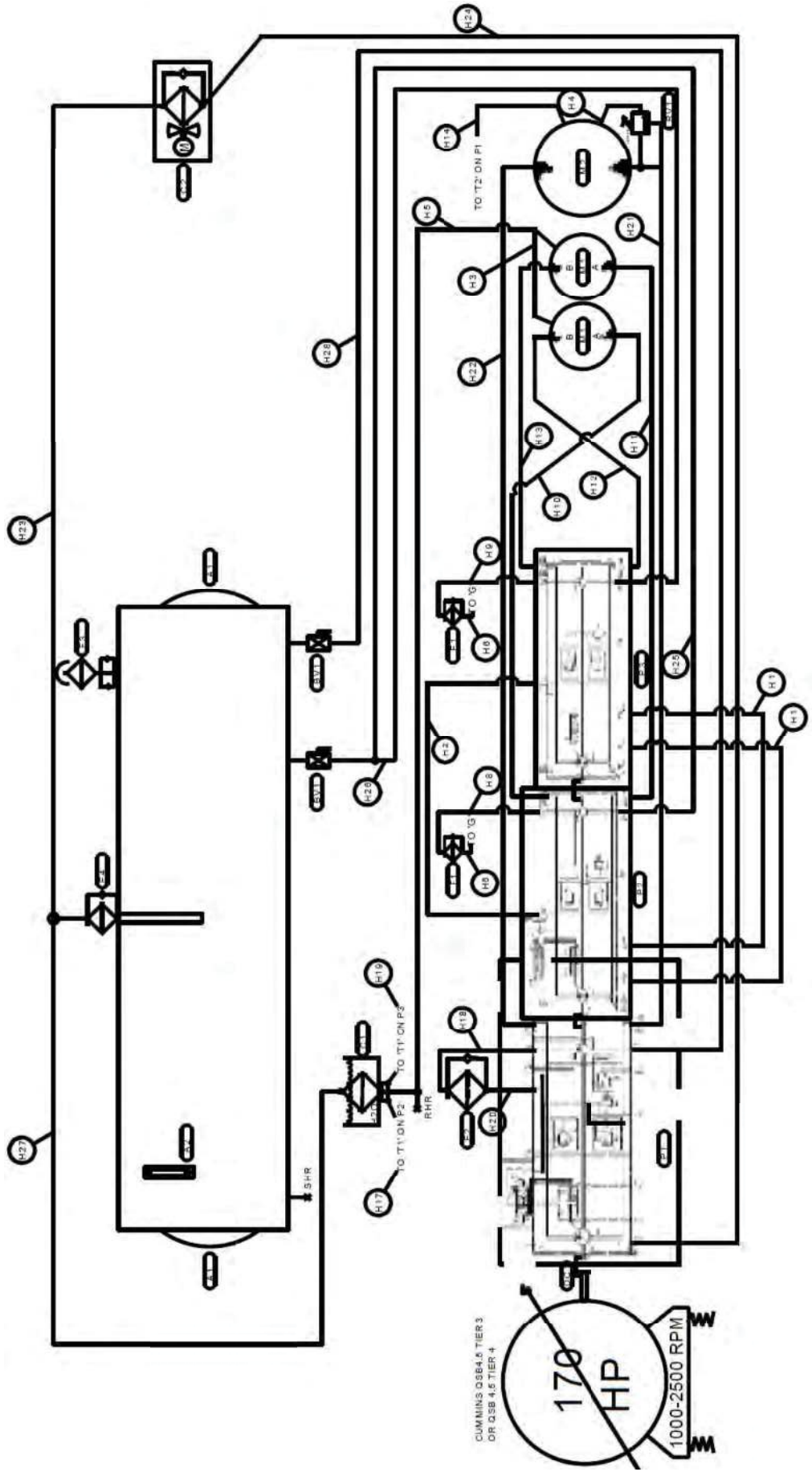
AFTER TREATMENT

Ref. No.	Ref. Info	Part Number	Description	No. Req'd
1		91-55-0069	Mounting Band	2
2	★	91-55-0052	Tier 4F SCR 4 in. SI 180° x 5 in. EO 12V	1
3		91-55-0072	Clamp Torctire 5 in. I.D. - O.D., Stainless Steel	1
4		91-55-0071	Exhaust Weld G24	1
5		91-55-0053	Tier 4F Fax Elbow 4 x 4 in.	2
6	★	91-55-0051	Tier 4F LTE DRT	1
7		91-55-1012	Exhaust Spacer	1
8	★	91-55-0050	Tier 4F DOC 4 in. EI x 4 in. SO 270° 12V	1
9		91-55-0068	Muffler Mount 10 in. Diameter	2
10		91-55-1013	DOC Inlet	1
11	★	----------	Clamp	1
12		91-51-0066	Coolant Valve Plate	1
13		HF5605-12	Adapter Tee	1
14		410-55-007	Water Valve 12V	1
15	★	91-55-1016	Supply Module, 12V	1
16		416-55-001-09	Stud-Plate Mount Engine Air Cleaner	3
17		91-21-0229	DEF Tank Band	2
18	★	91-55-0054	DEF Tank	1

MARKERS

★ Part numbers provided as reference only. Contact Cummins for reorder.

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

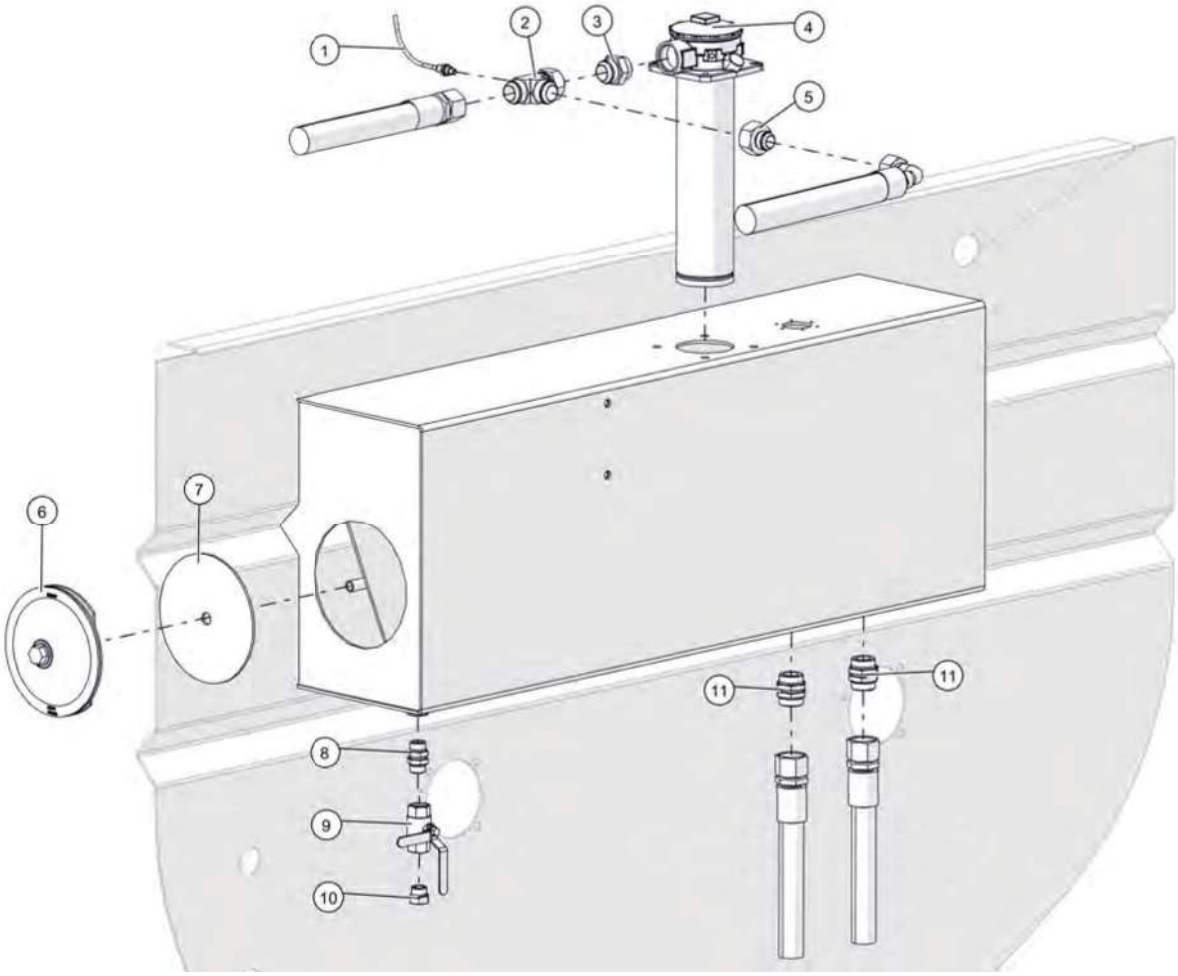
HYDRAULIC SCHEMATIC

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
H1	■●	H04E009SJSJ	1/4 in. G2X9 in. #4 FEMJICST to #4FEMJICST	2
H2	■●	H04E020SJSJ	1/4 in. G2X20 in. #4 FEMJICST to #4FEMJICST	1
H3	■●	H06E034SJPJ	3/8 in. G2X34 #6JICFMSW to #8JICFMSW	1
H4	■●	H08E025SJSL	1/2 in. G2X25 #8FEMJICST to #8FEMJIC90L	1
H5	■●	H08E035SJSK	1/2 in. G2X35 in. #8JICFMST to #8JICFM45°	1
H6	■●	H08E090SJS1	1/2 in. G2X90 in. #8JICFMST to #8JICFM90S	2
H8	■●	H08E102SJS1	1/2 in. G2X102 in. #8JICFMST to #8JICFM90S	1
H9	■●	H08E103SJS1	1/2 in. G2X103 in. #8JICFMST to #8JICFM90S	1
H10	■●	H12C058SZSV-30	3/4 in. EFG6KX58 #12FMFSST to #12CD6245	1
H11	■●	H12C063SZSV-180	3/4 in. EFG6KX63 #12FMFSST to #12CD6245	1
H12	■●	H12C067SZSV-170	3/4 in. EFG6KX67 #12FMFSST to #12CD6245	1
H13	■●	H12C068SZSV-200	3/4 in. EFG6KX68 #12FMFSST to #12CD6245	1
H14	■●	H12J035SJSJ	3/4 in. M500X35 JICFEMSWST to JICFEMSWST	1
H15	■●	H12J042SJSK	3/4 in. M500X42 JICFEMSWST to JICFEMSW45	2
H17	■●	H12J076SJSJ	3/4 in. M500X76 #12JICFEMSWST to JICFEMSWST	1
H18	■●	H12J089SJP1	3/4 in. M500X89 #12JICFMST to #16JICFM90S	1
H19	■●	H12J090SJSJ	3/4 in. M500X90 #12JICFEMSWST to JICFEMSWST	1
H20	■●	H12J092PJS1	3/4 in. M500X92 in. #16FJIC to #12JIC90	1
H21	■●	H16C053SRS1-45	1 in. EFG6KX64 #16FMFSST to #16CD6290S	1
H22	■●	H16C064SRSU-315	1 in. EFG6KX64 #16FMFSST to #16CD6260	1
H23	■●	H16J046SJS1-180	1 in. M500X46 16 FJX to 16 FJX 90° S	1
H24	■●	H16J056SJSJ-90	1 in. M500X56 #16JICFEMFS to #16JICFEMFS	1
H25	■●	H16T054SJSK	1 in. GMVX48 #16JICSWST to #16JIC45	1
H26	■●	H16T057SJSN-225	1 in. GMVX57 #16JICSWST to #16JICSW90	1
H27	■●	H20E058SJSJ	#20 G2 58 in. #20 JIC to #20 JIC	1
H28	■●	H20T055SJSJ	1-1/4 in. GMVX55"#20FJXST to #20FJXST	1

KITS AND MARKERS

■	91-66-0004	XA GEN2 Hose Kit
●	91-66-0007	XA GEN3 Hose Kit

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

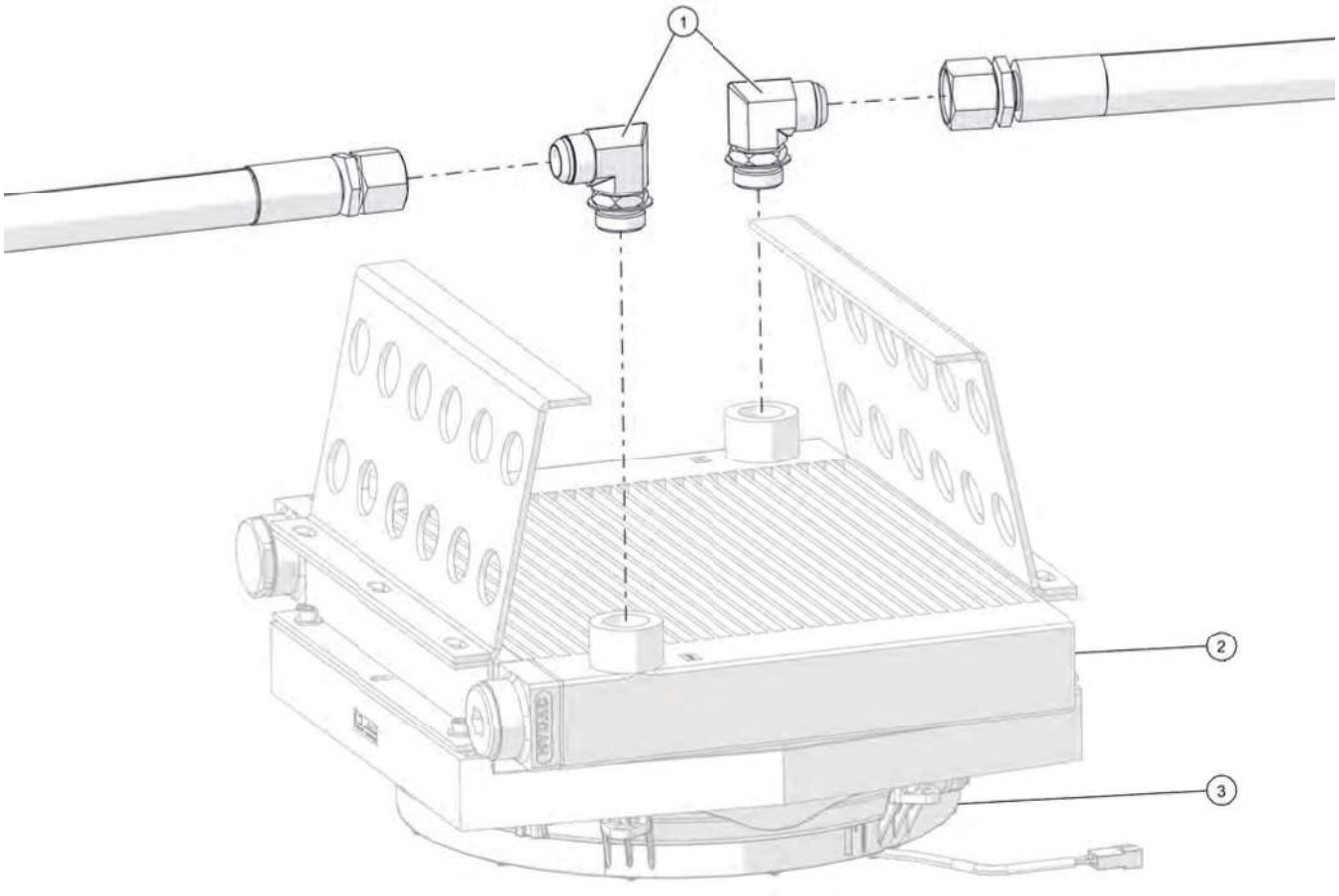
HYDRAULIC TANK

Ref. No.	Part Number	Description	No. Req'd
1	601-75-001	Transducer Temperature GSNA	1
2	91-64-0002	#20 JIC Swivel Nut Run Tee with #6 SAE Port	1
3	HFA3105-20	#20 MJIC to #20 SAE MORB Straight	1
4	91-65-0019	Return Filter, GEN 2	1
5	HF2406-20-16	#20 F to #16 MJIC Reducer	1
6	91-65-0010	Cleanout Cover	2
7	----------	Cleanout Gasket	1
8	HF3474-12	#12 MAORB to #12 MORB Straight	1
9	161001	Ball Valve #12 SAE ORB Stainless Steel 1000 psi	1
10	HF12STP	#12 O-Ring Plug	1
11	HF3474-20	#20 O-Ring to O-Ring Adapter	2
NOT SHOWN			
	91-65-0020	Filter Element, Return Filter, GEN 2	1
	91-65-0039	Return Filter Indicator [Switch]	1
	91-65-0040	Return Filter Seal Kit	1
	61-65-0006	Breather Fill	1
	080329A	Hydraulic Sight Gauge	1
	61-65-0010	Ball Valve, 1-1/4 in.	2

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

HYDRAULIC OIL COOLER

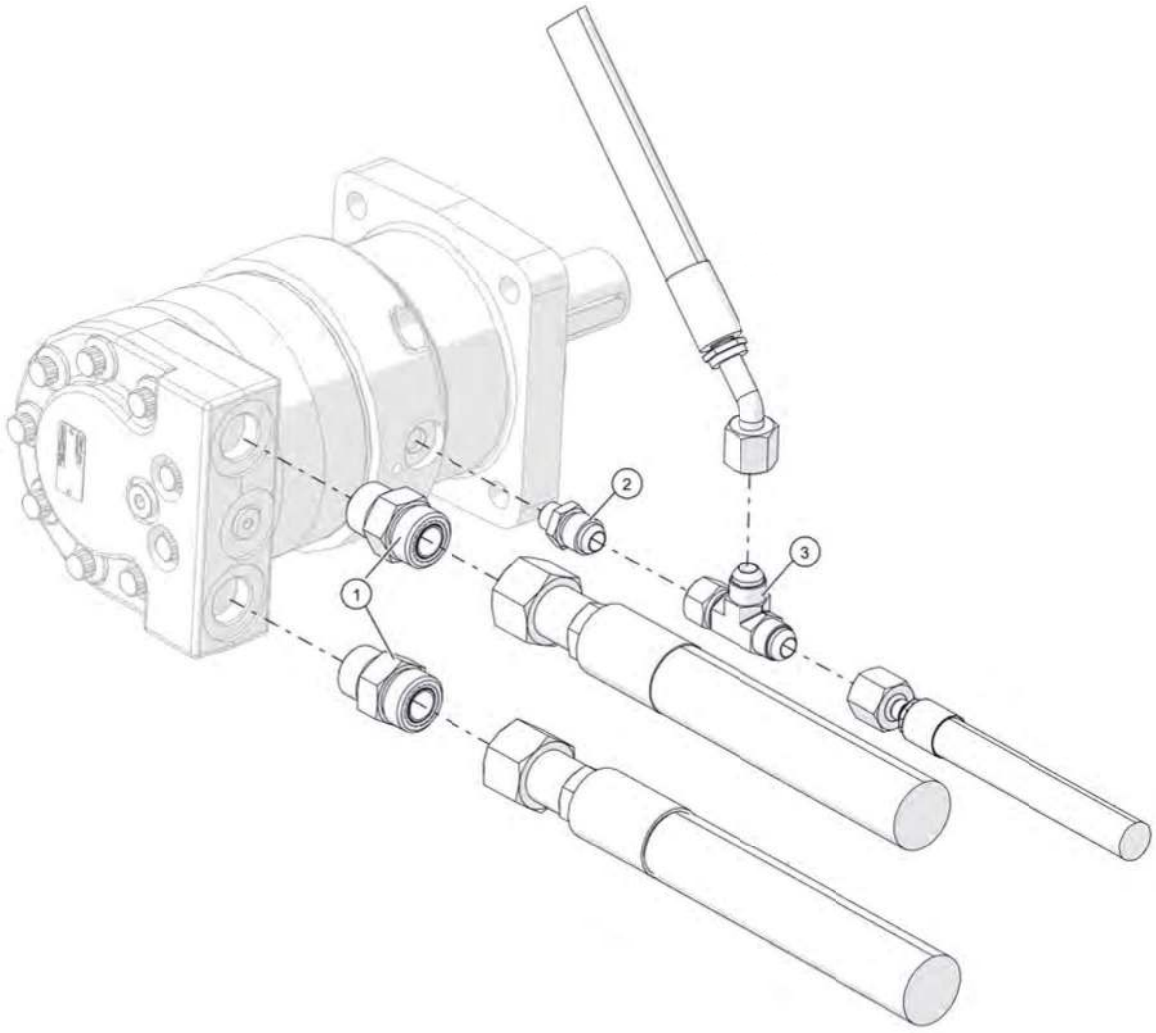
Ref. No.	Part Number	Description	No. Req'd
1	HFA3405-16	#16 MJIC to #16 SAE ORB 90° Elbow	2
2	91-65-0035	Oil Cooler	1
3	91-65-0034	Fan, Oil Cooler	1



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

AGITATOR MOTOR 1 HYDRAULIC SYSTEM CONNECTORS

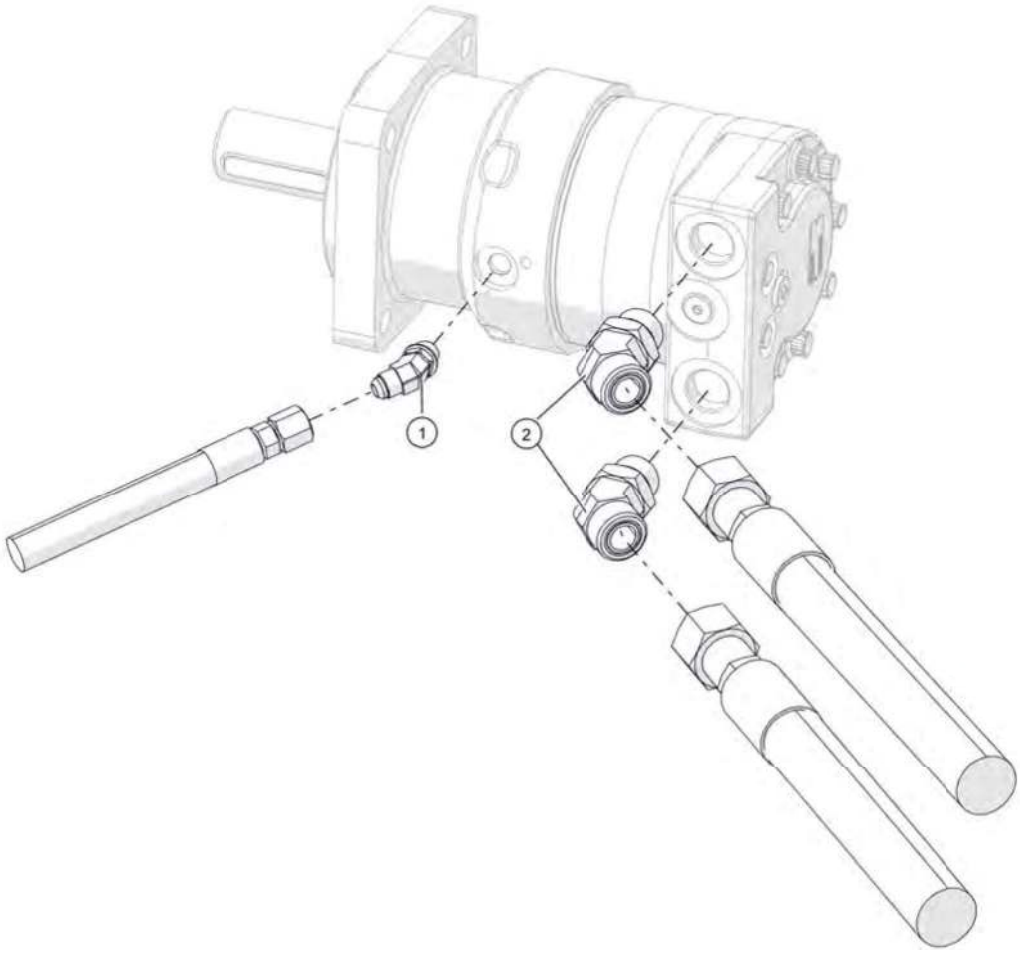
Ref. No.	Part Number	Description	No. Req'd
1	HFTA3105-12	#12 Face Seal to #12 O-Ring Adapter	2
2	HFA3105-8-6	#8 MJIC to #6 SAE ORB Straight	1
3	HF3755SW-8	#8 JIC Swivel Nut Run Tee	1



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

AGITATOR MOTOR 2 HYDRAULIC SYSTEM CONNECTORS

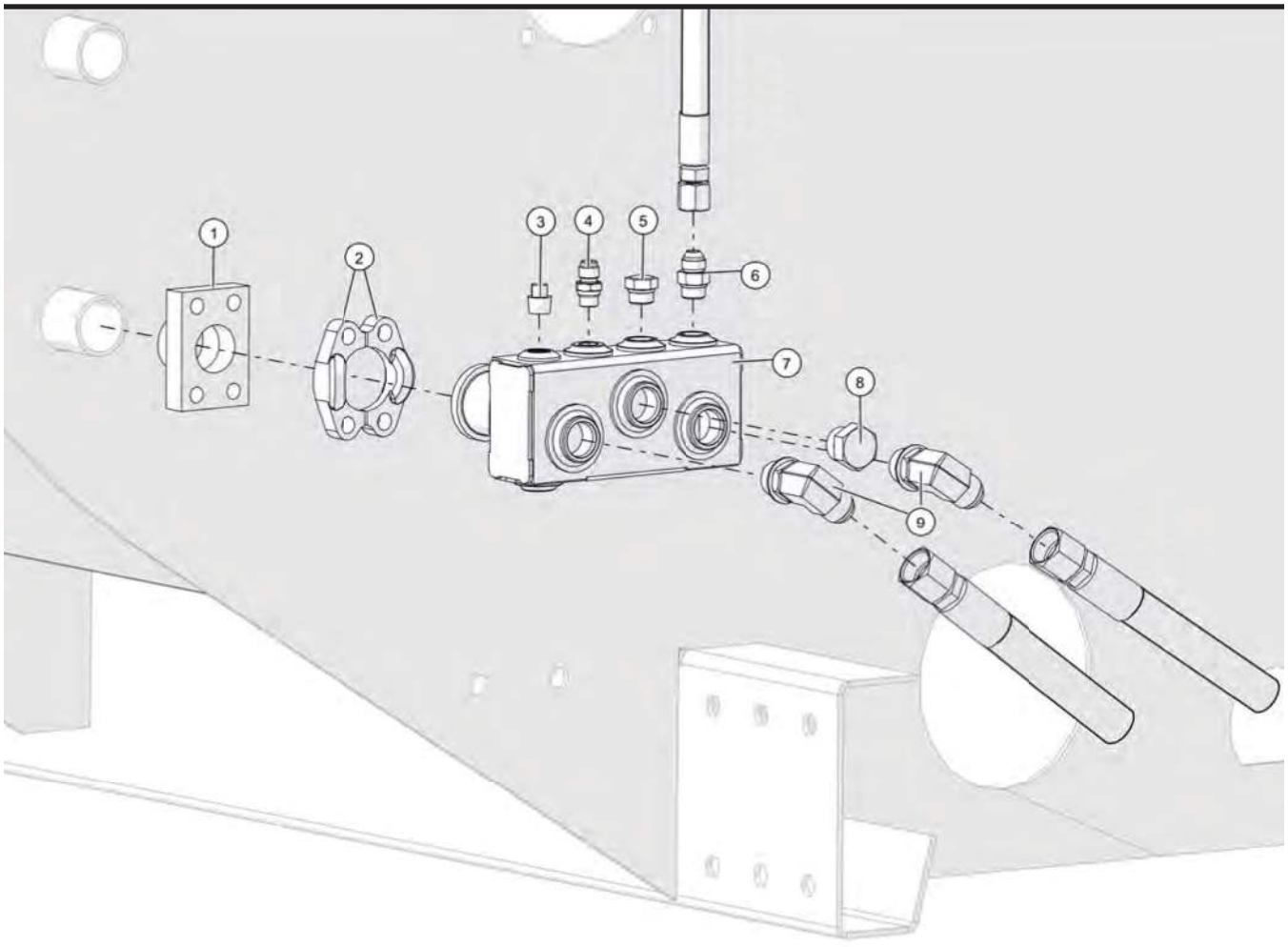
Ref. No.	Part Number	Description	No. Req'd
1	HFA3355-6	#6 MJIC to #6 SAE ORB 45° Elbow	1
2	HFTA3355-12	#12 FASEAL to #12 O-Ring 45° Elbow	2



