Stewart-Amos

Owner's Manual

STEWART-AMOS
Sweeper Co.

STARFIRE S-4XL

SAFETY, OPERATION MAINTENANCE MANUAL

SN 6012 AND UP

LAST UPDATED AUGUST 2015

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SAFETY

General Safety Guideline

Safety is always of prime importance when operating any type of machine or vehicle in the vicinity of people. All persons working with this unit are to be knowledgeable of the safety practices and features detailed in this section**.**

Safety Is a Shared Responsibility

Safety is everyone's responsibility. Working together with Safety as the prime objective will insure a safe work environment and reduce injuries.

The operator must become familiar with safe operating procedures and use the equipment in the fashion that it was intended. Routine inspections and maintenance will prevent premature wear, expensive downtime and ensure that the equipment functions as it is intended.

Recognize Safety Information

This is the safety alert symbol. When you see this symbol in the manual or on your machine, be alert to the potential for personal injury.

DANGER: Identifies the most serious hazard

WARNING: identifies a potential hazard if safety precautions are not take

CAUTION: Identifies a general safety precaution

Equipment Lockout

It is strongly recommended that a commonly known Equipment Lockout procedure be enforced at your work environment. This is a series of precautions designed to protect any personnel that is inspecting, cleaning, or repairing the equipment. The Lockout Procedure should include the following.

1. Apply Parking Brake.
2. Place hopper, hopper door in secure positions so that they cannot accidentally fall. If required, install additional blocking devices such as hopper safety pins.
3. Turn off Auxiliary Engine.
4. With auxiliary engine off, turn key to run position and work hydraulic functions to relieve any residual pressure in the hydraulic system.
5. Remove keys from ignition.
6. Store keys in pocket or in a safe controlled area.
7. Place an "OUT OF SERVICE" sign on the steering wheel using a non-reusable fastener.
8. Place an "OUT OF SERVICE" sign on the front window.
9. Disconnect negative terminal from battery.

Hopper Port Restrictors

To control the decent of the hopper under all conditions port restrictors are used in the hopper lift cylinders. These port restrictors are sized to give a controlled decent of the hopper even if a hydraulic hose would rupture with a full hopper at the top of its travel. The hopper would come back to the at rest position with minimal damage to the equipment.

DANGER: Do not remove or modify any port restrictors

General Safety Precautions

Before Operating Machine

1. Read the operators manual and the engine manual to familiarize yourself with safe operating practices before operating the machine.
2. Read the chassis operator's manual thoroughly to familiarize yourself with safe operating practices before operating machine.
3. Be sure all observers are clear of the machine and at a safe distance.
4. Ensure mirrors, windows, lights, and monitor equipment (if equipped), are clean and adjusted properly at all times.
5. Do not enter hopper unless engine is shut off, key is removed and there is a note posted indicating not to start the engine. (See Equipment Lockout).

When Operating Machine

1. Operate controls from the operator's station only.
2. Keep all riders off the machine.
3. Keep all safety shields in place.
4. Ensure the area is clear of any persons or possible obstructions.
5. Do not wear loose clothing or jewelry.
6. Do not leave the vehicle before it is brought to a complete stop and the parking brake is applied.
7. Be cautious while driving with an unevenly distributed load.
8. Inspect for overhead hazards (e.g. power lines) before raising the hopper.
9. Raise the hopper only on level ground.
10. Ensure the hopper has completely lowered and the hopper door is closed before moving the vehicle. Do not move vehicle with hopper up.
11. Do not stand under the hopper when it is in the dump position.

When Servicing Machine

1. Follow the Equipment Lockout procedure described above.
2. Install safety pins into holes in slide frame to prevent scissor frame from moving when servicing under the hopper. (See Safety Features).
3. Never work under a loaded hopper even with safety pins installed.

Safety Features

This machine is equipped with many safety features. To operate this equipment safely, it is imperative to be aware of these functions. Please read all of the features listed, as the order they are presented does not reflect the degree of importance. Some safety features listed are options and MAY or MAY NOT be on your unit.

If there are concerns, report to your supervisor or maintenance department.

1. Decals - These must be clean and visible at all times.
2. Mirrors - A variety of mirrors, including large convex ones, are to help ensure adequate rear vision. These must be properly adjusted, clean and visible at all times!
3. Cameras – All machines are equipped with side and rear cameras, if so equipped, they must be in proper working order at all times. The rear camera option is also wired to the chassis transmission, when the chassis is shifted into reverse the rear camera will automatically activate and will go off automatically when chassis is shifted out of reverse.
4. Marker Lights - There is 1 marker lamp on each side of the sweeper and an ID bar at the back on the elevator cover. Marker lights are wired direct to chassis lights and come on with chassis lights.
5. Beacon and/or Strobe Lights - The switch is installed in the sweeper control box inside the cab. The lights are mounted on the front and rear canopy of sweeper.
6. Gutter Broom Lights - These lights are used for work lights and are mounted at both gutter brooms. The switch is found on the control box in the cab.
7. Main Broom Light - This light is used for a work light and is mounted on the drivers side at the back above the main broom. The switch for this work light is combined with the gutter broom light switch in the 3rd position.
8. Backup Alarm - When the truck is put into reverse this alarm sounds. The alarm is mounted to the rear canopy frame.
9. Hopper Safety Prop - If any work is to be done under a lifted hopper, insert props into the main frame roller rails. This will restrict any movement of the scissors frame sliders, thus keeping the hopper stable. **NEVER** use the safety pins to hold a **LOADED HOPPER**!
10. Arrow Board (option) - A separate control box mounted in the cab controls the arrow board mounted on the rear of the sweeper. A switch and pattern selector with indicator lights controls the order the light pattern.
11. Fire Extinguisher (option) - This is located in the cab behind the driver's seat.
12. First Aid Kit (option) - This is located inside the cab behind the driver's seat.

Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs.

Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your dealer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your dealer.

PREVENT BYPASS STARTING

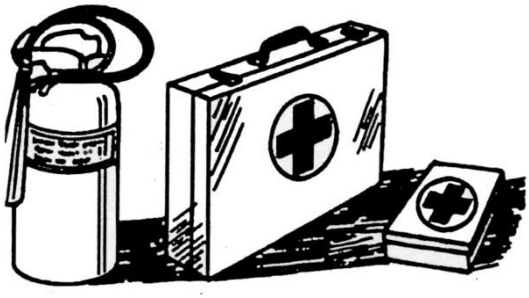
Do not start engine by shorting across starter terminal.

Start engines only from operator's station with transmission in park.

HANDLE FUEL SAFELY-AVOID FIRES

Handle fuel with care: It is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.



Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.

PREPARE FOR EMERGENCIES
Be prepared if a fire starts.

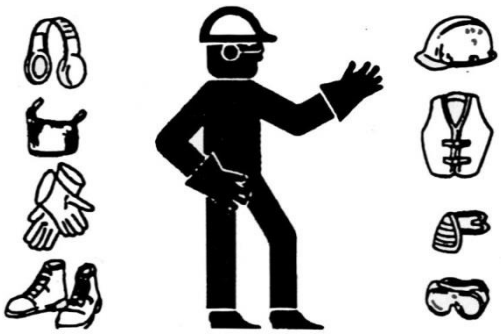
Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

NEVER USE STARTING FLUID

Starting fluid is highly flammable and can cause serious damage to engines.

WEAR PROTECTIVE CLOTHING



Wear close fitting clothing and safety equipment appropriate to the job.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.

PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing.

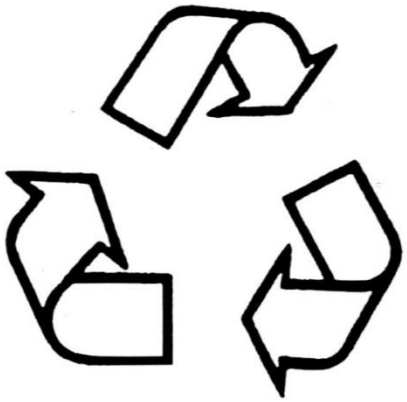
Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

HANDLE CHEMICAL PRODUCTS SAFELY

Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with this equipment include such items as lubricants, coolants, paints, and adhesives.

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques.

Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment. (See your dealer for MSDS on chemical products used with this equipment.)



DISPOSE OF WASTE PROPERLY

Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with this equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leak proof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.
Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of Waste from your local environmental or recycling center, or from your dealer.

PRACTICE SAFE MAINTENANCE

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all pats in good condition and properly installed.

Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

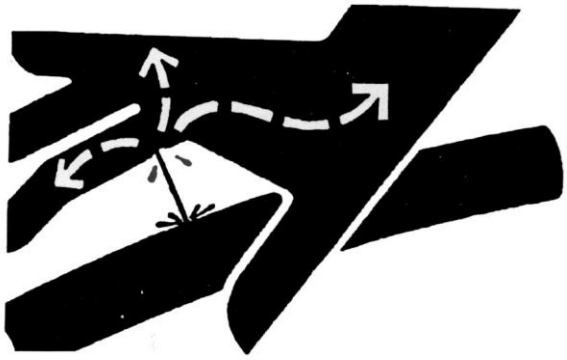
Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

WORK IN VENTILATED AREA

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.

AVOID HIGH-PRESSURE FLUIDS



Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

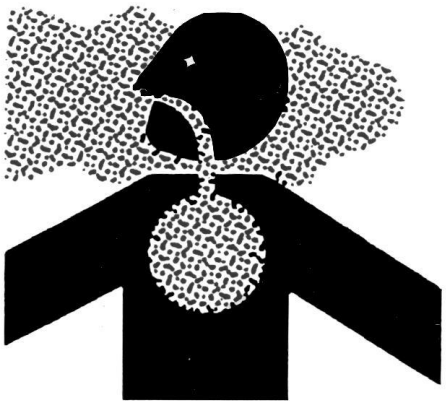
If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.

AVOID HEATING NEAR PRESSURIZED FLUID LINES

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.

REMOVE PAINT BEFORE WELDING OR HEATING

Avoid potentially toxic fumes and dust.



Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating:

If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.

If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

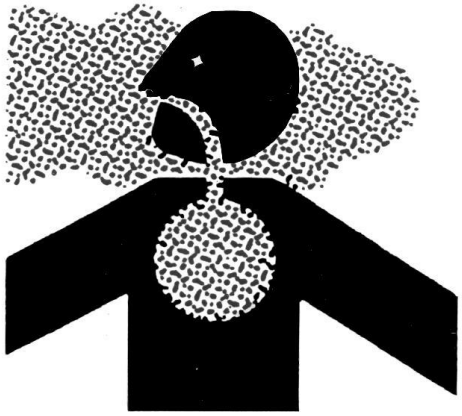
SERVICE COOLING SYSTEM SAFELY

Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

AVOID HARMFUL ASBESTOS DUST

Avoid breathing dust that may be generated when handling components containing asbestos fibers. Inhaled asbestos fibers may cause cancer.



Components in products that may contain asbestos fibers are brake pads, brake band and lining assemblies, clutch plates, and some gaskets. The asbestos used in these components is usually found in a resin or sealed in some way. Normal handling is not hazardous as long as airborne dust containing asbestos is not generated.

Avoid creating dust. Never use compressed air for cleaning. Avoid brushing or grinding materials containing asbestos. When servicing, wear an approved respirator. A special vacuum cleaner is recommended to clean asbestos. If not available, apply a mist of oil or water on the material containing asbestos.
Keep bystanders away from the area.

STAY CLEAR OF ROTATING EQUIPMENT

Entanglement in rotating equipment can cause serious injury or death. Keep shields in place at all times.

Wear close fitting clothing. Stop the engine before making adjustments or performing any type service on the equipment.

DIESEL FUEL STORAGE

Proper fuel storage is critically important. Use clean storage and transfer tanks. Periodically drain water and sediment from bottom of tank. Store fuel in a convenient place away from buildings.

IMPORTANT: DO NOT store diesel fuel in galvanized containers. Diesel fuel stored in galvanized containers reacts with zinc coating on container to form zinc flakes. If fuel contains water, a zinc gel will also form. The gel and flakes will quickly plug fuel filters, damage injection nozzles and injection pump.

DO NOT use brass-coated containers for fuel storage. Brass is an alloy of copper and zinc.

FILLING FUEL TANK

CAUTION: Handle fuel carefully. Do not fill the fuel tank when engine is running. DO NOT smoke while filling fuel tank or servicing fuel system.

IMPORTANT: The fuel tank is vented through the filler cap. If a new filler cap is required, always replace it with an original vented cap.

Fill fuel tank at the end of each day's operation to prevent condensation in tank as moist air cools and freezes during cold weather.

Store diesel fuel in plastic, aluminum, or steel containers specifically coated for diesel fuel storage.

Avoid storing fuel over long periods of time. If fuel is stored for more than a month prior to use, or there is a slow turnover in fuel tank or supply tank, add a fuel conditioner to stabilize the fuel and prevent water condensation. Fuel conditioner also reduces fuel gelling and controls wax separation during cold weather.

Consult your engine distributor or servicing dealer for recommendations and local availability. Always follow manufacturer's directions on label.

Read and understand these safety sections before operating or servicing the sweeper. Learn how to stop the sweeper's engines suddenly in an emergency. Only persons who have read the manuals and have been properly trained should operate the sweeper.

- Do not operate the sweeping unit without having the sweeping hood hoses in place.
- Remove the truck's ignition keys whenever working under the truck or sweeper.
- Open (turn off) the optional battery disconnect switch (located beside the battery tray) when working on or near the auxiliary engine. This is to prevent an accidental starting or cranking of the auxiliary engine.
- Do not dump the hopper unless it is on level ground. When you dump, the truck must be in "PARK" and the emergency brake must be engaged. Do not try to dump the hopper over a dock or open pit.
- Whenever working under a raised hopper, make sure the safety chocks (provided with the unit) are in place at the dump cylinders.
- Whenever the hopper is lowered, beware of the area between the hopper and the frame. This is where a crushing injury may occur when either the hopper or the frame moves.
- Do not remove any of the belt guards, or work near drive belts while wearing any jewelry or loose clothing.
- To keep the engines in good condition, always use the proper tools for the job you are performing.
- Additional important safety guidelines are located in the Owner's Manuals for the chassis and sweeper engine.

Safety is of the utmost importance. Most accidents can be avoided by being aware of the conditions, the area and the equipment being operated. Always observe reasonable precautions and be a safe and careful operator.

Safety Alert Symbols

The Safety Alert Symbol, accompanied by a word, appears on the decals attached to your sweeper. **When you see one of these symbols It means that your safety Is Involved! Be alert and use Caution! Read, understand and follow all safety messages**. You should always practice usual and customary safe working precautions in order to avoid serious injury or death. Also, use good common sense to avoid accidents and hazards.

The following one-word cautions used with the symbols are:

CAUTION! This is the lowest level of a safety message.
It warns of possible injury and the signs are black and yellow.

WARNING! **These signs will warn you of a serious injury or possible** death.
These signs are black and orange.

Always maintain the safety decals in good, readable condition. If the decals are unreadable, damaged or missing, install replacement decals immediately. Contact Stewart-Amos Sweeper Co. for replacement of any decals needed.

All protective safety devices, guards and safety shields should be used and kept in good working condition. They should be inspected daily for any missing, worn or broken components. If any damage arises they must be replaced so they are in good working condition before the sweeper is operated. This must always be done to prevent the possibility of serious injury or death from thrown objects or entanglement. Never remove, modify or cut any of the sweeper's protective shields and guards!

The sweeper must be equipped with a fire extinguisher, rated for all fires, located in an accessible and visible area. Never obstruct access to the fire extinguisher. It should be inspected routinely by a certified inspector for operational use, and replaced as needed.

Chassis Driver Safety Instructions

1. The sweeper operator must possess a valid motor vehicle license and meet any other requirements of the state in which the sweeper is operated. Contact your local State Department of Public Safety for any special licensing requirements needed to operate the sweeper in your area.

2. The operator of the sweeper must be trained and knowledgeable in the use and safety of this sweeper. This includes reading and completely understanding the Owner/Operator Manuals for the sweeper, the truck and the auxiliary engine. If the operator has any questions or does not fully understand information in any of the Manuals, contact the manufacturer of the equipment discussed in that Manual for a detailed explanation. Never allow an untrained or unqualified driver to operate the sweeper.

3. New operators should be trained in an open area, one that is clear of obstructions, prior to operating on public roadways.

4. Never use drugs or alcohol immediately before or while driving/operating the sweeper. Drugs and alcohol will affect the operator's alertness and coordination, which can affect their ability to operate the sweeper safely. Any operator using prescription or over-the-counter medication must consult a medical professional to determine any side effects of the medication that might reduce their ability to operate the sweeper safely. Never knowingly allow anyone to operate the sweeper when their alertness or coordination is impaired, as doing so could cause serious injury or death to the operator or others.

5. **Prolonged exposure to loud noise may cause permanent hearing loss!** Sweeper operation can be noisy enough to cause permanent hearing loss. We strongly recommend that operators always wear hearing protection when the noise in the cab exceeds 80 dB. Noise over 85 dB, when sustained over an extended amount of time, has been shown to cause hearing loss. Noise exceeding 90 dB over an extended amount of time will cause permanent or total hearing loss. Please note that hearing loss from loud noises from sweepers, radios, mowers, chain saws and other such sources close to the ear is cumulative over a lifetime with no hope of natural recovery.

Operator Safety Instructions

THE SAFETY INSTRUCTIONS LISTED BELOW ARE INCLUDED IN ORDER TO PREVENT ACCIDENTS, SERIOUS INJURY, DISMEMBERMENT OR DEATH TO THE OPERATOR AND/OR ANY BYSTANDERS OR ANIMALS. READ AND UNDERSTAND THESE INSTRUCTIONS FULLY BEFORE OPERATING THE SWEEPER OR THE TRUCK.

1. NEVER attempt to get onto or off of the sweeper or truck while the machine is moving.

2. Start the truck engine and auxiliary engine only when the operator is seated in the truck's operator seat with the seat belt fastened. Read the truck and Auxiliary engine Owner/Operator's Manuals for proper starting instructions and operation.

3. Operate the sweeper controls only when you are properly seated with the seat belt fastened.

4. **Drive or transport the sweeper only at safe speeds.** Familiarize yourself with the driving characteristics of the truck and how it handles before operating or transporting on streets and highways. Serious accidents and injuries can result from driving this sweeper at unsafe speeds. Make sure the truck's steering, brakes and wheels are in good condition and that all components work properly. Before driving the sweeper, determine the safe speeds for the machine and operating conditions. Abide by the following rules:

- Test the sweeper at a slow speed and increase the speed slowly. Apply the brakes smoothly to determine the stopping characteristics of the sweeper. Remember, as you increase the speed of the truck the stopping distance also increases. When driving on wet or rain-slicked roads and down hills, the braking distance also increases. Use extreme care in these situations and reduce your speed. Never operate the sweeper with weak or faulty brakes.

- Obey all traffic laws and regulations. Never exceed the posted speed limit.

- Please be aware that the sweeper has a high center of gravity. This factor may be further increased when the hopper and/or the water tank are full. Make sure extreme caution is used when driving at highway speeds. Slow down for sharp corners to avoid tipping or turning the sweeper over.

- Only drive the sweeper at speeds determined to be safe and that allow for proper control of the machine while driving and during an emergency.

5. Before starting into the sweeping operation, make sure that all warning signal lights are connected, visible and working. The sweeper's headlights, brake lights, backup lights and turn signals should be routinely inspected for correct functioning. Immediately repair any non-functioning light(s).

6. **Use** EXTREME CAUTION **when operating the sweeper in traffic.** The sweeper is equipped with warning signals and flashing lights. Use these to alert motorists and pedestrians of the sweeper's presence and relatively slow speed.

7. **Do not exceed** the rated operating speed for the truck and auxiliary engines. Sweep at a speed that allows safe operation and control of the sweeper. This will depend on the street condition and the type and amount of debris being collected. The normal speed range is between one and three miles per hour (mph). Slow down for parked cars, curbs, corners, protruding signs and any other obstacles. Use slow travel speeds when you are operating on or near drop-offs, ditches, steep slopes, power lines, and any overhead obstructions, or when avoiding debris and foreign objects. Excessive operating speeds can cause engine and sweeper components to fail.

8. **NEVER** reach outside of the truck cab window/door to pick up a foreign item or to clear obstacles such as a road sign or tree limb that is obstructing passage. Instead, stop the sweeper, shut down all sweeping components and wait for all the parts to come to a complete stop. Only then should the operator exit the cab to handle the obstacles.

9. **DO NOT** raise the sweeper's broom components when bystanders are within 25 feet of the sweeper. Make sure that the curb brooms have come to a complete stop before raising them from the street surface. Raising the sweeping components exposes the rotating brooms, which creates a potentially serious hazard due to thrown objects or from direct broom contact

10. **KEEP AWAY FROM ROTATING CURB BROOMS** to prevent entanglement and possible serious injury or death. Be aware that rotating brooms can pull bystanders into the sweeper.

11. **NEVER ALLOW CHILDREN TO PLAY ON OR UNDER THE SWEEPER OR TO OPERATE THE SWEEPER'S CONTROLS.** Children can slip and/or fall off the sweeper or cause the sweeper components to shift, which can result in serious injury (crushing themselves or others) or death.

12. **AVOID** body contact with debris collected in the hopper. Always use protective clothing, including gloves and eye protection, when servicing or working in or around the hopper. Debris in the hopper can cut or puncture, so leather gloves are recommended when operator or others need to handle hopper debris.

13. **NEVER SWEEP** Into hot **OR BURNING DEBRIS.** A burning object, even something as small as a lit cigarette, could ignite the collected waste inside the hopper. This could possibly destroy the sweeper and inflict serious injury or death to the operator of the sweeper and/or bystanders.

17. **DO NOT ALLOW THE SWEEPER TO COME IN CONTACT WITH POTENTIALLY DANGEROUS AND/OR HAZARDOUS MATERIAL**. Hazards may include, but are not limited to, the following:

- Cutting Hazards – Broken Glass, Lumber with Protruding Nails
- Corrosive Materials – Batteries, Acids and Bases
- Fire Hazards – Fuel Spills, Burning Materials
- Chemical Hazards – Chemical Spills, Discarded Chemical Containers
- Biological Hazards – Decaying Carcasses, Biomedical Waste
- Carcinogenic Materials – Asbestos
- Radioactive Hazards – Radioactive Waste, Radioactive Material

CAUTION

These types of material usually require special handling to ensure safe collection and proper disposal. These items should not be collected by the sweeper, nor can they be disposed of in a general landfill site like most sweeper- collected waste. Contact the appropriate authority for the collection and disposal requirements of any such material.