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

HYDRAULIC RETURN MANIFOLD

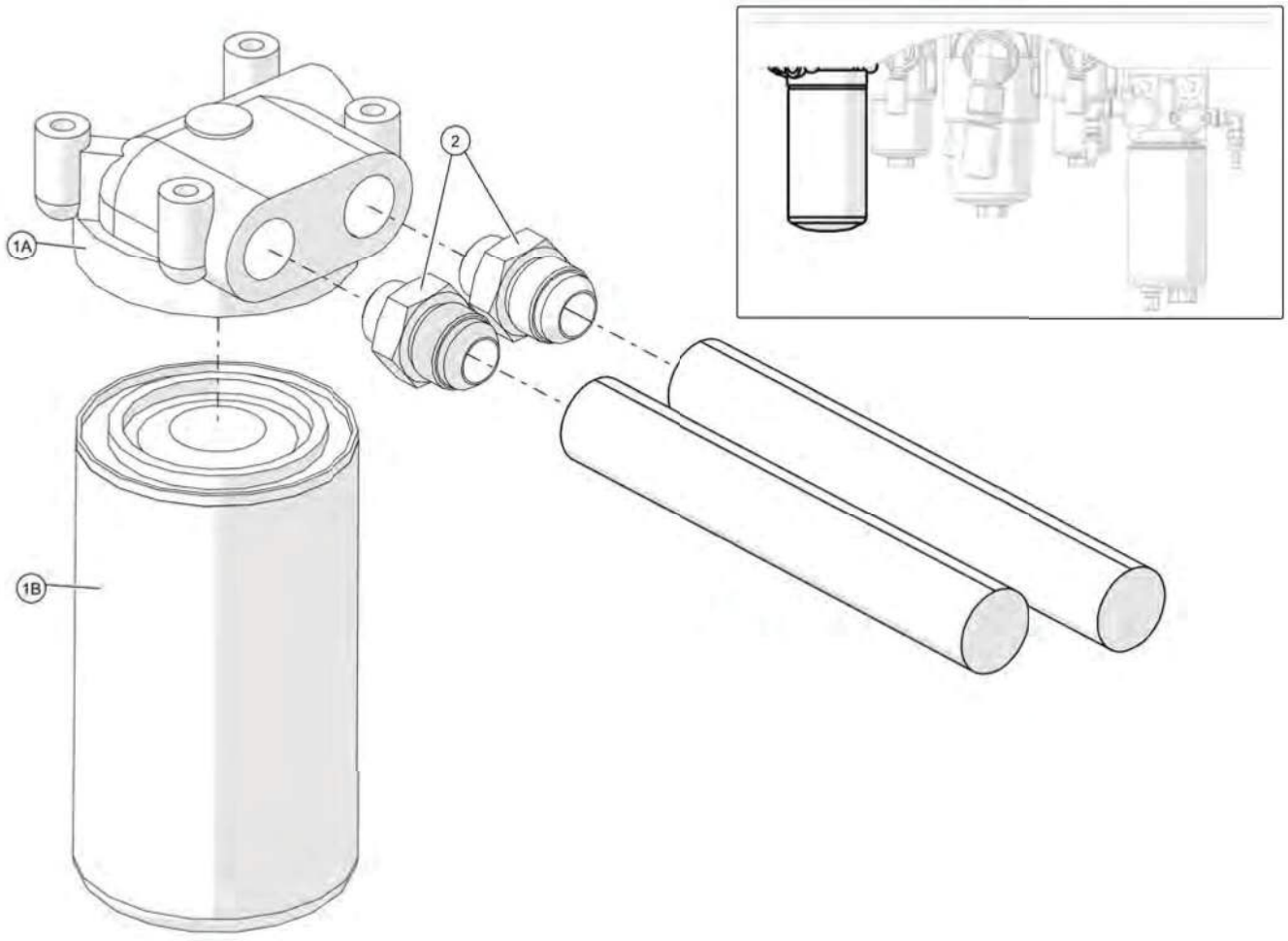
Ref. No.	Part Number	Description	No. Req'd
1	91-15-0004	Flange CODE 61 Schedule 40, Stainless Steel	1
2	HF24SF-2	1-1/2 in. CODE 61 Split Flange Half	2
3	160234	Pipe Plug, 3/8 Square Head	1
4	HFHY06003737	Test Port #6 SAE MORB 16mm Thread	1
5	HF8STP	#8 O-Ring Plug	1
6	HFA3105-8	#8 MJIC to #8 SAE ORB Straight	1
7	91-63-0005	Return Header Weld - CODE 61	1
8	HF12STP	#12 O-Ring Plug	1
9	HFA3405-12	#12 MJIC to #12 SAE ORB 90° Elbow	2



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

ENGINE OIL FILTER

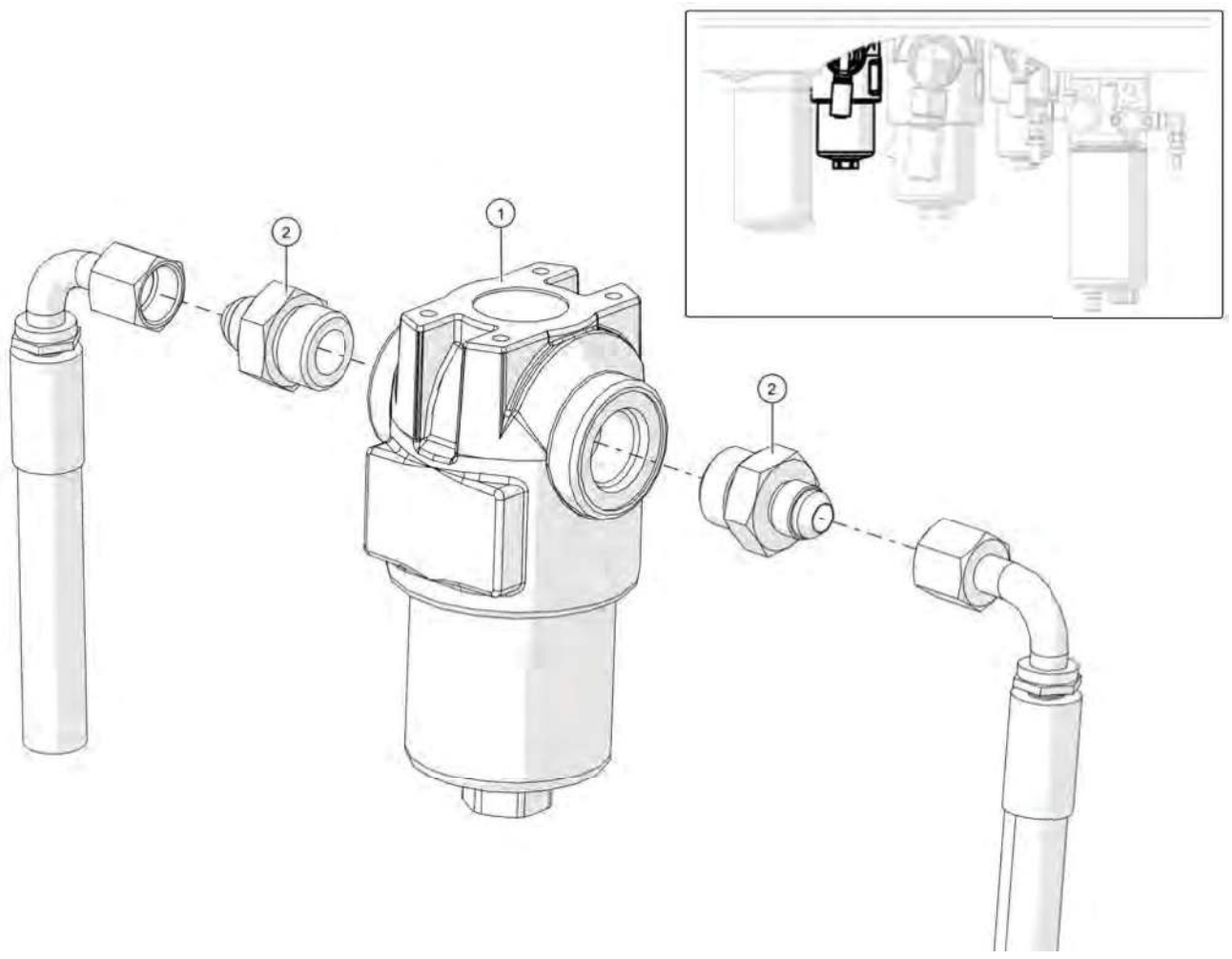
Ref. No.	Part Number	Description	No. Req'd
1	----------	Filter Assembly	1
1A	----------	Filter Head	1
1B	CU-LF3970	Oil Filter Element	1
2	HFA3105-12-10	#12 MJIC to #10 SAE MORB Straight	2



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

HYDRAULIC FILTER 2

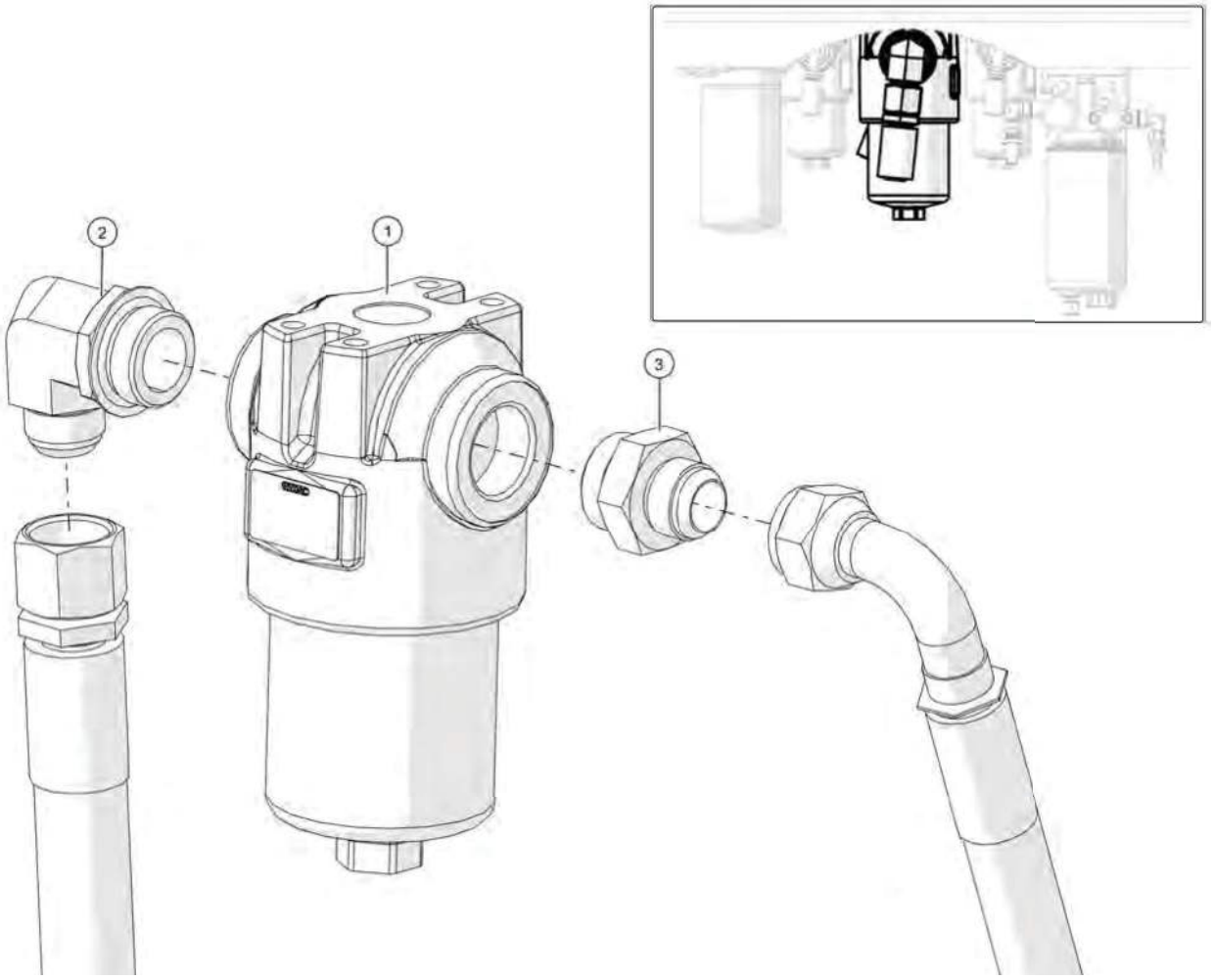
Ref. No.	Part Number	Description	No. Req'd
1	91-65-0011	Filter Charge, 16 GPM (60 LPM)	1
2	HFA3105-8-12	#8 MJIC to #12 M SAE ORB Adapter	2
NOT SHOWN			
	91-65-0012	Filter Element, 16 GPM	1



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

HYDRAULIC FILTER 3

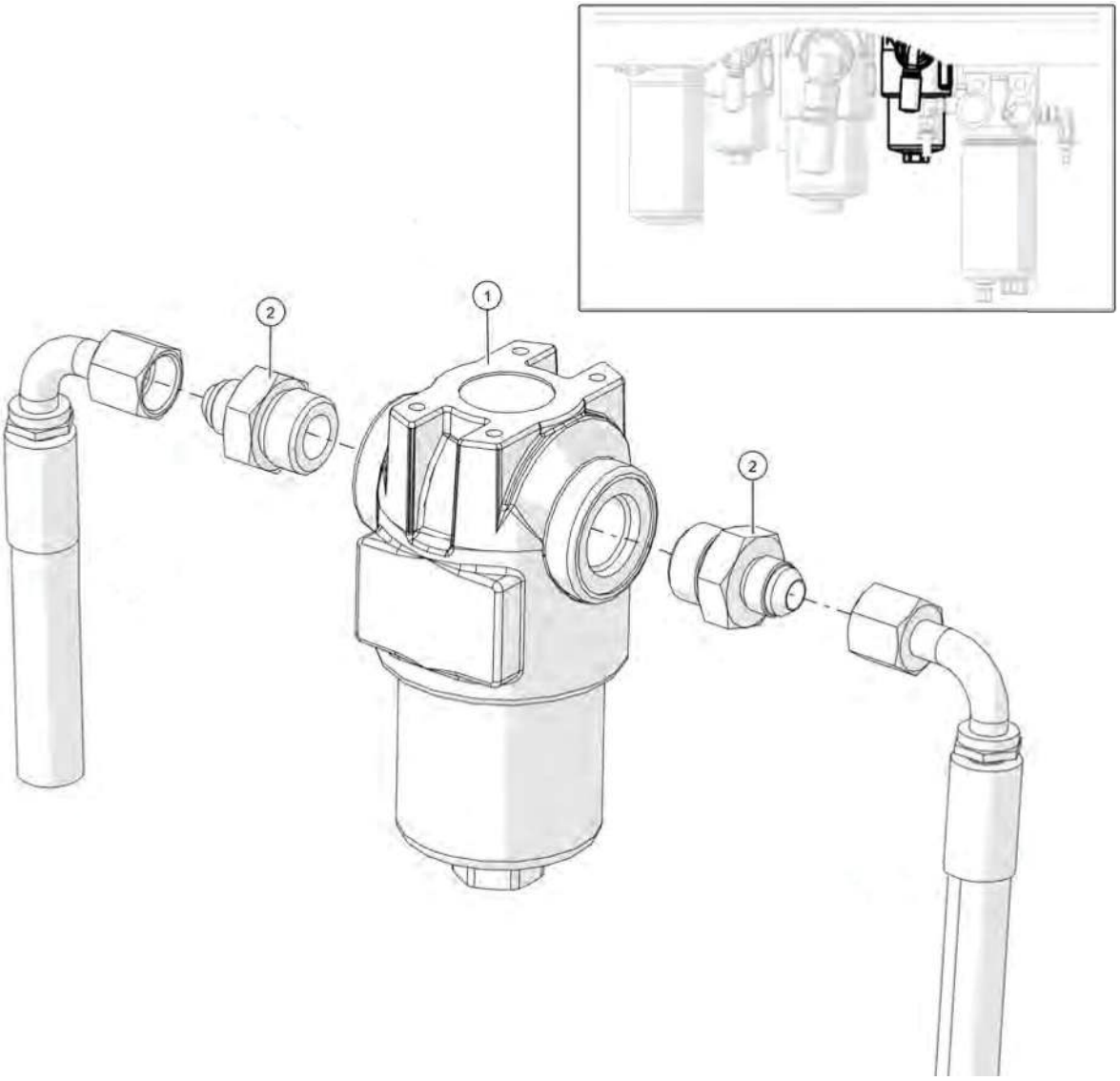
Ref. No.	Part Number	Description	No. Req'd
1	91-65-0016	Filter Charge, 42 GPM (160 LPM)	1
2	HFA3405-16-20	#16 MJIC to #20 SAE ORB 90° Elbow	1
3	HFA3105-16-20	#16 MJIC to #20 SAE MORB Straight	1
NOT SHOWN			
	91-65-0017	Filter Element, 42 GPM	1



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

HYDRAULIC FILTER 4

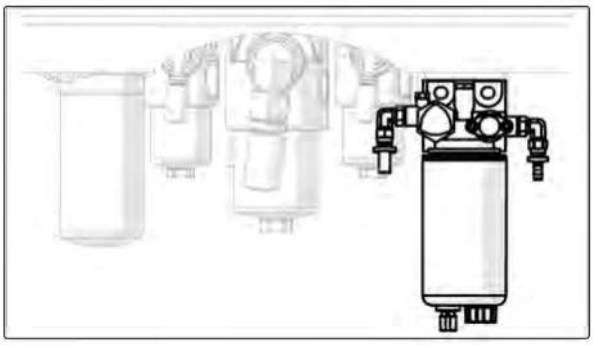
Ref. No.	Part Number	Description	No. Req'd
1	91-65-0011	Filter Charge, 16 GPM (60 LPM)	1
2	HFA3105-8-12	#8 MJIC to #12 M SAE ORB Adapter	2
NOT SHOWN			
	91-65-0012	Filter Element, 16 GPM	1

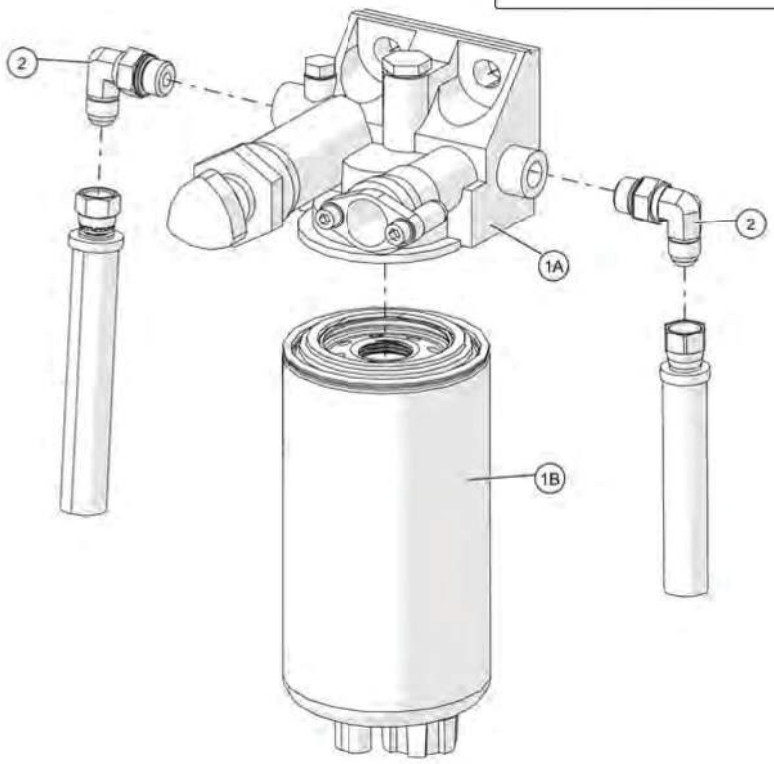


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

PRIMARY FUEL FILTER

Ref. No.	Part Number	Description	No. Req'd
1	----------	Filter Assembly	1
1a	----------	Filter Head	1
1b	91-65-0104	Filter Element Fuel Water Separator	1
2	HFJM0614-90	#6 MJIC x M14-1.5 Male 90° Elbow	2

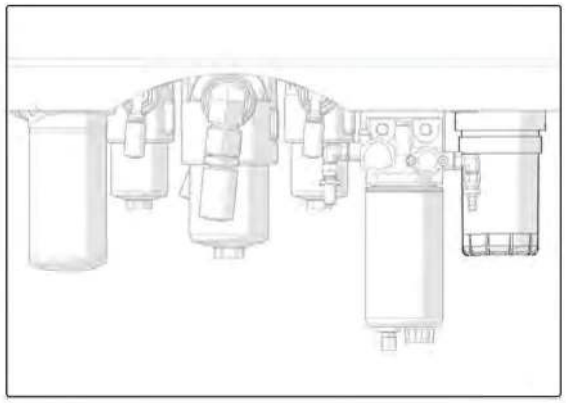


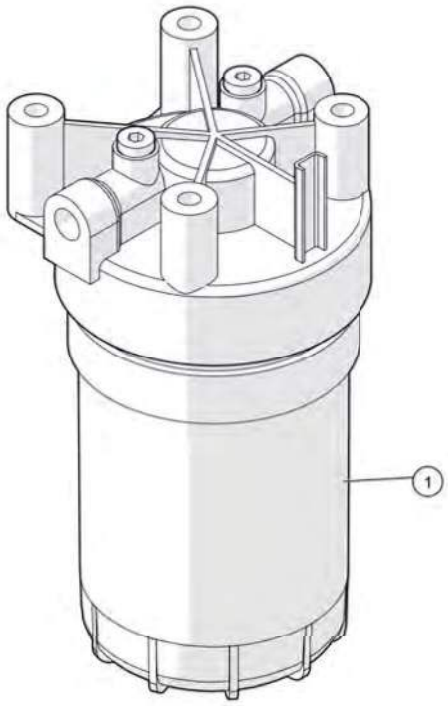


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

SECONDARY FUEL FILTER

Ref. No.	Part Number	Description	No. Req'd
1	----------	Filter Assembly	1
NOT SHOWN			
	91-55-0105	Fuel Filter Replacement Element	1



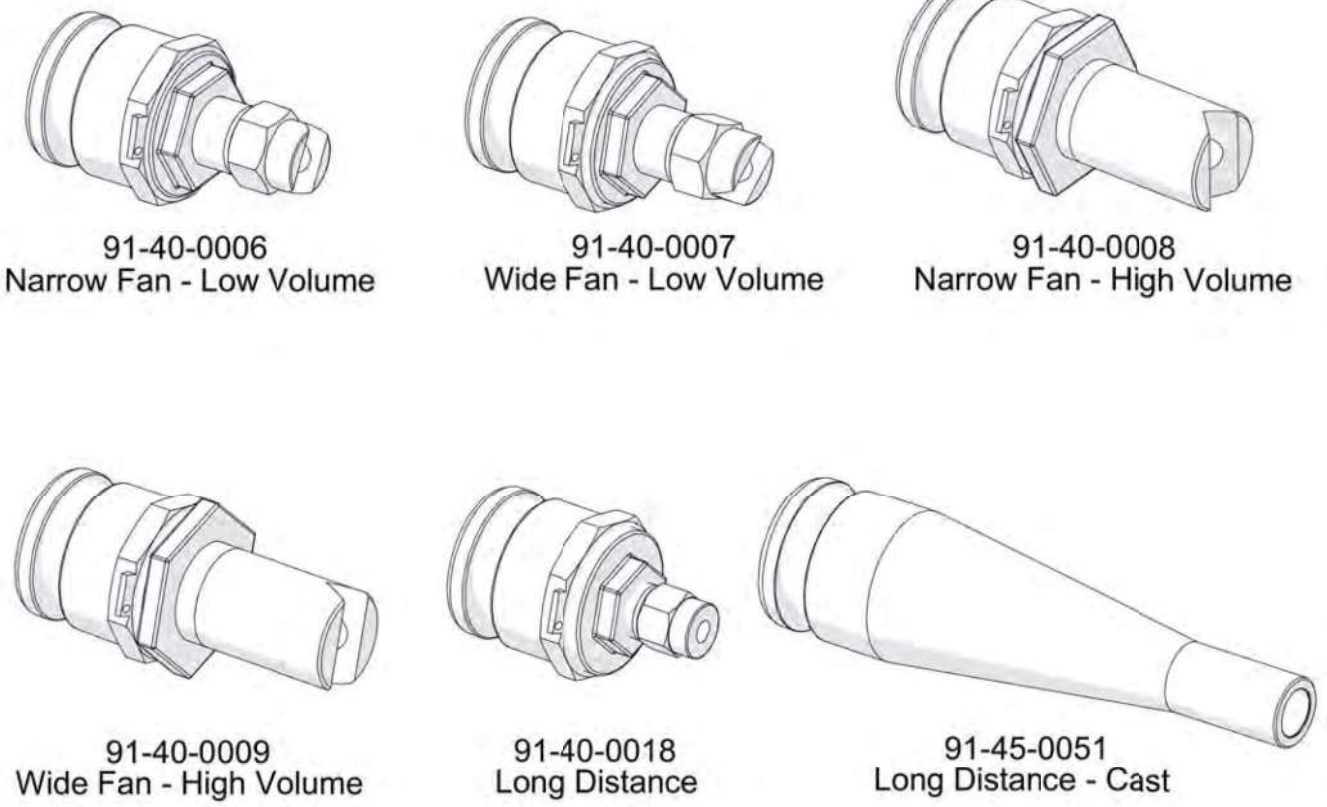


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

NOZZLES

Ref. No.	Part Number	Description	No. Req'd
1	91-40-0006	3 in. 25° 100 GPM Nozzle Assembly	1
2	91-40-0007	3 in. 50° 100 GPM Nozzle Assembly	1
3	91-40-0008	3 in. 25° 200 GPM Nozzle Assembly	1
4	91-40-0009	3 in. 50° 200 GPM Nozzle Assembly	1
5	91-40-0018	3 in. 0° 50 GPM Nozzle Assembly	1
6	91-45-0051	Nozzle Long Distance	1

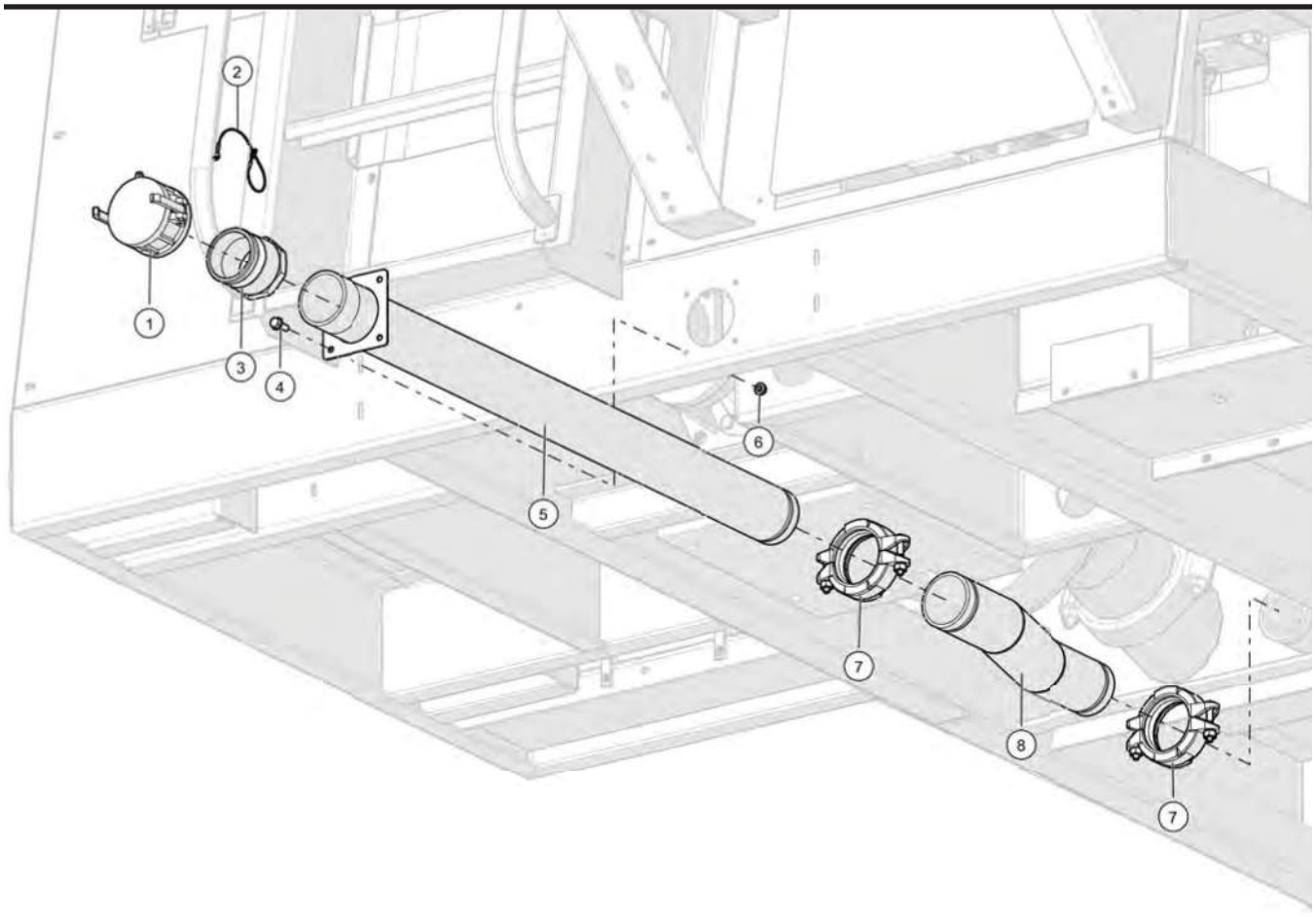
NOTE: All quantities are "2" with Second Boom Option (91-90-0029).