WARNING

18. **ALWAYS** wear OSHA-approved and required personal protective equipment when coming in contact with, and/or removing, potentially dangerous and hazardous material that has been collected by the sweeper or that is obstructing the sweeper components. Use extra caution with dangerous and hazardous material such as decaying carcasses, sharp objects, chemicals, etc.

19. **The sweeper operator should use EXTREME CAUTION when operating within 25 feet of a bystander**. Stop sweeping if anyone comes within 25 feet of the sweeper! Also use caution when sweeping dense objects such as gravel or broken glass. Objects may become dislodged and then propelled a distance of up to 25 feet.

20. **EXTREME CAUTION** should be used when backing up the sweeper. Make sure no bystanders, animals, signs, vehicles or buildings are in the sweeper's path. Ensure that the sweeper is not being backed into the path of vehicle or pedestrian traffic.

21. **ALWAYS CHECK** to make sure no bystanders or animals are within 25 feet of the sweeper when cleaning the hopper or dumping its contents. The hopper contents may exceed several thousand pounds and could fall on or crush a bystander or animal.

Maintenance Safety Instructions

The safety instructions listed below are designed to prevent accidents, serious injury, dismemberment or death to the operator and/or any bystanders or animals. Read and understand these instructions fully before performing any maintenance on the sweeper or the truck.

1. Periodically inspect all of the moving parts for wear, and replace them as needed with authorized service parts. You will need to look for leaky or loose fasteners and fittings and worn or broken parts. Check to make sure all cotter pins and washers are in place. Maintain your sweeper in good working order to prevent serious injury.

2. Perform a walk-around inspection on the entire sweeper prior to each use. Accidents may occur, or damage could result to the sweeper, if it is not properly maintained and in good working order. Check the following:

- Make sure that all safety shields and guards are in place and in good working condition.
- Check the tires for tread wear and make sure the tire pressure is at the rated PSI.
- Make sure all the fluid levels are full. Replenish if necessary.
- Make sure the fuel, oil and coolant caps are on and tightened.
- Check for any loose bolts, worn or broken parts, leaky or loose fittings, or pinched hydraulic hoses.
- Make sure any replacements are the correct size and properly installed.

3. **DO NOT** approach or inspect the sweeper fans while they are rotating. Shut down the sweeper and wait for all rotating motion to stop completely before inspecting or performing maintenance.

4. **USE EXTREME CAUTION** when climbing onto the sweeper to perform repairs, maintenance or routine cleaning. Use all appropriate stands and ladders to access the areas that cannot be reached from the ground level.

5. Before performing any maintenance on the sweeper, stop both the truck and auxiliary engines. Place the transmission in park and set the parking brake. After the engines have been turned off, remove the keys to prevent inadvertent or accidental starting.

6. **NEVER** operate the truck or auxiliary engine in a closed building or without adequate ventilation. The exhaust fumes can be hazardous and deadly to your health.

7. **NEVER** attempt to clean, adjust, repair, lubricate, remove obstructions or perform any type of service to the sweeper or its components while the sweeper is in motion and/or the truck and auxiliary engine is running. Completely shut down the sweeping components, the truck engine and the auxiliary engine and wait for all motion to come to a complete stop before servicing the sweeper.

8. **NEVER** remove the sweeper's exhaust hose (going to the sweeping hood) in order to perform repairs or maintenance while the sweeper is operating. Objects could be propelled from an open hose at a very high velocity, causing serious injury or death. Always turn off the sweeping components, the truck and auxiliary engines, and then wait for all motion to come to a complete stop before servicing any sweeper component.

9. **NEVER** crawl under the hopper bin while the hopper is in the raised position until the hopper has been secured with the safety prop in position. An accidental operation of a lifting lever or a hydraulic failure may cause a sudden drop of the unit.

10. **NEVER** come into contact with the hot surfaces on the bottom of the drag shoes. Use gloves and eye protection when inspecting or servicing hot components.

11. **ALWAYS** remove the negative battery cable from the battery, or turn off the battery disconnect switch, prior to performing maintenance on the electrical system. This must be done in order to prevent accidental circuit shorting and sparks, which can result in wiring damage, fire and/or personal injury.

12. Battery post terminals and related parts contain lead and lead compounds. These chemicals are known to the state of California to cause birth defects or other reproductive harm. **ALWAYS WEAR GLOVES DURING, OR WASH YOUR HANDS AFTER, HANDLING THEM**.

13. **NEVER** operate the sweeper with leaking hydraulic oil or fuel as this could present a hazard. **DO NOT CHECK FOR LEAKS WITH YOUR HANDS!** Use a heavy piece of paper or cardboard, or some other suitable object. High- pressure streams of oil coming from leaks or breaks in the line could penetrate the skin. If this happens, have the injury treated immediately by a physician who has knowledge and skill in this situation.

14. **NEVER** attempt to tighten a connection or repair a pump or hose while the system is pressurized. Always shut down the truck and auxiliary engines first, in order to relieve the hydraulic oil pressure, before performing any repairs to the hydraulic system.

15. **USE EXTREME CAUTION** when refueling the sweeper. Fuel is highly flammable and explosive, and can be dangerous if not handled safely. Follow the precautions listed below to reduce the danger involved in refueling:

- Turn off the truck and auxiliary engines before refueling.
- DO **NOT** refuel while smoking or near an open flame.
- DO NOT store the sweeper, with fuel in the tank, in a building where fumes can reach an ignition source.
- When filling the tank use a plastic funnel — without a metal screen or filter — in order to avoid fire or an explosion caused by static electric discharge.
- DO NOT spill fuel, as it can damage plastic and painted surfaces. Clean up any spilled fuel immediately.

DO NOT MODIFY OR ALTER THIS SWEEPER. Do not allow anyone to modify or alter this sweeper, its components, or any of its sweeper functions.

Warranty Information

WARRANTY CERTIFICATE
Stewart-Amos Sweeper Co. warrants each new machine manufactured to be free from defects in material and workmanship under normal use and service. The obligation under this warranty is limited to replacing F.O.B. its factory, Harrisburg, PA:

Any **PART** and labor within **ONE YEAR** (twelve months) or **ONE THOUSAND** (1000) HOURS, whichever occurs first, after making delivery of such machine to the original purchaser. This warranty is expressly in lieu of all other warranties expressed or implied and of all other obligations or liabilities on its part, and it neither assumes nor authorized any other person to assume for it any liability in connection with the sale, servicing or repair of any machine manufactured by it.

Stewart-Amos Sweeper Co. reserves the right to have any part being claimed for warranty returned, at customer expense, for inspection and determination that the part was factory defective.

Stewart-Amos Sweeper Co. reserves the right to make changes in design or to make additions to or improvements on its products previously manufactured.

Stewart-Amos Sweeper Co. – WARRANTY POLICY

Stewart-Amos Sweeper Co. provides warranty to the original purchaser of a new product, that the same is free from defects in materials and workmanship that may cause performance failures, subject to the conditions stated herein.

The warranty is limited to a period of one (1) year from the date of the original purchase or 1000 hours, whichever occurs first, included are parts and labor costs associated with the warranty.

GENERAL CONDITIONS

Stewart-Amos Sweeper Co. will honor warranty claims provided:

The unit is properly registered. Registration form is located at the front of the operator's manual. **Registration form must be received by Stewart-Amos Sweeper Co. within 45 days of the sale. Failure to receive said warranty registration form within the prescribed time will cancel warranty coverage for the product.**
The failure occurs within the warranty period and is covered under the terms of our written warranty.
The repairs are made and an authorized Stewart-Amos Sweeper Co. dealer has submitted a warranty claim within 30 days of completion of repair.
The unit has not been altered in any way without prior written approval by Stewart-Amos Sweeper Co.
All warranty repairs reimbursable must be performed by an authorized dealer using Stewart-Amos Sweeper Co. approved replacement parts. Failure to repair properly voids future warranty.

ITEMS NOT COVERED BY WARRANTY

Set-up and pre-delivery services, service calls, diagnostics, or after sales adjustments due to normal operations, including travel time/mileage.
Sweepers sold for use outside of North America.
Repairs, modifications or alterations to the machine without the express written consent of Stewart-Amos Sweeper Co.
Including but not limited to normal wear parts such as brooms, drag shoes, rubber deflectors, filters, oil, fuel, chains, belts, brakes or other wear parts.
Items that, in the opinion of Stewart-Amos Sweeper Co. have been subject to misuse, abuse, negligence, accident or improper maintenance.
Failures resulting from the machine being operated in a manner or for a purpose not recommended by Stewart-Amos Sweeper Co.
Rentals, consequential or collateral damage, down time costs, or lost revenue incurred due to a failure during the warranty period.
Consumables or shop supply materials such as paint, anti-freeze, oil, fuel, bolts.

ITEMS COVERED BY SEPARATE WARRANTIES

Parts and components such as the chassis, auxiliary engine, pump, motors, and other similar major components which are under separate warranties from their respective manufacturers. Service for these components can be obtained from their service facilities in the United States. In some circumstances, extended warranties are available at an extra cost. Please contact your Stewart-Amos Sweeper Co. dealer for information on these extended warranties.

THERE IS NO OTHER EXPRESS WARRANTY. ALL IMPLIED WARRANTIES OF MERCHANT LIABILITY AND FITNESS FOR USE ARE LIMITED TO THE DURATION OF THE EXPRESSED WARRANTY.

IT IS EXPRESSLY UNDERSTOOD THAT STEWART-AMOS SWEEPER CO. WILL NOT BE LIABLE FOR ANY OTHER INJURY, LOSS, DAMAGE OR EXPENSE, WHETHER DIRECT OR CONSEQUENTIAL, INCLUDING BUT NOT LIMITED TO LOSS OF USE, INCOME, PROFIT OR PRODUCTION, OR INCREASED COST OF OPERATION, OR SPOILAGE OF OR DAMAGE TO MATERIAL, ARISING IN CONNECTION WITH THE SALE, INSTALLATION, USE OF, INABILITY TO USE, OR THE REPAIRS OR REPLACEMENT OF STEWART-AMOS SWEEPER CO.'S PRODUCTS.

STEWART-AMOS SWEEPER CO. RESERVES THE RIGHT TO MAKE CHANGES IN DESIGN OR TO MAKE ADDITIONS OR IMPROVEMENTS ON ITS PRODUCTS WITHOUT IMPOSING ANY OBLIGATION UPON ITSELF TO INSTALL THEM ON ITS PRODUCTS PREVIOUSLY MANUFACTURED.

Customer Assistance

Stewart-Amos is committed to 100% customer satisfaction. Our employees are trained to provide fast and dependable service to our valued customers, who we consider our friends and family. Our headquarters are located in Harrisburg, Pennsylvania, where we have a state-of-the-art manufacturing and production facility. This facility includes a department that is designed for complete servicing and refurbishing of sweepers.

Our contact information is:

Stewart-Amos sweeper Company
2700 Paxton Street
Harrisburg, PA 17111
Direct: (717) 564-5600
Toll Free: 1-800-482-2302
Fax: 717-901-2326
Email: parts@stewart-amos.com

To assure prompt delivery and processing of your order, you will need to have the following information available before contacting us:

1. Locate the "sweeper and Customer Information" sheet at the front of this Manual. You will need to have the type and serial numbers for the power module engine, the chassis, and the sweeping unit.

2. The part number(s), description(s) and the quantity needed. We will also need to know if the part is for the right or left, front or back, and any other relevant information.

3. Shipping information. Orders are shipped by UPS unless otherwise specified. If your part(s) exceed the weight restrictions for UPS delivery, then a freight trucking company will be used for shipment. We will need to know how you want your order shipped; next day air, second day air, trucking company, cheapest possible, etc.

Our parts representatives make every effort to ship all in-stock parts the same business day if the order is placed before 12:00 noon, Eastern Time. For any order received after noon we will still make every effort to ship the same day. However, if this is not possible the order will be shipped the following business day.
Payment procedures: Stewart-Amos Sweeper Co. accepts MasterCard and Visa. If you are not using a credit card for payment, the order will be shipped C.O.D. unless prior arrangements have been made through our accounting department.

General Specifications

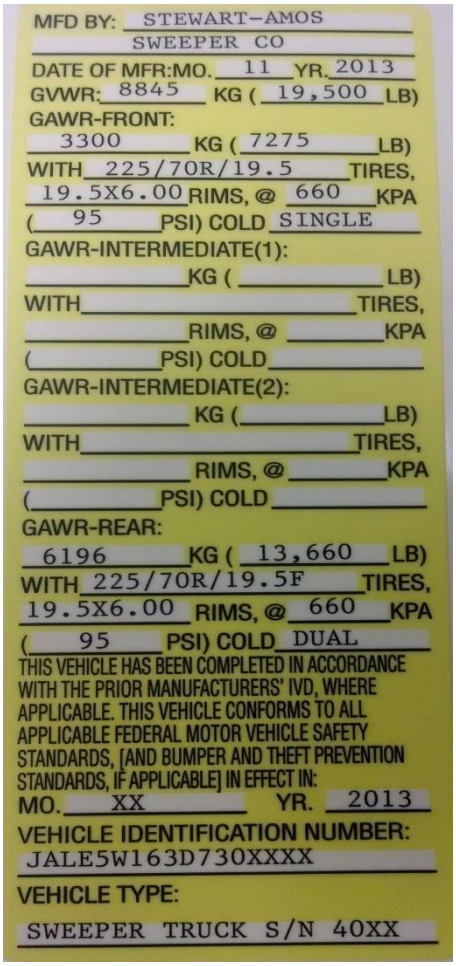
As an owner or operator of a Stewart-Amos Galaxy series sweeper, you will need a basic understanding of the sweeping system. This section is designed to help you understand the system without being too technical.

Serial Number Location

The Serial Number Identification Plate is easily found inside the cab on the driver's side door jam. See *Figure 1*: below.

The Serial Number must be quoted whenever ordering parts, requiring technical support, or warranty. It ensures that you are assisted as efficiently and quickly as possible.

Figure 1: Serial Number Decal



Auxiliary engine / sweeper instrumentation
Tachometer
Hour meter
Oil pressure gauge
Water temperature gauge

*** Based upon information at time of Publication. Actual may vary.**

Engine (auxiliary)*

Manufacturer:	Kubota
Model:	V2403-M-T-E
Displacement:	121.94 in^3
Rated HP:	59 hp @ 2800 rpm
Alternator:	40 AMP
Configuration:	Inline – 4 cylinder

Elevator

Squeegee-type system	
Hydraulic direct drive:	Variable speed and reversible

Main Broom

Mandrel:	Chevron Strip
Mandrel diameter:	11 in.
Mandrel length:	58 in.
Filled diameter:	36”
Segment material:	Polypropylene
Hydraulic direct drive:	Variable speed and reversible,

Gutter Broom

No. of brooms:	2
Diameter: std/optional	42”/54”
No. of segments:	5 per broom
Hydraulic direct drive:	Variable speed and reversible
Broom adjustments:	Pressure & wear, side to side angle, front to back angle and sweep path width
Controls:	Up/down/float, forward/reverse, retract/extend
Design:	Free-floating spring suspension In-cab tilt (optional)

SWEEPER STARTUP PROCEDURES AND OPERATION

The following sections briefly cover the operation procedures for the sweeper's main components. It is best to know and understand the sweeper before use. Read this entire section for information to help you get started.

Before attempting to operate this sweeper, it is important to read and understand all the instructions and control functions in this manual.

Also, read the information in the Truck Owner's Manual.

Always check the auxiliary engine's oil and coolant levels prior to the sweeper's first startup of the day. Follow the maintenance procedures outlined in Section VI, PERIODIC MAINTENANCE SCHEDULES, as well as the maintenance procedures required in the auxiliary engine manufacturer's Owner's Manual.

THE FOLLOWING SECTIONS BRIEFLY OUTLINE THE OPERATIONAL PROCEDURES FOR THE S-SERIES SWEEPER'S MAIN COMPONENTS.

BEFORE ACTUALLY OPERATING THE SWEEPER, PLEASE READ THIS ENTIRE SECTION CAREFULLY.

The Control Box is generally located on a pedestal inside the cab. All Sweeper control buttons, rocker switches, and indicator-warning lamps are housed here. They are easily accessible to the driver from both left and right driving positions.

A brief description of the indicators and controls fitted in the Control Box are as follows:

Engine Controls

(Refer to *Figure 2:* Engine Control Box)

Tachometer – Indicates the auxiliary engine RPM.

Hour Meter – Indicates the hours of operation of the auxiliary engine only.

Oil Pressure Gauge – Should the auxiliary engine oil pressure drop below the manufacturer specified minimum oil pressure of 69 kPa (10 psi), the automatic engine shut off system will be activated

Coolant Temperature Gauge – If the auxiliary engine coolant temperature rises above 100^0 C (212^0 F) the automatic engine shut off system will be activated.

Ignition Key Switch – This main power switch starts the auxiliary engine enabling all sweeping functions. (See "Operating Auxiliary Engine").

Glow Plug Position – Turn the starter switch to the "PREHEATING" position to allow the glow lamp to redden. The glow lamp goes out in about 30 seconds when the lamp timer is up. Even with the glow lamp off, the glow plug can be pre-heated by turning the starter switch to the "PREHEATING" position. Turn the key to the "START" position and the engine should start. Release the key immediately when the engine starts. This operation is not required when the engine is warmed up.

Start Position - Turn ignition key to the start position to start auxiliary engine. When engine starts release key and switch will automatically return to the run position. If engine does not start within 15 seconds of turning starter over, return to step a.

Sweeper Controls

Refer to *Figure 3*: Sweeper Control Box

GB LIGHTS ON / GB/MB LIGHTS ON – This is a three-position switch which controls both gutter broom lights and main broom lights. When switch is in the "GB LIGHTS ON" position both gutter broom working lights will be on. When the switch is in the "GB/MB LIGHTS ON" position both gutter broom lights as well as the rear main broom work light will be on. When the switch is in the middle position all working lights will be off.

SWEEP FORWARD / SWEEP REVERSE – This switch controls the direction of rotation of all brooms and the elevator. The switch is interlocked through a proximity switch with the BROOMS UP/DOWN function to prevent the brooms from rotating without being lowered and will not function unless the light in the center of the switch is on. When the switch is in the "SWEEP FORWARD" position the gutter brooms, if they are activated (see: LH / RH GUTTER BROOM UP / DOWN SWITCHES), will rotate vertically so that the leading edge of the brooms move material to the center of the machine, the rear main broom will rotate horizontally against the direction of travel which throws the material into the elevator. The elevator rotates dragging the material up the floor and depositing it in the hopper. When the switch is in the "SWEEP REVERSE" position all brooms and elevator will rotate in the opposite directions. The "SWEEP REVERSE" function dislodges any material that may have obstructed the elevator and sweep large objects out of the sweeping path that may be to large to sweep. This switch will not function unless the light in the center of the switch is on.

HOPPER UP / DOWN – This switch controls the hopper up and down function. To raise the hopper, press and hold the spring-loaded switch to the "HOPPER UP" position. To lower the hopper, press the switch to the "HOPPER DOWN" position. If the switch is not being depressed it will automatically return to the center or hold position. The hopper will maintain its current position if the switch is not depressed in either direction. This switch will not function unless the light in the center of the switch is on. The switch is interlocked through a proximity switch with the BROOMS UP/DOWN function to prevent the hopper from raising without having the brooms up and will not function unless the light in the center of the switch is on. This is to protect the hopper from interfering with the elevator.

WATER – This switch controls the water used for dust control. When the switch is in the up position, the water pump will go on and off with the sweep forward function to extend water supply. When the switch is in the down position the water pump will be on continuous function.

HOPPER DUMP / RETRACT – This switch controls the hopper dumping function. The hopper can be dumped at any height in the lift cycle. When the hopper has been raised to the desired height, press and hold the switch in the "HOPPER DUMP" position until the hopper is fully tipped with the door open. To return the hopper to the retracted position press and hold the switch in the "HOPPER RETRACT" position until the hopper is fully retracted. At any time in the dumping cycle the switch can be released and the hopper will hold that position. The switch is interlocked through a proximity switch with the

BROOMS UP/DOWN function to prevent the hopper from interfering with the elevator function. This switch will not function unless the light in the center of the switch is on.

LH GUTTER BROOM UP / DOWN – This switch controls the independent operation of the left hand gutter broom only. When the switch is in the center position the gutter broom will stay up when the rear main broom is lowered. When the switch is in the "LH GUTTER BROOM DOWN" position the gutter broom will go up/down and turn on/off with the rear main broom. When the rear main broom is down and the gutter broom is operating in the lowered position and you wish to turn off the left gutter broom only, push and hold the switch to the "LH GUTTER BROOM UP" position until the gutter broom is fully up then release the switch. When the switch is released the gutter broom rotation will stop and the switch will automatically return to the center position.

RH GUTTER BROOM UP / DOWN – This switch controls the independent operation of the right hand gutter broom only. When the switch is in the center position the gutter broom will stay up when the rear main broom is lowered. When the switch is in the "RH GUTTER BROOM DOWN" position the gutter broom will go up/down and turn on/off with the rear main broom. When the rear main broom is down and the gutter broom is operating in the lowered position and you wish to turn off the right gutter broom only, push and hold the switch to the "RH GUTTER BROOM UP" position until the gutter broom is fully up then release the switch. When the switch is released the gutter broom rotation will stop and the switch will automatically return to the center position.

ELECTRIC THROTTLE – Available as standard equipment on SN 7980 & up. Push switch up to increase auxiliary engine rpm and down to reduce rpm.

Chassis

IMPORTANT: Refer to Chassis owner's manual on all chassis related operations including regeneration instructions. Street Sweepers run at low operating speeds, therefor it is important that the regeneration procedure is understood and followed. Failure to follow these procedures may cause damage to the chassis and may affect the warranty.

CAUTION: Read the chassis OWNER'S MANUAL prior to operating. Make sure all operating instructions and Regeneration Process is understood.

Auxiliary Engine

IMPORTANT: Before starting the auxiliary engine, check the SERVICE section in this manual and perform scheduled maintenance for the required service period.

Read the auxiliary engine instruction manual before operating engine.
Check the auxiliary engine fuel, oil, coolant, and hydraulic oil levels.
Make sure that all sweeper control switches are in the neutral positions and the park brake is engaged.
Turn the starter key to the start position and release as soon as the engine starts. Do not crank engine for more than 10 seconds at a time or starter damage may occur.
If the engine does not start on the first try, wait for 30 seconds before trying again.
Once the engine is running, check the gauges. Allow the engine to warm up at 1000 rpm for 10 minutes.

IMPORTANT: When the auxiliary engine is no longer required to run the sweeper controls, let the engine run at low idle for three to five minutes before shutting the engine off. This allows the engine to properly cool.

CAUTION: If the engine stalls during normal operation, restart it immediately to PREVENT EXCESSIVE HEAT BUILD UP.