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

DRAIN PIPE

Ref. No.	Part Number	Description	No. Req'd
1	91-45-0038	CAM Lock 3 in. Dust Cap - Aluminum	1
2	074-35-001	Nylon-Coated Lanyard, 12 in. Long	1
3	91-45-0040	CAM Lock 3 in. Male x Female Pipe	1
4	B06-1604SF-8	3/8-16NC x 1 in. Long Serrated Flange, Grade 8	4
5	91-43-0063	Drain Pipe Weldment	1
6	N06-16SF-8	3/8-16NC Serrated Flange Nut, Grade 8	4
7	91-45-0022	Victalic Clamp 3 in. 177 (2-BOLT)	2
8	91-43-0032	Drain Pipe Weldment	1



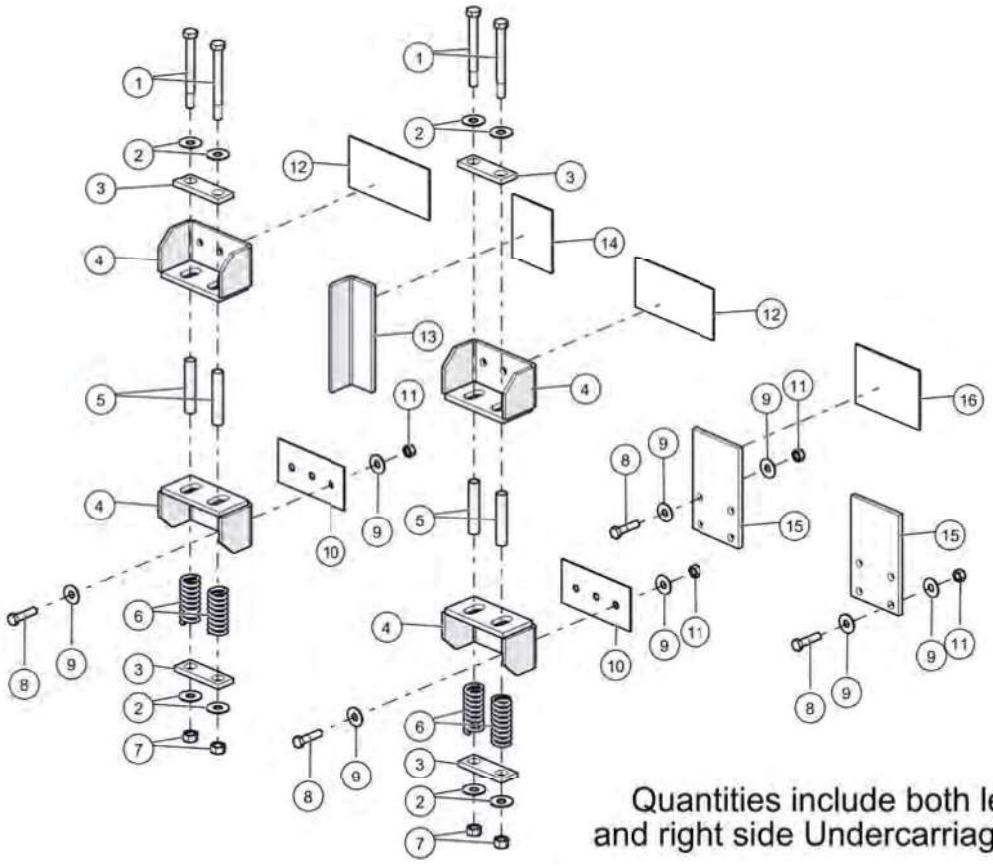
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

UNDERCARRIAGE MOUNTS

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	■	B12-1628-8	3/4-16NF x 7 in. Long Hex Head Cap Screw, Grade 8	8
2	■	W12F	3/4 in. Flat Washer	16
3	■	91-01-0001	Truck Mount Plate End Cap	8
4	■	91-03-0001	Truck Mount Weldment	8
5	■	91-02-0001	Truck Mount Spring Tube	8
6	■	91-05-0001	Spring Truck Mount	8
7	■	N12-16L-8	3/4-16 NF Lock Nut	8
8	■	B10-1110-8	Bolt 5/8 in.-11 x 2-1/2 in. - 8	28
9	■	W10F	5/8 in. Flat Washer, MAGNI 501	56
10	■	91-01-0008	Truck Mount Transition Plate Truck	4
11	■	N10-11L-8	5/8-11 NC Lock Nut, Grade 8	28
12	■	91-01-0005	Truck Mount Transition Plate Tank	4
13	■	91-01-0012	Stabilizer Plate	2
14	■	91-01-0011	Transition Plate Stabilizer	2
15	■	91-01-0002	Truck Mount Plate Long	4
16	■	91-01-0009	Transition Plate Long Plate	2

KITS AND MARKERS

■	91-00-0005	Tank Mount Kit



Quantities include both left side and right side Undercarriage Mounts.

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

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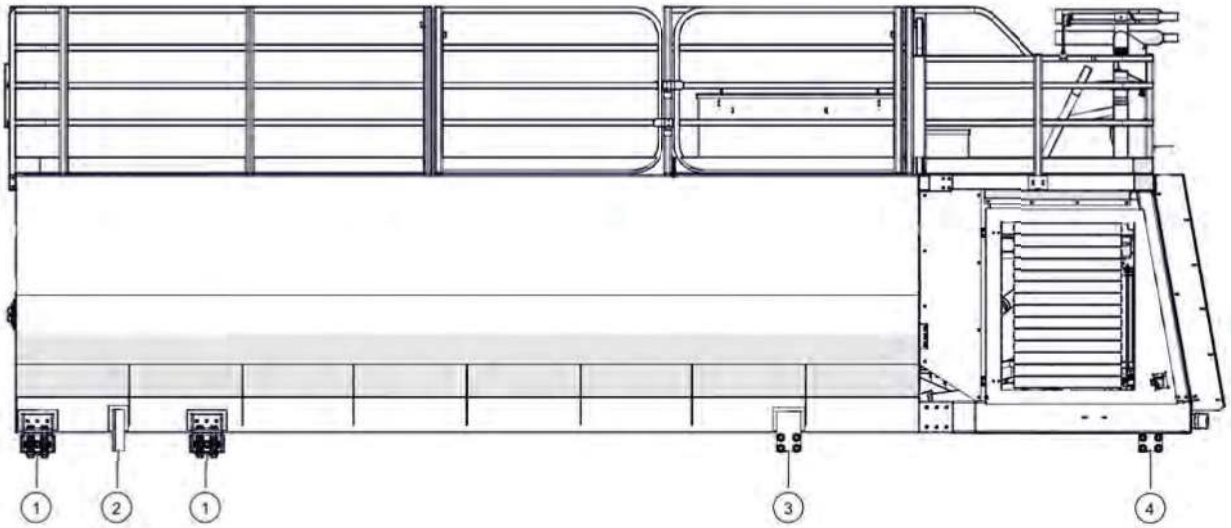


MOUNT PLACEMENT

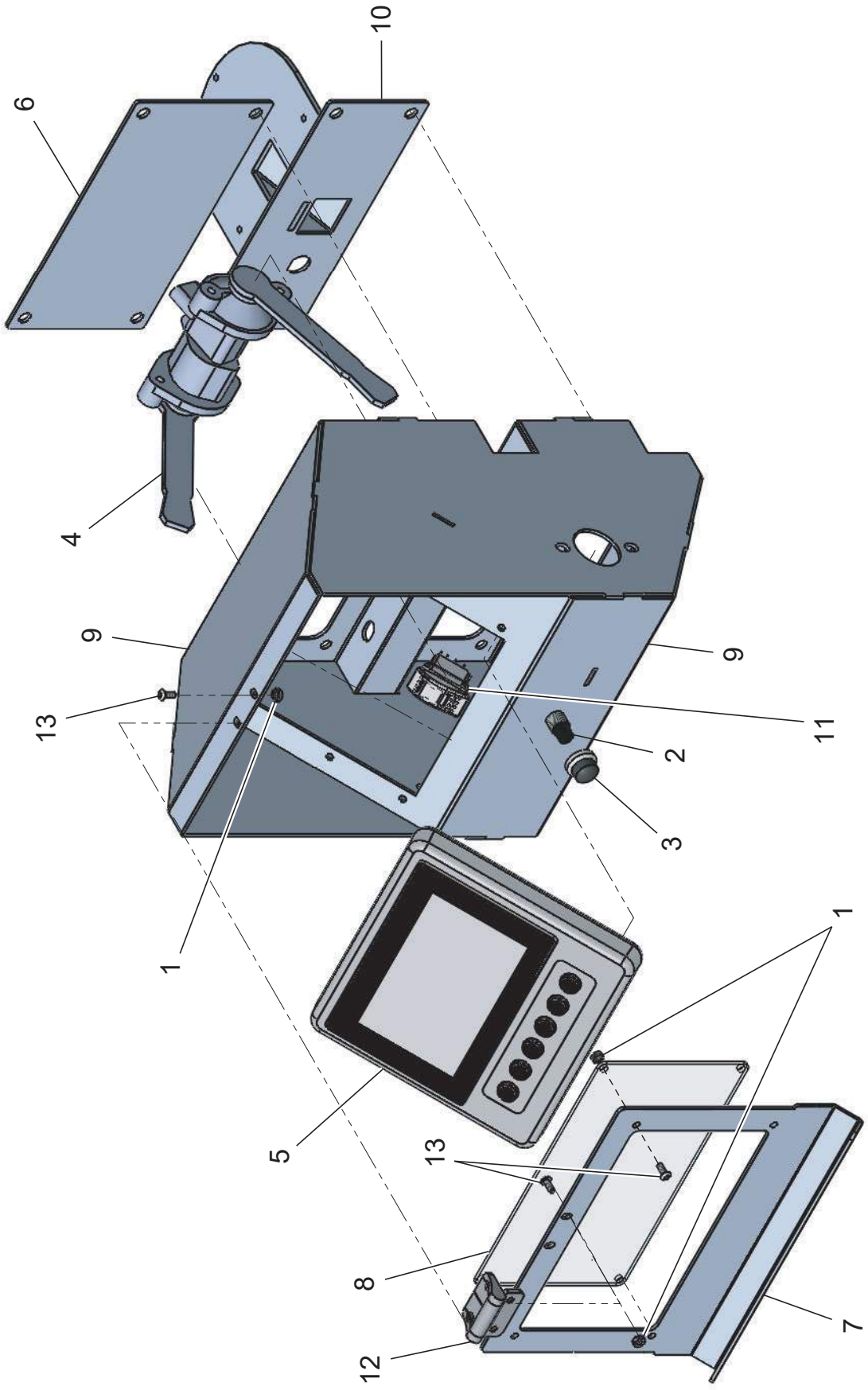
INSTALLATION NOTES:

1. Transition plates (items 1a, 2a, .and 3a) are to be welded to the tank first and are intended to isolate the carbon steel mounts from the stainless steel tank.
2. Spring mounts (item 1) to be approximately 3 feet apart, as close to the front of the machine as possible.
3. Guide plates (item 2) to go between the spring mounts.
4. Truck mount plates (item 3) to be as close to the trunion as possible.
5. Rear truck mount plates (item 4) to be as close to the rear as possible.

MOUNT PLACEMENT

Ref. No.	Part Number	Description	No. Req'd
1	*SEE BELOW*	Spring Mount	4
1a	91-01-0005	Truck Mount Transition Plate Tank	4
1b	91-01-0008	Truck Mount Transition Plate Truck	4
1c	91-01-0001	Truck Mount Plate End Cap	8
1d	91-03-0001	Truck Mount Weldment	8
1e	91-02-0001	Truck Mount Spring Tube	8
1f	91-05-0001	Spring Truck Mount	8
1g	B12-1628-8	3/4-16NF x 7 in. Long Hex Head Cap Screw, Grade 8	8
1h	W12F	3/4 in. Flat Washer	16
1i	N12-16L-8	3/4-16 NF Lock Nut	8
1j	B10-1110-8	Bolt, 5/8 in.-11 x 2-1/2 in.-8	12
1k	W10F	5/8 in. Flat Washer, MAGNI 501	24
1l	N10-11L-8	5/8-11 NC Lock Nut, Grade 8	12
2	*SEE BELOW*	Guide Plate	2
2a	91-01-0011	Transition Plate Stabilizer	2
2b	91-01-0012	Stabilizer Plate	2
3	*SEE BELOW*	Truck Mount Plate	2
3a	91-01-0009	Transition Plate Long Plate	2
3b	91-01-0002	Truck Mount Plate Long	2
3c	B10-1110-8	Bolt, 5/8 in.-11 x 2-1/2 in.-8	8
3d	W10F	5/8 in. Flat Washer, MAGNI 501	16
3e	N10-11L-8	5/8-11 NC Lock Nut, Grade 8	8
4	*SEE BELOW*	Rear Truck Mount Plate	2
4a	91-01-0002	Truck Mount Plate Long	2
4b	B10-1110-8	Bolt, 5/8 in.-11 x 2-1/2 in.-8	8
4c	W10F	5/8 in. Flat Washer, MAGNI 501	16
4d	N10-11L-8	5/8-11 NC Lock Nut, Grade 8	8

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

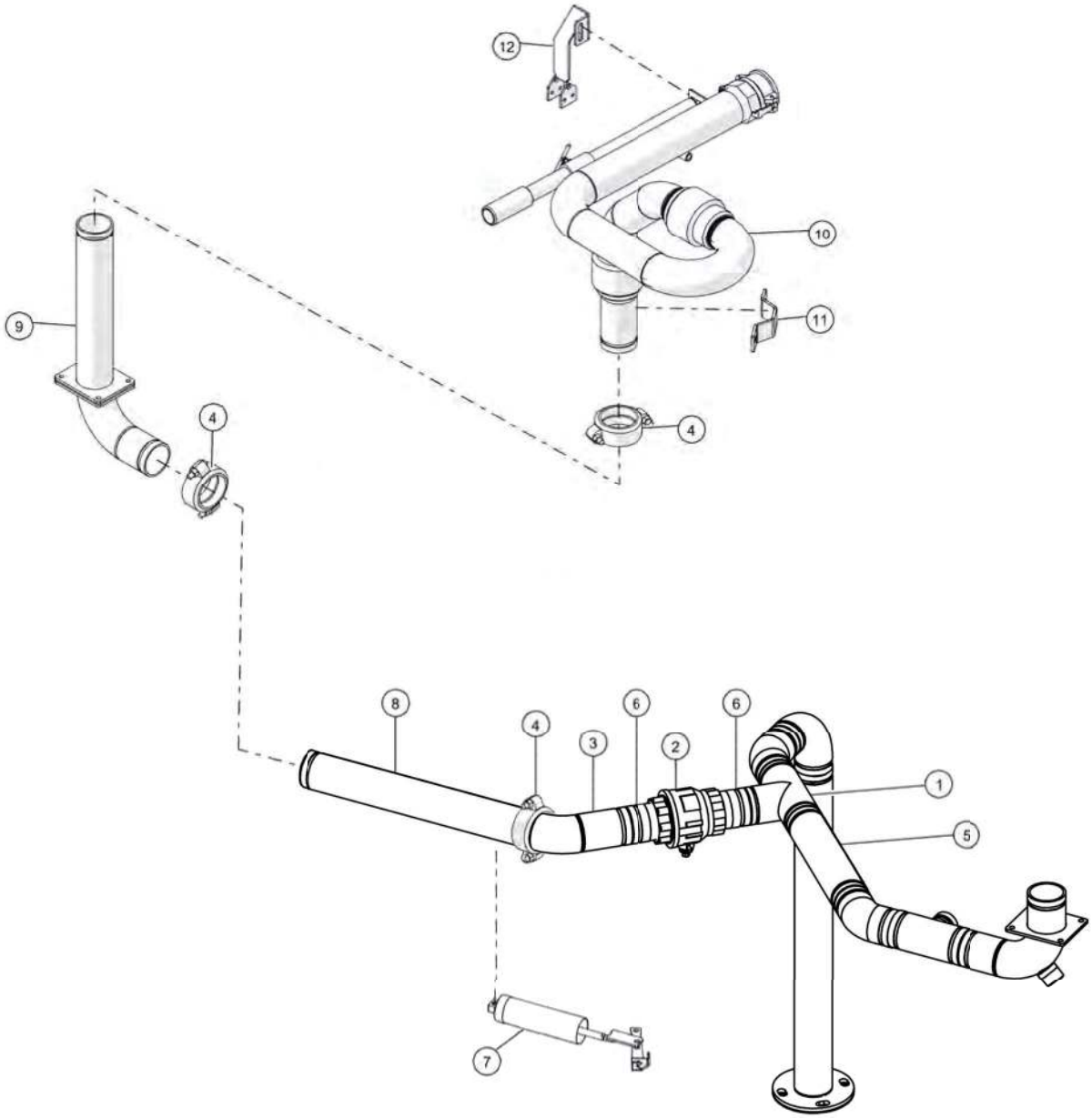


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

CONTROL TOWER

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	■	N#10-24K	KEP NUT, 10-24-UNC	3
2	■	170346	Momentary Start Switch	2
3	■	170347	Boot Cover	2
4	■	91-72-0007	Lever Hand Control	2
5	■	91-72-0021	MD4 Display with 6-Button Bezel	1
6	■	91-77-0025	Top Panel Controls, GEN 3	1
7	■	91-77-0031	Display Cover	1
8	■	91-77-0032	Display Cover Glass	1
9	■	91-79-0004	Control Box Weld, GEN 3	1
10	■	91-79-0005	Control Back Panel Weldment	1
11	■	----------	CONTURA II, 8 Terminal	1
12	■	410-35-037	Friction Hinge, 2 x 2-1/4 in., 15 lb.	1
13	■	B#10-2402B	10-24NC x 1/2 in. Button Head Allen Screw	3
NOT SHOWN				
	■	170269	Junction Block Single 3/8 in. Stud, Black	1
		91-73-0022	Control Station Wiring Harness	1
		412-75-010	Mount Through Panel Ethernet, Female	1
		412-75-011	Cap, Ethernet Female Panel Mount	1
		412-75-012	Cable, M12 to Male Ethernet, 0.5M	1
		91-35-0001	Strobe LED, Yellow	1
		91-85-0038	Controls Decal Kit, GEN 3	1
		91-72-0027	Gasket, CONTURA Rocker Switches	1
		440-74-055	Receptacle, 3 COND Deutsch	1
		440-74-058	Locking Wedge for Receptacle, 3 COND Deutsch	1
KITS AND MARKERS				
	■	91-70-0009	Control Tower Assembly, GEN 3	

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

SECOND BOOM OPTION (91-90-0029)

Ref. No.	Part Number	Description	No. Req'd
1	91-45-0161	Tee, 3 in. Grooved End	1
2	91-45-0020	Ball Valve, 3 in. Brass	1
3	91-43-0029	Secondary Boom Pipe Weldment	1
4	91-45-0022	Victalic Clamp, 3 in. 177 (2-Bolt)	5
5	91-42-0085	3 in. SCH. 40 Pipe x 14-3/4 in. Long GBE	1
6	91-42-0086	3 in. SCH. 40 Pipe x 3-1/2 in. Long Toe-Goe	2
7	91-45-0057	Air Cylinder	1
8	91-43-0067	Crossover Pipe Weldment	1
9	91-43-0005	Discharge to Secondary Boom	1
10	91-40-0002	Left Hand Boom Assembly	1
11	91-31-0033	Strap Discharge Boom	1
12	91-33-0044	Left Boom Hold Down	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

1-1/4 IN. HOSE REEL OPTION (91-90-0030)

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	●	7710	Ball Valve, 1-1/2 in., Full Port	1
2	●	160014	Elbow, 90°, 1-1/2 in.	1
3	●	160219	Tee, 1-1/2 x 1-1/2 x 1 in., Red 150#	1
4	●	160263	Pipe Cap, 1-1/2 in.	1
5	●	160309	Close Nipple 1-1/2 STD, Galvanized	1
6	●	160558	Nipple, 1-1/2 x 7 Long SCH 40	1
7	●	160733	Reducer Bushing, 3/8 in. x 1/4 in.	3
8	●	160742	Reducer Bushing, 1in. x 1/4 in.	1
9	●	161006	Valve 3/8 in. LPS Full Port Ball	1
10	●	416-85-012	IR 35369347 Connector, Male 1/4	4
11	●	416-85-014	Hose, Parflex 3/8 in. O.D. x 0.050 Wall	10
12	●	416-85-025	Swivel 90° Push to Connect, 1/4 NPT	1
13	●	450-32-032	Short Clevis Connecting Rod	2
14	●	450-35-002	1/4-28 Threaded Yoke Ends	2
15	●	71-65-0023	Hose Reel Motor - YPT	1
16	●	91-21-0116	Spacer Engine Access	1
17	●	91-21-0214	Panel Rear RH, Gen 3	1
18	●	91-21-0215	Panel Rear RH Hose Reel, Gen 3	1
19	●	91-22-0040	Hinge Engine Access	1
20	●	91-32-0054	Spacer, UHMW 1/2 in. I.D. x 1 in. O.D., 1/4 in. Long	1
21	●	91-35-0010	Draw Latch	1
22	●	91-35-0011	Draw Latch Anchor	1
23	●	91-35-0012	Draw Latch Pin	1
24	●	91-35-0013	Draw Latch Catch, Allegis P/N: 12003	1
25	●	91-41-0035	Cover Engine Access Hose Reel	1
26	●	91-41-0036	Cover Engine Access Hose Reel Latch	4
27	●	91-41-0064	Hose Reel Tap-Off Valve Extension Handle, CCW	1
28	●	91-42-0035	Hose Reel Tap-Off Valve Extension Linkage	1
29	●	91-43-0018	Hose Reel Frame RHS	1
30	●	91-43-0035	Hose Reel Frame LHS, Gen2	1
31	●	91-43-0036	Hose Reel Frame Support LHS, Gen2	1
32	●	91-43-0056	Hose Reel Frame Cross Piece	2
33	●	91-43-0060	Hose Reel Tap Off Linkage, Gen 3	1
34	●	91-43-0069	Hose Reel Motor Mount Offset Weldment	1
35	●	91-45-0013	Valve Control Hose Reel	1
36	●	91-45-0094	Camlock 1-1/2 in. Female x Female Pipe - Brass	1

Continued...

1-1/4 IN. HOSE REEL OPTION (91-90-0030)

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
37	●	91-45-0095	Camlock, 1-1/2 in. Male x Male Pipe - Brass T	1
38	●	91-45-0101	Hose Reel, Less Frame and Motor	1
39	●	91-45-0115	Valve Check, 3/8 in. Tube x 1/4 NPT	1
40	●	91-45-0116	Hose Reel Lead-In Hose, 28 in. - Gen 2	1
41	●	91-45-0129	U-Bolt Bend, 1/4-20 x 1 x 1-3/4 in.	2
42	●	91-45-0156	Hardened Hose Reel Sprocket	1
43	●	91-46-0004	Hydraulic Fitting Kit Hose Reel Gen 2	1
44	●	91-46-0005	Hydraulic Hose Kit Reel Gen 2	1
45	●	91-65-0006	Pump Hose Reel	1
46	●	HF4ST	1/4 NPT Street Tee	1
47	●	160756	Reducer Bushing, 1-1/2 x 1-1/4 in., Galvanized	1
48	●	91-45-0009	Hose, 1-1/4 in. 200 psi x 200 ft. Male Pipe BE	1
49	●	91-45-0087	Camlock, 1-1/4 in. Female x Female Pipe - Brass	1
50	●	91-46-0002	Nozzle Kit, 1-1/4 in. Hose Reel	1
51	●	91-40-0011	50° Hose Reel Nozzle Assembly	1
52	●	91-40-0012	25° Hose Reel Nozzle Assembly	1
53	●	91-40-0013	Straight Hose Reel Nozzle Assembly	1
54	●	91-40-0014	Remote Valve	1
KITS AND MARKERS				
	●	91-90-0030	Gen 3 Hose Reel Hydraulic	

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

1-1/2 IN. HOSE REEL OPTION (91-90-0036)

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	■	7710	Ball Valve, 1-1/2 in., Full Port	1
2	■	160014	Elbow, 90°, 1-1/2 in.	1
3	■	160219	Tee, 1-1/2 x 1-1/2 x 1 in., Red 150#	1
4	■	160263	Pipe Cap, 1-1/2 in.	1
5	■	160309	Close Nipple 1-1/2 STD, Galvanized	1
6	■	160558	Nipple, 1-1/2 x 7 Long SCH 40	1
7	■	160733	Reducer Bushing, 3/8 in. x 1/4 in.	3
8	■	160742	Reducer Bushing, 1in. x 1/4 in.	1
9	■	161006	Valve 3/8 in. LPS Full Port Ball	1
10	■	416-85-012	IR 35369347 Connector, Male 1/4	4
11	■	416-85-014	Hose, Parflex 3/8 in. O.D. x 0.050 Wall	10
12	■	416-85-025	Swivel 90° Push to Connect, 1/4 NPT	1
13	■	450-32-032	Short Clevis Connecting Rod	2
14	■	450-35-002	1/4-28 Threaded Yoke Ends	2
15	■	71-65-0023	Hose Reel Motor - YPT	1
16	■	91-21-0116	Spacer Engine Access	1
17	■	91-21-0214	Panel Rear RH, Gen 3	1
18	■	91-21-0215	Panel Rear RH Hose Reel, Gen 3	1
19	■	91-22-0040	Hinge Engine Access	1
20	■	91-32-0054	Spacer, UHMW 1/2 in. I.D. x 1 in. O.D., 1/4 in. Long	1
21	■	91-35-0010	Draw Latch	1
22	■	91-35-0011	Draw Latch Anchor	1
23	■	91-35-0012	Draw Latch Pin	1
24	■	91-35-0013	Draw Latch Catch, Allegis P/N: 12003	1
25	■	91-41-0035	Cover Engine Access Hose Reel	1
26	■	91-41-0036	Cover Engine Access Hose Reel Latch	4
27	■	91-41-0064	Hose Reel Tap-Off Valve Extension Handle, CCW	1
28	■	91-42-0035	Hose Reel Tap-Off Valve Extension Linkage	1
29	■	91-43-0018	Hose Reel Frame RHS	1
30	■	91-43-0035	Hose Reel Frame LHS, Gen2	1
31	■	91-43-0036	Hose Reel Frame Support LHS, Gen2	1
32	■	91-43-0056	Hose Reel Frame Cross Piece	2
33	■	91-43-0060	Hose Reel Tap Off Linkage, Gen 3	1
34	■	91-43-0069	Hose Reel Motor Mount Offset Weldment	1
35	■	91-45-0013	Valve Control Hose Reel	1
36	■	91-45-0094	Camlock 1-1/2 in. Female x Female Pipe - Brass	1

Continued...

1-1/2 IN. HOSE REEL OPTION (91-90-0036)

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
37	■	91-45-0095	Camlock, 1-1/2 in. Male x Male Pipe - Brass T	1
38	■	91-45-0101	Hose Reel, Less Frame and Motor	1
39	■	91-45-0115	Valve Check, 3/8 in. Tube x 1/4 NPT	1
40	■	91-45-0116	Hose Reel Lead-In Hose, 28 in. - Gen 2	1
41	■	91-45-0129	U-Bolt Bend, 1/4-20 x 1 x 1-3/4 in.	2
42	■	91-45-0156	Hardened Hose Reel Sprocket	1
43	■	91-46-0004	Hydraulic Fitting Kit Hose Reel Gen 2	1
44	■	91-46-0005	Hydraulic Hose Kit Reel Gen 2	1
45	■	91-65-0006	Pump Hose Reel	1
46	■	HF4ST	1/4 NPT Street Tee	1
47	■	91-45-0096	Hose, 1-1/2 in. 200 psi x 200 ft. Male Pipe BE	1
48	■	91-45-0094	Camlock, 1-1/2 in. Female x Female Pipe - Brass	1
49	■	91-46-0008	Nozzle Kit, 1-1/2 in. Hose Reel	1
50	■	91-40-0011	50° Hose Reel Nozzle Assembly	1
51	■	91-40-0012	25° Hose Reel Nozzle Assembly	1
52	■	91-40-0013	Straight Hose Reel Nozzle Assembly	1
53	■	91-40-0019	Remote Valve 1-1/2 in.	1
KITS AND MARKERS				
	■	91-90-0036	Gen 3 Hose Reel Hydraulic	

E27

From	To	Conductor	Gauge	Notes
E27	S34	W122.Black	10 AWG	Ground (Splice)

E1

From	To	Conductor	Gauge	From Contact PN	Notes
E1.01	S1	W1.Red	16 AWG	13627887	+12V Batt (Splice)
E1.03	E3.O	W10.Black	16 AWG	13627887	Heater Relay
E1.05	E3.K	W11.Blue	16 AWG	13627887	Key Switched
E1.06	E5.10	W12.Blue	20 AWG	13627884	DEF Mode/Temp
E1.07	E3.N	W13.Black	16 AWG	13627887	DEF Relay
E1.08	S12	W60.Red-Black	20 AWG	13627884	+5V Vref Coolant Level (Splice)
E1.13	E24.01	W14.Violet-White	20 AWG	13627884	Water Seperator
E1.16	E5.03	W15.Violet	20 AWG	13627884	DEF Injector Sensor
E1.22	S24	W98.Yellow	18 AWG	13627884	J1939 CAN Hi (Splice)
E1.25	S1	W2.Red	16 AWG	13627887	+12V Batt (Splice)
E1.26	S1	W3.Red	16 AWG	13627887	+12V Batt (Splice)
E1.27	S1	W4.Red	16 AWG	13627887	+12V Batt (Splice)
E1.28	S1	W5.Red	16 AWG	13627887	+12V Batt (Splice)
E1.32	S13	W63.Black-Red	20 AWG	13627884	-Vref Sensor Return (Splice)
E1.35	E4.B	W16.Orange	20 AWG	13627884	Level Switch Signal
E1.38	S7	W45.Blue	18 AWG	13627884	DEF Heater Diag1 (Splice)
E1.39	S8	W48.Blue	18 AWG	13627884	DEF Heater Diag2 (Splice)
E1.40	S9	W51.Blue	18 AWG	13627884	DEF Heater Diag3 (Splice)
E1.46	S25	W106.Green	18 AWG	13627884	J1939 CAN Lo (Splice)
E1.49	S34	W123.Black	16 AWG	13627887	Ground (Splice)
E1.50	S34	W124.Black	16 AWG	13627887	Ground (Splice)
E1.51	S34	W125.Black	16 AWG	13627887	Ground (Splice)
E1.52	S34	W126.Black	16 AWG	13627887	Ground (Splice)
E1.53	E20.2	W17.Black	20 AWG	13627884	DEF Dosing Lo
E1.54	E5.08	W18.Black	20 AWG	13627884	ECM Return DEF Pump
E1.57	S23	W89.Black	18 AWG	13627884	DEF Coolant Valve Return (Splice)
E1.62	E24.02	W19.Black	20 AWG	13627884	Water Separator Return
E1.73	S34	W127.Black	16 AWG	13627887	Ground (Splice)
E1.75	E3001	W20.Green	20 AWG	13627884	Intake Heater
E1.76	E3002	W21.Black	20 AWG	13627884	Intake Heater Return
E1.77	E20.1	W22.Violet	20 AWG	13627884	DEF Supply
E1.79	E5.09	W23.Red	20 AWG	13627884	DEF Supply
E1.81	E5.11	W24.Violet-Black	20 AWG	13627884	DEF Reverting
E1.82	E21.01	W25.Violet	20 AWG	13627884	Coolant Valve
E1.84	S4	W38.Orange	18 AWG	13627884	DEF Heater Monitor (Splice)
E1.85	S4	W39.Orange	18 AWG	13627884	DEF Heater Monitor (Splice)

E25

From	To	Conductor	Gauge	From Contact PN	Notes
E25.A	S34	W128.Black	16 AWG	0460-202-16141	Ground (Splice)
E25.B	F02.02	W26.Red	16 AWG	0460-202-16141	+12V Batt
E25.C	S24	W97.Yellow	18 AWG	0460-202-1631	J1939 CAN Hi (Splice)
E25.D	S25	W102.Green	18 AWG	0460-202-1631	J1939 CAN Lo (Splice)

E2

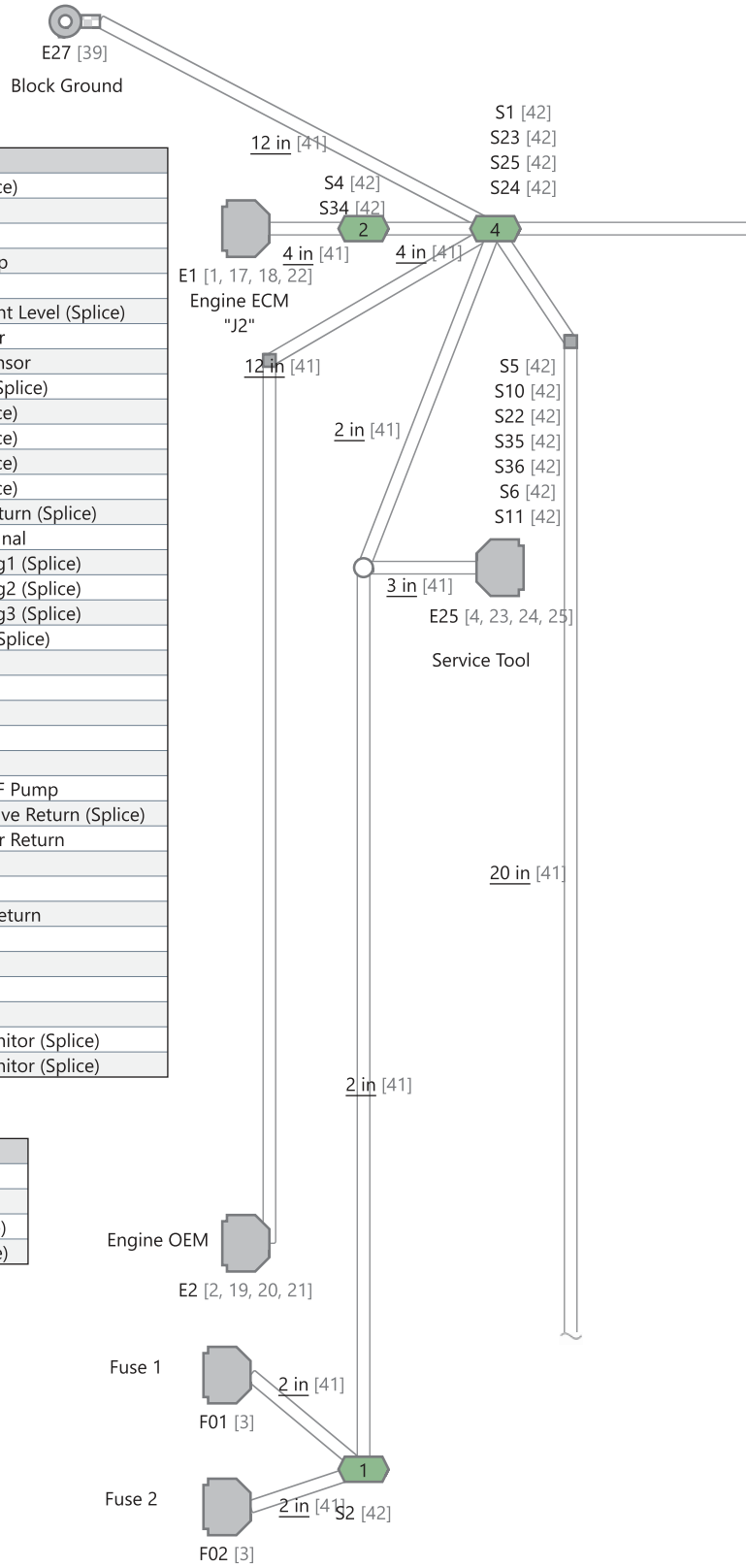
From	To	Conductor	Gauge	From Contact PN	Notes
E2.22	S35	W110.Yellow	18 AWG	54001803	AT CAN Hi (Splice)
E2.23	S36	W113.Green	18 AWG	54001803	AT CAN Lo (Splice)

F01

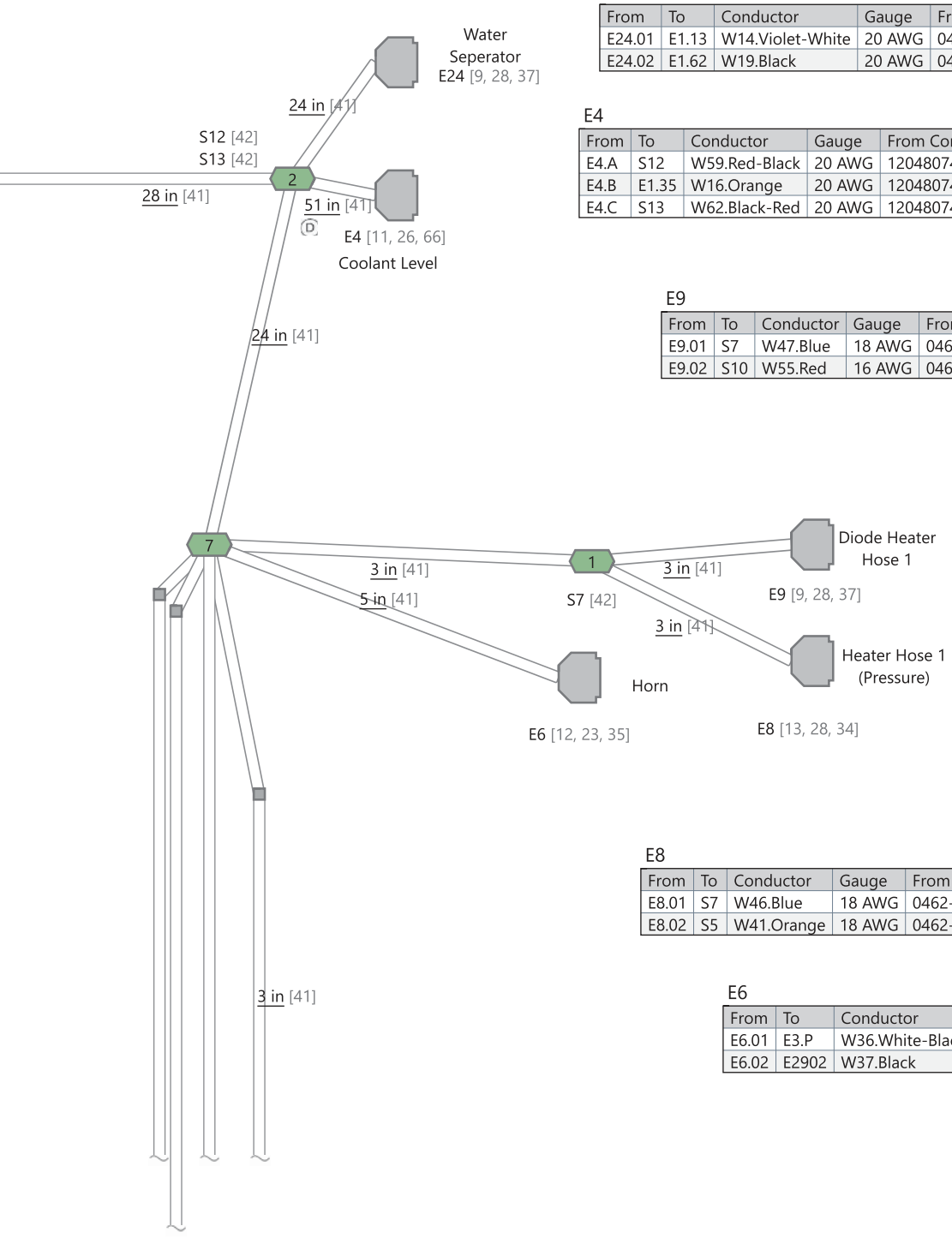
From	To	Conductor	Gauge	Notes
F01.01	S2	W8.Red	10 AWG	+12V Batt (Splice)
F01.02	S1	W6.Red	10 AWG	+12V Batt (Splice)

F02

From	To	Conductor	Gauge	Notes
F02.01	S2	W9.Red	16 AWG	+12V Batt (Splice)
F02.02	E25.B	W26.Red	16 AWG	+12V Batt



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



E24

From	To	Conductor	Gauge	From Contact PN	Notes
E24.01	E1.13	W14.Violet-White	20 AWG	0462-201-16141	Water Seperator
E24.02	E1.62	W19.Black	20 AWG	0462-201-16141	Water Separator Return

E4

From	To	Conductor	Gauge	From Contact PN	Notes
E4.A	S12	W59.Red-Black	20 AWG	12048074	+5V Vref Coolant Level (Splice)
E4.B	E1.35	W16.Orange	20 AWG	12048074	Level Switch Signal
E4.C	S13	W62.Black-Red	20 AWG	12048074	-Vref Sensor Return (Splice)

E9

From	To	Conductor	Gauge	From Contact PN	Notes
E9.01	S7	W47.Blue	18 AWG	0462-201-16141	DEF Heater Diag1 (Splice)
E9.02	S10	W55.Red	16 AWG	0462-201-16141	+12V Line Heater (Splice)

E8

From	To	Conductor	Gauge	From Contact PN	Notes
E8.01	S7	W46.Blue	18 AWG	0462-201-16141	DEF Heater Diag1 (Splice)
E8.02	S5	W41.Orange	18 AWG	0462-201-16141	DEF Heater Monitor (Splice)

E6

From	To	Conductor	Gauge	From Contact PN	Notes
E6.01	E3.P	W36.White-Black	16 AWG	0460-202-16141	Horn
E6.02	E2902	W37.Black	16 AWG	0460-202-16141	Ground

Coverings	
Id	Assembly
[41]	

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

E11

From	To	Conductor	Gauge	From Contact PN	Notes
E11.01	S8	W50.Blue	18 AWG	0462-201-16141	DEF Heater Diag2 (Splice)
E11.02	S11	W57.Red	18 AWG	0462-201-16141	+12V Line Heater (Splice)

E10

From	To	Conductor	Gauge	From Contact PN	Notes
E10.01	S8	W49.Blue	18 AWG	0462-201-16141	DEF Heater Diag2 (Splice)
E10.02	S6	W43.Orange	18 AWG	0462-201-16141	DEF Heater Monitor (Splice)

E12

From	To	Conductor	Gauge	From Contact PN	Notes
E12.01	S9	W52.Blue	18 AWG	0462-201-16141	DEF Heater Diag3 (Splice)
E12.02	S6	W44.Orange	18 AWG	0462-201-16141	DEF Heater Monitor (Splice)

E13

From	To	Conductor	Gauge	From Contact PN	Notes
E13.01	S9	W53.Blue	18 AWG	0462-201-16141	DEF Heater Diag3 (Splice)
E13.02	S11	W58.Red	18 AWG	0462-201-16141	+12V Line Heater (Splice)

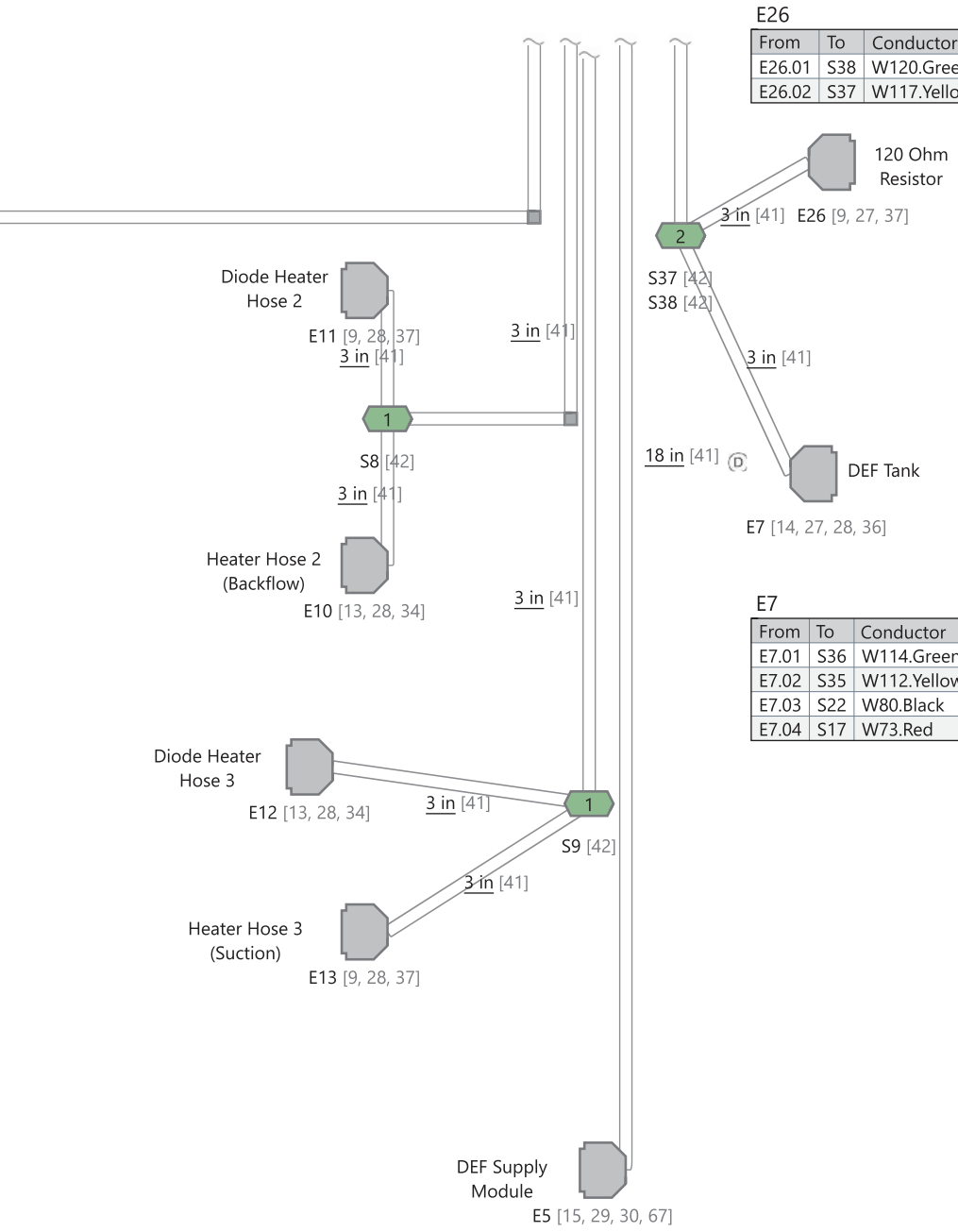
E5

From	To	Conductor	Gauge	From Contact PN	Notes
E5.02	S12	W61.Red-Black	20 AWG	1241381-3	+5V Vref Coolant Level (Splice)
E5.03	E1.16	W15.Violet	20 AWG	1241381-3	DEF Injector Sensor
E5.04	S13	W64.Black-Red	20 AWG	1241381-3	-Vref Sensor Return (Splice)
E5.05	E3.H	W35.Red	16 AWG	1241381-3	+12V DEF
E5.06	S22	W81.Black	20 AWG	1241381-3	Batt Return (Splice)
E5.08	E1.54	W18.Black	20 AWG	1241381-3	ECM Return DEF Pump
E5.09	E1.79	W23.Red	20 AWG	1241381-3	DEF Supply
E5.10	E1.06	W12.Blue	20 AWG	1241381-3	DEF Mode/Temp
E5.11	E1.81	W24.Violet-Black	20 AWG	1241381-3	DEF Reverting
E5.12	S23	W87.Black	18 AWG	1241381-3	DEF Revert Return (Splice)

2

S27 [42]
S31 [42]

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

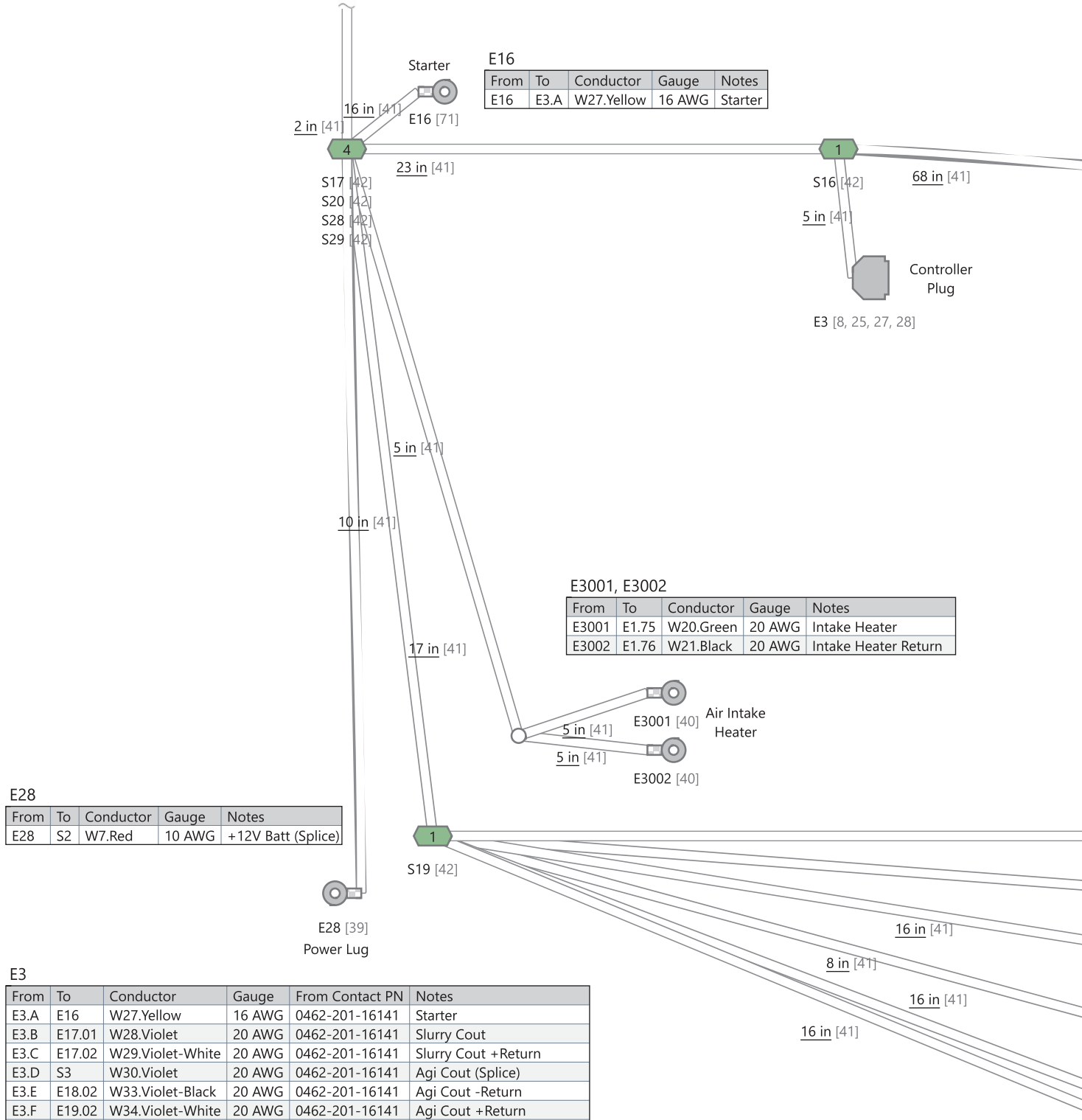


E26

From	To	Conductor	Gauge	From Contact PN	Notes
E26.01	S38	W120.Green	18 AWG	0462-201-1631	AT CAN Lo (Splice)
E26.02	S37	W117.Yellow	18 AWG	0462-201-1631	AT CAN Hi (Splice)

E7

From	To	Conductor	Gauge	From Contact PN	Notes
E7.01	S36	W114.Green	18 AWG	0462-201-1631	AT CAN Lo (Splice)
E7.02	S35	W112.Yellow	18 AWG	0462-201-1631	AT CAN Hi (Splice)
E7.03	S22	W80.Black	20 AWG	0462-201-16141	Batt Return (Splice)
E7.04	S17	W73.Red	20 AWG	0462-201-16141	+12V AFT (Splice)



E16

From	To	Conductor	Gauge	Notes
E16	E3.A	W27.Yellow	16 AWG	Starter

E3001, E3002

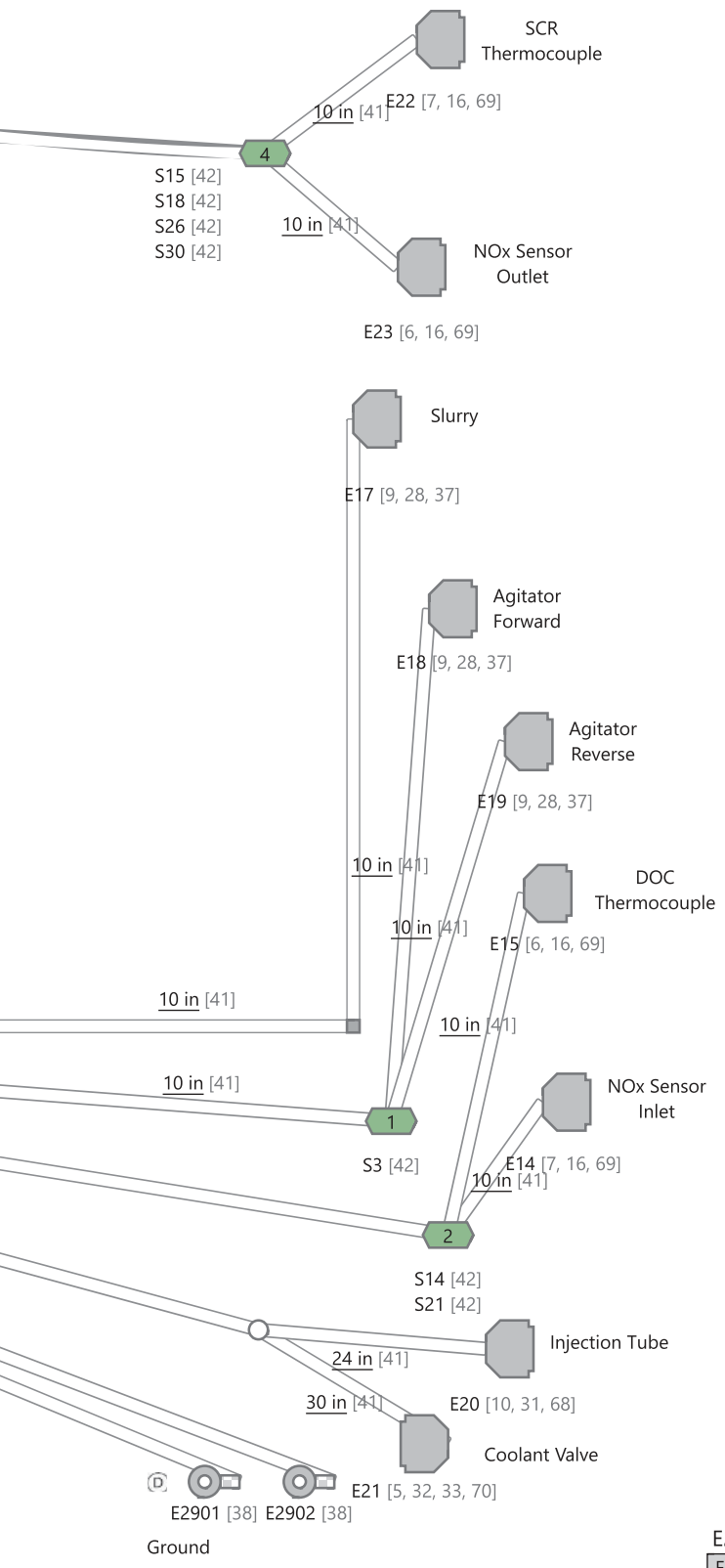
From	To	Conductor	Gauge	Notes
E3001	E1.75	W20.Green	20 AWG	Intake Heater
E3002	E1.76	W21.Black	20 AWG	Intake Heater Return

E28

From	To	Conductor	Gauge	Notes
E28	S2	W7.Red	10 AWG	+12V Batt (Splice)

E3

From	To	Conductor	Gauge	From Contact PN	Notes
E3.A	E16	W27.Yellow	16 AWG	0462-201-16141	Starter
E3.B	E17.01	W28.Violet	20 AWG	0462-201-16141	Slurry Cout
E3.C	E17.02	W29.Violet-White	20 AWG	0462-201-16141	Slurry Cout +Return
E3.D	S3	W30.Violet	20 AWG	0462-201-16141	Agi Cout (Splice)
E3.E	E18.02	W33.Violet-Black	20 AWG	0462-201-16141	Agi Cout -Return
E3.F	E19.02	W34.Violet-White	20 AWG	0462-201-16141	Agi Cout +Return
E3.G	S10	W54.Red	16 AWG	0462-201-16141	+12V Line Heater (Splice)
E3.H	E5.05	W35.Red	16 AWG	0462-201-16141	+12V DEF
E3.J	S16	W70.Red	20 AWG	0462-201-16141	+12V AFT (Splice)
E3.K	E1.05	W11.Blue	16 AWG	0462-201-16141	Key Switched
E3.L	S24	W96.Yellow	18 AWG	0462-201-1631	AT CAN Hi (Splice)
E3.M	S25	W103.Green	18 AWG	0462-201-1631	AT CAN Lo (Splice)
E3.N	E1.07	W13.Black	16 AWG	0462-201-16141	DEF Relay
E3.O	E1.03	W10.Black	16 AWG	0462-201-16141	Heater Relay
E3.P	E6.01	W36.White-Black	16 AWG	0462-201-16141	Horn



E22

From	To	Conductor	Gauge	From Contact PN	Notes
E22.01	S18	W75.Black	20 AWG	1-968882-2	Batt Return (Splice)
E22.02	S26	W100.Green	18 AWG	1-968882-2	AT CAN Lo (Splice)
E22.03	S30	W91.Yellow	18 AWG	1-968882-2	AT CAN Hi (Splice)
E22.04	S15	W67.Red	20 AWG	1-968882-2	+12V AFT (Splice)

E23

From	To	Conductor	Gauge	From Contact PN	Notes
E23.01	S15	W68.Red	20 AWG	1-968882-2	+12V AFT (Splice)
E23.02	S26	W101.Green	18 AWG	1-968882-2	AT CAN Lo (Splice)
E23.03	S30	W90.Yellow	18 AWG	1-968882-2	AT CAN Hi (Splice)
E23.04	S18	W74.Black	20 AWG	1-968882-2	Batt Return (Splice)

E17

From	To	Conductor	Gauge	From Contact PN	Notes
E17.01	E3.B	W28.Violet	20 AWG	0462-201-16141	Slurry Cout
E17.02	E3.C	W29.Violet-White	20 AWG	0462-201-16141	Slurry Cout +Return

E18

From	To	Conductor	Gauge	From Contact PN	Notes
E18.01	S3	W31.Violet	20 AWG	0462-201-16141	Agi Cout (Splice)
E18.02	E3.E	W33.Violet-Black	20 AWG	0462-201-16141	Agi Cout -Return