Recommended engine speed on normal street sweepings is 2300 – 2400 rpm.
Minimum oil pressure is 15 psi at 700 rpm at normal operating temperature.

Normal engine coolant temperature is 180^0 – 202^0 F).

NOTE: It is a good practice to operate the engine under a lighter load and at lower speeds for the first 30 minutes after start up.

Water Fill Up

(Refer to Figure 4: Water Tank)

The water tank can be filled with a hydrant hose at the main fill location (B).

IMPORTANT: The water tank is equipped with a 3" air gap to help prevent damage to the water tank when filling from a hydrant as well as siphoning back to hydrant. However, care must be taken when filling from a high-pressure source.

From curb side open the water shut off (C). Access to the valve is gained through the right rear canopy door on the sweeper.
After filling the water tank, close valve (C) to close the canopy door. This prevents dirt from accumulating in water tank.

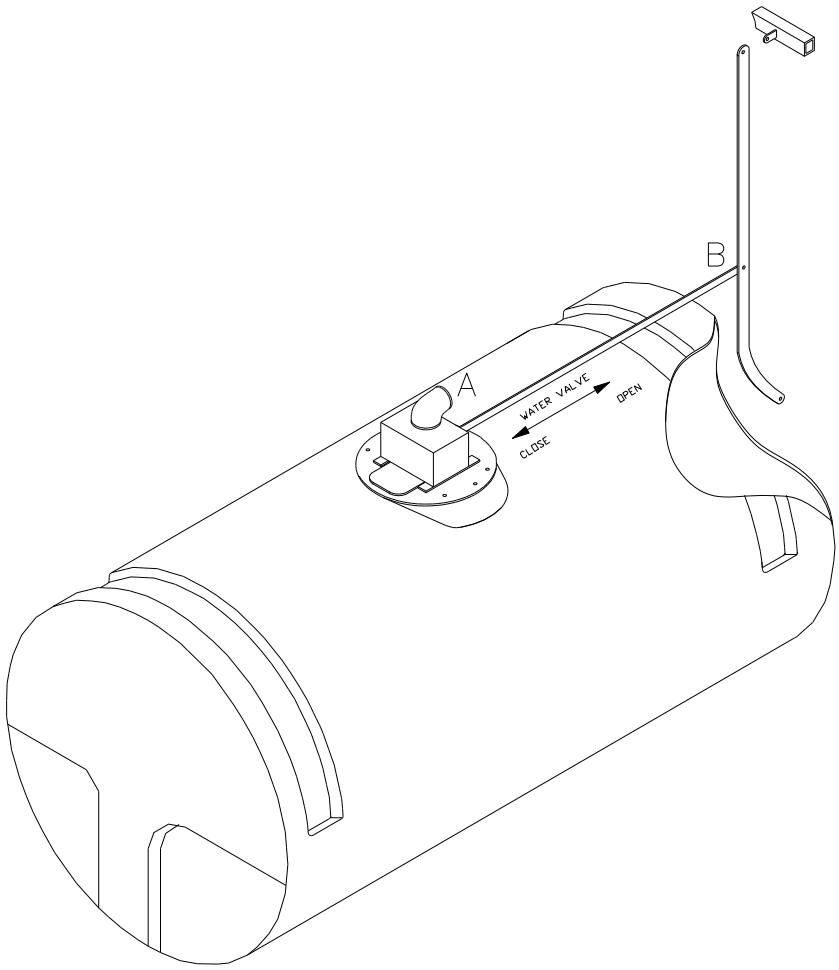


Figure 4: Water Tank

Sweeping

With the engine idling, ensure the hopper is fully lowered by depressing the HOPPER UP/DOWN switch to the “DOWN” position.

Run the auxiliary engine up to 2300 – 2400 rpm. This is the rpm range for normal street sweepings. If sweeping becomes heavy, engine rpm can be increased to maximum throttle position.

Lower the brooms and elevator into sweeping position by depressing the BROOMS UP/DOWN switch to the “DOWN” location.

Press the SWEEP FORWARD switch to the “FORWARD” sweep position. The gutter brooms and main broom will begin turning.

For dust control suppression press the WATER ON switch to the “ON” position. The water pump will begin operating to activate pressure spray to the front/rear spray bar and the gutter broom nozzles.

WARNING: Ensure all observers are clear of the sweeper at a minimum, distance of 10 feet.

NOTE: If the main broom and/or elevator become plugged with debris, push the SWEEP FORWARD /REVERSE switch to the centre position. Then reverse the rotation by holding the switch in the “REVERSE” position. Once the main broom and elevator are free of debris, release the switch.

NOTE: When sweeping is extremely heavy, it is advisable to sweep with the truck moving as slow as possible and have the aux. engine at maximum rpm.

WARNING: It is unlawful to exceed the GVWR of the chassis. Care must be taken not to, overloading conditions will also void warranty.

Dumping

IMPORTANT: When the hopper is full, it must be dumped before sweeping can continue.

Push the SWEEP switch to the center position to stop all rotation of the gutter brooms and main broom. Then lift the brooms and elevator by depressing the BROOMS UP/DOWN switch to the "UP" position. Do not operate the hopper until all brooms are lifted and are secure. Return the SPRAY switch to the center position to turn off the water pump.

Drive to an appropriate level and stable dump area.

WARNING: The sweeper must be positioned on level and stable ground while dumping to prevent serious injury or damage. If raising and dumping the hopper is not done on level and stable ground, the lifting arms, frame and canopies may be damaged. Failures resulting from the machine being dumped on uneven ground will void the warranty.

WARNING: Never MOVE vehicle while dumping.

WARNING: Always check BEHIND and ABOVE sweeper before backing up or raising the hopper! Serious damage may result otherwise.

WARNING: Never use hopper safeties with material in the hopper. Safeties will not hold a loaded hopper.

When in position, place the sweeper transmission lever in neutral and engage the parking brake.

Elevate the hopper by pressing the HOPPER RAISE/LOWER switch to the "RAISE" position until the desired height is reached.

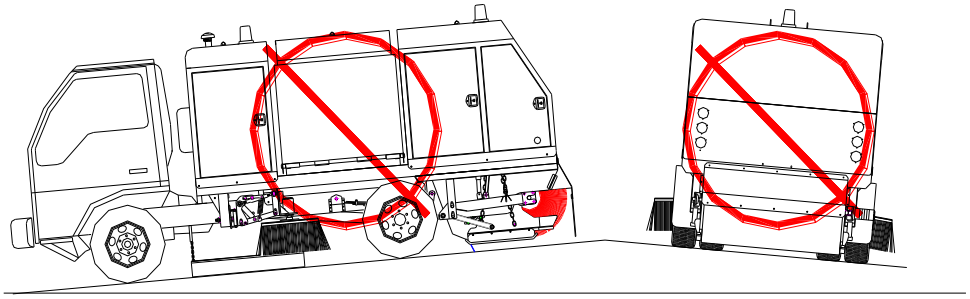
NOTE: The hopper is capable of being dumped at any height and can be raised or lowered while dumping, provided the sweeper is being operated on level ground.

Tilt the hopper to dump its contents by pressing the HOPPER DUMP/RETRACT switch to the "DUMP" position.

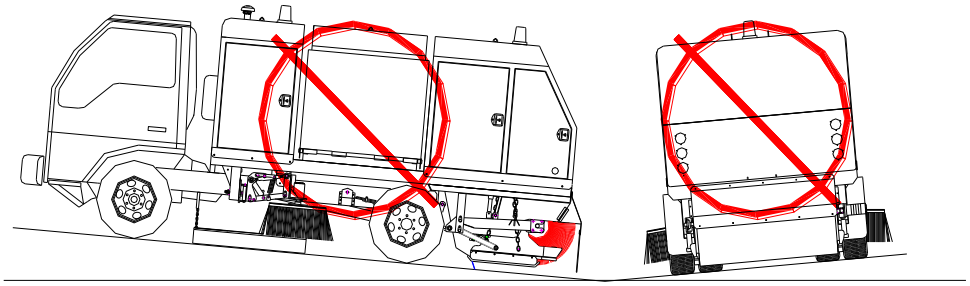
When the hopper is empty, return it back to its home position by retracting the hopper using the HOPPER DUMP/RETRACT switch and lowering the hopper with the HOPPER RAISE/LOWER switch.

To resume sweeping, lower brooms and elevator into sweeping position with the BROOMS UP/DOWN switch, press the SWEEP switch to the "FWD" position, and turn on the dust control system with the SPRAY switch, if desired. **REMINDER:** At night, the Main Broom light may be used to assist in backing up.

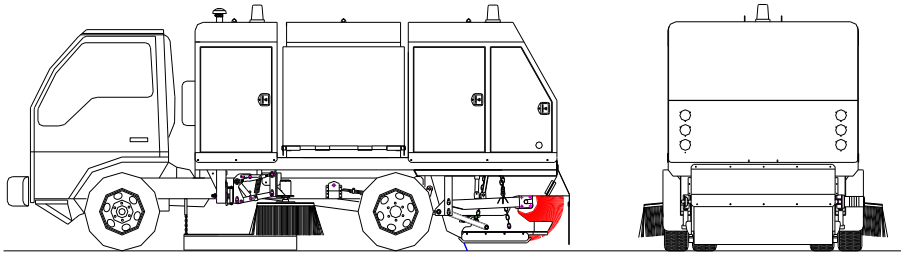
NOT A SAFE HOPPER LIFT AND/OR DUMP ANGLE



NOT A SAFE HOPPER LIFT AND/OR DUMP ANGLE



SAFE HOPPER LIFT AND/OR DUMP ANGLE



Shutting Down the Sweeper

When you are finished sweeping, use the following steps:

1. Set the engine throttle to idle.
2. Raise the brooms completely to provide maximum ground clearance.
3. Turn ‘OFF’ the water system.
4. The sweeper warning and flashing lights should be turned to the ‘OFF’ position.
5. Turn the sweeper’s power switch to ‘OFF’.

Rapid Reference Operating Outline

1. Check the truck engine and sweeper engine for the correct crankcase oil and coolant levels.
2. Fill the water storage tank.
3. Start the truck engine and check the control

panel for the correct switch settings.

4. Crank the sweeper engine.
5. Let the engine warm-up to operating temperature before sweeping.
6. Turn ‘ON’ all warning lights and flashers.
7. Lower the brooms to the pavement.
8. Throttle to desired sweeping RPMs.
9. Start the water system.
10. Turn on the curb broom
11. Put the truck in gear and begin sweeping.
12. Avoid surface obstacles.

Engine Break-In

For engine break-in please refer to the auxiliary engine Operator's Manual.

Sweeper Break-In

After the first 8 hours of operation.

1. Check and tighten:
    a. Suspension bolts
    b. Main broom coupler
    c. Broom bolts
    d. Elevator bolts
    e. Set screws
    f. Wheel nuts

For every 25 hours for the first 100 hours.

1. Check and tighten:
    g. Suspension bolts
    h. Main broom coupler
    i. Broom bolts
    j. Elevator bolts
    k. Set screws
    l. Wheel nuts

2. Inspect all areas of sweeper periodically to ensure long term life and reliability. Practicing regular routine maintenance will payback in minimal operating costs and less down time over the life of the machine.

Recommended Operating Equipment

Whenever the sweeper is being operated it should be equipped with emergency equipment and hand tools. In the event of a breakdown or if you need to remove large debris, you will need safety devices. We recommend the following items, which may be adapted to suit your specific needs:

Shovel

Rake/Hoe

Heavy Push Broom

Gas Can

Tools/Toolbox

Flashlight

Safety Flares

Jumper Cables

Water Hose (to fill water tank)

Backpack Blower (oil/gas mix)

2-cycle Oil (for blower)

Quart of Oil

2-3 Cans of Tire Puncture Repair

Spare Tire

Fire Extinguisher

2-5 Ton Hydraulic Bottle Jack

Winterizing Your S–4 Sweeper

1. Remove dust suppression water filter, allow as much water as possible to drain from the system and replace water canister without filter.
2. Remove water line coming from the tank at the filter.
3. With water pump running, pressurize the filter housing by using compressed air. This removes water from the pump and lines preventing the water from freezing and rupturing water lines or the pump. Continue blowing air into the filter housing until all nozzles blow air.
4. Remove dust suppression water filter canister and leave off for winter.
5. If sweeping in winter months, do not use water system if below freezing temperatures. If water system is used, it must be purged, using the method stated above before temperature drops below freezing.
6. Engine – Maintain and service engine as per the engine manual provided with the unit.
7. Check antifreeze strength. Must be good for -35^{0} F.
8. Insure all fluid levels at maximum of the operating range.
9. Clean or change engine air filter before parking for winter.
10. Maintain and service chassis as per the owners manual provided with unit.

General Sweeper Maintenance Checks

This information is to be used in combination with your truck chassis and auxiliary engine Owner's Manuals. You will need to refer to each manual for specifics on maintenance schedules and procedures for this unit.

When you are using the sweeper on a daily basis you will need to do a walk around inspection prior to each operation. One of the best times to do this is when you are filling the water tank or whenever the hopper is raised. Here are examples of what to look for:

1. Check all the fluid levels and replenish as necessary.

2. Look at the air filter's air restriction indicator. It is located on or near the auxiliary engine's air filter canister. Has the 'need to service' window changed colors? If it has changed, then change the air filter.

3. Inspect the curb brooms and main broom for bristle wear and any leaking hydraulic oil on the hoses or fittings.

4. Are the curtains or flaps properly adjusted? Do they need replacing?

5. Are all the safety shields and guards in place and in good working condition?

6. Check for any loose bolts, worn or broken parts, leaky or loose fittings, or pinched hydraulic hoses.

Performing any needed repair of the sweeper components prior to traveling to the sweeping location saves time and is much easier when you have the proper tools available.

Fuel, Lubricants, and Coolants

Diesel Fuel

(Refer to the original engine manufacturer's recommendations).

Use ASTM No. 2-D grade fuel when outside air temperature is above 50 C (40º F).

Use ASTM No. 1-D grade diesel fuel when outside air temperature is below 5º C (40º F).

IMPORTANT: Do NOT use fuel that is contaminated by water and dirt!

WARNING: Be careful when handling fuel! Never fill the tank when the engine is hot or running! Do not smoke while filling the fuel tank!

Diesel Engine Oil

(Refer to the original engine manufacturer's recommendations).

Coolant

(Refer to the original engine manufacturer's recommendations).

50% water and 50% ethylene glycol base antifreeze should be used year round.

WARNING: Use extreme care when removing radiator filler caps. Remove only when coolant temperature is below the boiling point.

Hydraulic Oil

The recommended hydraulic oil for this sweeper **Exxon Hydraulic H 68** or equivalent. Failure to do so **WILL** void warranty.

The hydraulic system is very susceptible to contamination from both dirt and moisture and is designed to use a system breather which must be kept clean.

CAUTION: The entire hydraulic oil system must be of the same viscosity grade.

Grease

The recommended grease for this sweeper is **EP 2** multipurpose grease.

Lubrication and Maintenance

IMPORTANT: Maintenance includes inspection and replacement of worn parts as required.

WARNING: Before servicing the sweeper follow a proper Equipment Lockout procedure as described in the Safety section. Serious personal injury or death may result otherwise!

NOTE: To service the chassis or auxiliary engine, refer to the manufacturer's manual included with your sweeper.

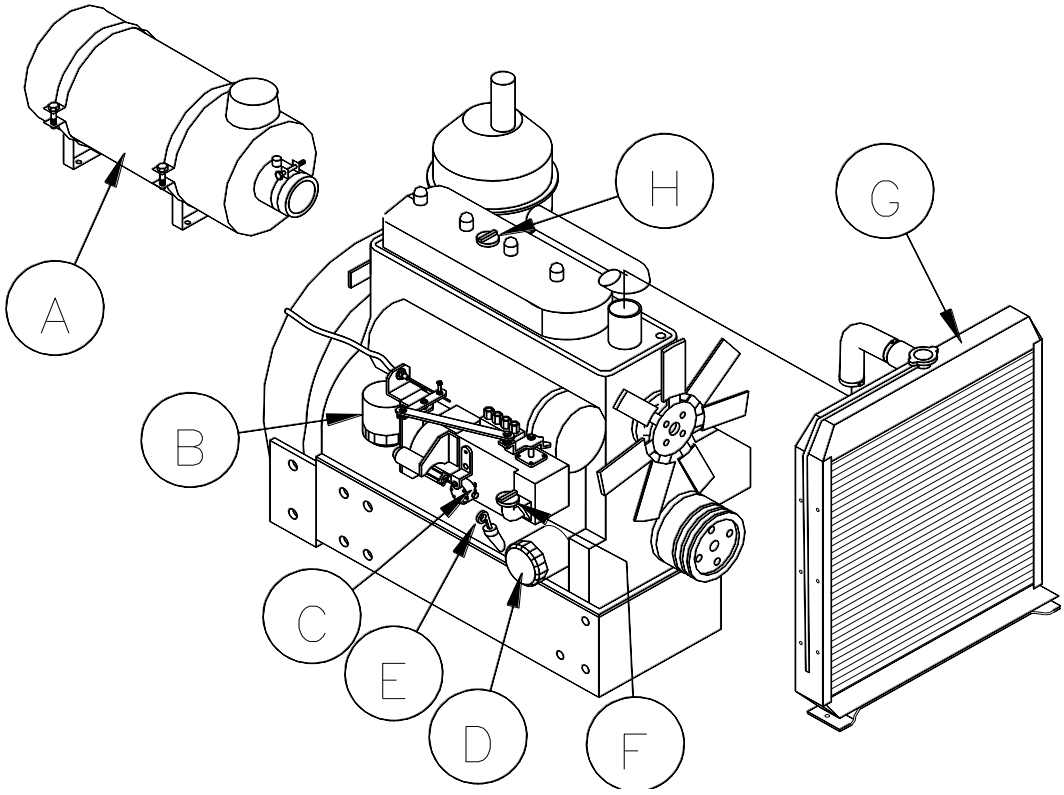
For Auxiliary Engine service locations, see Figure 5: Service Locations on Auxiliary Engine

Daily

(Refer also to the engine manual that comes with your sweeper for locations).

1. Check oil and coolant levels on the engine.
2. Do a walk around inspection to check all linkages cotter pins and bolts for looseness or missing.
3. Check hydraulic oil level in the hydraulic oil tank. The sight glass is located on the front of the hydraulic oil tank on the driver's side of the vehicle.
4. Check the hydraulic oil breather filter, located on tank, for cleanliness.
5. Inspect the Air Restriction Indicator on the engine air filter. For longer engine life it is strongly recommended to change the air filter element at regular intervals. The Air Restriction Indicator gives you a guideline of when changing is needed.
6. Lubricate the elevator bearings.
7. Lubricate the main broom bearing.

WARNING: Do not pull on hydraulic oil cooler outlet hose when servicing. This may cause the cooler to leak.



A. Air Filter
B. Fuel Filter
C. Fuel Primer Pump
D. Engine Oil Filter
E. Engine Oil Dipstick
F. Engine Oil Fill Cap
G. Coolant Fill Cap
H. Engine Oil Fill Cap

Figure 5: Service Locations on Auxiliary Engine

R-6 Maintenance Filter Cross Reference								
Filter Manufacturer	SA	KUBOTA	DONALDSON	FRAM	CARQUEST	BALDWIN	ZINGA	
small hyd. oil filter	1416		P551551	P1653A	85259	BT839-10	AE-10	
V2403								
engine oil	1106	HH164-32430	P550939	PH7328	85307	B7152		
outer air filter	1390		P822768	CA9246	88489	RS3988		
inner air filter	1391		P822769	CA9246SY	88490	RS3703		
fuel filter	1108	16631-43560	P502163	P9458	86398	BF7967		
ISUZU CHASSIS (2011)							ISUZU	FLEET VALUE
engine oil	1268		ELF7947	HPH3690FP	84521	BD7169	97780196	
air filter	1269		P543614	CA9856	88932	RS5434	97779878	
automatic trans.							97780203	
fuel filter - engine mounted							97780136	2-94561-104-0
fuel filter - frame mounted							97780135	2-94561-106-0
Isuzu maintenance kit - includes - all filters, gaskets, wiper blades and reminder label.							97780217	2-90201-103-0

Every 40 Hours

1. Clean the dust control water filter and inspect the sprayer nozzles.
2. Check the radiator for plugging. Ensure radiator is cool before cleaning. Clean with fresh water.
3. Replace the engine oil in the auxiliary engine (initial change only).
4. Replace the hydraulic oil filter in the auxiliary engine (initial change only).
5. Lubricate gutter broom pivot points.
6. Lubricate main broom arms.
7. Lubricate drag shoe links.

Every 250 Hours

1. Replace the hydraulic oil filter.
2. Replace the oil breather filter.
3. Replace the auxiliary engine oil and filter.

Every 500 Hours

1. Replace the hydraulic oil filter.
2. Replace the hydraulic oil breather filter.

NOTE: It is advised to use only factory replacement oil filters. All replacement filters must meet or exceed 10 micron absolute rating. Failure to meet or exceed these specifications will void the warranty.

3. Visually inspect the hydraulic system.
4. Check all lines and hoses for cracks or wear and replace as required.
5. Check all fittings for leakage and retighten or replace if necessary.
6. Check all components for possible wear and have them serviced if necessary.

Every 1000 Hours

Replace Hydraulic Oil, Oil Breather Filter, and Hydraulic Oil Filter as follows:

1. Run the sweeper until hydraulic oil is warm.
2. Stop the engine.
3. Remove both magnetic drain plugs from the bottom of the oil reservoir (one on each side). Drain the oil into a large container.
4. Clean and reinstall both magnetic drain plugs.
5. Replace the reservoir breather filter.
6. Replace the hydraulic filter.
7. Fill reservoir with hydraulic oil as recommended from the pump manufacturer.

IMPORTANT: If Hydraulic Oil is replaced due to contamination, it is imperative to DISMANTLE AND THOROUGHLY CLEAN the hydraulic reservoir, lines and hoses, all other components, and flush the entire hydraulic system before new oil is added!

8. Run the sweeper for several minutes and check for leaks. (Actuate all cylinder circuits and run all motor circuits).
9. Add oil as required. Oil level should be above low level sight glass.

Refer to the Lubrication and Maintenance Check List at the end of the manual.

Adjustments

Gutter Broom Angle Adjustments

(Refer to *Figure 6:* Gutter Broom Assembly) also
(Refer to *Figure 7:* Gutter Broom Pattern)

The proper tilt angle must be maintained for effective sweeping. If the broom is set too flat, it will tend to throw debris back to the curb. If the broom angles are too great, streaks of debris will be left on the pavement.

Correct Gutter Broom Angle

The broom angles are correct when the front outside 1/3 of the broom contacts the pavement. With the brooms fully lowered, ensure the gutter broom pattern overlaps the main broom pattern. This setting is met when the brooms are adjusted between 3º - 5º tilt angle.

The attack angles of the brooms are adjustable as well but are set at the factory and should not require further adjustment except for special applications. Only the tilt angle may need modification from time to time. The attack angle should be set to 3º - 5º for normal sweeping.

Adjust Tilt Angle

(Refer to *Figure 6:* Gutter Broom Assembly) also
(Refer to *Figure 7:* Gutter Broom Pattern)

1. Loosen angle adjustment lock nut (B) to allow movement of the angle adjustment turnbuckle (C).

2. To increase the tilt angle of the gutter brooms, decrease the length of turnbuckle (C). To decrease the angle, lengthen turnbuckle (C).
3. Once the proper tilt angle is achieved, tighten angle adjustment lock nut (B) to secure brooms.

Adjust Front to Back Angle

(Refer to *Figure 7:* Gutter Broom Pattern)

1. Loosen lock nut on adjustment turnbuckle (L) to allow movement of the lower section of the gutter broom.
2. To increase the forward attack angle of the broom to the sweeping surface, turnbuckle must be shortened. To decrease the attack angle or flatten the broom, turnbuckle must be lengthened. The attack angle should be set to 30 – 50 for normal sweeping.
3. Once the correct angle is adjusted, make sure the turnbuckle lock nut is tightened.

Gutter Broom Pressure

Proper broom pressure is very important. Low broom pressure will cause poor sweeping. High broom pressure will cause excessive broom wear.

IMPORTANT: Be sure gutter broom angle is correct before setting gutter broom pressure.

Correct Gutter Broom Pressure

1. Lower brooms onto the road surface and have them rotate with the sweeper stationary.
2. Stop and raise the brooms.
3. Drive sweeper off the swept pattern.
4. Inspect the pattern: If the gutter broom pressure adjustment is correct, the front outside 1/3 of the broom must be in contact with the road surface.

Adjust Gutter Broom Pressure

(Refer to *Figure 6:* Gutter Broom Assembly)

1. Loosen turnbuckle lock nut (I) on suspension turnbuckle (H).
2. To increase down pressure on gutter broom lengthen the turnbuckle, to reduce down pressure shorten the turnbuckle. By lengthening or shortening the turnbuckle will affects spring (D) which increases or lowers gutter broom pressure to compensate for wear.
3. Tighten lock nut (I) on suspension turnbuckle (H)

Sweeping Width

(Refer to *Figure 6:* Gutter Broom Assembly) also
(Refer to *Figure 7:* Gutter Broom Pattern)

The sweeping path width can be adjusted for a broader or narrower sweeping path.

NOTE: The wider the sweeping path the greater the possibility of damaging the broom linkages from impacts.

Tighten bolt (K) to decrease the sweeping path and loosen to increase sweeping path.

NOTE: The wider the sweeping path the greater the possibility of streaking between the rear broom and the main broom. A sufficient gutter broom to main broom overlap must be maintained.

Gutter Broom Impact Protection Spring

(Refer to *Figure 6:* Gutter Broom Assembly) also
(Refer to *Figure 7:* Gutter Broom Pattern)

Each gutter broom is equipped with an impact protection spring (A) to protect it from side impact damage. There is no adjustment for this spring.

NOTE: The wider the sweeping path the greater the possibility of damaging the broom linkages from impacts.

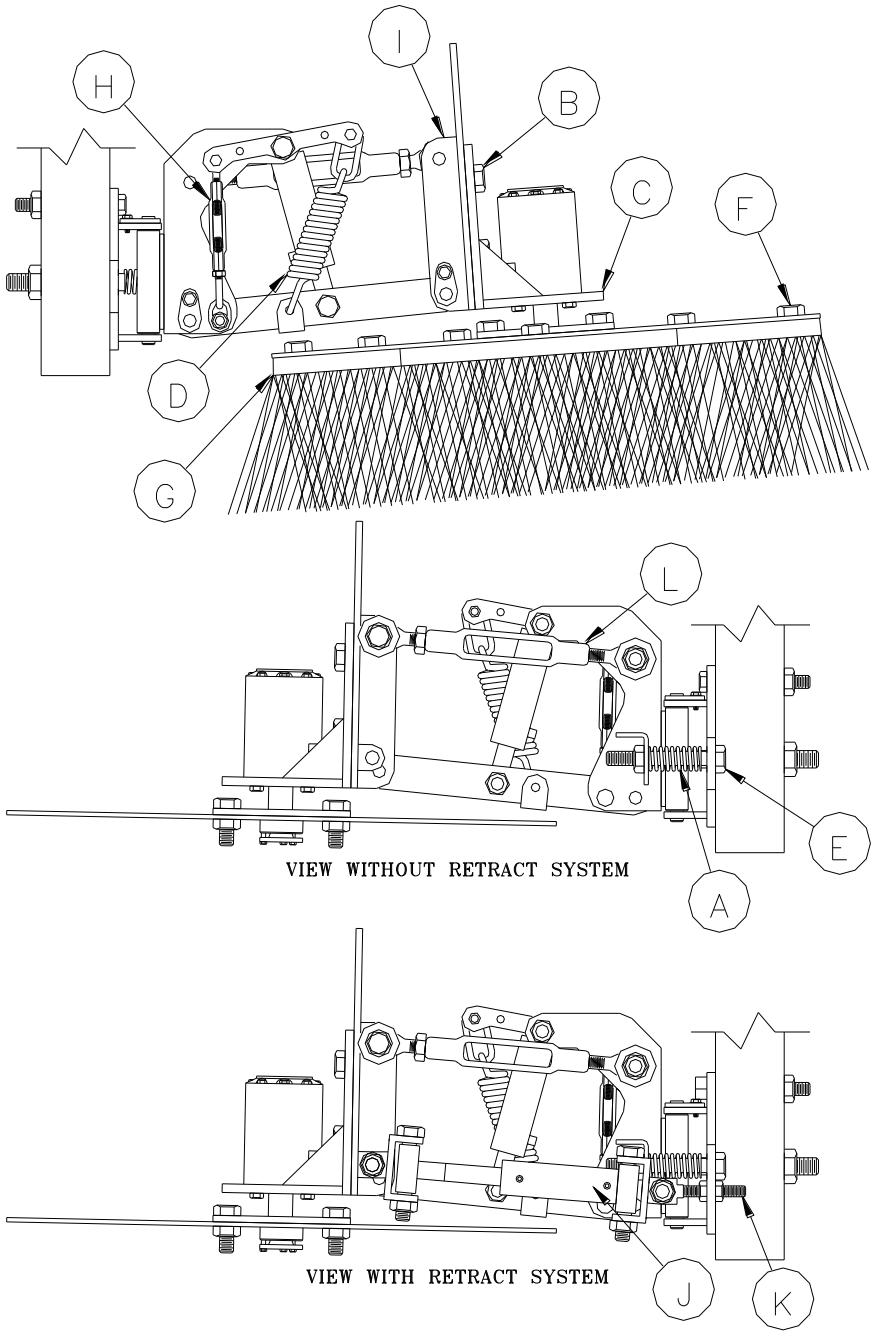


Figure 6: Gutter Broom Assembly

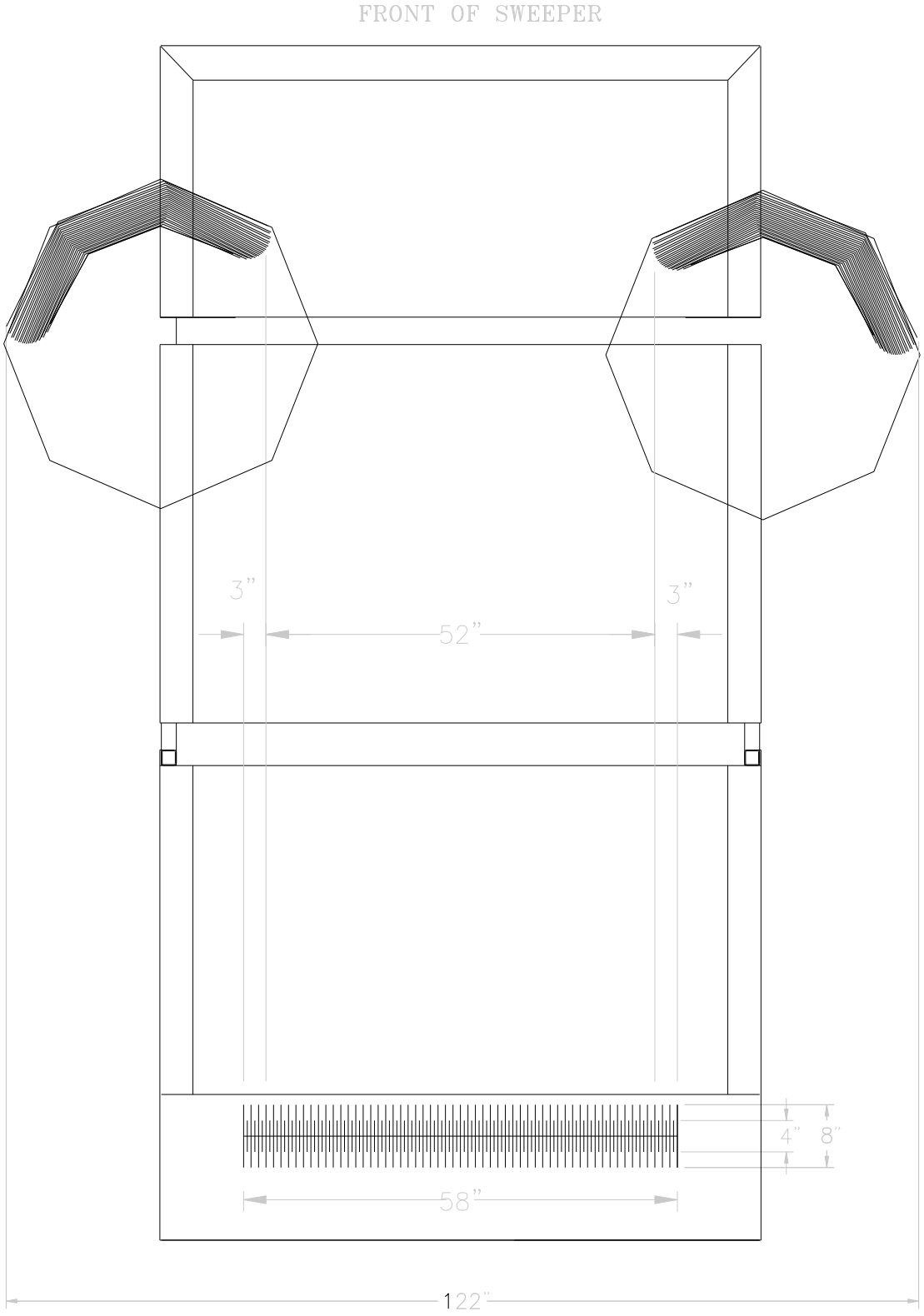


Figure 7: Correct Broom Pattern

Main Broom Pressure

(Refer to *Figure 8:* Main Broom Assembly)

The main broom pressure is controlled by the tension on the suspension spring (F) while the shock absorber (E) applies down pressure. To adjust the down pressure:

1. Loosen the lock nut on turnbuckle (D).
2. Lengthen the turnbuckle to increase the down pressure and shorten the turnbuckle to decrease down pressure.

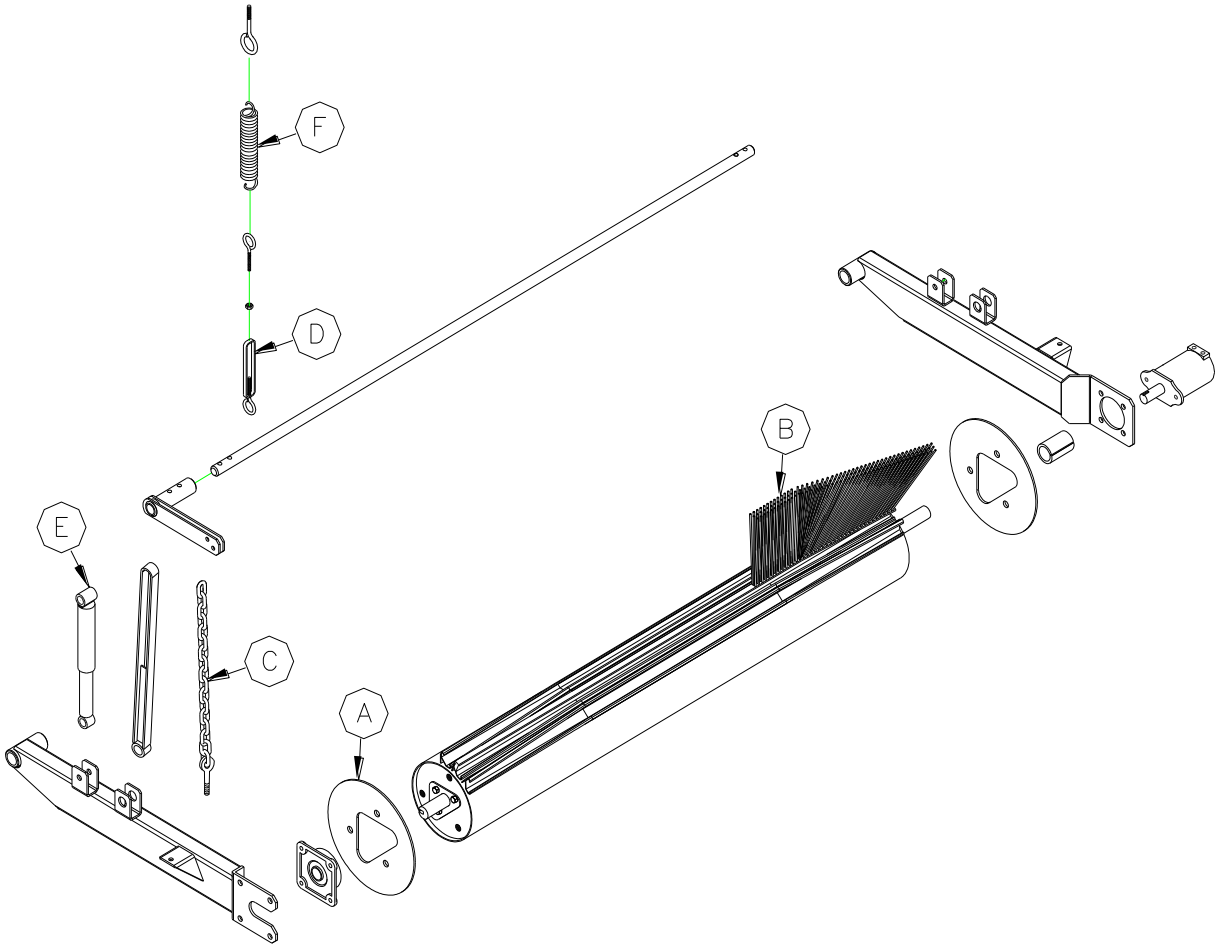


Figure 8: Main Broom Assembly

Elevator Chain Adjustment

Upper Drive Shaft

(Refer to *Figure 13:* Elevator)

1. Loosen bolts (C).
2. Loosen lock nut (E).
3. Tighten adjustment bolt (D).

NOTE: Bottom shaft and bearings (P) should never require adjusting. This shaft is preset at the factory.

NOTE: Elevator chains should always be run **as loose as possible once in operation,** without rubbing on each other or the separator bar.

NOTE: Always adjust upper drive shaft first. When upper shaft has moved to the end of its travel then center shaft can be adjusted.

NOTE: Slide (A) has limited travel because of bolts on bearing (B). Slide (A) will only move as far as bolts on bearing (B) come to the end of the travel.

4. Once bolt (D) has been adjusted, tighten lock nut (E).
5. Tighten bolts (C).

Center Idler Shaft

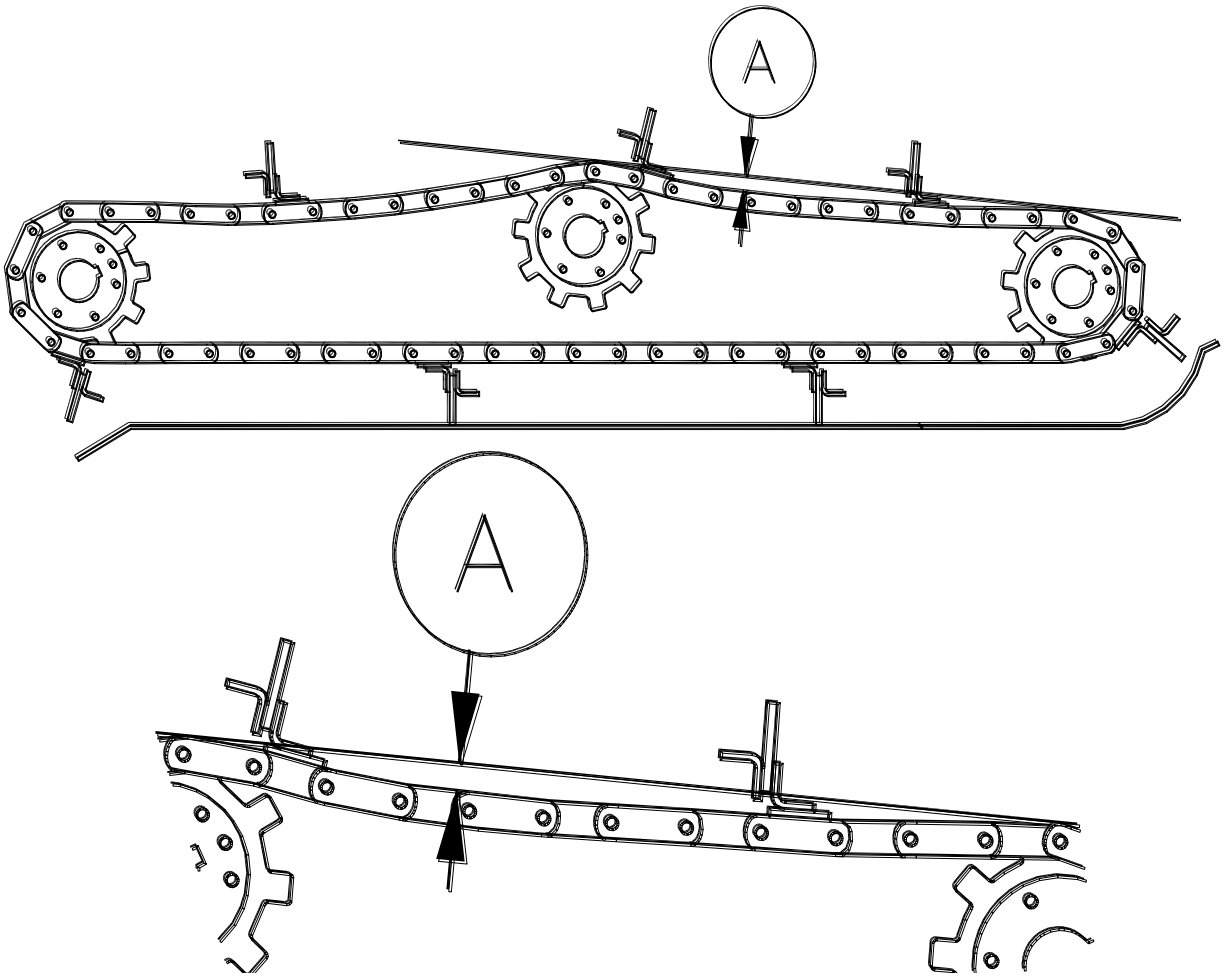
1. Loosen bolts on bearing (H).
2. Loosen lock nut (G).
3. Tighten bolt (F) until desired chain tension is reached.
4. Tighten bolts on bearing (H).
5. Tighten lock nut (G).

NOTE: The correct tension on **new elevator chain and sprockets only** is 1-3" deflection on the chain between shaft (L) and shaft (J).

NOTE: Partially **worn chain and sprockets** should be run **as loose as possible** between shaft (L) and shaft (J). **Chains that are being run to tight will have excessive wear and create excessive load on the elevator.**

NOTE: If all the adjustment has been used and the chain is still loose, a ½ or 1 full link may have to be removed by loosening the shaft adjustments, remove a link and readjust the shafts using the procedure above.

(Refer to *Figure 9:* Elevator Chain Adjustment)


A
A

REPAIR AND MAINTENANCE

Gutter Broom Segment Replacement

(Refer to *Figure 6:* Gutter Broom Assembly)

1. Fully raise brooms.
2. Remove bolts (F) that hold broom segments (G) in place.
3. Bolt new broom segments in place.
4. Repeat this procedure for all segments.
5. After installing new segments, gutter broom pressure must be reset as per Gutter Broom Pressure Adjustment.

Main Broom Strip Replacement

(Refer to Figure 10: Main Broom Assembly)

1. Main broom must be raised for this operation so broom can be rotated.
2. Remove 3 bolts holding retaining ring (A) to the mandrel (B).
3. Lower retaining ring (A) onto the mandrel end shaft.
4. Pull worn broom strips out the side of machine.
5. Clean the C-channel before inserting the new strips.
6. As each strip is removed from the mandrel, immediately replace with a new strip, this keeps the mandrel in balance and is easier to rotate to the next strip. Ensure the new broom strips slide into the C-channel. If strip is tight in the C-channel, penetrating oil can be used to lubricate the strips as they go in.

NOTE: Eighteen broom strips are required to complete the main broom.