E19

From	To	Conductor	Gauge	From Contact PN	Notes
E19.01	S3	W32.Violet	20 AWG	0462-201-16141	Agi Cout (Splice)
E19.02	E3.F	W34.Violet-White	20 AWG	0462-201-16141	Agi Cout +Return

E15

From	To	Conductor	Gauge	From Contact PN	Notes
E15.01	S21	W77.Black	20 AWG	1-968882-2	Batt Return (Splice)
E15.02	S28	W105.Green	18 AWG	1-968882-2	AT CAN Lo (Splice)
E15.03	S29	W92.Yellow	18 AWG	1-968882-2	AT CAN Hi (Splice)
E15.04	S14	W66.Red	20 AWG	1-968882-2	+12V AFT (Splice)

E14

From	To	Conductor	Gauge	From Contact PN	Notes
E14.01	S14	W65.Red	20 AWG	1-968882-2	+12V AFT (Splice)
E14.02	S31	W104.Green	18 AWG	1-968882-2	AT CAN Lo (Splice)
E14.03	S27	W93.Yellow	18 AWG	1-968882-2	AT CAN Hi (Splice)
E14.04	S21	W78.Black	20 AWG	1-968882-2	Batt Return (Splice)

E20

From	To	Conductor	Gauge	From Contact PN	Notes
E20.1	E1.77	W22.Violet	20 AWG	1928498058	DEF Supply
E20.2	E1.53	W17.Black	20 AWG	1928498058	DEF Dosing Lo

E2902, E2901

From	To	Conductor	Gauge	Notes
E2901	S19	W83.Black	16 AWG	Batt Return (Splice)
E2902	E6.02	W37.Black	16 AWG	Ground

E21

From	To	Conductor	Gauge	From Contact PN	Notes
E21.01	E1.82	W25.Violet	20 AWG	962981-1	Coolant Valve
E21.04	S23	W88.Black	18 AWG	962981-1	DEF Coolant Return (Splice)

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

SPLICE LIST:

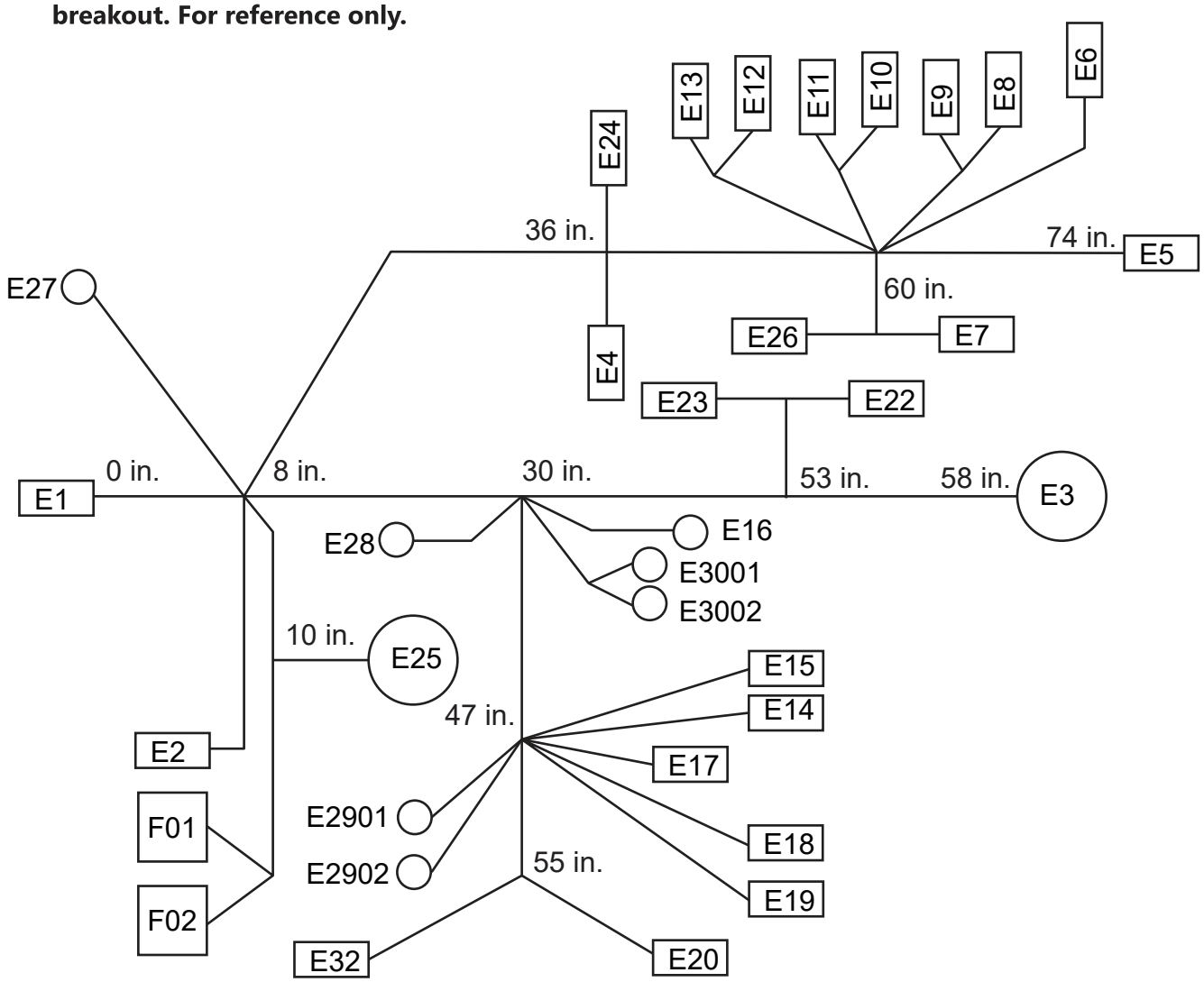
From	To	Conductor	Gauge
S1	E1.01	W1.Red	16 AWG
S1	E1.25	W2.Red	16 AWG
S1	E1.26	W3.Red	16 AWG
S1	E1.27	W4.Red	16 AWG
S1	E1.28	W5.Red	16 AWG
S1	F01.02	W6.Red	10 AWG
S2	E28	W7.Red	10 AWG
S2	F01.01	W8.Red	10 AWG
S2	F02.01	W9.Red	16 AWG
S3	E3.D	W30.Violet	20 AWG
S3	E18.01	W31.Violet	20 AWG
S3	E19.01	W32.Violet	20 AWG
S4	E1.84	W38.Orange	18 AWG
S4	E1.85	W39.Orange	18 AWG
S4	S5	W40.Orange	18 AWG
S5	E8.02	W41.Orange	18 AWG
S5	S4	W40.Orange	18 AWG
S5	S6	W42.Orange	18 AWG
S6	E10.02	W43.Orange	18 AWG
S6	E12.02	W44.Orange	18 AWG
S6	S5	W42.Orange	18 AWG
S7	E1.38	W45.Blue	18 AWG
S7	E8.01	W46.Blue	18 AWG
S7	E9.01	W47.Blue	18 AWG
S8	E1.39	W48.Blue	18 AWG
S8	E10.01	W49.Blue	18 AWG
S8	E11.01	W50.Blue	18 AWG
S9	E1.40	W51.Blue	18 AWG
S9	E12.01	W52.Blue	18 AWG
S9	E13.01	W53.Blue	18 AWG
S10	E3.G	W54.Red	16 AWG
S10	E9.02	W55.Red	16 AWG
S10	S11	W56.Red	16 AWG
S11	E11.02	W57.Red	18 AWG
S11	E13.02	W58.Red	18 AWG
S11	S10	W56.Red	16 AWG
S12	E1.08	W60.Red-Black	20 AWG
S12	E4.A	W59.Red-Black	20 AWG
S12	E5.02	W61.Red-Black	20 AWG
S13	E1.32	W63.Black-Red	20 AWG
S13	E4.C	W62.Black-Red	20 AWG
S13	E5.04	W64.Black-Red	20 AWG
S14	E14.01	W65.Red	20 AWG
S14	E15.04	W66.Red	20 AWG
S14	S17	W72.Red	20 AWG
S23	E1.57	W89.Black	18 AWG
S23	E5.12	W87.Black	18 AWG
S23	E21.04	W88.Black	18 AWG

From	To	Conductor	Gauge
S15	E22.04	W67.Red	20 AWG
S15	E23.01	W68.Red	20 AWG
S15	S16	W69.Red	20 AWG
S16	E3.J	W70.Red	20 AWG
S16	S15	W69.Red	20 AWG
S16	S17	W71.Red	20 AWG
S17	E7.04	W73.Red	20 AWG
S17	S14	W72.Red	20 AWG
S17	S16	W71.Red	20 AWG
S18	E22.01	W75.Black	20 AWG
S18	E23.04	W74.Black	20 AWG
S18	S20	W79.Black	20 AWG
S19	E2901	W83.Black	16 AWG
S19	S20	W84.Black	16 AWG
S19	S21	W76.Black	20 AWG
S20	S18	W79.Black	20 AWG
S20	S19	W84.Black	16 AWG
S20	S22	W85.Black	16 AWG
S21	E14.04	W78.Black	20 AWG
S21	E15.01	W77.Black	20 AWG
S21	S19	W76.Black	20 AWG
S22	E5.06	W81.Black	20 AWG
S22	E7.03	W80.Black	20 AWG
S22	S20	W85.Black	16 AWG
S34	E1.49	W123.Black	16 AWG
S34	E1.50	W124.Black	16 AWG
S34	E1.51	W125.Black	16 AWG
S34	E1.52	W126.Black	16 AWG
S34	E1.73	W127.Black	16 AWG
S34	E25.A	W128.Black	16 AWG
S34	E27	W122.Black	10 AWG

CANBUS SPLICE LIST:

From	To	Conductor	Gauge
S24	E1.22	W98.Yellow	18 AWG
S24	E3.L	W96.Yellow	18 AWG
S24	E25.C	W97.Yellow	18 AWG
S25	E1.46	W106.Green	18 AWG
S25	E3.M	W103.Green	18 AWG
S25	E25.D	W102.Green	18 AWG
S26	E22.02	W100.Green	18 AWG
S26	E23.02	W101.Green	18 AWG
S26	S28	W108.Green	18 AWG
S27	E14.03	W93.Yellow	18 AWG
S27	S29	W95.Yellow	18 AWG
S27	S37	W116.Yellow	18 AWG
S28	E15.02	W105.Green	18 AWG
S28	S26	W108.Green	18 AWG
S28	S31	W107.Green	18 AWG
S29	E15.03	W92.Yellow	18 AWG
S29	S27	W95.Yellow	18 AWG
S29	S30	W94.Yellow	18 AWG
S30	E22.03	W91.Yellow	18 AWG
S30	E23.03	W90.Yellow	18 AWG
S30	S29	W94.Yellow	18 AWG
S31	E14.02	W104.Green	18 AWG
S31	S28	W107.Green	18 AWG
S31	S38	W119.Green	18 AWG
S35	E2.22	W110.Yellow	18 AWG
S35	E7.02	W112.Yellow	18 AWG
S35	S37	W111.Yellow	18 AWG
S36	E2.23	W113.Green	18 AWG
S36	E7.01	W114.Green	18 AWG
S36	S38	W115.Green	18 AWG
S37	E26.02	W117.Yellow	18 AWG
S37	S27	W116.Yellow	18 AWG
S37	S35	W111.Yellow	18 AWG
S38	E26.01	W120.Green	18 AWG
S38	S31	W119.Green	18 AWG
S38	S36	W115.Green	18 AWG

Layout:
All measurements from E1 plug to breakout. For reference only.



J1939 CANBus wires are YL & GN twisted pair per J1939/11
All CanBus terminals (1939, CAN Hi/Lo, etc) must be gold plated unless noted
All CANBus splices to be at least 2 in. from previous CANBus splice
All splice locations suggested, open to suggestion for ease of manufacturing
All connectors should be labeled with Plug # (e.g. "716", black Sharpie acceptable)
Braiding to terminate 2 in. from back of connector
Apply heat shrink to ring terminal termination points for wire support
Unless noted, all wire to meet SAE-J-1560 TXL (Extra thin wall) for 125° C

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

H701, H702

From	To	Conductor	Gauge	Notes
H701	S16	W80.Black	16 AWG	Ground (Splice)
H702	H8.11	W85.Black	16 AWG	Ground Stud

H5

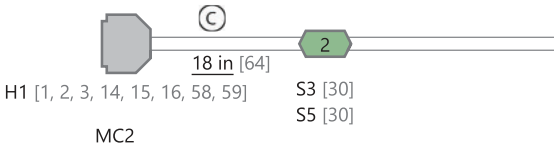
From	To	Conductor	Gauge	From Contact PN	Notes
H5.01	S14	W67.Red	16 AWG	0460-202-16141	Key Switched (Splice)
H5.02	S6	W45.Green	18 AWG	0460-202-1631	CAN B Lo (Splice)
H5.03	S4	W41.Yellow	18 AWG	0460-202-1631	CAN B Hi (Splice)
H5.04	S16	W83.Black	16 AWG	0460-202-16141	Ground (Splice)

H6

From	To	Conductor	Gauge	From Contact PN	Notes
H6.01	H1.05	W5.Blue	16 AWG	0462-201-16141	HR IN
H6.02	S14	W68.Red	16 AWG	0462-201-16141	Key Switched (Splice)
H6.03	S16	W84.Black	16 AWG	0462-201-16141	Ground (Splice)
H6.04	H1.04	W4.Red-Black	16 AWG	0462-201-16141	HR OUT

H1

From	To	Conductor	Gauge	From Contact PN	Notes
H1.01	H1.14			929937-1	ADDRESS TAG 4
H1.02	E3.B	W2.Violet	20 AWG	963711-2	Slurry Cout
H1.03	E3.D	W3.Violet	20 AWG	963711-2	Agi Cout
H1.04	H6.04	W4.Red-Black	16 AWG	963711-2	HR OUT
H1.05	H6.01	W5.Blue	16 AWG	963711-2	HR IN
H1.06	G1.13	W6.Red	20 AWG	963711-2	+12V RTC
H1.07	H3.A	W7.Yellow	20 AWG	963711-2	Slurry Cnt GLC
H1.08	S1	W9.Blue-White	20 AWG	963711-2	Light Dout (Splice)
H1.09	G1.14	W12.White	20 AWG	963711-2	2nd Boom On
H1.10	G1.15	W13.White-Black	20 AWG	963711-2	2nd Boom Off
H1.11	G1.29	W14.Tan	20 AWG	963711-2	Cooler On
H1.12	G1.09	W15.Green	20 AWG	963711-2	USB-D+
H1.13	G1.10	W16.White	20 AWG	963711-2	USB-D-
H1.14	H1.01			929937-1	ADDRESS TAG 4
H1.15	G1.24	W17.Black	12 AWG	929937-1	Ground
H1.16	E3.C	W18.Violet-White	20 AWG	963711-2	Slurry Cout +Ret
H1.17	E3.F	W19.Violet-White	20 AWG	963711-2	Agi Cout +Ret
H1.18	G1.08	W20.Green	20 AWG	963711-2	Hyd Temp Light (LS)
H1.19	G1.04	W21.Yellow	20 AWG	963711-2	Engine Start (LS)
H1.22	G1.18	W22.Tan	20 AWG	963711-2	2nd Boom Cnt
H1.23	H4.04	W23.Yellow	20 AWG	963711-2	Filter
H1.24	H8.10	W24.Green	20 AWG	963711-2	Pump On/Off
H1.25	S2	W33.Yellow-Green	20 AWG	963711-2	Throttle DN GLC (Splice)
H1.26	S3	W36.Yellow	18 AWG	963711-2	CAN B Hi (Splice)
H1.27	G1.19	W25.Yellow	18 AWG	963711-2	CAN A Hi
H1.28	G1.21	W26.Red	12 AWG	929937-1	+Batt
H1.29	S7	W47.Black-Red	16 AWG	929937-1	-VREF
H1.31	E3.E	W27.Blue-Black	20 AWG	963711-2	Agi Cout -Ret
H1.32	G1.07	W28.Blue-White	20 AWG	963711-2	Cnt GLC Act Light (LS)
H1.33	S9	W52.Yellow-White	20 AWG	963711-2	Slurry On (LS) (Splice)
H1.34	G1.43	W29.Blue	20 AWG	963711-2	Cnt Active GLC
H1.35	H8.05	W30.Pink	16 AWG	963711-2	E-Stop
H1.37	H4.01	W31.Gray-White	20 AWG	963711-2	Hyd Temp
H1.38	S10	W55.Yellow-Black	20 AWG	963711-2	Throttle Up GLC (Splice)
H1.40	S5	W42.Green	18 AWG	963711-2	CAN B Lo (Splice)
H1.41	G1.30	W32.Green	18 AWG	963711-2	CAN A Lo
H1.42	S11	W58.Red-Black	16 AWG	929937-1	+VRef (Splice)

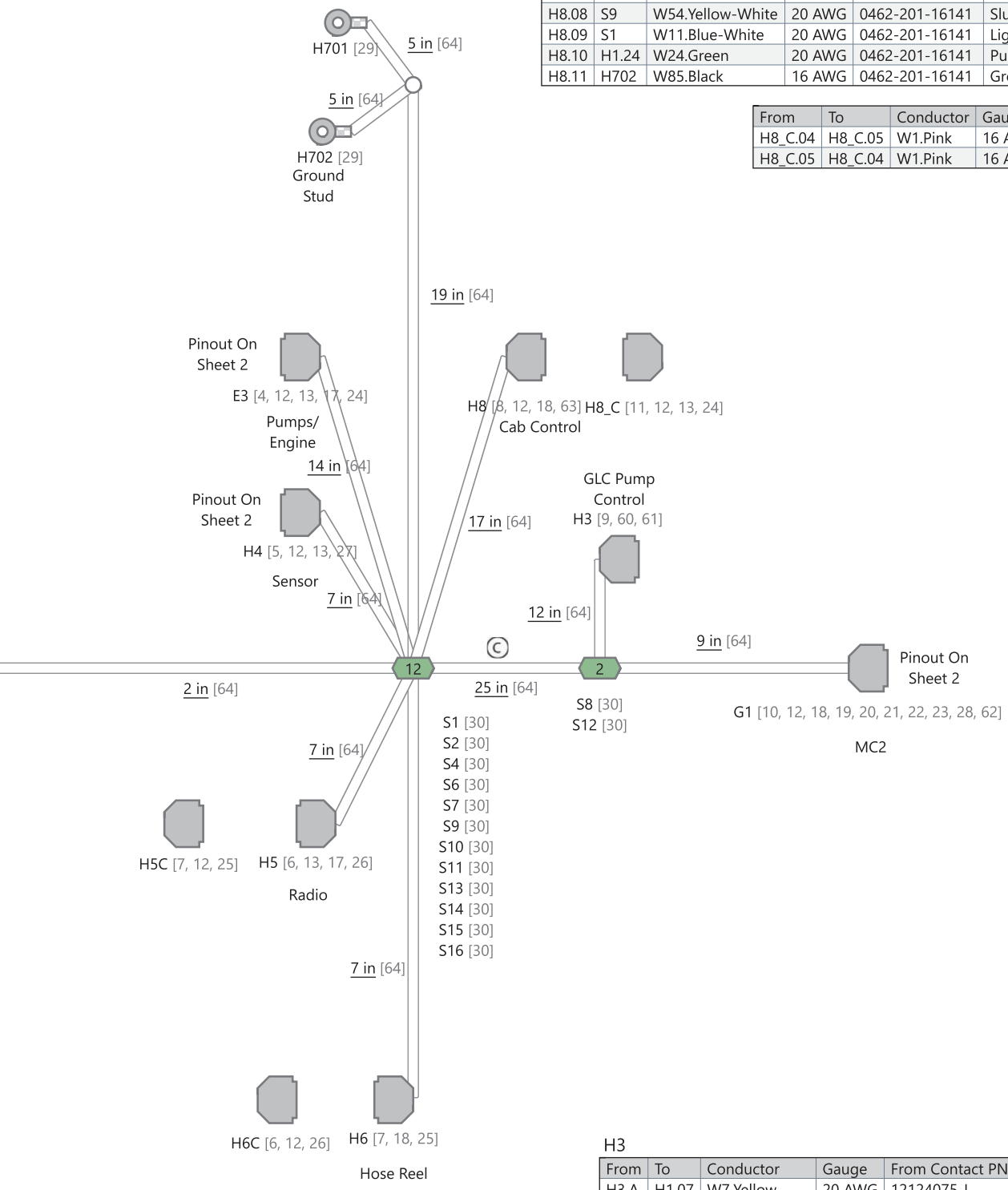


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

H8

From	To	Conductor	Gauge	From Contact PN	Notes
H8.01	G1.39	W74.Red	16 AWG	0462-201-16141	Battery
H8.02	S13	W64.Blue	16 AWG	0462-201-16141	Key Switched (Splice)
H8.03	S15	W77.Yellow	16 AWG	0462-201-16141	Start (Splice)
H8.04	G1.44	W78.Pink	16 AWG	0462-201-16141	E-Stop
H8.05	H1.35	W30.Pink	16 AWG	0462-201-16141	E-Stop
H8.06	S10	W57.Yellow-Black	20 AWG	0462-201-16141	Throttle Up GLC (Splice)
H8.07	S2	W35.Yellow-Green	20 AWG	0462-201-16141	Throttle DN GLC (Splice)
H8.08	S9	W54.Yellow-White	20 AWG	0462-201-16141	Slurry On (LS) (Splice)
H8.09	S1	W11.Blue-White	20 AWG	0462-201-16141	Light Dout (Splice)
H8.10	H1.24	W24.Green	20 AWG	0462-201-16141	Pump On/Off
H8.11	H702	W85.Black	16 AWG	0462-201-16141	Ground Stud

From	To	Conductor	Gauge	From Contact PN
H8_C.04	H8_C.05	W1.Pink	16 AWG	0460-202-16141
H8_C.05	H8_C.04	W1.Pink	16 AWG	0460-202-16141



H3

From	To	Conductor	Gauge	From Contact PN	Notes
H3.A	H1.07	W7.Yellow	20 AWG	12124075-L	Slurry Cnt GLC
H3.B	S8	W50.Black-Red	16 AWG	12124075-L	-VREF (Splice)
H3.C	S12	W61.Red-Black	16 AWG	12124075-L	+VRef (Splice)

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

SPLICE LIST:

From	To	Conductor	Gauge
S1	G1.03	W10.Blue-White	20 AWG
S1	H1.08	W9.Blue-White	20 AWG
S1	H8.09	W11.Blue-White	20 AWG
S2	G1.41	W34.Yellow-Green	20 AWG
S2	H1.25	W33.Yellow-Green	20 AWG
S2	H8.07	W35.Yellow-Green	20 AWG
S3	E3.L	W40.Yellow	18 AWG
S3	H1.26	W36.Yellow	18 AWG
S3	S4	W38.Yellow	18 AWG
S4	G1.17	W39.Yellow	18 AWG
S4	H5.03	W41.Yellow	18 AWG
S4	S3	W38.Yellow	18 AWG
S5	E3.M	W46.Green	18 AWG
S5	H1.40	W42.Green	18 AWG
S5	S6	W43.Green	18 AWG
S6	G1.16	W44.Green	18 AWG
S6	H5.02	W45.Green	18 AWG
S6	S5	W43.Green	18 AWG
S7	H1.29	W47.Black-Red	16 AWG
S7	H4.03	W51.Black-Red	16 AWG
S7	S8	W48.Black-Red	16 AWG
S8	G1.20	W49.Black-Red	16 AWG
S8	H3.B	W50.Black-Red	16 AWG
S8	S7	W48.Black-Red	16 AWG
S9	G1.06	W53.Yellow-White	20 AWG
S9	H1.33	W52.Yellow-White	20 AWG
S9	H8.08	W54.Yellow-White	20 AWG
S10	G1.47	W56.Yellow-Black	20 AWG
S10	H1.38	W55.Yellow-Black	20 AWG
S10	H8.06	W57.Yellow-Black	20 AWG
S11	H1.42	W58.Red-Black	16 AWG
S11	H4.02	W62.Red-Black	16 AWG
S11	S12	W59.Red-Black	16 AWG
S12	G1.31	W60.Red-Black	16 AWG
S12	H3.C	W61.Red-Black	16 AWG
S12	S11	W59.Red-Black	16 AWG
S13	E3.K	W65.Blue	16 AWG
S13	G1.11	W63.Blue	16 AWG
S13	H8.02	W64.Blue	16 AWG
S14	G1.12	W66.Red	16 AWG
S14	H5.01	W67.Red	16 AWG
S14	H6.02	W68.Red	16 AWG
S15	E3.A	W76.Yellow	16 AWG
S15	G1.42	W75.Yellow	16 AWG
S15	H8.03	W77.Yellow	16 AWG
S16	G1.46	W81.Black	16 AWG
S16	H4.05	W82.Black	16 AWG
S16	H5.04	W83.Black	16 AWG
S16	H6.03	W84.Black	16 AWG
S16	H701	W80.Black	16 AWG

E3

From	To	Conductor	Gauge	From Contact PN	Notes
E3.A	S15	W76.Yellow	16 AWG	0460-202-16141	Start (Splice)
E3.B	H1.02	W2.Violet	20 AWG	0460-202-16141	Slurry Cout
E3.C	H1.16	W18.Violet-White	20 AWG	0460-202-16141	Slurry Cout +Ret
E3.D	H1.03	W3.Violet	20 AWG	0460-202-16141	Agi Cout
E3.E	H1.31	W27.Blue-Black	20 AWG	0460-202-16141	Agi Cout -Ret
E3.F	H1.17	W19.Violet-White	20 AWG	0460-202-16141	Agi Cout +Ret
E3.G	G1.23	W70.Blue	16 AWG	0460-202-16141	+12V Heater
E3.H	G1.36	W73.Red	16 AWG	0460-202-16141	+12V DEF
E3.J	G1.34	W71.Red	16 AWG	0460-202-16141	+12V AFT
E3.K	S13	W65.Blue	16 AWG	0460-202-16141	Key Switched (Splice)
E3.L	S3	W40.Yellow	18 AWG	0460-202-1631	CAN B Hi (Splice)
E3.M	S5	W46.Green	18 AWG	0460-202-1631	CAN B Lo (Splice)
E3.N	G1.35	W72.Black	16 AWG	0460-202-16141	DEF Supply Relay
E3.O	G1.22	W69.Black	16 AWG	0460-202-16141	Heater Relay
E3.P	G1.45	W79.White-Black	16 AWG	0460-202-16141	P Horn

H4

From	To	Conductor	Gauge	From Contact PN	Notes
H4.01	H1.37	W31.Gray-White	20 AWG	0460-202-16141	Hyd Temp
H4.02	S11	W62.Red-Black	16 AWG	0460-202-16141	+VRef (Splice)
H4.03	S7	W51.Black-Red	16 AWG	0460-202-16141	-VREF (Splice)
H4.04	H1.23	W23.Yellow	20 AWG	0460-202-16141	Filter
H4.05	S16	W82.Black	16 AWG	0460-202-16141	Ground (Splice)

J1939 CANBus wires are YL & GN twisted pair per J1939/11
All CanBus terminals (1939, CAN Hi/Lo, etc) must be gold plated unless noted
All connectors should be labeled with Plug # (e.g. "716", black Sharpie acceptable)
Unless noted, all wire to meet SAE-J-1560 TXL (Extra thin wall) for 125° C

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

G1

From	To	Conductor	Gauge	From Contact PN	Notes
G1.03	S1	W10.Blue-White	20 AWG	0462-201-20141	Light Dout (Splice)
G1.04	H1.19	W21.Yellow	20 AWG	0462-201-20141	Engine Start (LS)
G1.06	S9	W53.Yellow-White	20 AWG	0462-201-20141	Slurry On (LS) (Splice)
G1.07	H1.32	W28.Blue-White	20 AWG	0462-201-20141	Cnt GLC Act Light (LS)
G1.08	H1.18	W20.Green	20 AWG	0462-201-20141	Hyd Temp Light (LS)
G1.09	H1.12	W15.Green	20 AWG	0462-201-20141	USB-D+
G1.10	H1.13	W16.White	20 AWG	0462-201-20141	USB-D-
G1.11	S13	W63.Blue	16 AWG	0462-005-20141	Key Switched (Splice)
G1.12	S14	W66.Red	16 AWG	0462-005-20141	Remote (Splice)
G1.13	H1.06	W6.Red	20 AWG	0462-201-16141	+12V RTC
G1.14	H1.09	W12.White	20 AWG	0462-201-16141	2nd Boom On
G1.15	H1.10	W13.White-Black	20 AWG	0462-201-16141	2nd Boom Off
G1.16	S6	W44.Green	18 AWG	0462-210-1231	CAN B Lo (Splice)
G1.17	S4	W39.Yellow	18 AWG	0462-210-1231	CAN B Hi (Splice)
G1.18	H1.22	W22.Tan	20 AWG	0462-201-16141	2nd Boom Cnt
G1.19	H1.27	W25.Yellow	18 AWG	0462-201-1631	CAN A Hi
G1.20	S8	W49.Black-Red	16 AWG	0462-005-20141	-VREF (Splice)
G1.21	H1.28	W26.Red	12 AWG	0462-203-12141	+Batt
G1.22	E3.O	W69.Black	16 AWG	0462-203-12141	Heater Relay
G1.23	E3.G	W70.Blue	16 AWG	0462-203-12141	+12V Heater
G1.24	H1.15	W17.Black	12 AWG	0462-203-12141	Ground
G1.29	H1.11	W14.Tan	20 AWG	0462-201-16141	Cooler On
G1.30	H1.41	W32.Green	18 AWG	0462-201-1631	CAN A Lo
G1.31	S12	W60.Red-Black	16 AWG	0462-201-16141	+VRef (Splice)
G1.34	E3.J	W71.Red	16 AWG	0462-201-16141	+12V AFT
G1.35	E3.N	W72.Black	16 AWG	0462-201-16141	DEF Supply Relay
G1.36	E3.H	W73.Red	16 AWG	0462-201-16141	+12V DEF
G1.39	H8.01	W74.Red	16 AWG	0462-005-20141	Battery
G1.41	S2	W34.Yellow-Green	20 AWG	0462-201-20141	Throttle DN GLC (Splice)
G1.42	S15	W75.Yellow	16 AWG	0462-005-20141	Start (Splice)
G1.43	H1.34	W29.Blue	20 AWG	0462-201-20141	Cnt Active GLC
G1.44	H8.04	W78.Pink	16 AWG	0462-005-20141	E-Stop
G1.45	E3.P	W79.White-Black	16 AWG	0462-005-20141	P Horn
G1.46	S16	W81.Black	16 AWG	0462-005-20141	Ground (Splice)
G1.47	S10	W56.Yellow-Black	20 AWG	0462-201-20141	Throttle Up GLC (Splice)