7. After all strips have been replaced, reinstall retaining ring (A) onto the mandrel (B).

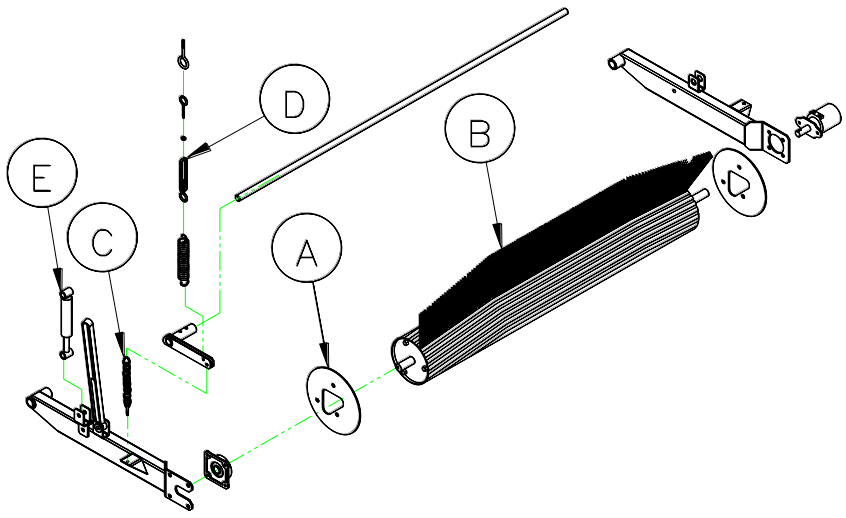


Figure 10: Main Broom Assembly

Main Broom Bearing Replacement

(Refer to *Figure 11:* Main Broom Arm Assembly)

1. Lower the main broom fully to the shop floor.
2. If the bearing has an Eccentric Locking Collar, loosen the set screws (C) and tap the collar in the reverse direction of the shaft rotation, using a punch and hammer to unlock the Collar and bearing assembly (B) from the shaft (F). If the bearing does not have the Eccentric Locking Collar, loosen the set screws (C) to unlock the bearing (B) from the shaft (F).
3. Remove all 4 bolts (D) retaining bearing (B) to arm (G).
4. Clean shaft (F) with emery cloth to prevent bearing from hanging up when removing.
5. Slide bearing assembly (B) off end of broom shaft (F). A Bearing Puller may have to be used.
6. Install new bearing assembly, reversing the procedure for removal. Ensure that the bearing grease nipple (E) is pointing towards the rear of machine.
7. Centre the broom between the rear drag shoes by moving bearing (B) on the main broom shaft (F). Pull or push on main broom arm as required.
8. If bearing has an Eccentric Locking Collar, lock in place by using the Collar rotated in the direction of the shaft rotation. Tighten all set screws (C) using a thread lock. If bearing does not have Eccentric Locking Collar, tighten all set screws (C) using a thread lock.

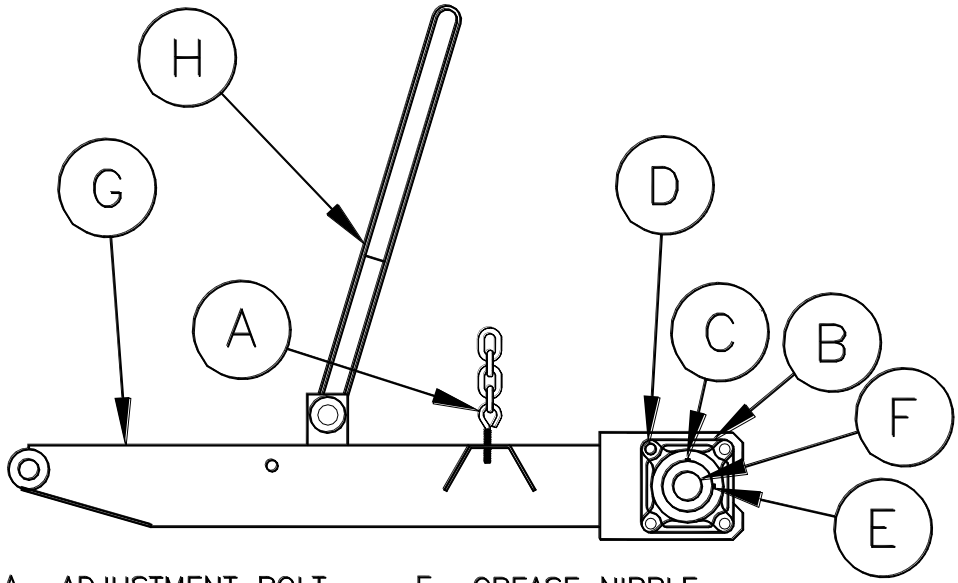


Figure 11: Main Broom Arm Assembly

Carbide Drag Shoe Replacement

(Refer to *Figure 12:* Carbide Drag Shoe)

1. Raise the main broom.
2. Remove bolts (B) and worn drag shoe (C).
3. Install new carbide drag shoe and bolts (B).

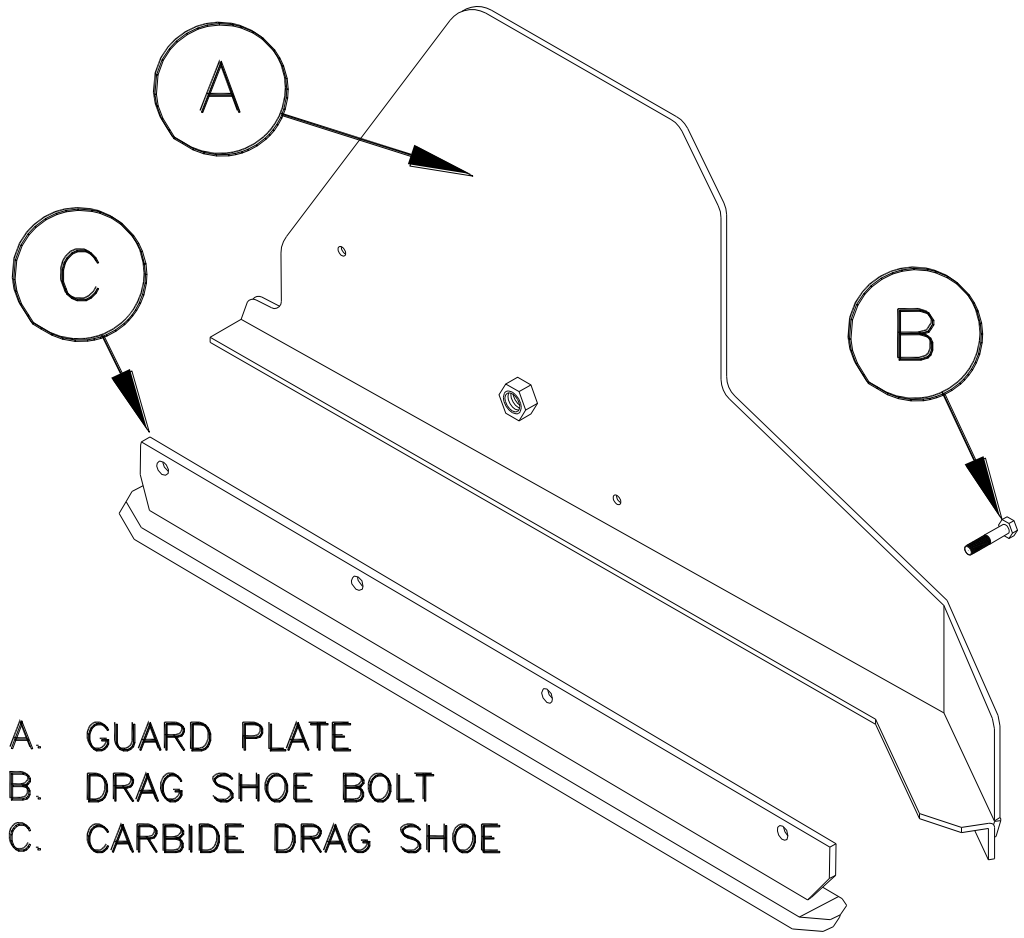


Figure 12: Carbide Drag Shoe

Elevator Chain, Sprocket/Shaft Replacement

(Refer to *Figure 13:* Elevator)

1. Remove rear canopy.
2. Remove water tank.
3. Remove elevator canopy and canopy extension.

NOTE: the procedure give is for one side only and must be repeated for the opposite side.

4. Loosen top shaft bolts (C).

5. Loosen lock nut (E).
6. By adjusting bolt (D), move the top shaft slide (A) down closer to the middle of elevator housing until bearing bolts are at the bottom of the travel.
7. Loosen the bolts on bearing (H).
8. Loosen lock nut (G).
9. By adjusting bolt (F), lower bearing (H) to the bottom of the retaining bolt slots.
10. Remove squeegee (M) and squeegee angle (N) assembly from the chain.
11. Remove elevator chain master link pin and let chain fall to the floor and remove.

NOTE: At this point it is vary easy to replace or repair any damage to the elevator housing, shafts, sprockets, and liners if required.

NOTE: The elevator sprockets are split for easy removal but when installing make sure the sprockets on the same shaft are timed to each other.

NOTE: One of the elevator shaft retainers for each sprocket are tack welded to the shaft to maintain chain alignment, make sure one of the retainers are welded.

NOTE: Bottom shaft and bearings (P) should never require adjusting. This shaft is preset at the factory.

12. Install new chain (K) making sure the squeegee attachment links are aligned.
13. Adjust top shaft first using adjustment bolts (D) until proper chain tension is achieved.

NOTE: When adjusting top shaft make sure both sides move equally.

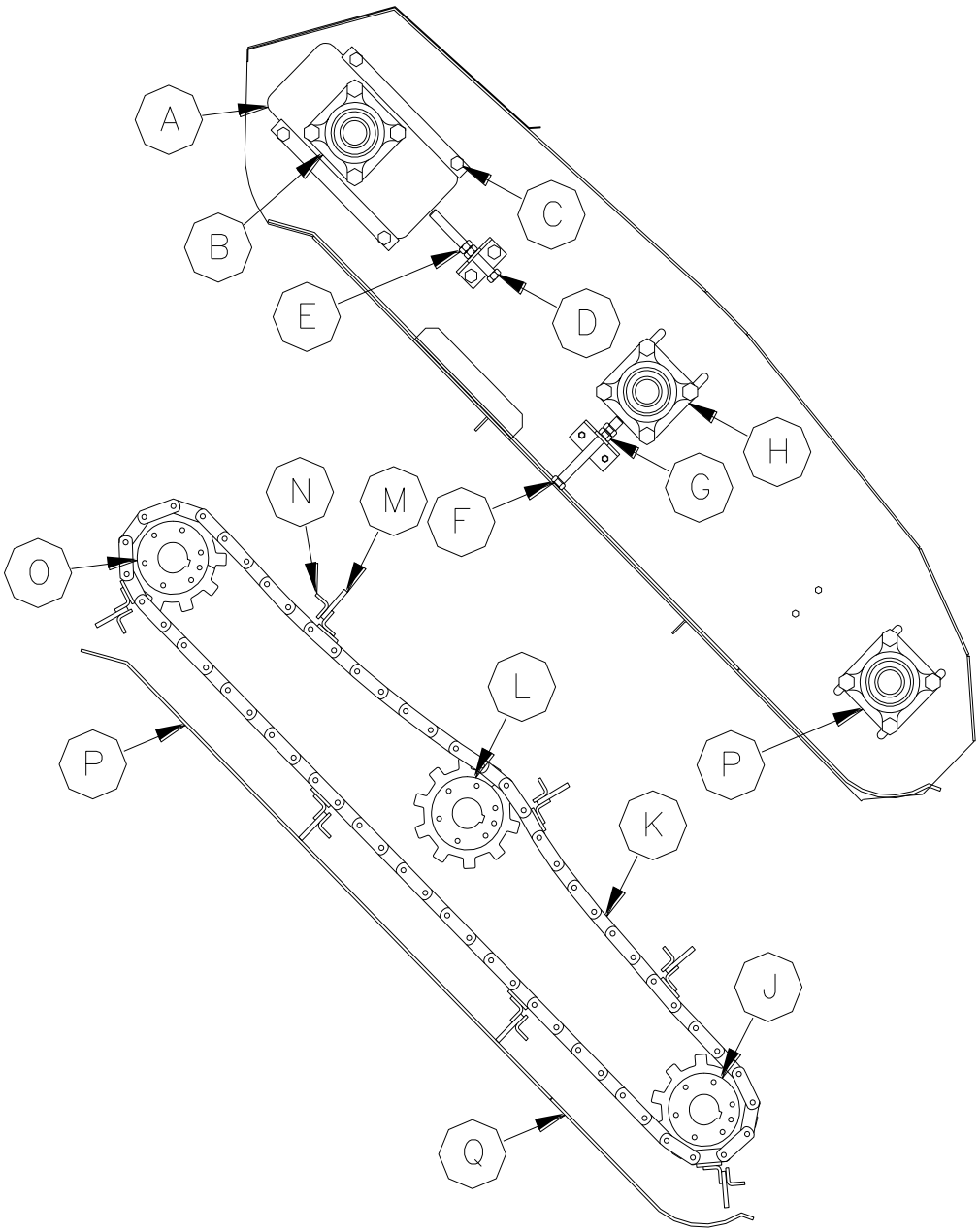
14. Adjust center shaft suing adjustment bolt (F) until the sprocket touches the chain.

NOTE: Do not add to the tension of the chain at this time. The purpose of the center shaft is to reduce chain slap when going from sweeping forward to sweeping reverse and to adjust for chain stretch as chain wears.

15. Reinstall squeegee and squeegee angles on chain.
16. Tighten all bearing slides, lock nuts, and bearing bolts.
17. Reinstall elevator canopy and canopy extension.
18. Reinstall water tank.
19. Reinstall rear canopy.

NOTE: The correct tension on new elevator chain is 1-3” deflection on the chain between shafts.

NOTE: Elevator chains should always be run as loose as possible, once in operation, without rubbing on each other or the separator bar.



A. TOP SHAFT SLIDE
B. TOP SHAFT BEARING
C. SLIDE RETAINER
D. ADJUSTMENT BOLT
E. LOCK NUT
F. ADJUSTMENT BOLT
G. LOCK NUT
H. CENTER SHAFT BEARING
I. BOTTOM SHAFT BEARING
J. BOTTOM SHAFT
K. ELEVATOR CHAIN
L. CENTER SHAFT
M. SQUEEGEE
N. SQUEEGEE ANGLE
O. TOP SHAFT
P. TOP LINER
Q. BOTTOM LINER

Figure 13: Elevator

Bottom Liner Replacement

1. Drive machine up on blocks ensuring machine is secure before going under machine.
2. Remove bolts that hold liner in place.
3. Remove liner.
4. Remove bottom rubber and install on new liner.
5. Reinstall liner.

Top Liner Replacement

1. Remove rear canopy.
2. Remove water tank.
3. Remove elevator canopy and canopy extension.
4. Remove bolts from top liner.
5. Pull line out from the top of elevator.
6. Replace liner.
7. Reinstall elevator canopy and canopy extension.
8. Reinstall water tank.
9. Reinstall rear canopy.

Main Broom Hydraulic Motor Replacement

1. Lower broom to floor.
2. Loosen bolts on main broom coupler.
3. Disconnect hydraulic lines to motor.
4. Remove motor bolts.
5. Replace motor.

NOTE: Motor requires an offset key in shaft, 5/16” side of key goes into the motor shaft and ¼” goes into coupler.

6. Reinstall and tighten mounting bolts.

NOTE: Ensure motor shaft is completely in coupler.

7. Tighten coupler bolts.

Gutter Broom Hydraulic Motor Replacement

1. Lower gutter broom to floor.
2. Remove one segment from the gutter broom plate.
3. From underneath remove center mount retaining bolt.
4. Remove bolts from taper lock bushing.
5. Put bolts that are removed from the bushing into the threaded holes in bushing.
6. Tighten bolts evenly until taper lock releases from shaft.
7. Gutter broom plate should slip off motor shaft.
8. Disconnect hydraulic lines to motor.
9. Remove motor mounting bolts.
10. Replace motor.
11. Reinstall and tighten motor mounting bolts.

NOTE: Motor requires an offset key in shaft, 5/16" side of key goes into the motor shaft and ¼" goes into mounting plate.

12. Using a floor jack, lift gutter broom mounting plate onto shaft.
13. Tighten taper lock bushing evenly, tightening mounting plate to shaft.
14. Reinstall center mount bolts.
15. Tighten all plate and mount bolts.
16. Reinstall gutter broom segment.

Elevator Hydraulic Motor Replacement

1. Remove drive chain mount cover.
2. Disconnect drive chain.
3. Loosen set screws on motor sprocket.
4. Remove sprocket.
5. Disconnect hydraulic lines.
6. Remove motor mounting bolts.
7. Replace motor.

NOTE: Motor requires an offset key in shaft, 5/16" side of key goes into the motor shaft and ¼" goes sprocket.

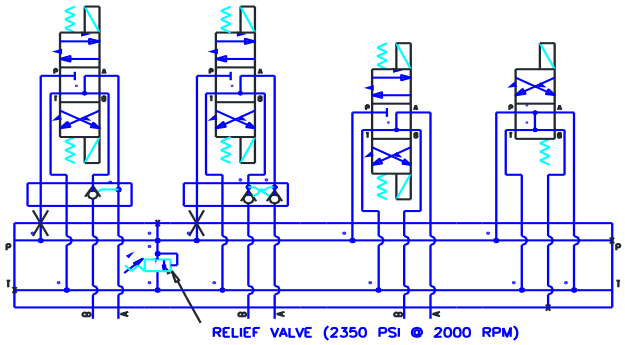
8. Reinstall motor mount bolts.
9. Reinstall hydraulic lines.
10. Reinstall sprocket.
11. Connect drive chain.
12. Reinstall cover.

Hydraulic Pressure Adjustment

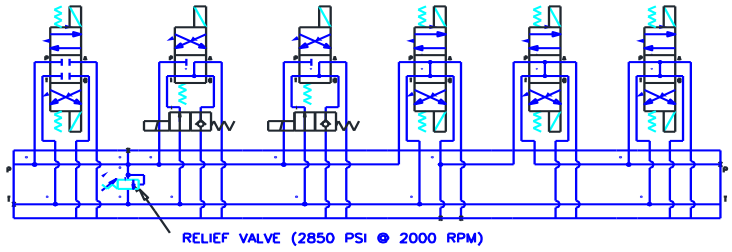
(for RH VALVE STACK (Passengers Side))
(set pressure to 2,850 psi @ 2 000 rpm)

1. Install a 0-5000 psi pressure gauge in test port A on top of valve.
2. Remove cap from the relief valve.
3. Take engine to 2,000 rpm.
4. Push hopper lift switch and raise hopper until cylinders are bottomed.
5. While holding switch, read pressure gauge.
6. Turn relief screw clockwise to increase pressure and counter clockwise to lower pressure.
7. Adjust pressure to a maximum of 2,850 psi.
8. Replace relief cap and gauge.

80120 LH VALVE SPOOL ASSEMBLY (DRIVERS SIDE) SN 4011 & UP



80134 RH VALVE SPOOL ASSEMBLY (PASSENGER SIDE) SN 4011 & UP



(for LH VALVE STACK (Driver Side))
(set pressure to 2,350 psi @ 2 000 rpm)

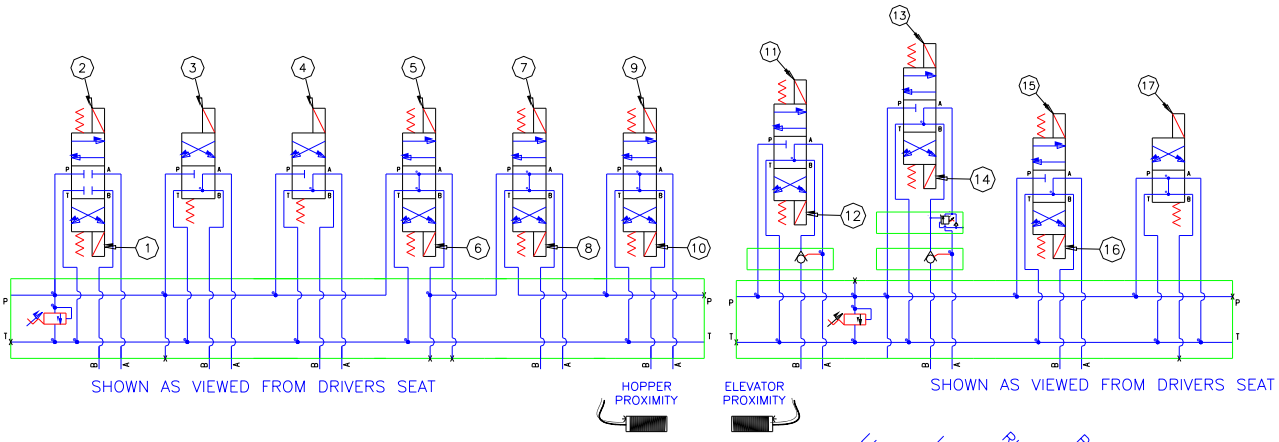
1. Install a 0-5000 psi pressure gauge in test port A on top of valve.
2. Remove cap from the relief valve.
3. Take engine to 2,000 rpm.
4. Push hopper dump switch and dump hopper until cylinders are bottomed.
5. While holding switch, read pressure gauge.
6. Turn relief screw clockwise to increase pressure and counter clockwise to lower pressure.
7. Adjust pressure to a maximum of 2,350 psi.
8. Replace relief cap and gauge.

Adjusting a Stall Alarm

- Remove the DIN electrical connector from the pressure switch.
- Insert a 3/32" Allen wrench in the DIN connector retaining screw hole.
    - Turn the Allen screw at the bottom of the hole to raise and lower the pressure setting of the switch.
    - Counter clockwise lowers the pressure setting of the switch. Clockwise raises the pressure setting of the switch.
- Remove the retaining screw from the DIN connector.
- Place the DIN connector back onto the pressure switch.
- Start the auxiliary engine.
- Take the engine to 2000 rpm.
- Hold the main broom up switch to stall out the hydraulic system while maintaining the 2000 rpm.
- If the stall alarm does not come on, use the Allen wrench, while the DIN connector is on, to turn the Allen screw counter clockwise until the alarm comes on. Once the alarm is on turn the screw clockwise until the alarms just goes off.
- If the stall alarm is on then turn the screw clockwise until the alarm just goes off.
- Remove the Allen wrench and replace the DIN retaining screw.

This procedure sets the alarm at just slightly higher pressure than the pressure relief valve while the engine is at 2000 rpm. When the engine is at operating speeds the alarm will activate when the elevator is stalled. In normal operation it is not uncommon to have the alarm chirp when the main broom up/down function is activated and stalled at the end of the cylinder stroke.