Coverings	
Id	Assembly
[64]	

GLC BOX WIRING, PAGE 1 (91-73-0026E)

G3

From	To	Conductor	Gauge	From Contact PN	Notes
G3.01	G1304	W1.Black	10 AWG	0460-204-12141	Ground
G3.03	FB1	W2.Red	16 AWG	0460-204-12141	Display Power
G3.04	G687	W3.Red	10 AWG	0460-204-12141	+12V Cooler Fan
G3.05	G1.18	W4.Tan	20 AWG	0460-202-16141	2nd Boom Control
G3.09	G1.16	W5.Green	18 AWG	0460-202-1631	CAN-B Lo
G3.10	G1.17	W6.Yellow	18 AWG	0460-202-1631	CAN-B Hi
G3.11	G1.44	W7.Pink	16 AWG	0460-202-16141	E-Stop
G3.13	S5	W56.Black-Red	16 AWG	0460-202-16141	-Vref Ground (Splice)
G3.14	G1.31	W8.Red-Black	16 AWG	0460-202-16141	+Vref
G3.15	G23.2	W9.Red	16 AWG	0460-202-16141	Horn Power
G3.16	G1.45	W10.White-Black	16 AWG	0460-202-16141	Horn Signal
G3.17	G1.19	W11.Yellow	18 AWG	0460-202-1631	CAN-A Hi
G3.19	G1.30	W12.Green	18 AWG	0460-202-1631	CAN-A Lo
G3.21	G11.01	W13.Pink	16 AWG	0460-202-16141	E-Stop
G3.22	S1	W45.Blue	16 AWG	0460-202-16141	Key Switched (Spliced)
G3.23	S3	W50.Yellow-White	20 AWG	0460-202-20141	Slurry On (LS) (Splice)
G3.24	G1.08	W14.Green	20 AWG	0460-202-20141	Hyd Temp Light (LS)
G3.25	S8	W64.Red	16 AWG	0460-202-16141	Switch Power (Splice)
G3.26	FB5	W15.Red	16 AWG	0460-202-16141	Beacon
G3.27	G1.14	W16.White	20 AWG	0460-202-20141	2nd Boom On
G3.28	G1402	W17.Red	16 AWG	0460-202-16141	Battery
G3.29	G1.15	W18.White-Black	20 AWG	0460-202-20141	2nd Boom Off

G9

From	To	Conductor	Gauge	From Contact PN	Notes
G9.02	S6	W58.Red	20 AWG	42238-2	Switch Power (Splice)
G9.03	G1.43	W35.Blue	20 AWG	42238-2	Cnt Active GLC
G9.07	S4	W53.Blue-Black	20 AWG	42238-2	GLC Act Light (Splice)
G9.08	S11	W79.Blue-White	20 AWG	42238-2	Light DOUT (Splice)

G24

From	To	Conductor	Gauge	From Contact PN	Notes
G24.01	S4	W54.Blue-Black	20 AWG	0462-201-16141	GLC Act Light (Splice)
G24.02	S11	W80.Blue-White	20 AWG	0462-201-16141	Light DOUT (Splice)

G801, G802

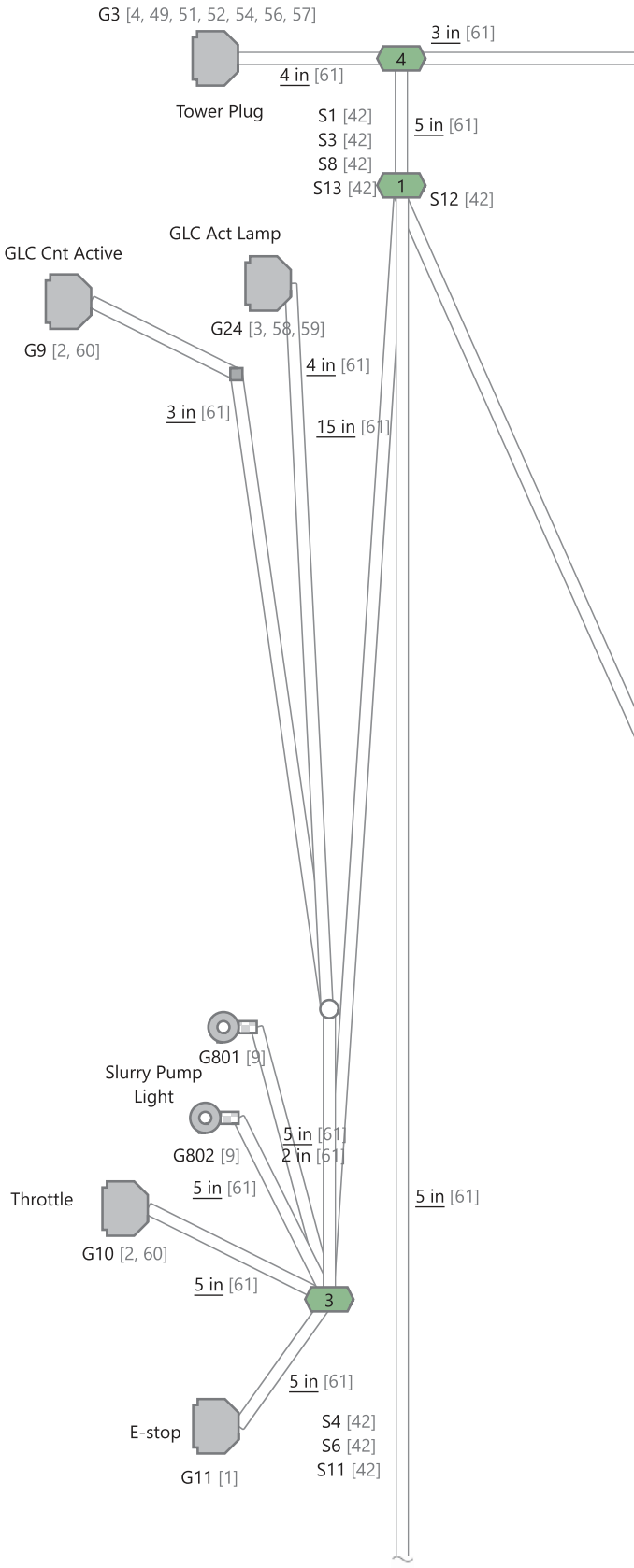
From	To	Conductor	Gauge	Notes
G801	S12	W77.Blue-White	20 AWG	Light DOUT (Splice)
G802	S3	W51.Yellow-White	20 AWG	Slurry On (LS) (Splice)

G10

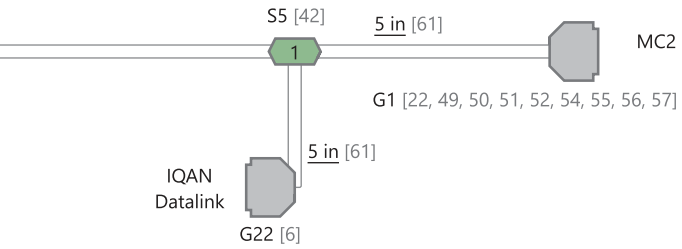
From	To	Conductor	Gauge	From Contact PN	Notes
G10.01	G1.47	W37.Yellow-Black	20 AWG	42238-2	Throttle Up GLC
G10.02	S6	W59.Red	20 AWG	42238-2	Switch Power (Splice)
G10.03	G1.41	W33.Yellow-Green	20 AWG	42238-2	Throttle Down DLC

G11

From	To	Conductor	Gauge	From Contact PN	Notes
G11.01	G3.21	W13.Pink	16 AWG		E-Stop
G11.02	S6	W72.Pink	16 AWG		E-Stop (Splice)

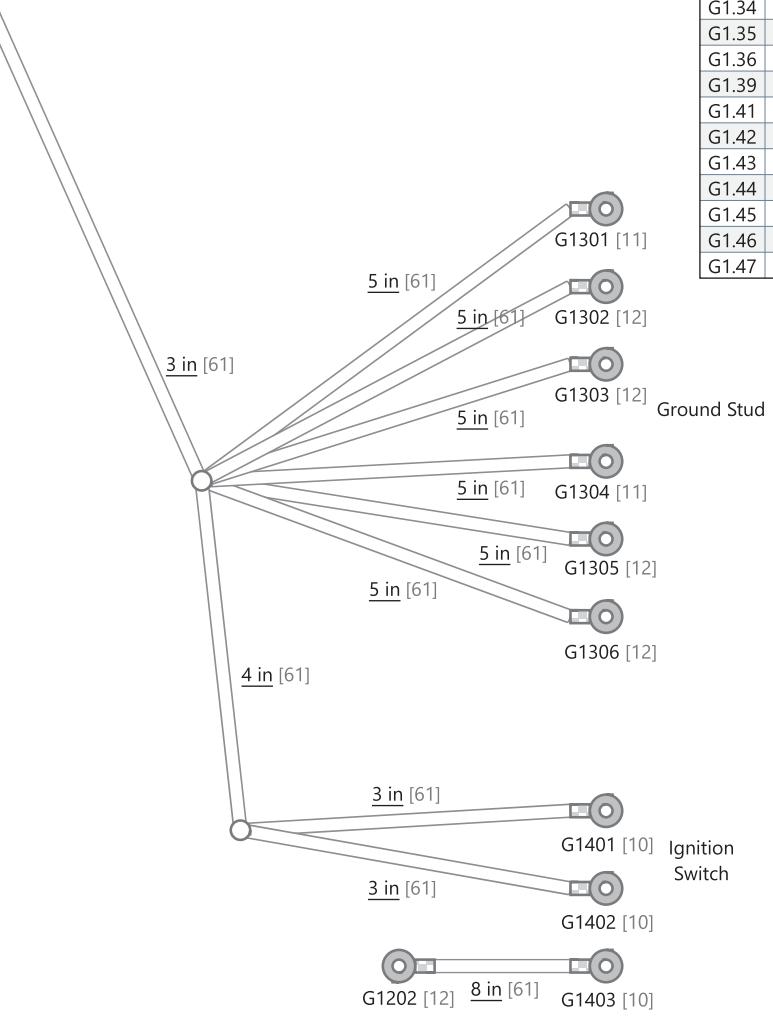


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



G1

From	To	Conductor	Gauge	From Contact PN	Notes
G1.03	S13	W74.Blue-White	20 AWG	0460-202-20141	Light DOUT (Splice)
G1.04	G21.85	W19.Yellow	20 AWG	0460-202-20141	Start (LS)
G1.06	S3	W49.Yellow-White	20 AWG	0460-202-20141	Slurry On (LS) (Splice)
G1.07	S4	W52.Blue-Black	20 AWG	0460-202-20141	GLC Act Light (Splice)
G1.08	G3.24	W14.Green	20 AWG	0460-202-20141	Hyd Temp Light (LS)
G1.09	G22.3	W20.Green	20 AWG	0460-202-20141	USB D+
G1.10	G22.2	W21.White	20 AWG	0460-202-20141	USB D-
G1.11	S1	W44.Blue	16 AWG	AT60-20-0122	Key Switched (Splice)
G1.12	FB10	W22.Red	16 AWG	AT60-20-0122	Remote Power
G1.13	G7.02	W23.Red	20 AWG	0460-202-16141	+RTC
G1.14	G3.27	W16.White	20 AWG	0460-202-16141	2nd Boom On
G1.15	G3.29	W18.White-Black	20 AWG	0460-202-16141	2nd Boom Off
G1.16	G3.09	W5.Green	18 AWG	0460-204-1231	CAN-B Lo
G1.17	G3.10	W6.Yellow	18 AWG	0460-204-1231	CAN-B Hi
G1.18	G3.05	W4.Tan	20 AWG	0460-202-16141	2nd Boom Control
G1.19	G3.17	W11.Yellow	18 AWG	0460-202-1631	CAN-A Hi
G1.20	S5	W55.Black-Red	16 AWG	0460-202-16141	-Vref Ground (Splice)
G1.21	FB3	W24.Red	12 AWG	0460-204-12141	+Batt
G1.22	G18.85	W25.Black	16 AWG	0460-204-12141	Heater Relay
G1.23	G18.87	W26.Blue	16 AWG	0460-204-12141	Heater +12V
G1.24	G1301	W27.Black	12 AWG	0460-204-12141	Ground
G1.29	G6.86	W30.Tan	20 AWG	0460-202-16141	Cooler On
G1.30	G3.19	W12.Green	18 AWG	0460-202-1631	CAN-A Lo
G1.31	G3.14	W8.Red-Black	16 AWG	0460-202-16141	+Vref
G1.34	G16.87	W28.Red	16 AWG	0460-202-16141	+12V AFT
G1.35	G17.85	W29.Black	16 AWG	0460-202-16141	DEF Supply Relay
G1.36	G17.87	W31.Red	16 AWG	0460-202-16141	+12V DEF
G1.39	G1401	W32.Red	16 AWG	AT60-20-0122	Battery
G1.41	G10.03	W33.Yellow-Green	20 AWG	0460-202-20141	Throttle Down DLC
G1.42	G21.87	W34.Yellow	16 AWG	AT60-20-0122	Start
G1.43	G9.03	W35.Blue	20 AWG	0460-202-20141	Cnt Active GLC
G1.44	G3.11	W7.Pink	16 AWG	AT60-20-0122	E-Stop
G1.45	G3.16	W10.White-Black	16 AWG	AT60-20-0122	Horn Signal
G1.46	G1306	W36.Black	16 AWG	AT60-20-0122	Ground
G1.47	G10.01	W37.Yellow-Black	20 AWG	0460-202-20141	Throttle Up GLC



G22

From	To	Conductor	Gauge	Notes
G22.2	G1.10	W21.White	20 AWG	USB D-
G22.3	G1.09	W20.Green	20 AWG	USB D+
G22.4	S5	W57.Black-Red	16 AWG	-Vref Ground (Splice)

G1301, G1302, G1303, G1304, G1305, G1306

From	To	Conductor	Gauge	Notes
G1301	G1.24	W27.Black	12 AWG	Ground
G1302	G6.85	W40.Black	16 AWG	Cooler Fan Ground
G1303	G5.85	W43.Black	16 AWG	Power Relay Ground
G1304	G3.01	W1.Black	10 AWG	Ground
G1305	G16.85	W41.Black	16 AWG	AFT Relay Ground
G1306	G1.46	W36.Black	16 AWG	Ground

G1401, G1402, G1403

From	To	Conductor	Gauge	From Contact PN	Notes
G1401	G1.39	W32.Red	16 AWG		Battery
G1402	G3.28	W17.Red	16 AWG		Battery
G1403	G1202	W81.Red	16 AWG		+12V Power

From	To	Conductor	Gauge
G1202	G1403	W81.Red	16 AWG

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

G7

From	To	Conductor	Gauge	From Contact PN	Notes
G7.01	FB6	W38.Red	20 AWG	0462-201-16141	+RTC
G7.02	G1.13	W23.Red	20 AWG	0462-201-16141	+RTC

FB4, FB3, FB1, FB5

From	To	Conductor	Gauge	Notes
FB1	G3.03	W2.Red	16 AWG	Display Power
FB3	G1.21	W24.Red	12 AWG	+Batt
FB4	S7	W61.Red	16 AWG	Switch Power (Splice)
FB5	G3.26	W15.Red	16 AWG	Beacon

FB7, FB6, FB8, FB9, FB10

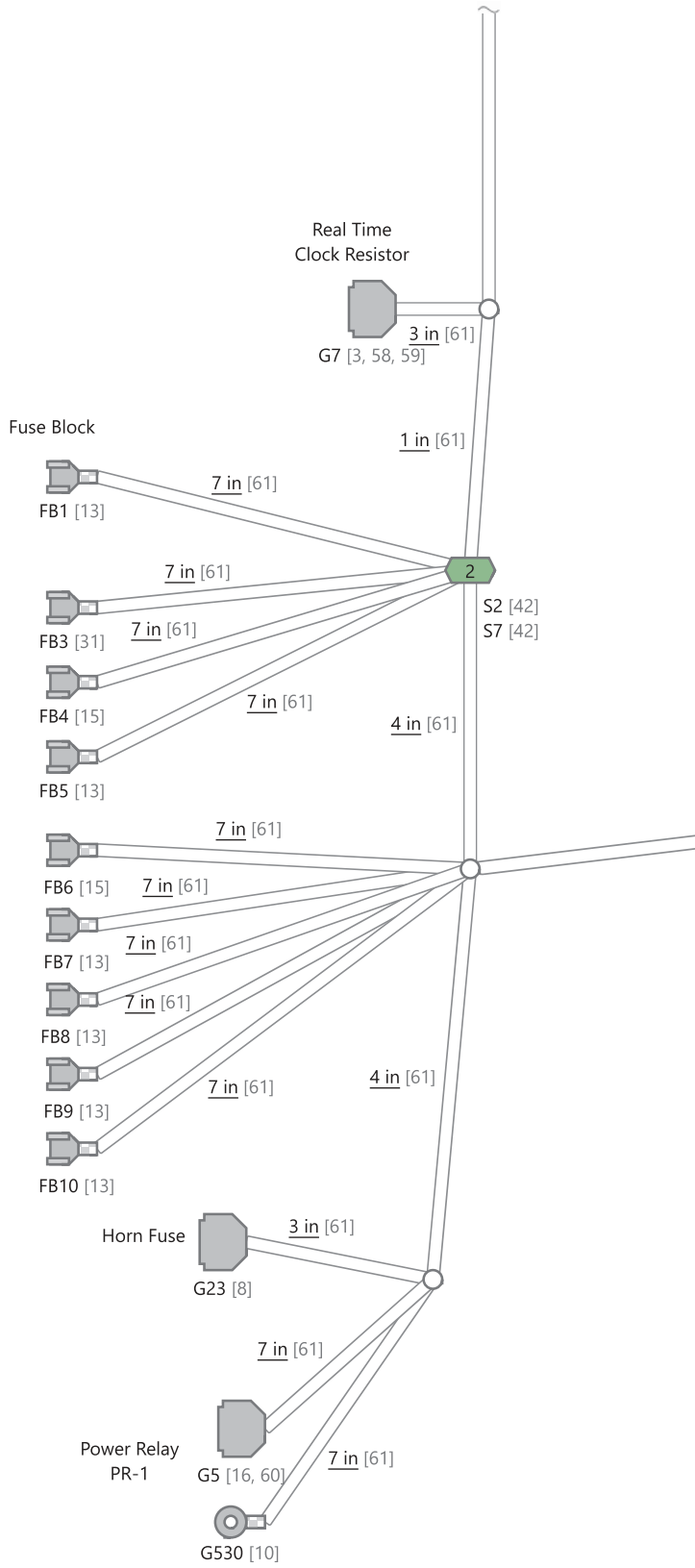
From	To	Conductor	Gauge	Notes
FB6	G7.01	W38.Red	20 AWG	+RTC
FB7	G16.30	W42.Red	16 AWG	+12V AFT
FB8	S9	W67.Red	16 AWG	+12V DEF (Splice)
FB9	S10	W70.Red	16 AWG	+12V Heater (Splice)
FB10	G1.12	W22.Red	16 AWG	Remote Power

G23

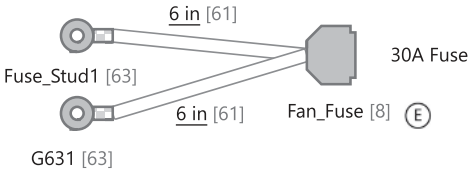
From	To	Conductor	Gauge	Notes
G23.1	G530	W85.Red	16 AWG	Horn Fuse
G23.2	G3.15	W9.Red	16 AWG	Horn Power

G5, G530

From	To	Conductor	Gauge	From Contact PN	Notes
G5.85	G1303	W43.Black	16 AWG	42238-2	Power Relay Ground
G5.86	S2	W46.Blue	16 AWG	42238-2	Key Switched (Spliced)
G530	G23.1	W85.Red	16 AWG		Horn Fuse



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



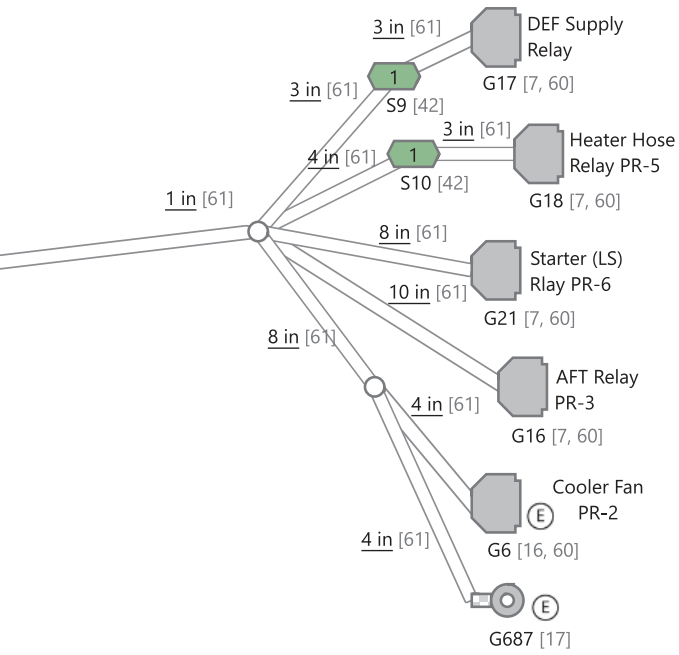
From	To	Conductor	Gauge	Notes
Fan_Fuse.1	Fuse_Stud1	W73.Orange	12 AWG	+12V Power In
Fan_Fuse.2	G631	W86.Orange	12 AWG	+12V Power Fused

G17

From	To	Conductor	Gauge	From Contact PN	Notes
G17.30	S9	W65.Red	16 AWG	42238-2	+12V DEF (Splice)
G17.85	G1.35	W29.Black	16 AWG	42238-2	DEF Supply Relay
G17.86	S9	W66.Red	16 AWG	42238-2	+12V DEF (Splice)
G17.87	G1.36	W31.Red	16 AWG	42238-2	+12V DEF

G18

From	To	Conductor	Gauge	From Contact PN	Notes
G18.30	S10	W68.Red	16 AWG	42238-2	+12V Heater (Splice)
G18.85	G1.22	W25.Black	16 AWG	42238-2	Heater Relay
G18.86	S10	W69.Red	16 AWG	42238-2	+12V Heater (Splice)
G18.87	G1.23	W26.Blue	16 AWG	42238-2	Heater +12V



G21

From	To	Conductor	Gauge	From Contact PN	Notes
G21.30	S7	W62.Red	20 AWG	42238-2	Switch Power (Splice)
G21.85	G1.04	W19.Yellow	20 AWG	42238-2	Start (LS)
G21.86	S13	W75.Blue-White	20 AWG	42238-2	Light DOUT (Splice)
G21.87	G1.42	W34.Yellow	16 AWG	42238-2	Start

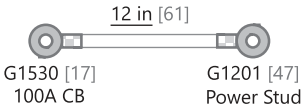
G16

From	To	Conductor	Gauge	From Contact PN	Notes
G16.30	FB7	W42.Red	16 AWG	42238-2	+12V AFT
G16.85	G1305	W41.Black	16 AWG	42238-2	AFT Relay Ground
G16.86	S2	W47.Blue	16 AWG	42238-2	Key Switched (Spliced)
G16.87	G1.34	W28.Red	16 AWG	42238-2	+12V AFT

G6, G687

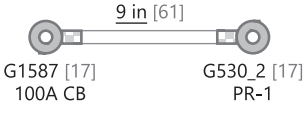
From	To	Conductor	Gauge	From Contact PN	Notes
G6.85	G1302	W40.Black	16 AWG	42238-2	Cooler Fan Ground
G6.86	G1.29	W30.Tan	20 AWG	42238-2	Cooler On
G687	G3.04	W3.Red	10 AWG		+12V Cooler Fan

From	To	Conductor	Gauge
G1530	G1201	W82.Red	6 AWG



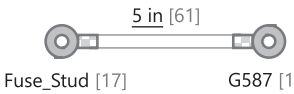
From	To	Conductor	Gauge
G1201	G1530	W82.Red	6 AWG

From	To	Conductor	Gauge
G1587	G530_2	W83.Red	6 AWG



From	To	Conductor	Gauge
G530_2	G1587	W83.Red	6 AWG

From	To	Conductor	Gauge
Fuse_Stud	G587	W84.Red	6 AWG



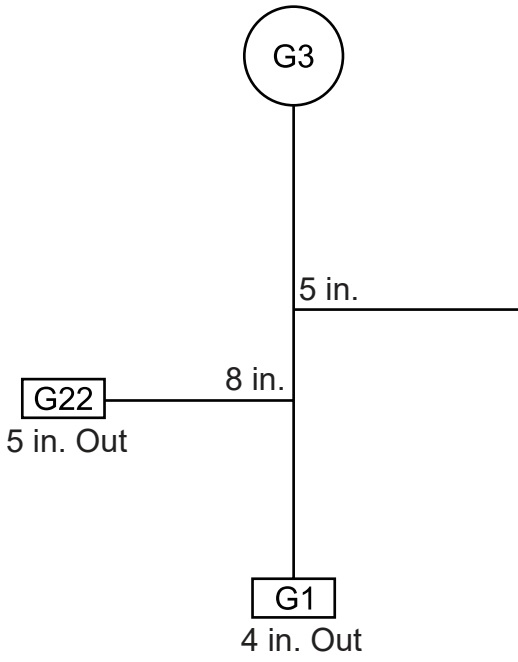
From	To	Conductor	Gauge
G587	Fuse_Stud	W84.Red	6 AWG

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

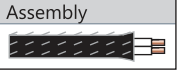
SPLICE LIST:

From	To	Conductor	Gauge
S1	G1.11	W44.Blue	16 AWG
S1	G3.22	W45.Blue	16 AWG
S1	S2	W48.Blue	16 AWG
S2	G5.86	W46.Blue	16 AWG
S2	G16.86	W47.Blue	16 AWG
S2	S1	W48.Blue	16 AWG
S3	G1.06	W49.Yellow-White	20 AWG
S3	G3.23	W50.Yellow-White	20 AWG
S3	G802	W51.Yellow-White	20 AWG
S4	G1.07	W52.Blue-Black	20 AWG
S4	G9.07	W53.Blue-Black	20 AWG
S4	G24.01	W54.Blue-Black	20 AWG
S5	G1.20	W55.Black-Red	16 AWG
S5	G3.13	W56.Black-Red	16 AWG
S5	G22.4	W57.Black-Red	16 AWG
S6	G9.02	W58.Red	20 AWG
S6	G10.02	W59.Red	20 AWG
S6	G11.02	W72.Pink	16 AWG
S6	S8	W63.Red	20 AWG
S7	FB4	W61.Red	16 AWG
S7	G21.30	W62.Red	20 AWG
S7	S8	W60.Red	16 AWG
S8	G3.25	W64.Red	16 AWG
S8	S6	W63.Red	20 AWG
S8	S7	W60.Red	16 AWG
S9	FB8	W67.Red	16 AWG
S9	G17.30	W65.Red	16 AWG
S9	G17.86	W66.Red	16 AWG
S10	FB9	W70.Red	16 AWG
S10	G18.30	W68.Red	16 AWG
S10	G18.86	W69.Red	16 AWG
S11	G9.08	W79.Blue-White	20 AWG
S11	G24.02	W80.Blue-White	20 AWG
S11	S12	W78.Blue-White	20 AWG
S12	G801	W77.Blue-White	20 AWG
S12	S11	W78.Blue-White	20 AWG
S12	S13	W76.Blue-White	20 AWG
S13	G1.03	W74.Blue-White	20 AWG
S13	G21.86	W75.Blue-White	20 AWG
S13	S12	W76.Blue-White	20 AWG

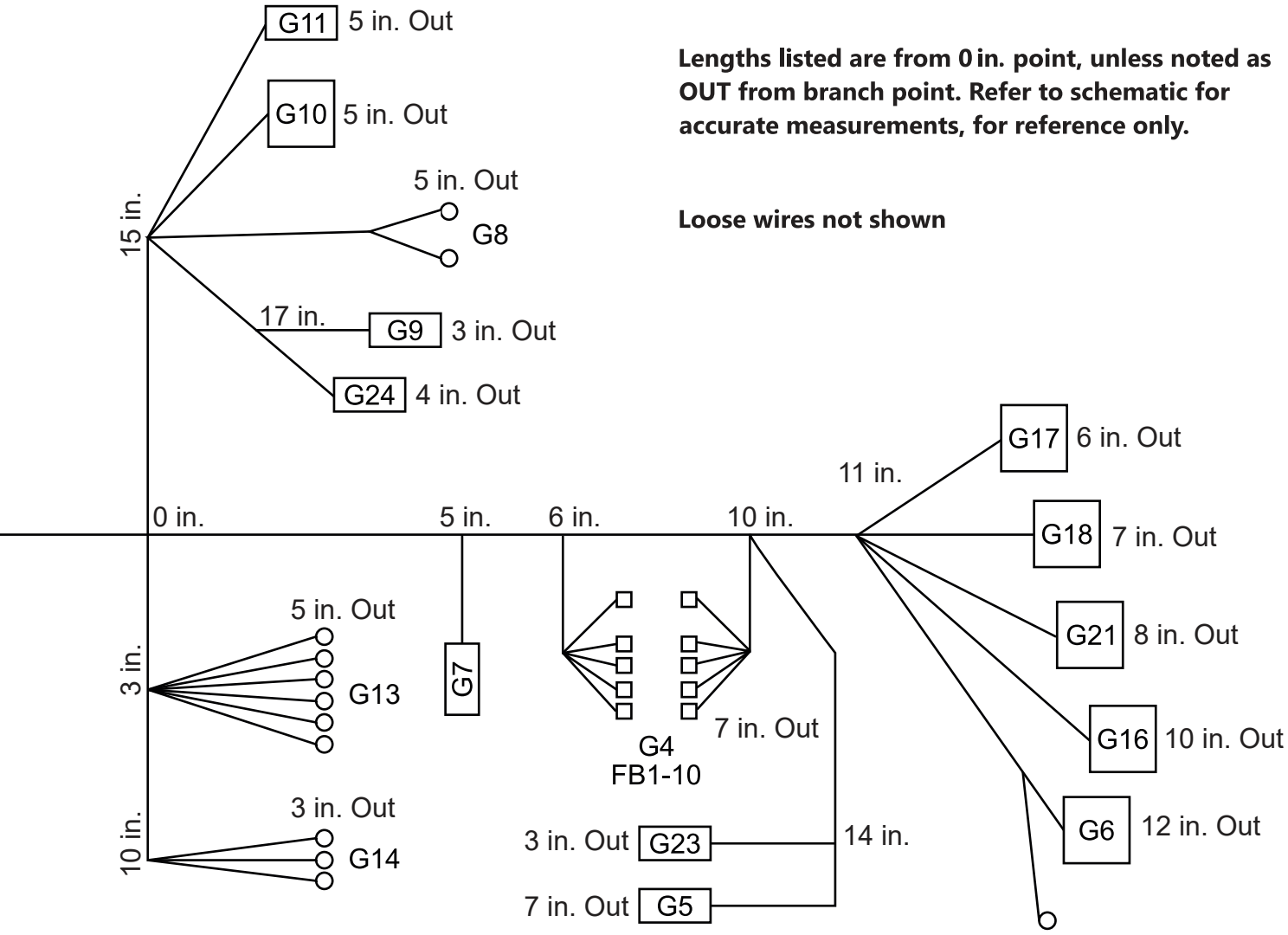
Harness Layout



J1939 CANBus wires are YL & GN twisted pair per J1939/11
All CanBus terminals (1939, CAN Hi/Lo, etc) must be gold plated unless noted
All CANBus splices to be at least 2 in. from previous CANBus splice
All splice locations suggested, open to suggestion for ease of manufacturing
All connectors should be labeled with Plug # (e.g. "716", black Sharpie acceptable)
Braiding to terminate 2 in. from back of connector
Apply heat shrink to ring terminal termination points for wire support
Unless noted, all wire to meet SAE-J-1560 TXL (Extra thin wall) for 125° C

Coverings	
Id	Assembly
[61]	

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



Lengths listed are from 0 in. point, unless noted as OUT from branch point. Refer to schematic for accurate measurements, for reference only.

Loose wires not shown

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

C5

From	To	Conductor	Gauge	From Contact PN	Notes
C5.02	C21.01	W23.Red	16 AWG	42238-2	Battery
C5.03	C21.12	W38.Blue	16 AWG	42238-2	Key Switched

C12

From	To	Conductor	Gauge	From Contact PN	Notes
C12.01	S2	W27.Red	16 AWG	0460-202-16141	Power Button (Splice)
C12.02	C1104	W47.Black	16 AWG	0460-202-16141	Ground
C12.03	S3	W30.Yellow	18 AWG	0460-202-1631	CAN-B Hi (Splice)
C12.04	S4	W33.Green	18 AWG	0460-202-1631	CAN-B Lo (Splice)

C7

From	To	Conductor	Gauge	From Contact PN	Notes
C7.A	C2.01	W40.Yellow	20 AWG	12124075-L	Slurry Control Tower
C7.B	S6	W44.Black-Red	16 AWG	12124075-L	-Vref Ground (Splice)
C7.C	S5	W45.Red-Black	16 AWG	12124075-L	+Vref (Splice)

C10

From	To	Conductor	Gauge	From Contact PN	Notes
C10.A	C21.11	W37.Red	16 AWG	0462-201-16141	Beacon
C10.B	C1103	W48.Black	16 AWG	0462-201-16141	Ground
C10.C	C901	W49.Green	16 AWG	0462-201-16141	Beacon Pattern SW

C901, C902

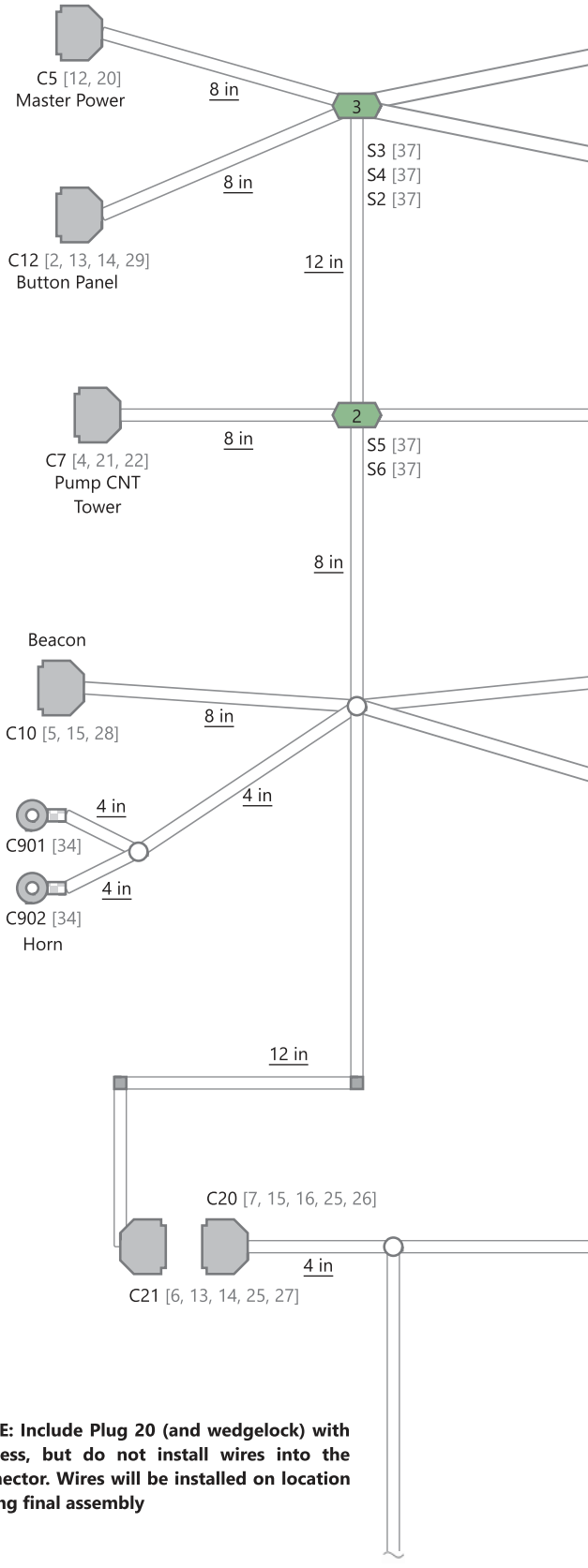
From	To	Conductor	Gauge
C901	C10.C	W49.Green	16 AWG
C902	C1102	W50.Black	16 AWG

C21

From	To	Conductor	Gauge	From Contact PN	Notes
C21.01	C5.02	W23.Red	16 AWG	0460-202-16141	Battery
C21.02	S2	W26.Red	16 AWG	0460-202-16141	Display Power (Splice)
C21.03	C802	W25.Red	16 AWG	0460-202-16141	Horn Power
C21.04	C1.11	W28.Yellow	18 AWG	0460-202-1631	CAN-A Hi
C21.05	S3	W29.Yellow	18 AWG	0460-202-1631	CAN-B Hi (Splice)
C21.06	C2.03	W39.Blue-White	20 AWG	0460-202-16141	2nd Boom Lamp (LS)
C21.08	S4	W32.Green	18 AWG	0460-202-1631	CAN-B Lo (Splice)
C21.09	C1.02	W35.Green	18 AWG	0460-202-1631	CAN-A Lo
C21.10	C801	W36.White-Black	16 AWG	0460-202-16141	Horn Signal
C21.11	C10.A	W37.Red	16 AWG	0460-202-16141	Beacon
C21.12	C5.03	W38.Blue	16 AWG	0460-202-16141	Key Switched

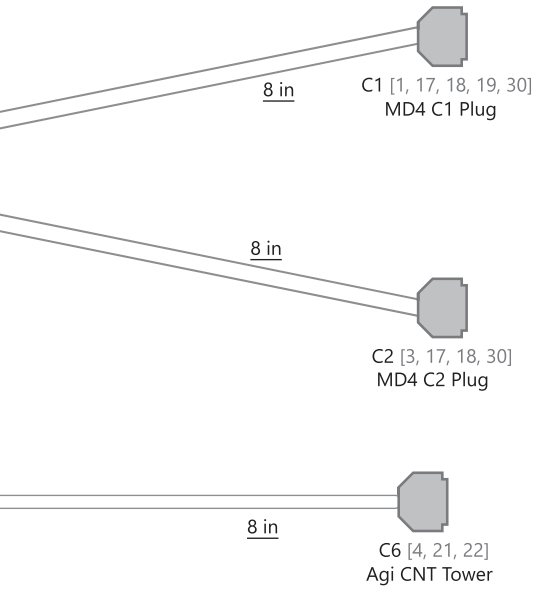
C20

From	To	Conductor	Gauge	From Contact PN	Notes
C20.01	G3.28	W15.Red	16 AWG	0462-201-16141	Battery
C20.02	G3.03	W2.Red	16 AWG	0462-201-16141	Display Power
C20.03	G3.15	W4.Red	16 AWG	0462-201-16141	Horn Power
C20.04	G3.17	W11.Yellow	18 AWG	0462-201-1631	CAN-A Hi
C20.05	G3.10	W6.Yellow	18 AWG	0462-201-1631	CAN-B Hi
C20.06	C15.06	W19.Blue-White	20 AWG	0462-201-16141	2nd Boom Light (LS)
C20.08	G3.09	W7.Green	18 AWG	0462-201-1631	CAN-B Lo
C20.09	G3.19	W10.Green	18 AWG	0462-201-1631	CAN-A Lo
C20.10	G3.16	W9.White-Black	16 AWG	0462-201-16141	Horn Signal
C20.11	G3.26	W14.Red	16 AWG	0462-201-16141	Beacon
C20.12	G3.22	W13.Blue	16 AWG	0462-201-16141	Key Switched



NOTE: Include Plug 20 (and wedgelock) with harness, but do not install wires into the connector. Wires will be installed on location during final assembly

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



C1

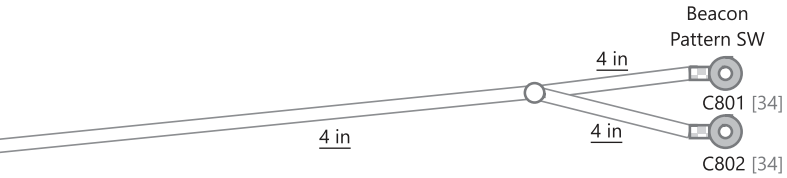
From	To	Conductor	Gauge	From Contact PN	Notes
C1.01	S6	W51.Black	16 AWG	0462-005-20141	Ground (Splice)
C1.02	C21.09	W35.Green	18 AWG	0462-005-2031	CAN-A Lo
C1.03	S4	W34.Green	18 AWG	0462-005-2031	CAN-B Lo (Splice)
C1.06	C1.07			0462-005-20141	ADDRESS TAG 0
C1.07	C1.06			0462-005-20141	ADDRESS TAG 0
C1.10	S3	W31.Yellow	18 AWG	0462-005-2031	CAN-B Hi (Splice)
C1.11	C21.04	W28.Yellow	18 AWG	0462-005-2031	CAN-A Hi
C1.12	S2	W24.Red	18 AWG	0462-005-20141	Display Power (Splice)

C2

From	To	Conductor	Gauge	From Contact PN	Notes
C2.01	C7.A	W40.Yellow	20 AWG	0462-005-20141	Slurry Control Tower
C2.02	C6.A	W41.Orange	20 AWG	0462-005-20141	Agitator Control Tower
C2.03	C21.06	W39.Blue-White	20 AWG	0462-005-20141	2nd Boom Lamp (LS)
C2.11	S5	W42.Red-Black	16 AWG	0462-005-20141	+Vref (Splice)

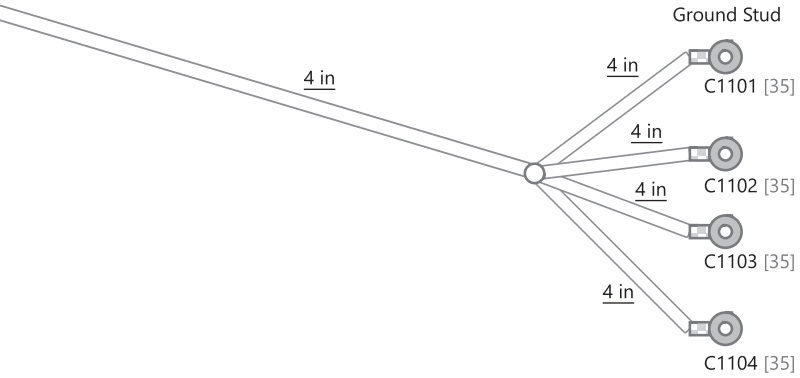
C6

From	To	Conductor	Gauge	From Contact PN	Notes
C6.A	C2.02	W41.Orange	20 AWG	12124075-L	Agitator Control Tower
C6.B	S6	W43.Black-Red	16 AWG	12124075-L	-Vref Ground (Splice)
C6.C	S5	W46.Red-Black	16 AWG	12124075-L	+Vref (Splice)



C802, C801

From	To	Conductor	Gauge
C801	C21.10	W36.White-Black	16 AWG
C802	C21.03	W25.Red	16 AWG



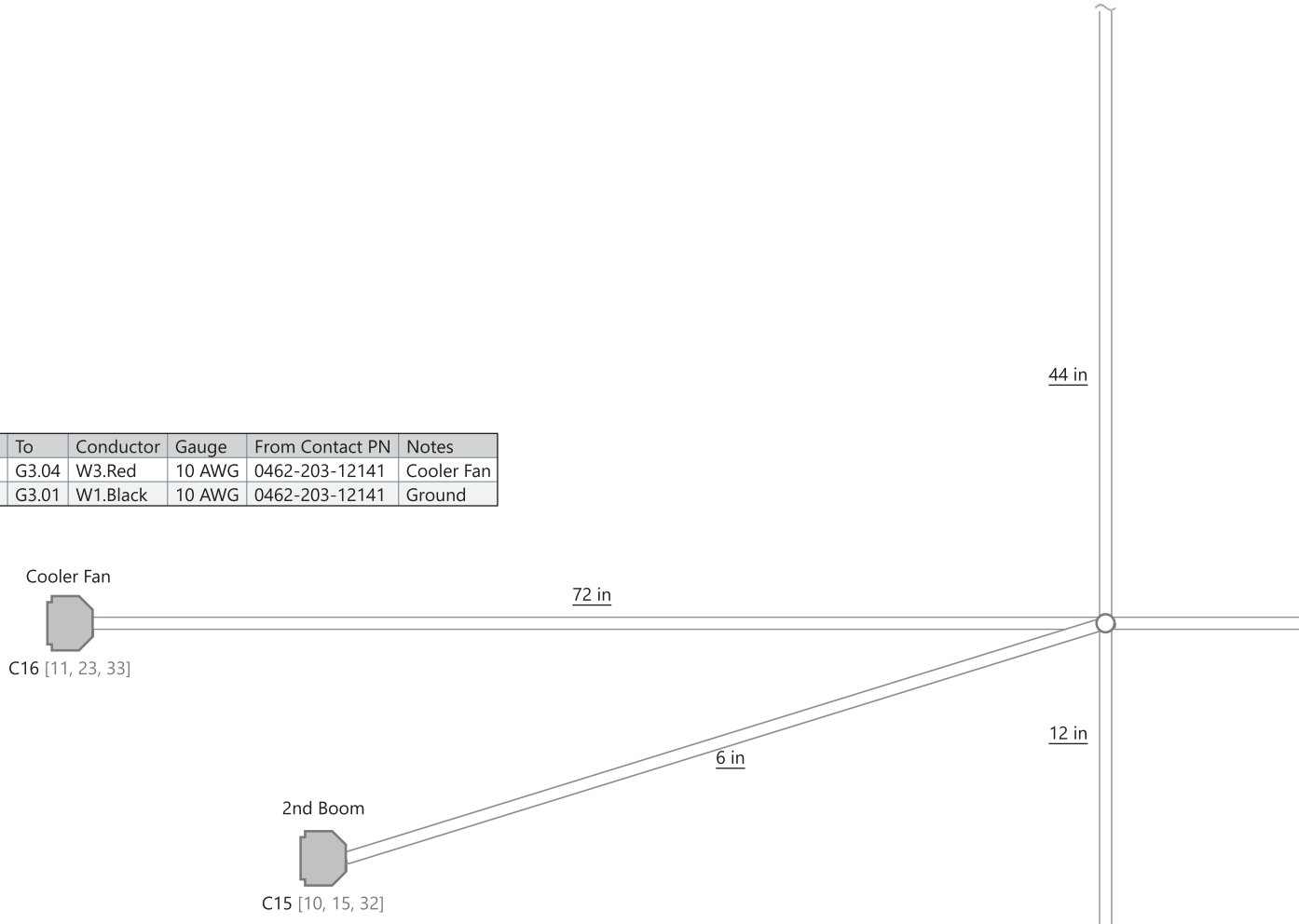
C1104, C1102, C1103, C1101

From	To	Conductor	Gauge
C1101	S6	W52.Black	16 AWG
C1102	C902	W50.Black	16 AWG
C1103	C10.B	W48.Black	16 AWG
C1104	C12.02	W47.Black	16 AWG

C1105

From	To	Conductor	Gauge
C1105	S1	W21.Black	12 AWG

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



C16

From	To	Conductor	Gauge	From Contact PN	Notes
C16.01	G3.04	W3.Red	10 AWG	0462-203-12141	Cooler Fan
C16.02	G3.01	W1.Black	10 AWG	0462-203-12141	Ground

C15

From	To	Conductor	Gauge	From Contact PN	Notes
C15.01	G3.25	W5.Red	16 AWG	0462-201-16141	Switched Power
C15.02	S1	W22.Black	16 AWG	0462-201-16141	Ground (Splice)
C15.03	G3.05	W18.Tan	20 AWG	0462-201-16141	2nd Boom Control
C15.04	G3.27	W16.White	20 AWG	0462-201-16141	2nd Boom On
C15.05	G3.29	W17.White-Black	20 AWG	0462-201-16141	2nd Boom Off
C15.06	C20.06	W19.Blue-White	20 AWG	0462-201-16141	2nd Boom Light (LS)

C14

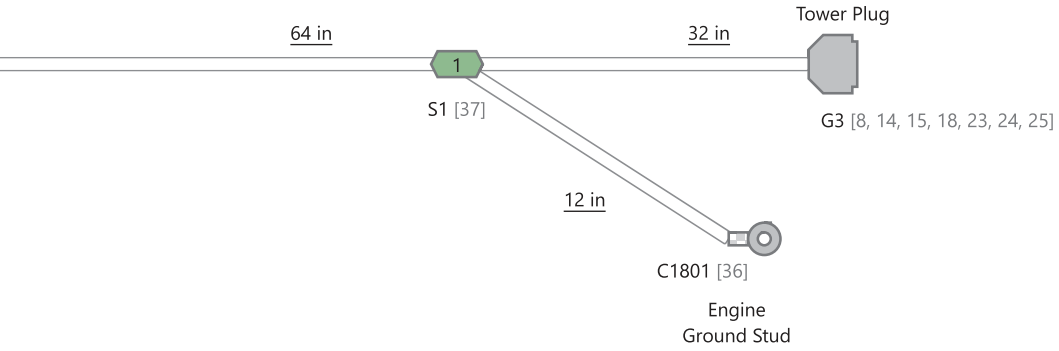
From	To	Conductor	Gauge	From Contact PN	Notes
C14.01	G3.21	W12.Pink	16 AWG	0462-201-16141	E-Stop
C14.02	G3.11	W8.Pink	16 AWG	0462-201-16141	E-Stop

J1939 CANBus wires are YL & GN twisted pair per J1939/11
All CanBus terminals (1939, CAN Hi/Lo, etc) must be gold plated unless noted
All CANBus splices to be at least 2 in. from previous CANBus splice
All splice locations suggested, open to suggestion for ease of manufacturing
All connectors should be labeled with Plug # (e.g. "716", black Sharpie acceptable)
Braiding to terminate 2 in. from back of connector
Apply heat shrink to ring terminal termination points for wire support
Unless noted, all wire to meet SAE-J-1560 TXL (Extra thin wall) for 125° C

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

G3

From	To	Conductor	Gauge	From Contact PN	Notes
G3.01	C16.02	W1.Black	10 AWG	0462-203-12141	Ground
G3.03	C20.02	W2.Red	16 AWG	0462-203-12141	Display Power
G3.04	C16.01	W3.Red	10 AWG	0462-203-12141	Cooler Fan
G3.05	C15.03	W18.Tan	20 AWG	0462-201-16141	2nd Boom Control
G3.09	C20.08	W7.Green	18 AWG	0460-202-1631	CAN-B Lo
G3.10	C20.05	W6.Yellow	18 AWG	0460-202-1631	CAN-B Hi
G3.11	C14.02	W8.Pink	16 AWG	0462-201-16141	E-Stop
G3.15	C20.03	W4.Red	16 AWG	0462-201-16141	Horn Power
G3.16	C20.10	W9.White-Black	16 AWG	0462-201-16141	Horn Signal
G3.17	C20.04	W11.Yellow	18 AWG	0460-202-1631	CAN-A Hi
G3.19	C20.09	W10.Green	18 AWG	0460-202-1631	CAN-A Lo
G3.21	C14.01	W12.Pink	16 AWG	0462-201-16141	E-Stop
G3.22	C20.12	W13.Blue	16 AWG	0462-201-16141	Key Switched
G3.25	C15.01	W5.Red	16 AWG	0462-201-16141	Switched Power
G3.26	C20.11	W14.Red	16 AWG	0462-201-16141	Beacon
G3.27	C15.04	W16.White	20 AWG	0462-201-20141	2nd Boom On
G3.28	C20.01	W15.Red	16 AWG	0462-201-16141	Battery
G3.29	C15.05	W17.White-Black	20 AWG	0462-201-20141	2nd Boom Off



C1801

From	To	Conductor	Gauge
C1801	S1	W20.Black	12 AWG

SPLICE LIST:

From	To	Conductor	Gauge
S1	C15.02	W22.Black	16 AWG
S1	C1105	W21.Black	12 AWG
S1	C1801	W20.Black	12 AWG
S2	C1.12	W24.Red	18 AWG
S2	C12.01	W27.Red	16 AWG
S2	C21.02	W26.Red	16 AWG
S3	C1.10	W31.Yellow	18 AWG
S3	C12.03	W30.Yellow	18 AWG
S3	C21.05	W29.Yellow	18 AWG
S4	C1.03	W34.Green	18 AWG
S4	C12.04	W33.Green	18 AWG
S4	C21.08	W32.Green	18 AWG
S5	C2.11	W42.Red-Black	16 AWG
S5	C6.C	W46.Red-Black	16 AWG
S5	C7.C	W45.Red-Black	16 AWG
S6	C1.01	W51.Black	16 AWG
S6	C6.B	W43.Black-Red	16 AWG
S6	C7.B	W44.Black-Red	16 AWG
S6	C1101	W52.Black	16 AWG

FILTER/TEMPERATURE HARNESS (91-73-0018E)

H4

From	To	Conductor	Gauge	From Contact PN	Notes
H4.01	H13.01	W1.Gray-White	20 AWG	0462-201-16141	Hydraulic Temp
H4.02	H13.02	W2.Red-Black	20 AWG	0462-201-16141	+Vref
H4.03	H13.03	W3.Black-Red	20 AWG	0462-201-16141	-Vref
H4.04	H12_03	W4.Yellow	20 AWG	0462-201-16141	Filter
H4.05	H12_01	W5.Black	20 AWG	0462-201-16141	Ground

J1939 CANBus wires are YL & GN twisted pair per J1939/11
All CanBus terminals (1939, CAN Hi/Lo, etc) must be gold plated unless noted
All connectors should be labeled with Plug # (e.g. "716", black Sharpie acceptable)
Unless noted, all wire to meet SAE-J-1560 TXL (Extra thin wall) for 125° C

Coverings

Id	Assembly
[11]	

E-STOP (EMERGENCY STOP) HARNESS (91-73-0020B)

C14

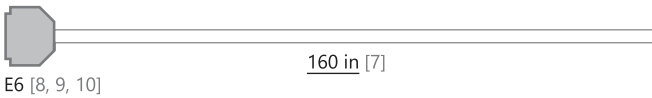
From	To	Conductor	Gauge	From Contact PN	Notes
C14.01	LW1	W1.Pink	16 AWG	0460-202-16141	E-Stop Signal
C14.02	LW2	W2.Pink	16 AWG	0460-202-16141	E-Stop Signal

J1939 CANBus wires are YL & GN twisted pair per J1939/11
All CanBus terminals (1939, CAN Hi/Lo, etc) must be gold plated unless noted
All connectors should be labeled with Plug # (e.g. "716", black Sharpie acceptable)
Unless noted, all wire to meet SAE-J-1560 TXL (Extra thin wall) for 125° C

HORN HARNESS (91-73-0021C)

E6

From	To	Conductor	Gauge	Notes
E6.01	QC1	W1.White-Black	16 AWG	Horn
E6.02	QC2	W2.Black	16 AWG	Ground

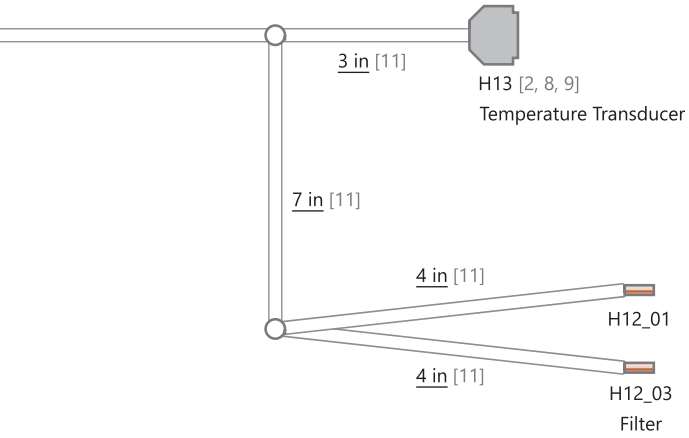


J1939 CANBus wires are YL & GN twisted pair per J1939/11
All CanBus terminals (1939, CAN Hi/Lo, etc) must be gold plated unless noted
All connectors should be labeled with Plug # (e.g. "716", black Sharpie acceptable)
Unless noted, all wire to meet SAE-J-1560 TXL (Extra thin wall) for 125° C

Coverings

Id	Assembly
[7]	

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

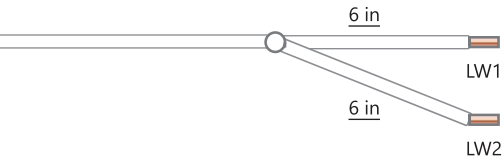


H13

From	To	Conductor	Gauge	From Contact PN	Notes
H13.01	H4.01	W1.Gray-White	20 AWG	0462-201-16141	Hydraulic Temp
H13.02	H4.02	W2.Red-Black	20 AWG	0462-201-16141	+Vref
H13.03	H4.03	W3.Black-Red	20 AWG	0462-201-16141	-Vref