Electrical Activation Sequences at Valve Connectors



DIN #	HOPPER RAISE	HOPPER LOWER	HOPPER DUMP	HOPPER RETRACT	BROOMS RAISE	BROOMS LOWER	MB SWEEP FORWARD	MB SWEEP REVERSE	LH GB RAISE	LH GB LOWER (FLOAT)	RH GB RAISE	RH GB LOWER (FLOAT)	LH GB SWEEP FORWARD	LH GB SWEEP REVERSE	RH GB SWEEP FORWARD	RH GB SWEEP REVERSE
1	X															
2		X														
3						X				X						
4						X						X				
5														X	X	X	X
6	X	X				X				X		X					
7														X			
8															X		
9																X	
10																	X
11						X											
12							X										
13					X												
14				X													
15								X									
16									X								
17				X	X	X	X	X	X								

Lubrication and Maintenance Check List

EVERY 10 HOURS

STARFIRE SWEEPER DAILY MAINTENANCE CHECKLIST

Perform this routine BEFORE every shift or after 10 hours of operation (whichever is sooner)

Sweeper S/N: **Date:** **Hours:** **Miles:**

This CHECKLIST PERFORMED BY:

		Done:
1	The OPERATOR has READ and THOROUGHLY UNDERSTANDS the "Safety, Operations and Maintenance Manual" for this sweeper and understands the safe operation of the vehicle including the chassis, the chassis "Owners Manual" and the diesel particulate filter. Refuel with "ULTRA LOW Sulfur Highway Diesel" ONLY.	☐
2	Check Engine Oil (dipstick) and Coolant Levels on BOTH Engines.	☐
3	Check Hydraulic Oil Level on the site tube on side of hydraulic oil tank.	☐
4	Check Air Filter Restriction Indicator (AFRI) for BOTH Engines. If AFRI shows that the airflow through filter is too low, change the air filter and RESET the Indicator. Write the Date and Hours on the new filter and Note the change on this form by putting a circle around the filter changed today- TRUCK AUXILIARY	☐
5	Check ALL tires for proper inflation and tread wear.	☐
6	Check that Back-up Alarm, Lights, and Strobes are working properly.	☐
7	Clean water system filter. Inspect water system spray nozzles. Clean, if necessary.	☐
8	Check sweeper functions for proper operation. "Note" any exceptions.	☐
9	Check broom sweeping pattern of side and main brooms. Correct any bad pattern.	☐
10	Service truck chassis - refer to Owners Manual.	☐
11	Check power steering, transmission, and windshield washer fluids.	☐
12	Inspect for any damage and any loose items such as wires, fittings, pins, nuts and bolts. Correct problem and/or NOTE below.	☐

NOTES and REMARKS:

Perform this routine AFTER every shift or after 10 hours of operation (whichever is sooner)

Sweeper S/N: **Date:** **Hours:** **Miles:**

This CHECKLIST PERFORMED BY:

		Done:
1	Allow BOTH engines to idle for 2 minutes before shut-down.	☐
2	WASH THOROUGHLY: Including engine radiators, hydraulic oil cooler, elevator (including the shafts), hopper and hopper lift frame/scissors area. Be sure engine is cool before washing. DO NOT use high pressure to wash radiators or hydraulic oil cooler fins.	☐
3	Grease elevator shaft bearings and main broom stub-shaft bearing with EP2 grease.	☐
	Note: the shafts should be rotating while being greased to insure proper distribution of lubricant.	
4	Check for and remove any tape, string, etc., wound around broom motor and elevator shafts.	☐
5	Inspect for any damage and any loose items such as wires, fittings, pins, nuts and bolts. Correct problem and/or NOTE below.	☐

NOTES and REMARKS:

Thank you for choosing Stewart-Amos Sweepers! HAPPY SWEEPING!!!

EVERY 40 HOURS

STARFIRE SWEEPER WEEKLY MAINTENANCE CHECKLIST

Perform this routine WEEKLY or after 40 hours of operation (whichever is sooner)

Sweeper S/N: **Date:** **Hours:** **Miles:**

This CHECKLIST PERFORMED BY:

		Done:
1	The OPERATOR has READ and THOROUGHLY UNDERSTANDS the "Safety, Operations and Maintenance Manual" for this sweeper and understands the safe operation of the vehicle including the chassis, the chassis "Owners Manual" and the diesel particulate filter. Refuel with "ULTRA LOW Sulfur Highway Diesel" ONLY.	☐
2	Perform the DAILY ROUTINE.	☐
3	Grease the pivot point on the main broom and gutter broom "arms".	☐
4	Perform an extra thorough cleaning of the hydraulic oil cooler.	☐
5	Service truck chassis - refer to Owners Manual.	☐
6	Inspect for any damage and any loose items such as wires, fittings, pins, nuts and bolts. Correct problem and/or NOTE below.	☐

NOTES and REMARKS:

Thank you for choosing Stewart-Amos Sweepers! HAPPY SWEEPING!!!

EVERY 250 HOURS

STARFIRE SWEEPER PERIODIC MAINTENANCE CHECKLIST

ALL MAINTENANCE BEYOND DAILY AND WEEKLY IS PERFORMED ON A USAGE BASIS AS INDICATED IN THE MANUALS

Perform this routine AFTER EVERY 250 hours of operation OR sooner if conditions dictate

Sweeper S/N:	**Date:**	**Hours:**	**Miles:**
This CHECKLIST PERFORMED BY:			

		Done:
1	**Change BOTH engine oils AND filters - Write Date and Hours on filter housings.**	☐
2	**Replace hydraulic oil filter - Write Date and Hours on filter housing.**	☐
3	**Clean hydraulic oil tank breather filter.**	☐
4	**Inspect for any damage and any loose items such as wires, fittings, pins, nuts and bolts. Correct problem and/or NOTE below.**	☐

NOTES and REMARKS:

Thank you for choosing Stewart-Amos Sweepers! HAPPY SWEEPING!!!

EVERY 1000 HOURS

STARFIRE SWEEPER PERIODIC MAINTENANCE CHECKLIST

ALL MAINTENANCE BEYOND DAILY AND WEEKLY IS PERFORMED ON A USAGE BASIS AS INDICATED IN THE MANUALS

Perform this routine AFTER EVERY 1000 hours of operation OR sooner if conditions dictate

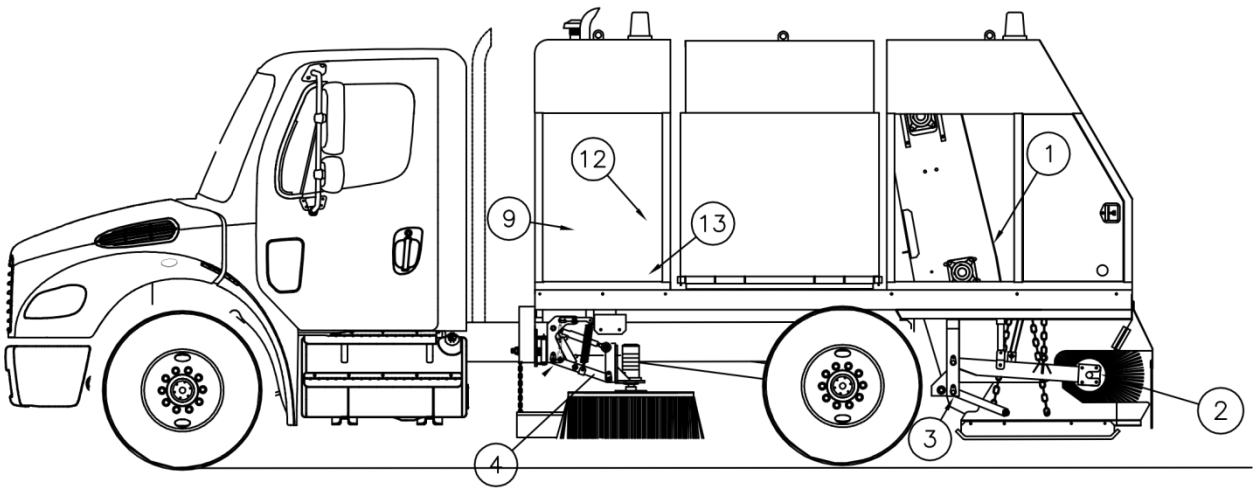
Sweeper S/N:	**Date:**	**Hours:**	**Miles:**
This CHECKLIST PERFORMED BY:			

		Done:
1	**Perform a 250 hour Maintenance Routine.**	☐
2	**Change Hydraulic Oil per Manual.**	☐
3	**Grease chassis per "Owners Manual" including front steering linkage, U-joints, bearings, and king pins.**	☐
4	**Check elevator chain for adjustment.**	☐
5	**Inspect for any damage and any loose items such as wires, fittings, pins, nuts and bolts. Correct problem and/or NOTE below.**	☐

NOTES and REMARKS:

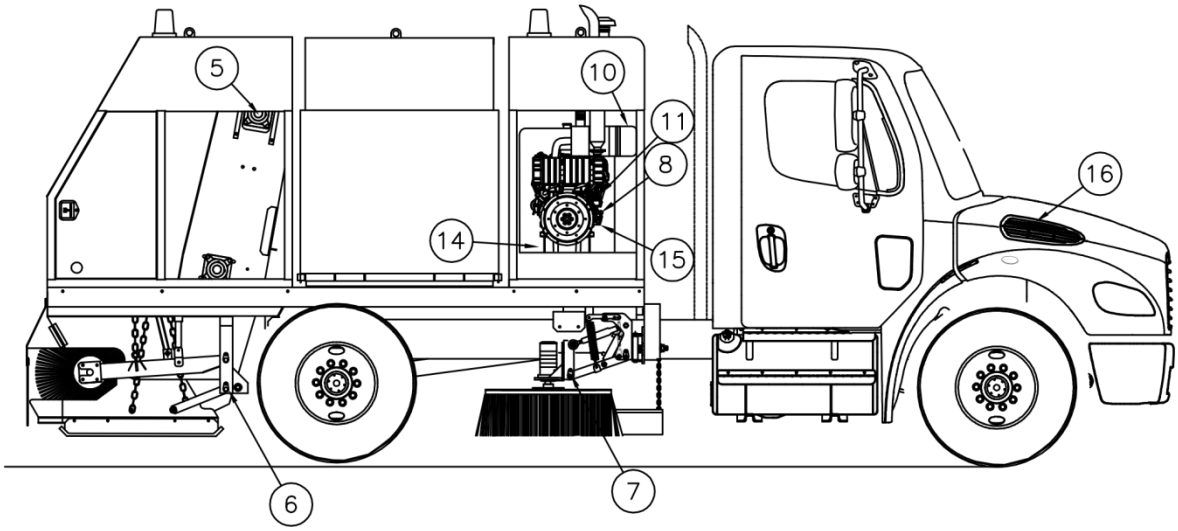
Thank you for choosing Stewart-Amos Sweepers! HAPPY SWEEPING!!!

S–4XL SERVICE POINTS



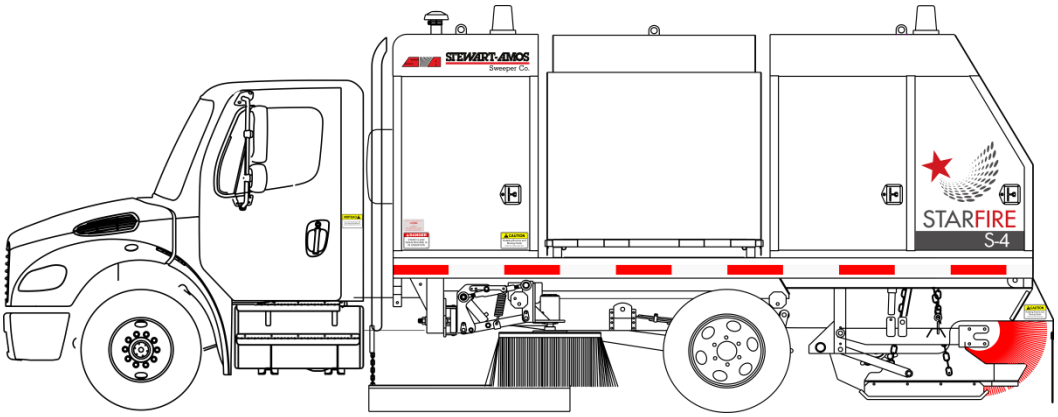
SWEEPER SERVICE POINTS

LOCATION	NO. OF POINTS	FREQUENCY	DESCRIPTION
1	3	DAILY	ELEVATOR BEARINGS (DRIVERS SIDE)
2	1	DAILY	MAIN BROOM BEARING
3	3	WEEKLY	MB AND DRAG SHOE LINKAGE
4	3	WEEKLY	GUTTER BROOM LINKAGE
5	3	DAILY	ELEVATOR BEARINGS (PASSENGER SIDE)
6	3	WEEKLY	MB AND DRAG SHOE LINKAGE
7	3	WEEKLY	GUTTER BROOM LINKAGE
8	1	DAILY	ENGINE OIL LEVEL
9	1	DAILY	HYDRAULIC OIL LEVEL
10	1	DAILY	AIR FILTER AUX. ENGINE
11	1	AS REQ.	FUEL FILTER
12	1	250 HR.	HYDRAULIC OIL FILTER
13	1	1000 HRS.	HYDRAULIC OIL
14	1	250 HRS	ENGINE OIL
15	1	250 HRS	ENGINE OIL FILTER
16	1	DAILY	AIR FILTER TRUCK



NOTES:

STARFIRE
S4XL
PARTS MANUAL



SN 6012 & up
Last updated August 2015

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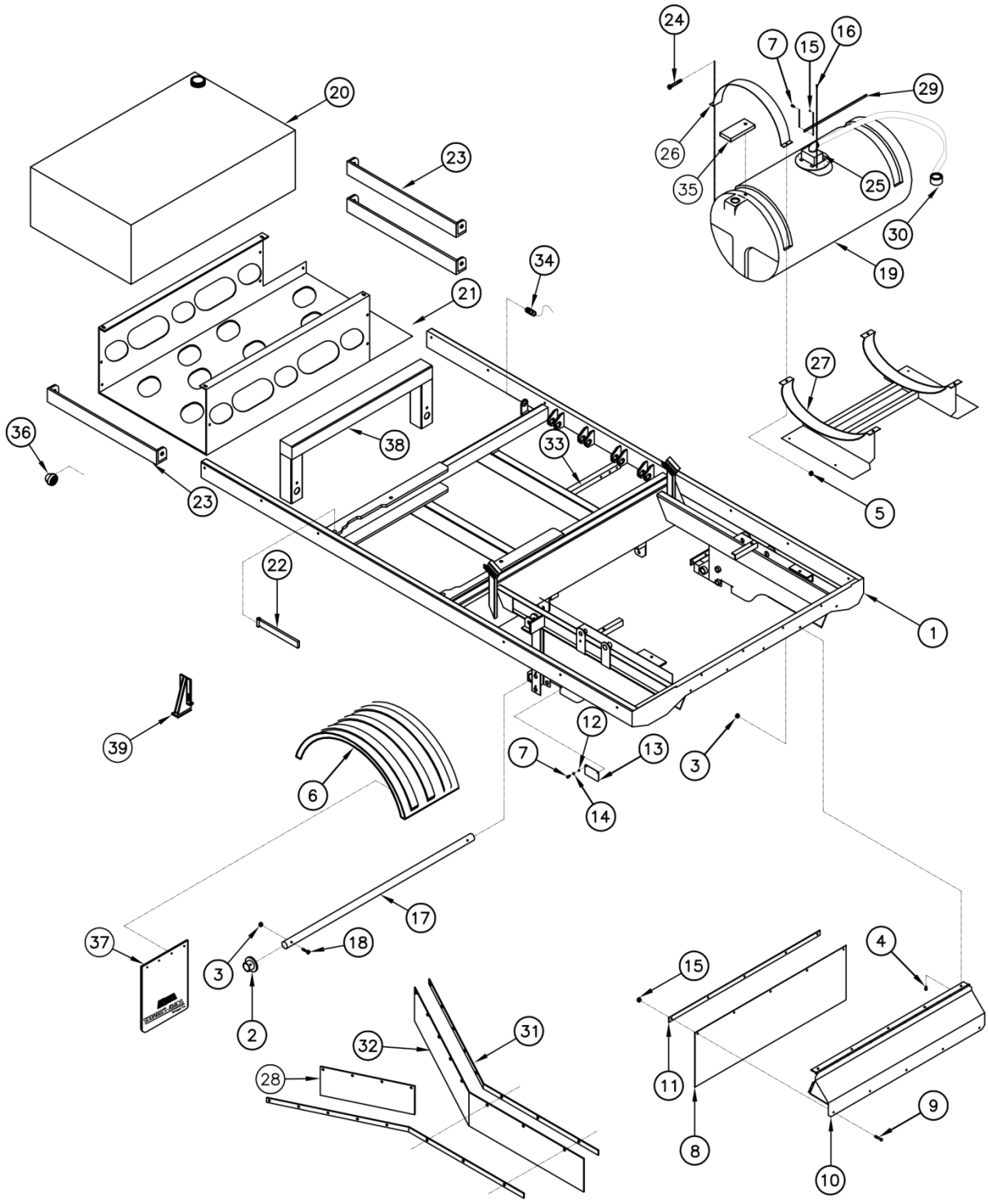
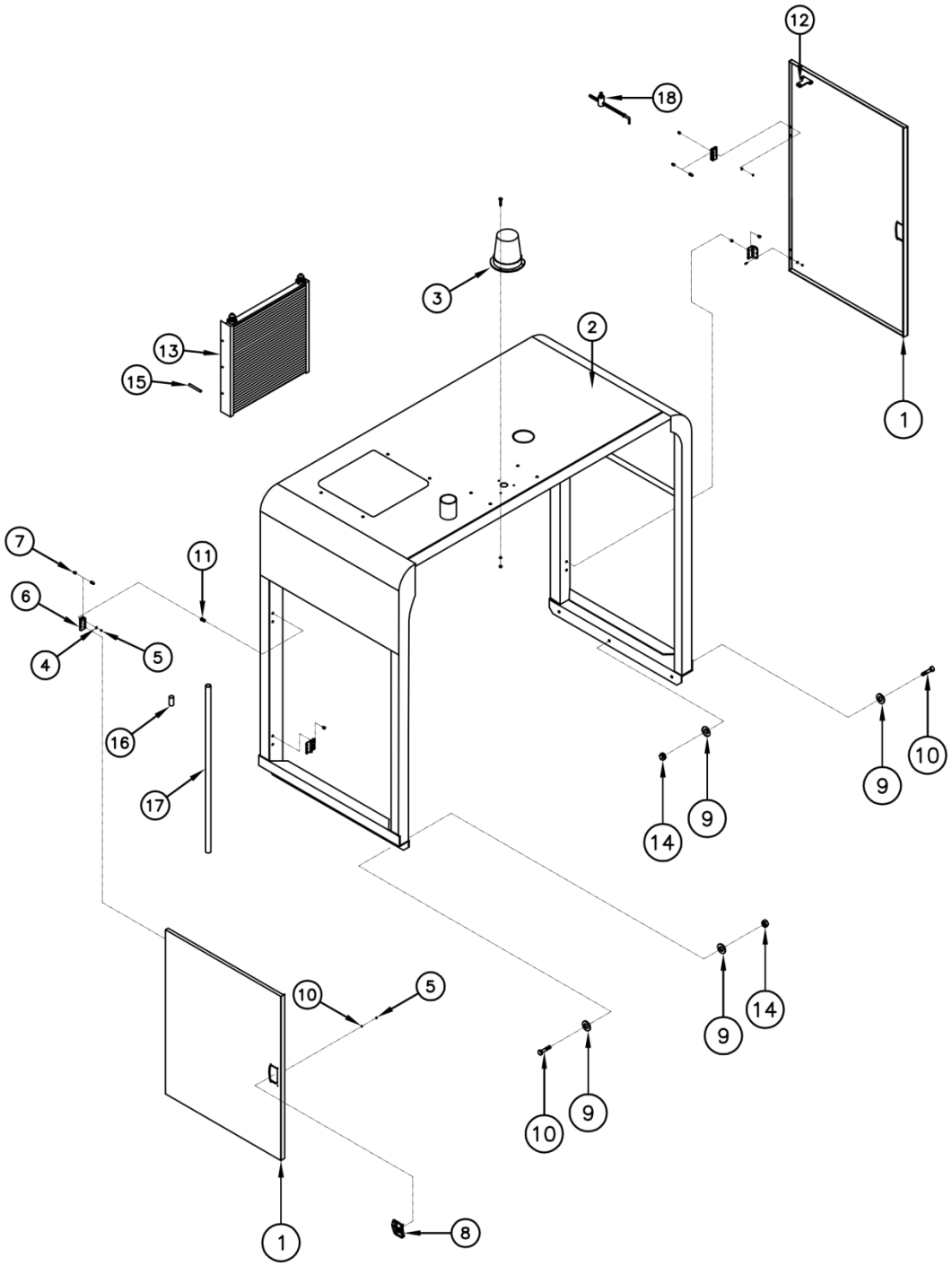
MAINFRAME
ASSEMBLY



MAINFRAME ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	92001	MAIN FRAME WELDMENT	1
2	43129	ELEV CENTERING BUSHING	2
3	1502	NUT	17
4	1535	BOLT	17
5	1505	NUT	4
6	9356	FENDER	2
7	1537	BOLT	2
8	42073	SKIRT	1
9	1534	BOLT	12
10	42060	REAR SKIRT	1
11	42075	BASE STRIP	1
12	1822	WASHER	16
13	42077	BEARING INSPECTION COVER	2
14	1670	WASHER	4
15	1503	NUT	12
16	1591	SCREW	6
17	41771	REST TUBE	1
18	1843	BOLT	2
19	1075	200 GAL. PLASTIC TANK	1
20	9185	130 GAL. PLASTIC TANK	1
21	92201	WATER TANK TUB	1
22	42085	SAFETY PROP	2
23	92203	WATER TANK END ANGLE	3
24	1843	BOLT	4
25	42065	WATER VALVE	1
26	42220-06	WATER TANK STRAP	2
27	42220	WATER TANK MOUNT	1
28	42146	CENTER DRAG RUBBER	1
29	42083	WATER VALVE ROD	1
30	1116	HYDRANT HOSE	1
31	42103	CENTER DRAG SUPPORT	2
32	42101	CENTER DRAG RUBBER	1
33	9357	FENDER MOUNT	2
34	1087-3	PROXIMITY SWITCH	2
35	42214	FILL RELIEF RUBBER	1
36	1915	WORK LIGHT	2
37	3206	MUD FLAP	2
38	91201	GB MOUNT	1
39	92101	AXLE SUPPORT	2

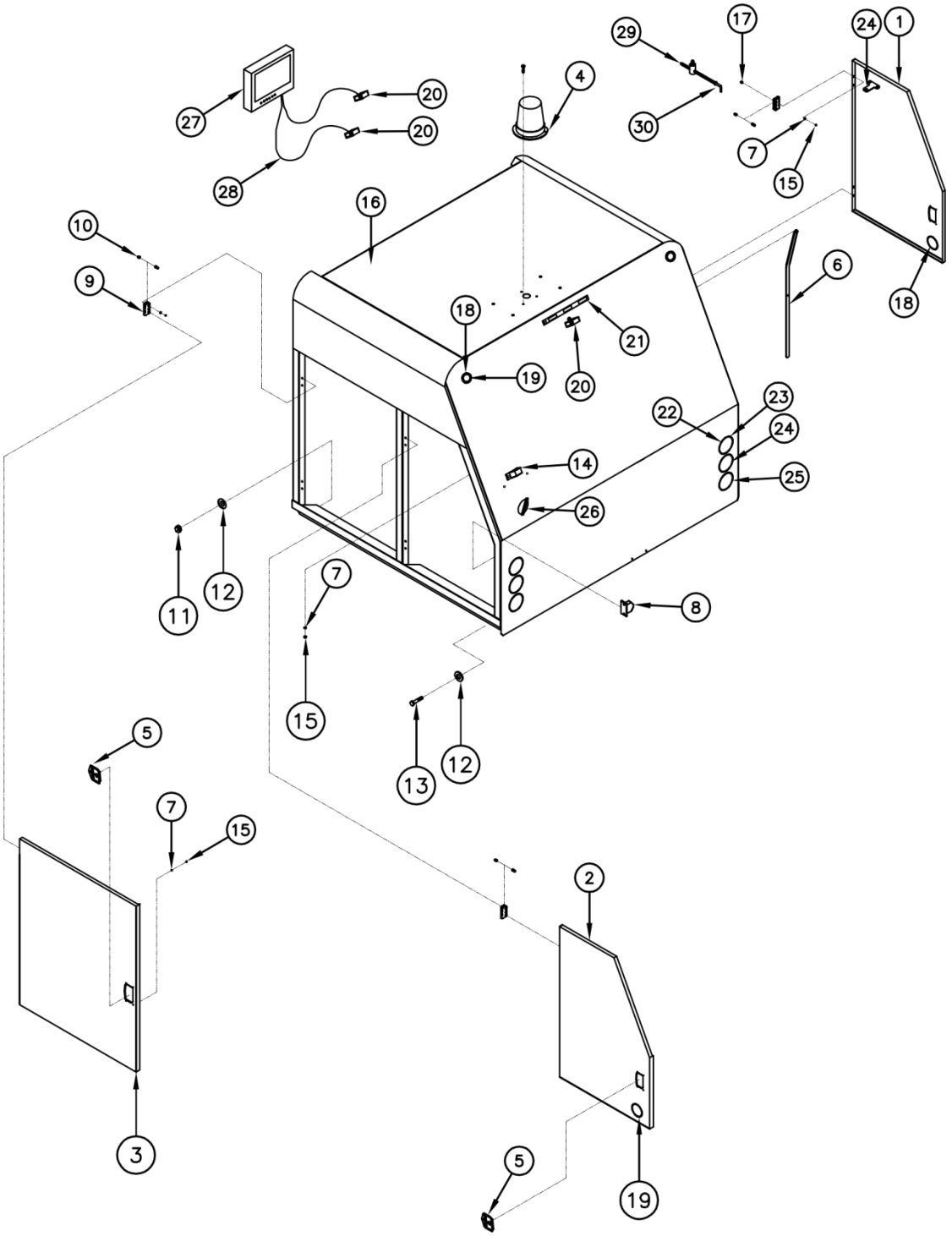
FRONT CANOPY



FRONT CANOPY
ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	41503	DOOR	2
2	91501	FRONT CANOPY	1
3	1916	STROBE	1
4	1520	WASHER	20
5	1501	NUT	20
6	1031	HINGE	4
7	1579	BOLT	8
8	1005	DOOR LATCH	2
9	1522	WASHER	6
10	1843	BOLT	6
11	1750	INSERT	8
12	91502	DOOR STOP	2
13	1955	HYD. COOLER & FAN	1
14	1503	NUT	6
15	41504	SPACER	4
	42107	LIMB GUARD (NOT SHOWN OPTIONAL)	1
16	1394	WATER LEVEL FLOAT	1
17	1395	CLEAR FLOAT TUBE	1
18	1861	DOOR STOP SPRING	2

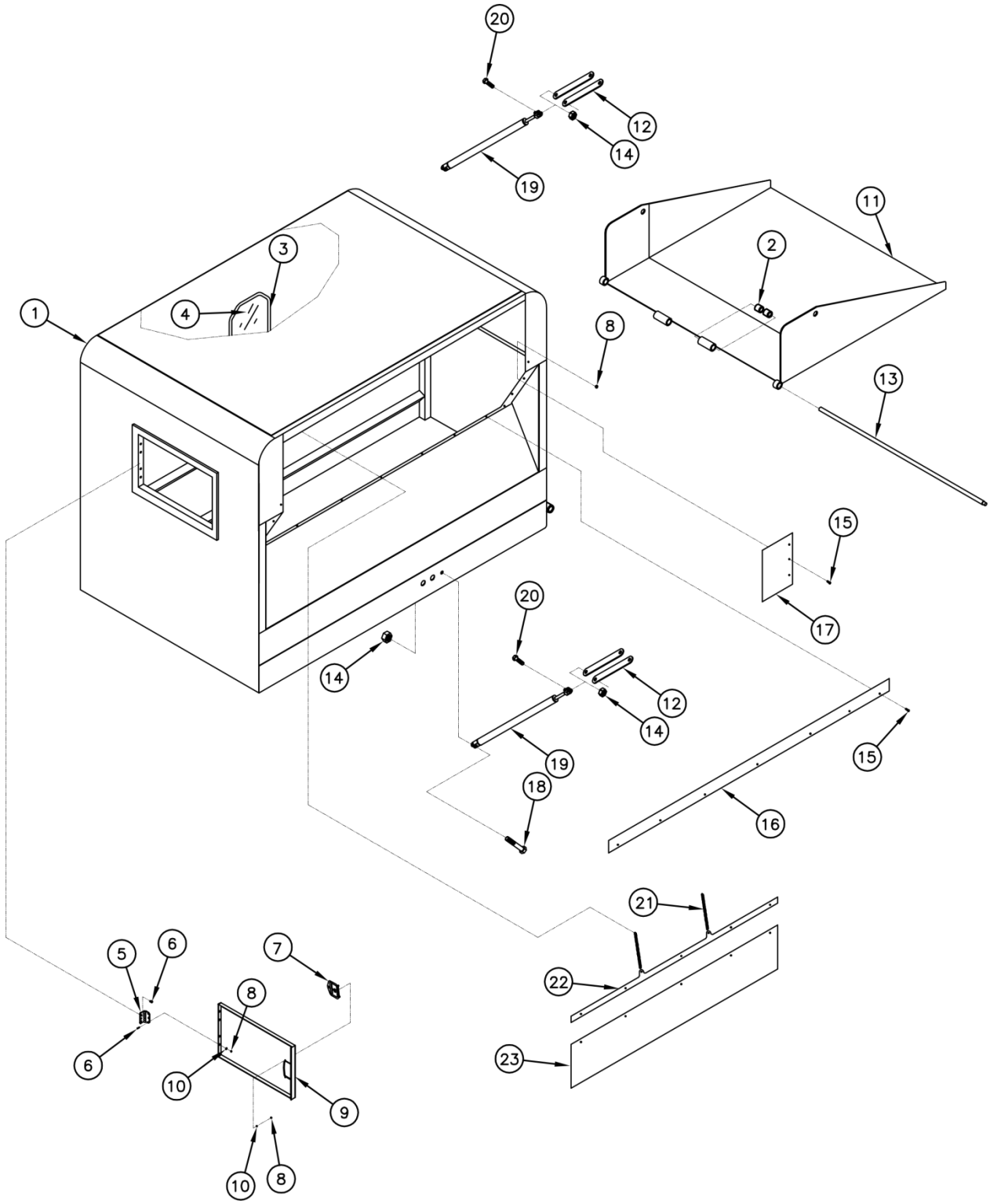
REAR CANOPY ASSEMBLY



REAR CANOPY
ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	41614	RIGHT REAR DOOR	1
2	41612	LEFT REAR DOOR	1
3	41503	DOOR	2
4	1916	STROBE	1
5	1005	DOOR LATCH	4
6	42081	WATER VALVE LEVER	1
7	1520	WASHER	36
8	1024	BACKUP ALARM	1
9	1031	HINGE	8
10	1579	BOLT	32
11	1503	NUT	6
12	1822	WASHER	6
13	1843	BOLT	6
14	1908	LICENSE PLATE LIGHT	1
15	1501	NUT	36
16	91602	REAR CANOPY	1
17	1750	INSERT	16
18	1905	CLEARANCE LIGHT	4
19	1906	GROMMET	4
20	3353	CAMERA	1
21	1907	ID BAR	1
22	1911	BACKUP LIGHT	2
23	1912	GROMMET	6
24	1910	TURN SIGNAL LIGHT	2
25	1909	BRAKE LIGHT	2
26	1915	WORK LIGHT	1
	42107	LIMB GUARD(NOT SHOWN)	1
27	3356	CAMERA/MONITOR	1
28	3354	CAMERA CABLE	2
29	1861	DOOR STOP SPRING	4
30	91502	DOOR STOP	4

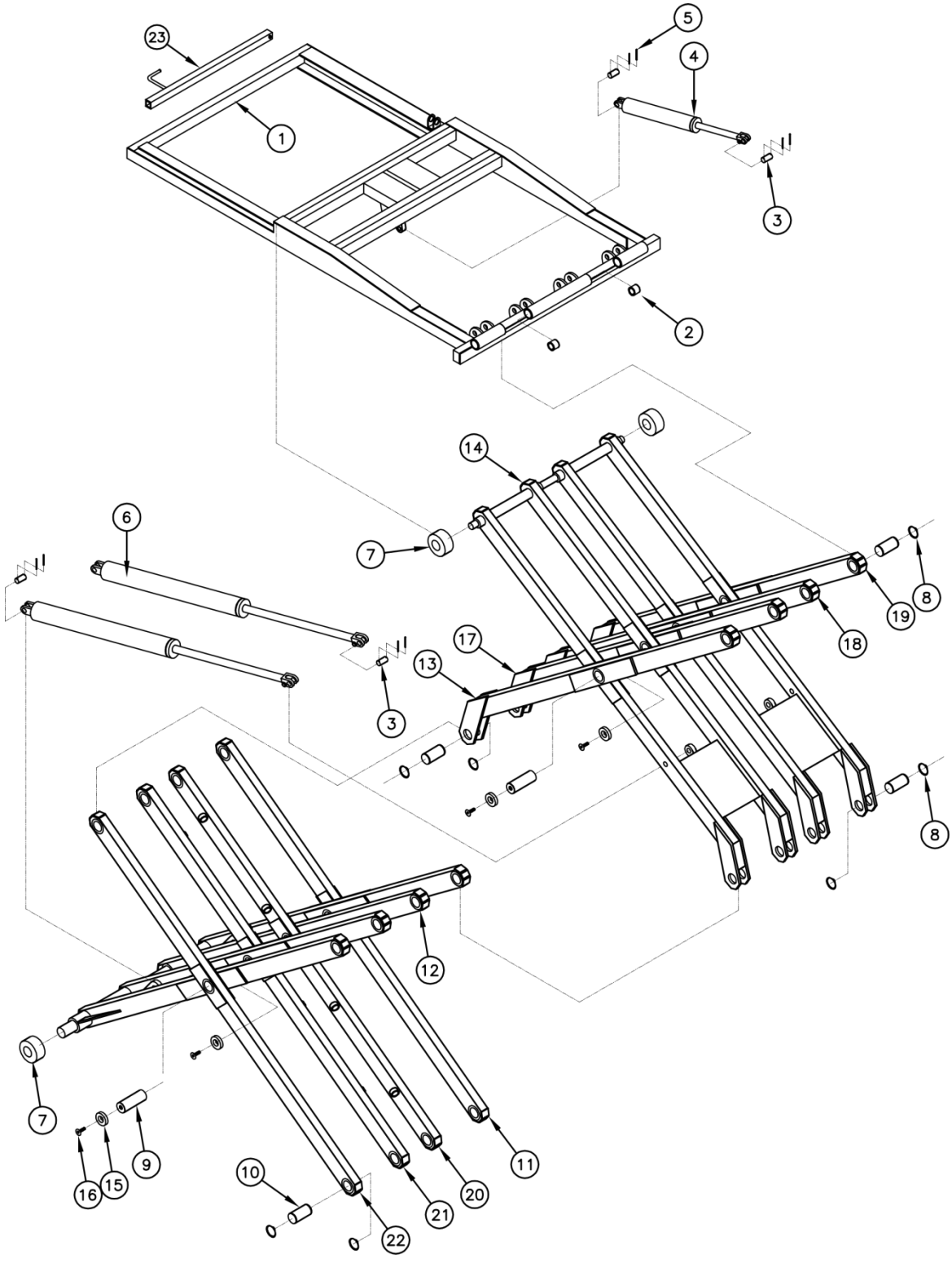
HOPPER
ASSEMBLY



HOPPER
ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	92901	HOPPER	1
2	1185	BUSHING	18
3	1033	WINDOW RUBBER	37"
4	42913	WINDOW	1
5	1031	HINGE	2
6	1579	BOLT	8
7	1005	DOOR LATCH	1
8	1501	NUT	20
9	62907	ACCESS DOOR	1
10	1520	WASHER	34
11	92906	HOPPER DOOR	1
12	42905	DOOR LINK	4
13	92904	PIN	1
14	1583	NUT	4
15	1530	BOLT	13
16	42915	RUBBER FLASHING	1
17	42917	UPRIGHT FLASHING	2
18	1560	BOLT	2
19	1061	CYLINDER	2
20	1558	BOLT	4
21	1173	CHAIN	2-6"
22	32910	DRAIPER MOUNT	1
23	32911	DRAIPER RUBBER	1
	1934	OPTIONAL BIN VIB. (NOT SHOWN)	1

LIFT FRAME
SCISSOR
ASSEMBLY

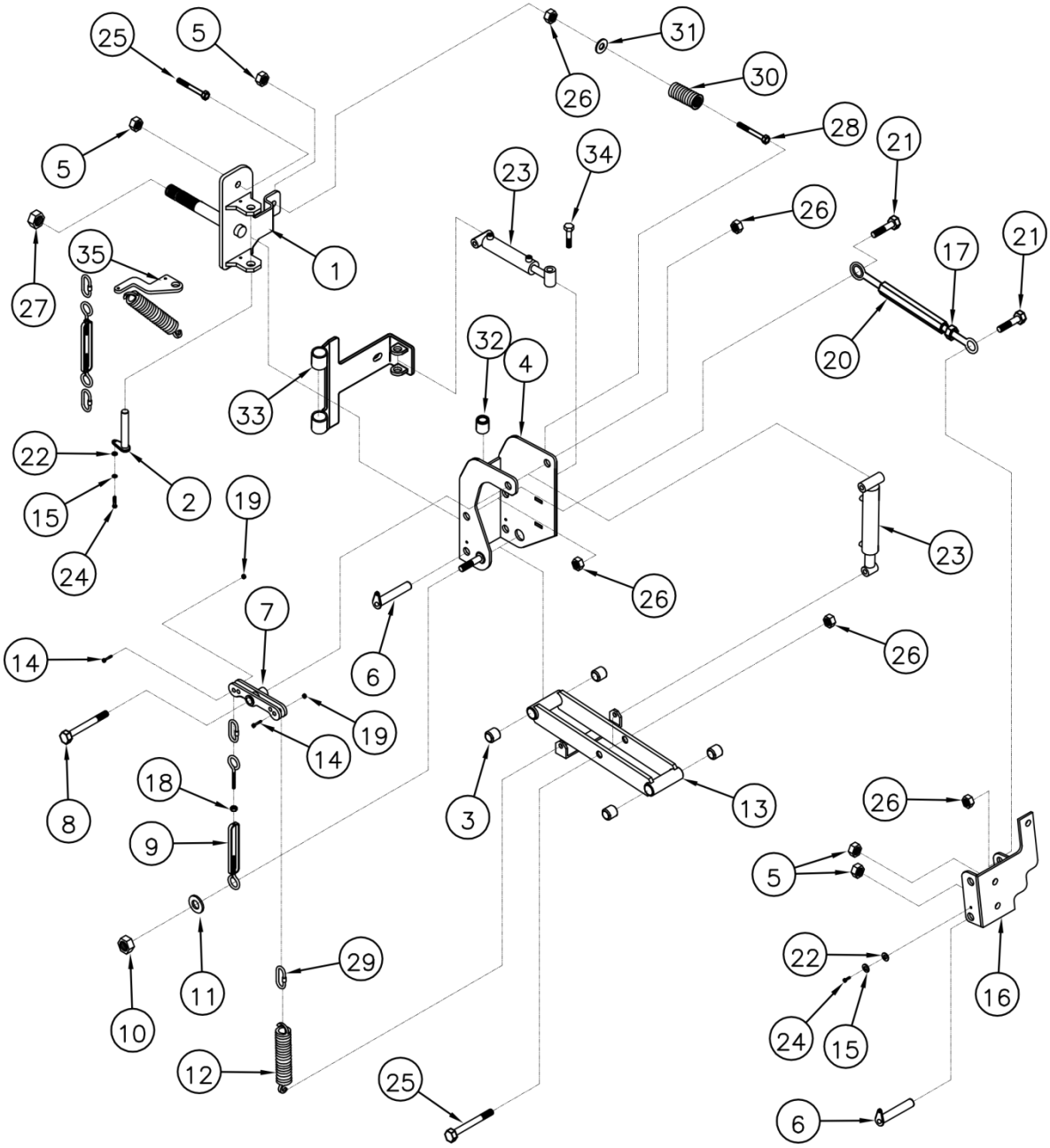


LIFT FRAME
SCISSOR
ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	93002	HOPPER LIFT FRAME	1
2	1185	BUSHING	8
3	1623	PIN	6
4	1985	CYLINDER	1
5	1604	COTTER PIN	6
6	3210	CYLINDER	2
7	42813	SCISSOR ROLLER	4
8	1074	SNAP RING	16
9	62812	CENTER PIN	8
10	62811	SCISSOR PIN	16
11	92815	LOWER ANCHOR SECT. LEG #1	1
12	92806	LOWER SCISSOR, ROLLER SECT.	1
13	92811	UPPER ANCHOR SECT. LEG #1	1
14	92801	UPPER SCISSOR, ROLLER SECT.	1
15	62813	RETAINER WASHER	16
16	1782	BOLT	16
17	92812	UPPER ANCHOR SECT. LEG #2	1
18	92813	UPPER ANCHOR SECT. LEG #3	1
19	92814	UPPER ANCHOR SECT. LEG #4	1
20	92816	LOWER ANCHOR SECT. LEG #2	1
21	92817	LOWER ANCHOR SECT. LEG #3	1
22	92818	LOWER ANCHOR SECT. LEG #4	1
23	42131	SAFETY	1

GUTTER BROOM UPPER SECTION ASSEMBLY

(QUANTITIES SHOWN ARE FOR ONE SIDE ONLY)

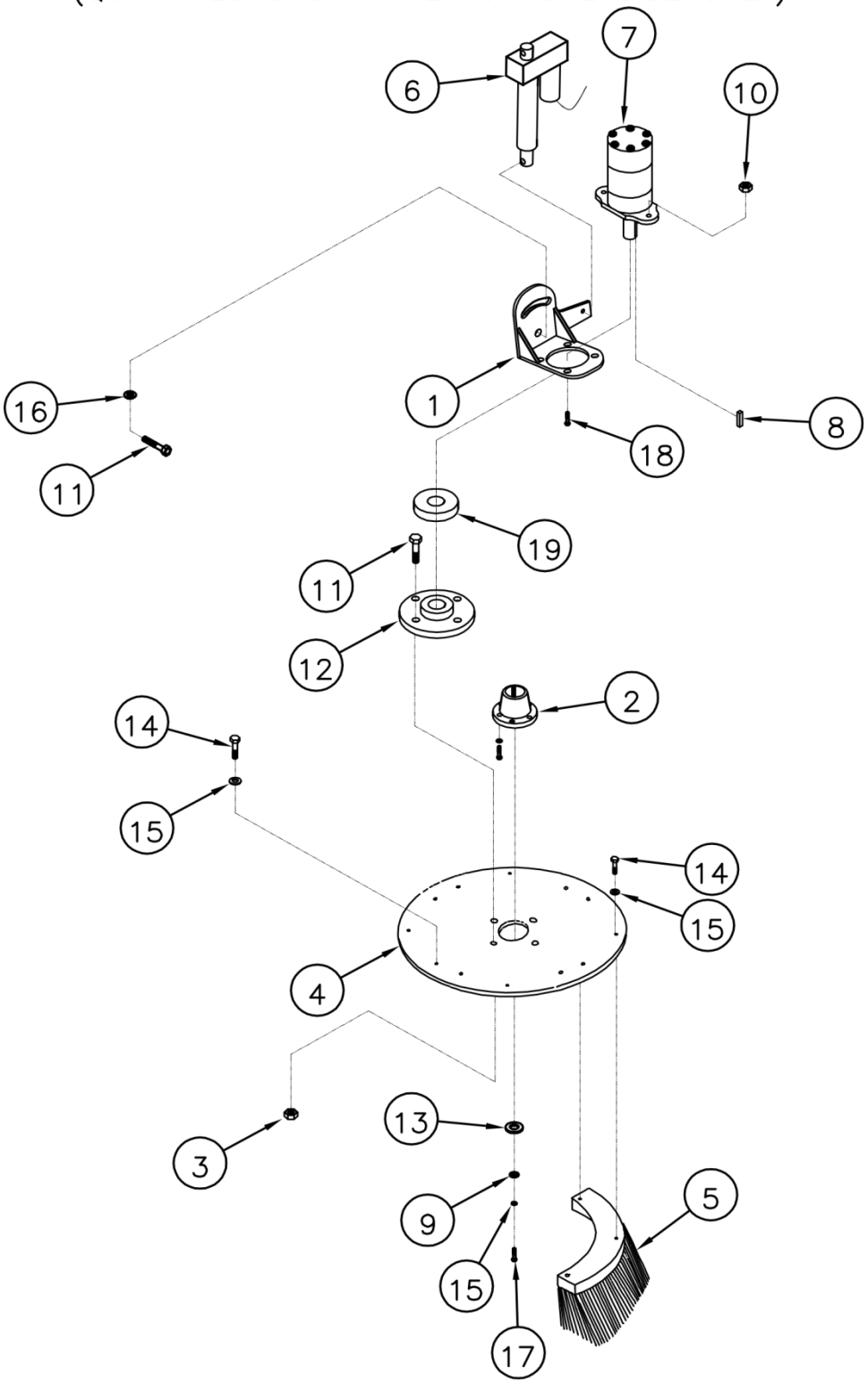


GUTTER BROOM UPPER SECTION ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	61201	GB MOUNT (LEFT HAND)	1
	61301	GB MOUNT (RIGHT HAND)	1
2	61213	PIN	1
3	1020	BUSHING	4
4	61203	GB PIVOT (LEFT)	1
	61303	GB PIVOT (RIGHT)	1
5	1506	NUT	5
6	41211	PIN	2
7	41215	SPRING BELL CRANK	1
8	1561	BOLT	1
9	1023	TURN BUCKLE	1
10	1505	NUT	1
11	1581	WASHER	1
12	1018	SUSPENSSION SPRING	2
13	41221	LINK	1
14	1540	BOLT	2
15	1670	WASHER	3
16	41205	LINKAGE MOUNT (LEFT)	1
	41316	LINKAGE MOUNT (RIGHT)	1
17	1642	NUT	2
18	1640	NUT	1
19	1503	NUT	2
20	1022	TURN BUCKLE	2
21	1559	BOLT	5
22	1822	WASHERS	3
23	1379	CYLINDER	2
24	1537	BOLT	3
25	1556	BOLT	2
26	1507	NUT	7
27	1508	NUT	1
28	1574	BOLT	1
29	1042	QUICK LINK	4
30	1019	RETRACT SPRING	1
31	1526	WASHER	2
32	1185	BUSHING	4
33	61235	RETRACT PLATE (LEFT)	1
	61309	RETRACT PLATE (RIGHT)	1
34	1560	BOLT	2
35	41230	EXTEND SPRING MOUNT	1
36	9137	LANYARD	2