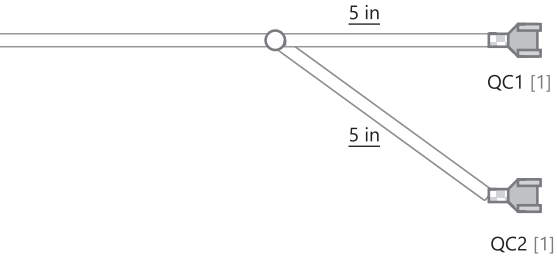
H12_01, H12_03

From	To	Conductor	Gauge	From Contact PN	Notes
H12_01	H4.05	W5.Black	20 AWG		Ground
H12_03	H4.04	W4.Yellow	20 AWG		Filter



LW1, LW2

From	To	Conductor	Gauge	From Contact PN	Notes
LW1	C14.01	W1.Pink	16 AWG		E-Stop Signal
LW2	C14.02	W2.Pink	16 AWG		E-Stop Signal



QC2, QC1

From	To	Conductor	Gauge	Notes
QC1	E6.01	W1.White-Black	16 AWG	Horn
QC2	E6.02	W2.Black	16 AWG	Ground

RT7

From	To	Conductor	Gauge	Notes
RT7	RT1	W1.Red	00 AWG	Battery To Disconnect
RT7	RT2	W2.Red	00 AWG	Battery To Disconnect

RT1

From	To	Conductor	Gauge
RT1	RT7	W1.Red	00 AWG

RT7 [2, 3, 7]

6.75 in

17 in

RT1 [1, 3, 4]

91-73-0019A
Battery to
Disconnect

RT2 [3, 5]

RT2

From	To	Conductor	Gauge
RT2	RT7	W2.Red	00 AWG

RT5

From	To	Conductor	Gauge
RT5	RT3	W3.Red	00 AWG

64 in

RT5 [3, 6]

91-73-0019B
Starter POS to
Disconnect

RT3 [3, 5]

RT3

From	To	Conductor	Gauge
RT3	RT5	W3.Red	00 AWG

RT6

From	To	Conductor	Gauge
RT6	RT4	W4.Red	00 AWG

40 in

RT6 [3, 6]

91-73-0019C
Starter POS to
Power Lug

RT4 [3, 5]

RT4

From	To	Conductor	Gauge
RT4	RT6	W4.Red	00 AWG

RT13

From	To	Conductor	Gauge
RT13	RT8	W5.Red	4 AWG

7 in

RT13 [3, 8]

91-73-0019D
Power Lug to
Breaker

RT8 [3, 9]

RT8

From	To	Conductor	Gauge
RT8	RT13	W5.Red	4 AWG

RT15

From	To	Conductor	Gauge
RT15	RT9	W6.Red	4 AWG

36 in

RT15 [3, 10]

91-73-0019E
Solenoid to
Starter POS

RT9 [3, 9]

RT9

From	To	Conductor	Gauge
RT9	RT15	W6.Red	4 AWG

RT14

From	To	Conductor	Gauge
RT14	RT10	W7.Red	4 AWG

9 in

RT14 [3, 8]

91-73-0019F
Power Lug to
Breaker

RT10 [3, 9]

RT10

From	To	Conductor	Gauge
RT10	RT14	W7.Red	4 AWG

RT16

From	To	Conductor	Gauge
RT16	RT11	W8.Red	4 AWG

47 in

RT16 [3, 10]

91-73-0019G
Breaker to
Alternator POS

RT11 [3, 9]

RT11

From	To	Conductor	Gauge
RT11	RT16	W8.Red	4 AWG

RT17

From	To	Conductor	Gauge
RT17	RT12	W9.Red	4 AWG

10 in

RT17 [3, 10]

91-73-0019H
Solenoid to
Breaker

RT12 [9]

RT12

From	To	Conductor	Gauge
RT12	RT17	W9.Red	4 AWG

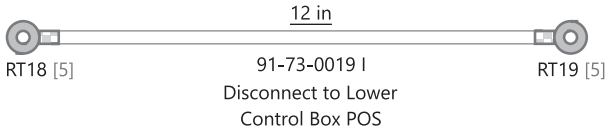
J1939 CANBus wires are YL & GN twisted pair per J1939/11
All CanBus terminals (1939, CAN Hi/Lo, etc) must be gold plated unless noted
All connectors should be labeled with Plug # (e.g. "716", black Sharpie acceptable)
Unless noted, all wire to meet SAE-J-1560 TXL (Extra thin wall) for 125° C
Terminals and Connectors equivalents may be used
Heat Shrink to be used on all red power cables to minimize exposure of the terminal

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

NOTE: Lengths listed are CUT LENGTH

RT18

From	To	Conductor	Gauge
RT18	RT19	W10.Red	00 AWG



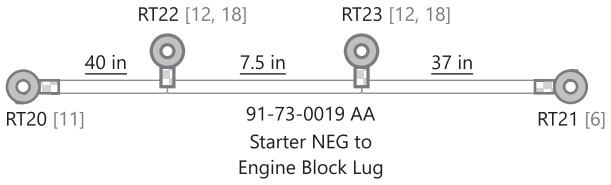
RT19

From	To	Conductor	Gauge
RT19	RT18	W10.Red	00 AWG

From	To	Conductor	Gauge
RT23	RT21	W13.Black	00 AWG
RT23	RT22	W12.Black	00 AWG

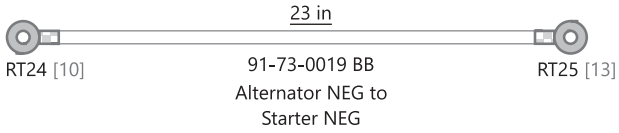
From	To	Conductor	Gauge
RT22	RT20	W11.Black	00 AWG
RT22	RT23	W12.Black	00 AWG

From	To	Conductor	Gauge
RT20	RT22	W11.Black	00 AWG



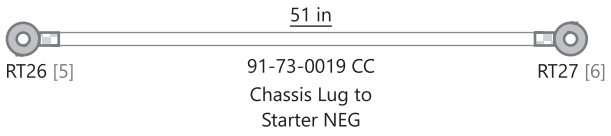
From	To	Conductor	Gauge
RT21	RT23	W13.Black	00 AWG

From	To	Conductor	Gauge
RT24	RT25	W16.Black	4 AWG



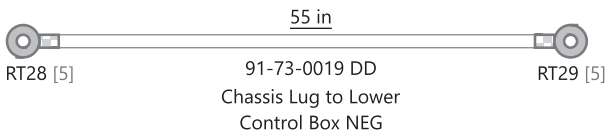
From	To	Conductor	Gauge
RT25	RT24	W16.Black	4 AWG

From	To	Conductor	Gauge
RT26	RT27	W14.Black	00 AWG



From	To	Conductor	Gauge
RT27	RT26	W14.Black	00 AWG

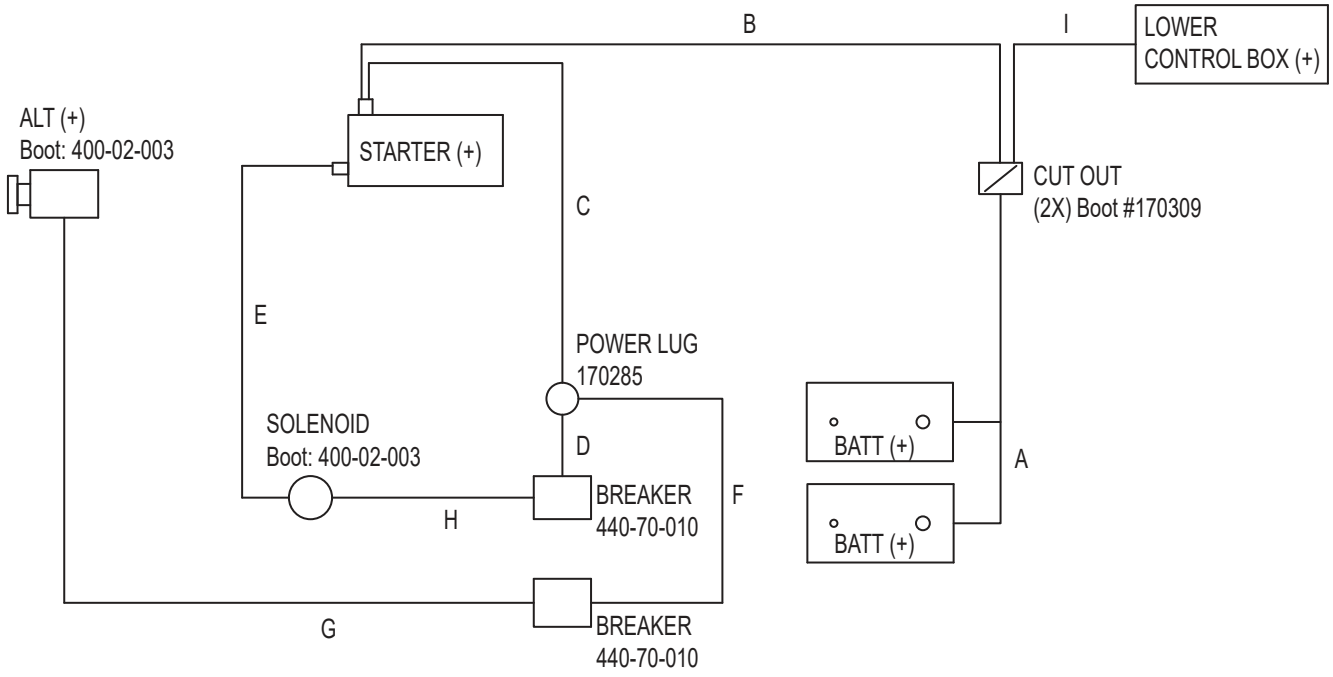
From	To	Conductor	Gauge
RT28	RT29	W15.Black	00 AWG



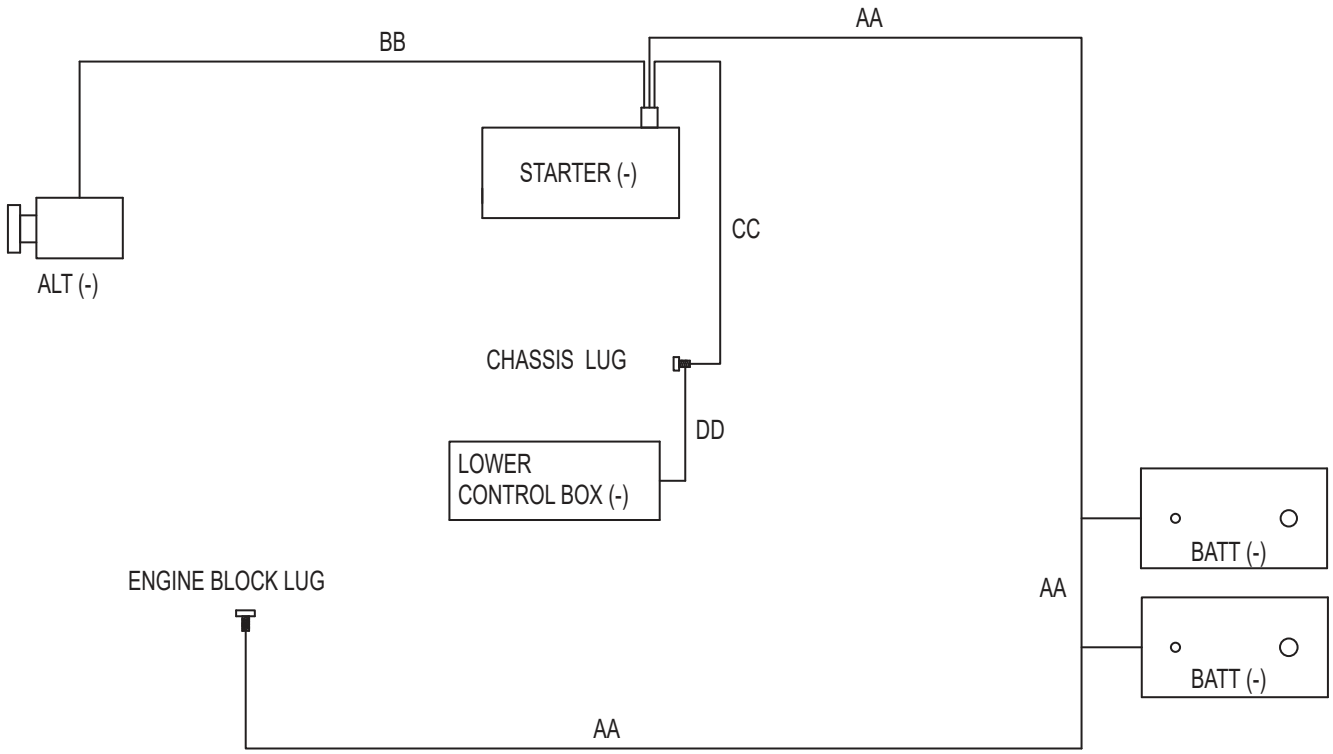
From	To	Conductor	Gauge
RT29	RT28	W15.Black	00 AWG

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

GROUND CABLE ASSEMBLY LAYOUT



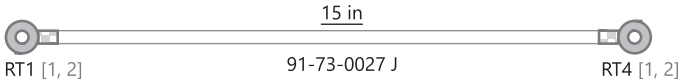
POWER CABLE ASSEMBLY LAYOUT



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

Bill of Materials				
Id	Type	Part Number	Quantity	Description
1	Boot	23505	1	170181 Boot Cover Straight in 1/0 - 2/0 AWG Red
2	Boot Terminal Cover	900D9 V02	1	170307 BOOT, BATTERY POS TERMINAL TEE STYE
3	Heat Shrink	Generic Heat Shrink	17	Generic Heat Shrink
4	Ring Terminal	36308	1	170090 TERMINAL BAT STRAIGHT 2/0 GA POS
5	Ring Terminal	36534	8	170093 TERMINAL 2/0 GA 3/8 in. STUD RING
6	Ring Terminal	36535	4	170092 Terminal 2/0 ga 1/2 in. Stud Ring
7	Ring Terminal	36322	1	170091 TERMINAL RIGHT ANGLE 2/0 POS DUAL
8	Ring Terminal	19067-0078	2	170271 TERMINAL 4 GA 3/8 RING TONGUE
9	Ring Terminal	19067-0082	5	170270 TERMINAL 4 GA 1/4 RING TONGUE
10	Ring Terminal	19193-0267	4	170332 TERMINAL 4 GA 5/16 in. RING TONGUE
11	Ring Terminal	36431	1	170334 TERMINAL 2/0 GA 5/16 in. STUD RING
12	Ring Terminal	36323	2	170282 TERMINAL 2/0GA RIGHT ANGLE DUAL NEG
13	Ring Terminal	19067-0085	1	170272 TERMINAL 4 GA 1/2 RING TONGUE
14	Wire	WCE00-2	139.75 in	190185 Cable 2/0 AWG Battery Red
15	Wire	SGR4-2	109 in	190309 Cable 4 AWG Welding Style Red
16	Wire	WCE00-0	190.5 in	190186 Cable 2/0 AWG Battery Black
17	Wire	SGR4-0	23 in	190310 Cable 4 AWG Welding Style Black
18	Boot Terminal Cover	900D9V14	2	170308 BOOT, BATTERY NEG TERMINAL TEE STYL

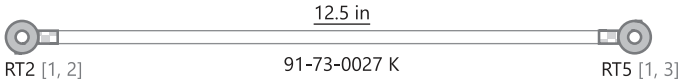
From	To	Conductor	Gauge
RT1	RT4	W1.Red	4 AWG



91-73-0027 J
250A Aux to Heater Solenoid

From	To	Conductor	Gauge
RT4	RT1	W1.Red	4 AWG

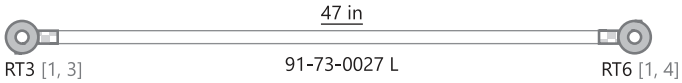
From	To	Conductor	Gauge
RT2	RT5	W2.Red	4 AWG



91-73-0027 K
Power Lug to 250A Breaker Batt

From	To	Conductor	Gauge
RT5	RT2	W2.Red	4 AWG

From	To	Conductor	Gauge
RT3	RT6	W3.Red	4 AWG

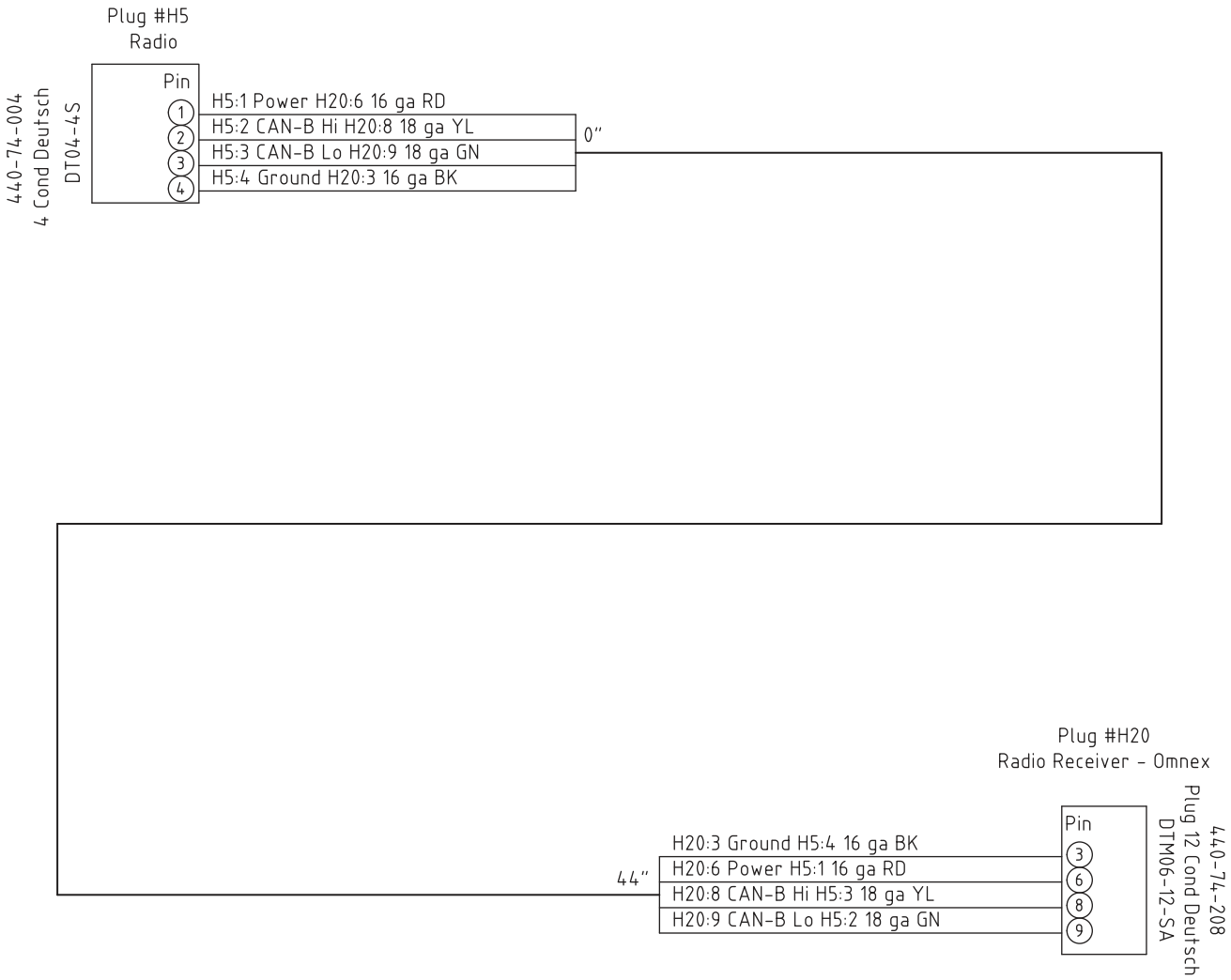


91-73-0027 L
Heater Solenoid to Intake Heater

From	To	Conductor	Gauge
RT6	RT3	W3.Red	4 AWG

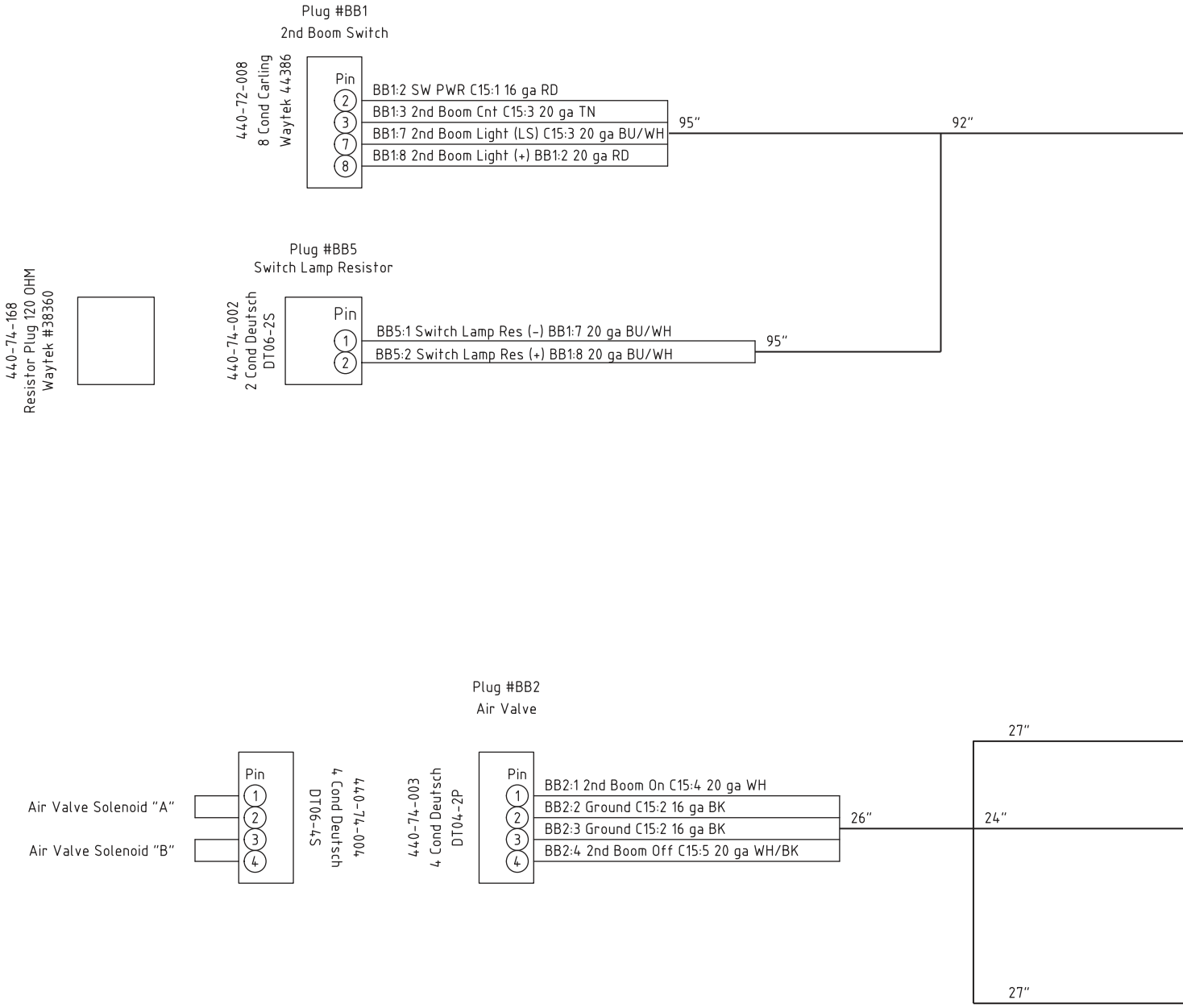
Bill of Materials				
Id	Type	Part Number	Quantity	Description
1	Heat Shrink	Generic Heat Shrink	6	Generic Heat Shrink
2	Ring Terminal	19067-0078	3	170271 TERMINAL 4 GA 3/8 RING TONGUE
3	Ring Terminal	19193-0267	2	170332 TERMINAL 4 GA 5/16 RING TONGUE
4	Ring Terminal	19067-0082	1	170270 TERMINAL 4 GA 1/4 RING TONGUE
5	Wire	SGR4-2	74.5 in	190309 Cable 4 AWG Welding Style Red

J1939 CANBus wires are YL & GN twisted pair per J1939/11
All CanBus terminals (1939, CAN Hi/Lo, etc) must be gold plated unless noted
All connectors should be labeled with Plug # (e.g. "716", black Sharpie acceptable)
Unless noted, all wire to meet SAE-J-1560 TXL (Extra thin wall) for 125° C
Terminals and Connectors equivalents may be used
Heat Shrink to be used on all red power cables to minimize exposure of the terminal



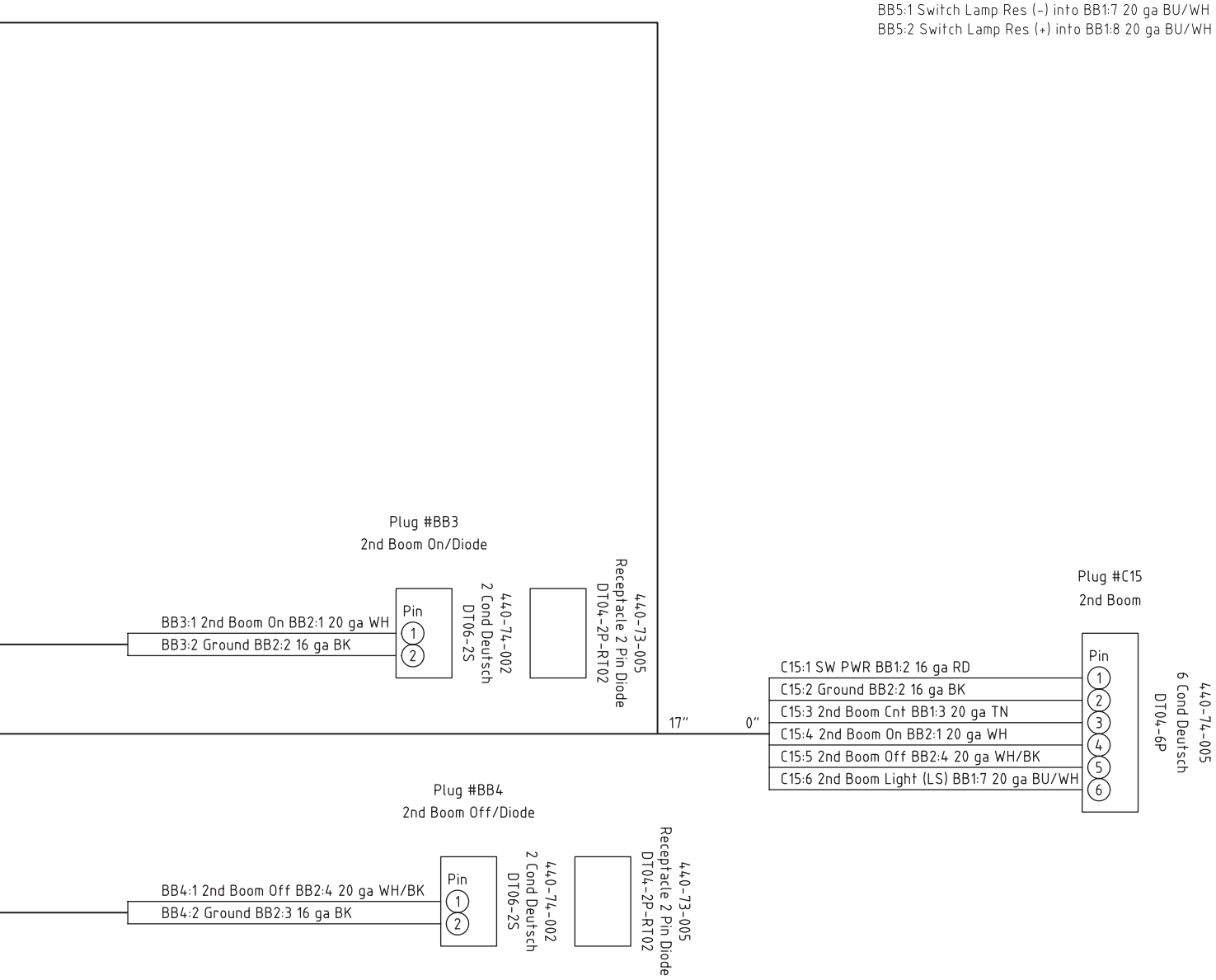
- J1939 CANBus wires are YL & GN twisted pair per J1939/11
- All CanBus terminals (J1939, CAN Hi/Lo, etc) must be gold plated unless noted
- All open, unused terminals should have sealing cavity plugs installed (e.g. Deutsch #114017)
- All connectors should be labled with Plug # (e.g. "716", black Sharpie is acceptable)
- Harness must be tested for continuity between plugs at all pins
- Unless noted, all wire to meet SAE-J-1560 TXL (Extra Thin Wall) for 125 deg. C
- Lengths measured to back of connectors
- Wires need to be protected (i.e. braid or loom) to within 1" of connector

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

Splice Notes:
BB2:3 Ground into C15:2 16 ga BK
BB3:1 2nd Boom On into BB2:1 20 ga WH
BB3:2 Ground into BB2:2 16 ga BK
BB4:1 2nd Boom Off into BB2:4 20 ga WH/BK
BB4:2 Ground into BB2:3 16 ga BK
BB5:1 Switch Lamp Res (-) into BB1:7 20 ga BU/WH
BB5:2 Switch Lamp Res (+) into BB1:8 20 ga BU/WH



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

NOTES