GUTTER BROOM LOWER SECTION ASSEMBLY

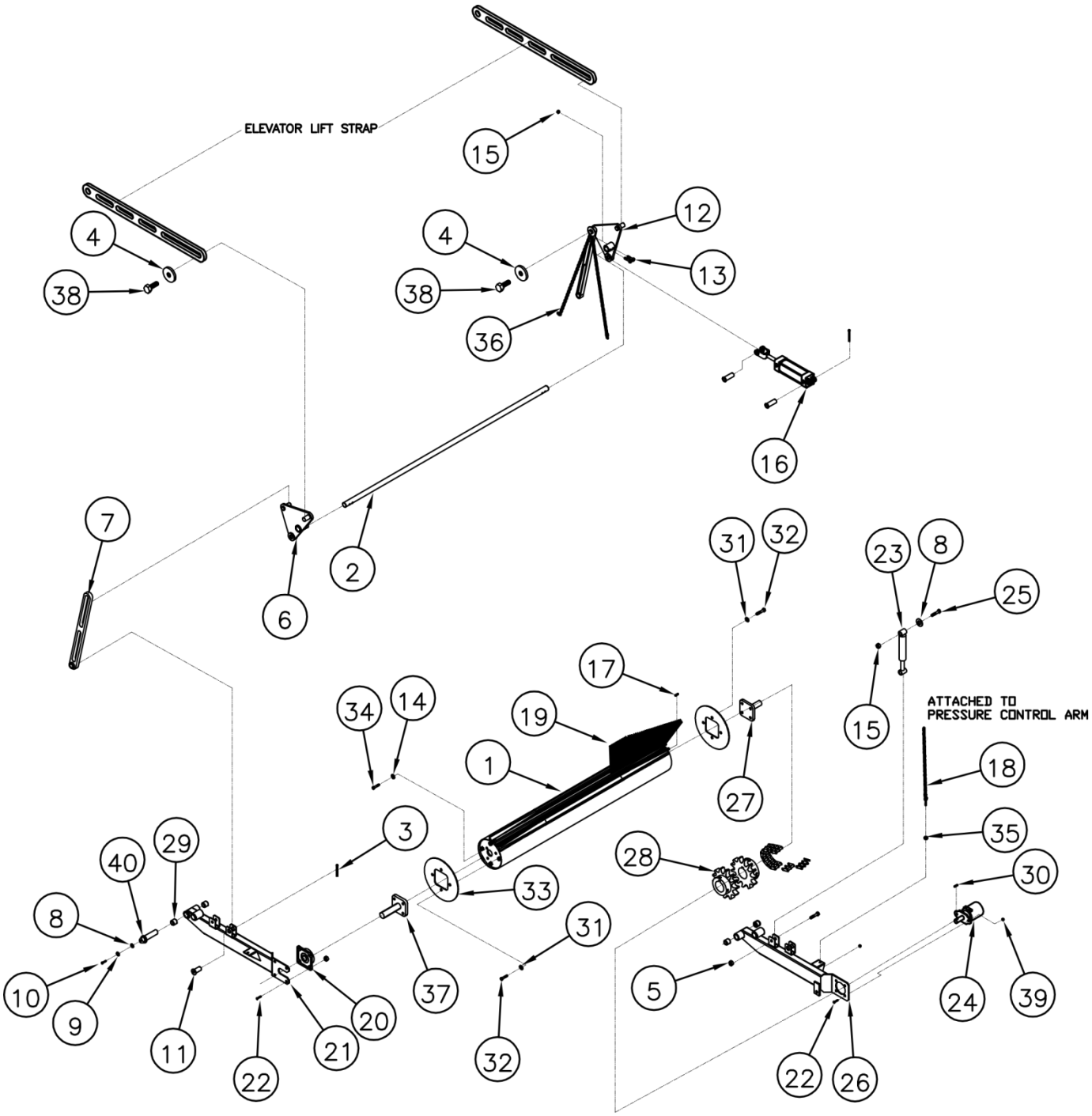
(QUANTITIES SHOWN ARE FOR ONE SIDE ONLY)



GUTTER BROOM LOWER SECTION ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	41207	MOTOR BRACKET (LEFT)	1
	41318	MOTOR BRACKET (RIGHT)	1
2	3248	BUSHING C/W 3-BOLT, 3-LW	1
3	1506	NUT	4
4	41227	32" PLATE	1
5	1148	GB BRUSH SET FOR 32" PLATE	1
6	1078	LINEAR ACTUATOR	1
7	3243	MOTOR	1
8	1683	KEY	1
9	1822	WASHERS	1
10	1505	NUT	2
11	1549	BOLT	4
12	41209	DRIVE HUB	1
13	1526	WASHER	1
14	1540	BOLT	24
15	1670	WASHER	5
16	1525	WASHER	2
17	1537	BOLT	3
18	1546	BOLT	2
19	42316	SPACER	2

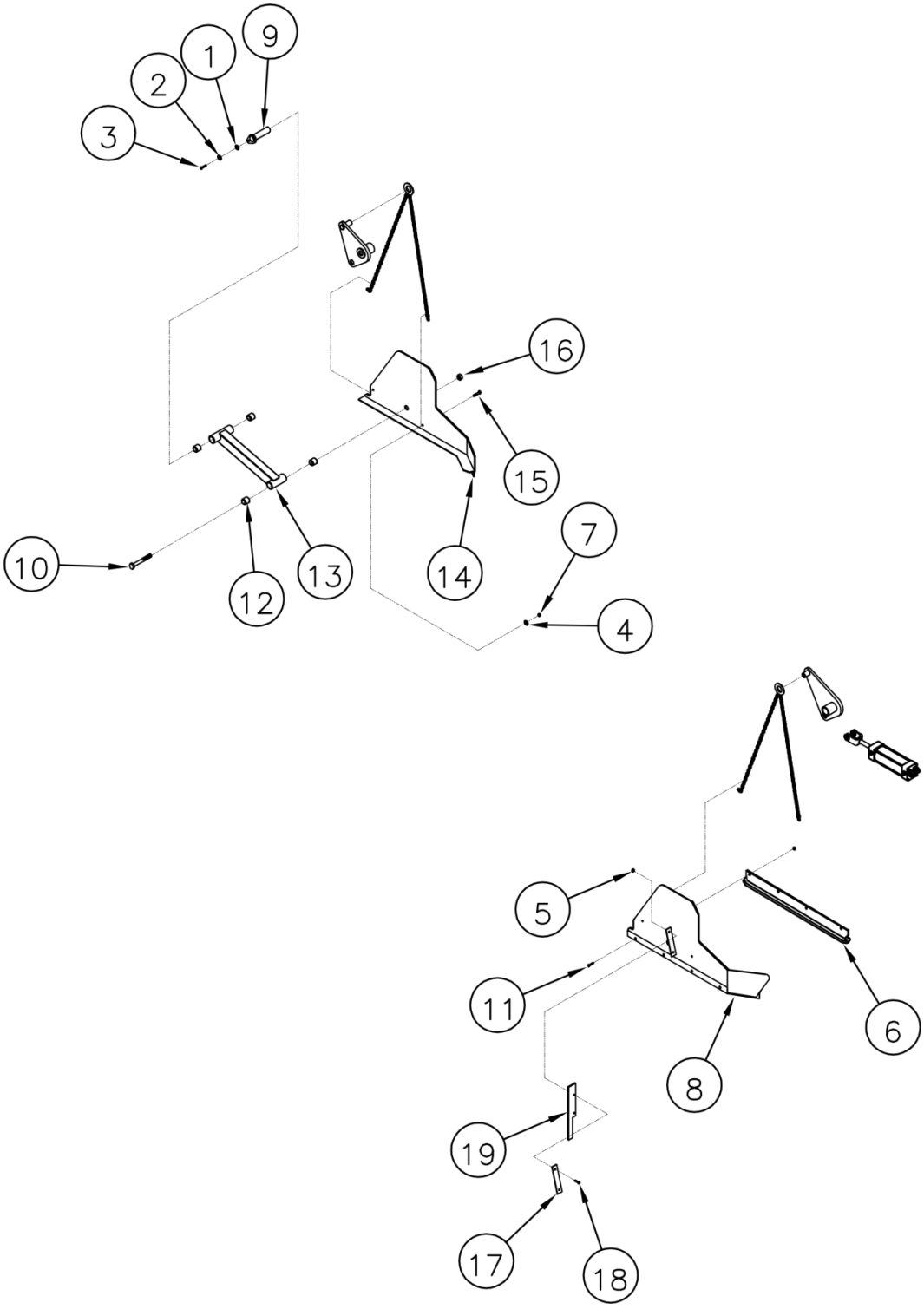
MAIN BROOM ASSEMBLY



MAIN BROOM ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	1014	MAIN BROOM MANDREL	1
2	41413	MAIN BROOM ROCK SHAFT	1
3	1604	COTTER PIN	2
4	62813	WASHER	4
5	1505	NUT	6
6	41405	LIFT BELL CRANK (LEFT)	1
7	41421	MAIN BROOM LIFT STRAP	2
8	1822	WASHER	30
9	1670	WASHER	2
10	1537	BOLT	2
11	41417	PIN	2
12	41407	LIFT BELL CRANK (RIGHT)	1
13	1630	CAPSCREW	4
14	1671	WASHER	6
15	1503	NUT	10
16	1043	CYLINDER	2
17	1680	KEY	1
18	41427	MAIN BROOM LIFT CHAIN	2
19	1016	MAIN BROOM STRIP SET	1
20	1030	BEARING	1
21	34501	MB LIFT ARM (LEFT)	1
22	1546	BOLT	6
23	1046	SHOCK	2
24	3243	HYDRAULIC MOTOR	1
25	1843	BOLT	4
26	34502	MB LIFT ARM (RIGHT)	1
27	3213-3	MANDRELL SHAFT	1
28	80129	MAIN BROOM COUPLER	1
29	1185	BUSHING	4
30	1683	KEY	1
31	1669	WASHER	6
32	1781	BOLT	6
33	1266	MANDRELL END PLATE	2
34	1545	BOLT	6
35	1639	NUT	2
36	41437	DRAG SHOE LIFT CHAIN	2
37	61415	LONG MANDRELL SHAFT	1
38	1782	BOLT	4
39	1545	BOLT	2
40	41401	PIN	2

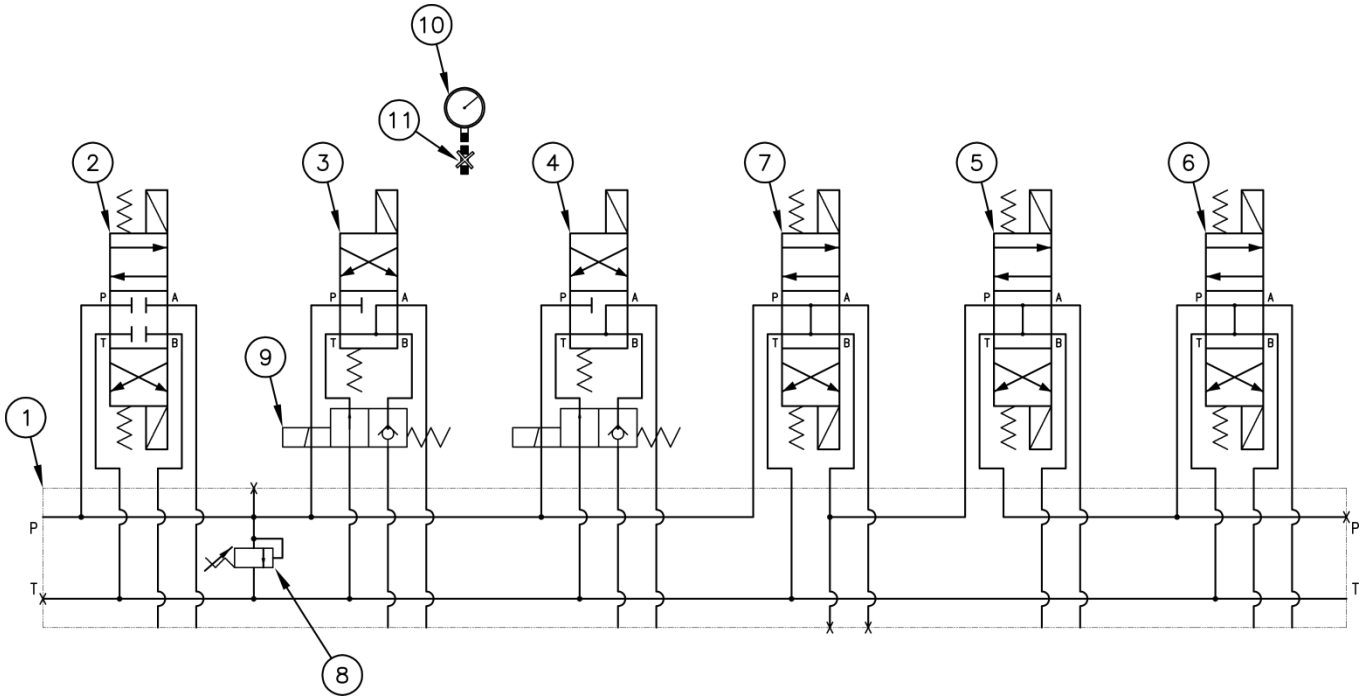
DRAG SHOE
ASSEMBLY



DRAG SHOE
ASSEMBLY

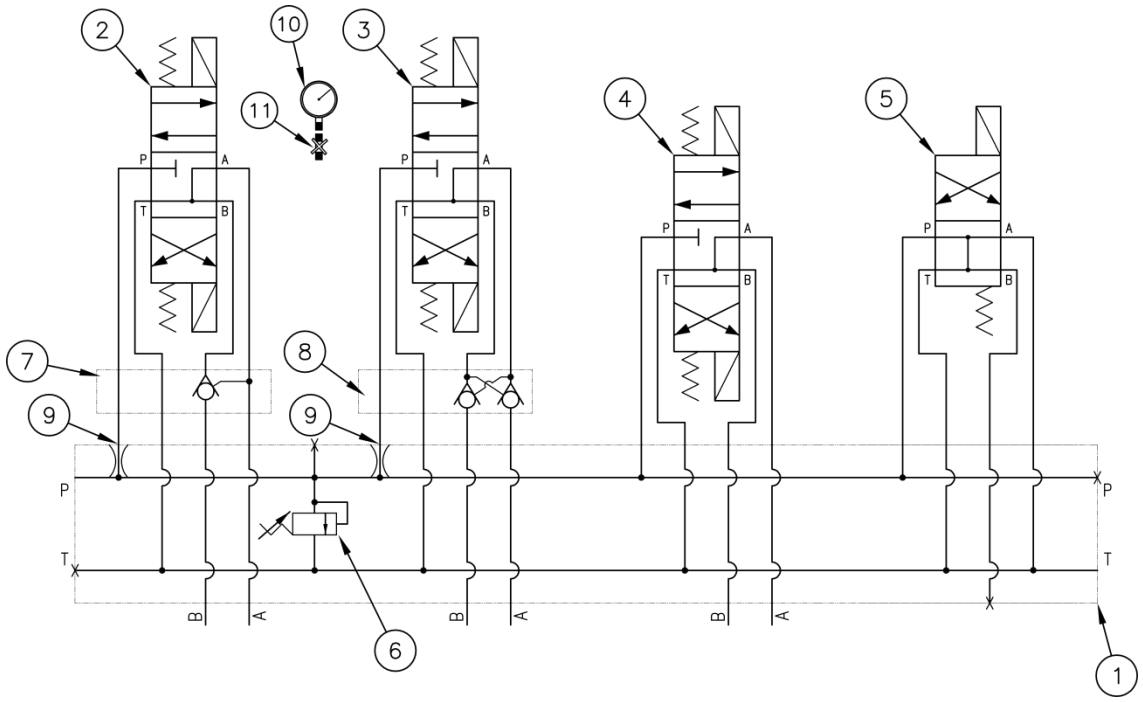
ITEM	PART #	DESCRIPTION	QTY
1	1822	WASHER	2
2	1670	WASHER	2
3	1537	BOLT	2
4	1521	WASHER	12
5	1501	NUT	4
6	1970	CARBIDE DRAG SHOE	2
7	1502	NUT	8
8	51405	DRAG SHOE MOUNT (RIGHT)	1
9	41401	PIN	6
10	1562	BOLT	2
11	1575	BOLT	8
12	1185	BUSHING	8
13	41429	DRAG LINK	2
14	51404	DRAG SHOE MOUNT (LEFT)	1
15	1534	BOLT	8
16	1508	NUT	2
17	41431	BACKING	2
18	1530	BOLT	4
19	42067	DIRT DEFLECTOR RUBBER	2

80134 VALVE
ASSEMBLY



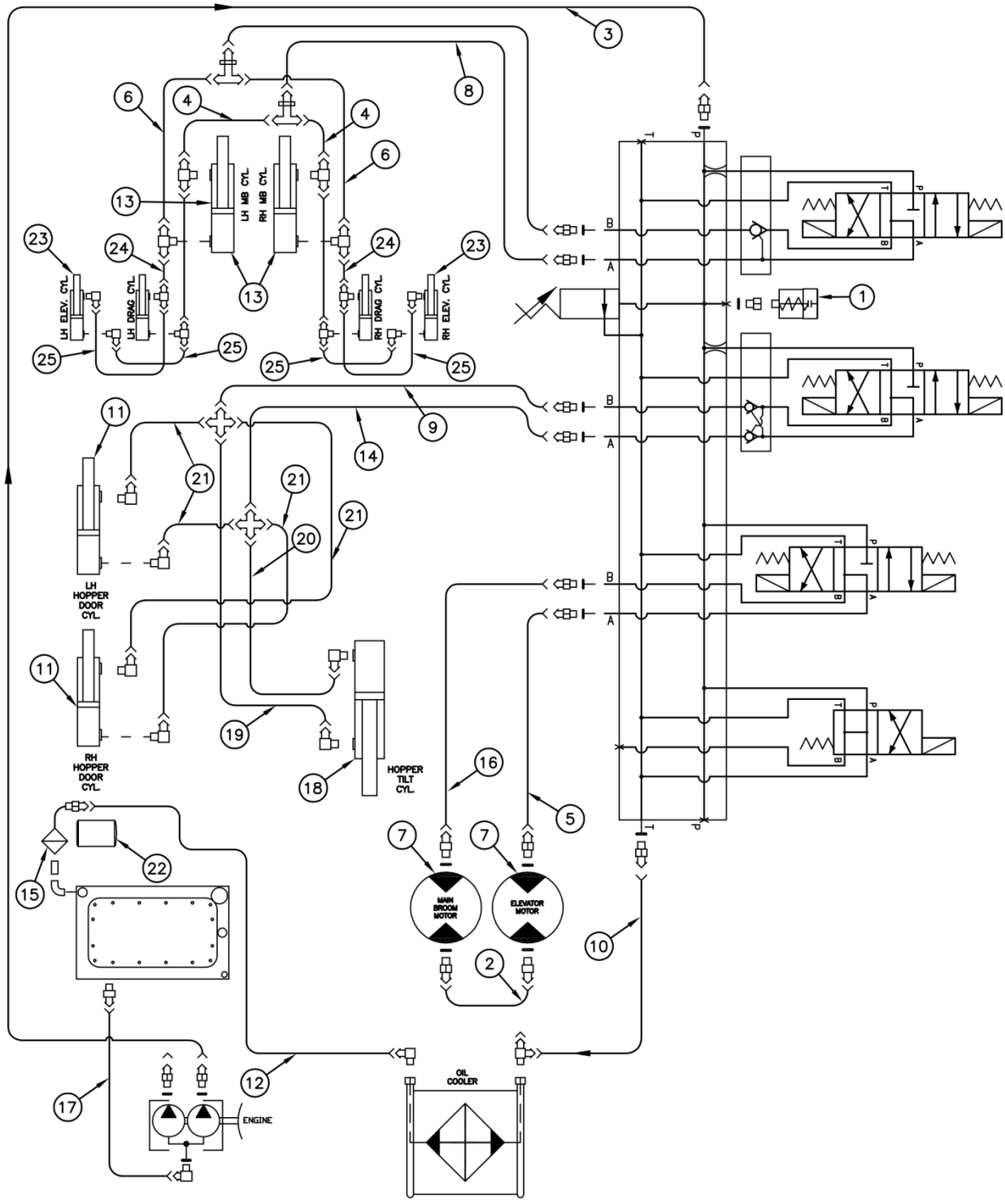
ITEM	PART #	DESCRIPTION	QTY
1	1293	MANIFOLD	1
2	2001	HOPPER LIFT CYLINDER VALVE	1
3	1989	LH GUTTER BROOM LIFT CYLINDER VALVE	1
4	1989	RH GUTTER BROOM CYLINDER VALVE	1
5	1295	LH GUTTER BROOM MOTOR VALVE	1
6	1295	RH GUTTER BROOM MOTOR VALVE	1
7	1295	DUMP VALVE	1
8	2000	RELIEF VALVE	1
9	1990	FLOAT VALVE	2
10	2080	5000 psi GAUGE	1
11	2078	GAUGE SHUTOFF VALVE	1

80120 VALVE
ASSEMBLY



ITEM	PART #	DESCRIPTION	QTY
1	1287	MANIFOLD	1
2	1993	MAIN BROOM/ELE LIFT CYLINDER VAL	1
3	1993	HOPPER TILT/DOOR CYLINDER VAL	1
4	1993	MAIN BROOM/ELE MOTOR VAL	1
5	1291	DUMP VALVE	1
6	2000	RELIEF VALVE	1
7	1994	P.O. CHECK VALVE	1
8	2010	DOUBLE P.O. CHECK VALVE	1
9	1839	1/16" RESTRICTOR	2
10	2080	5000 psi GAUGE	1
11	2078	GAUGE SHUTOFF VALVE	1

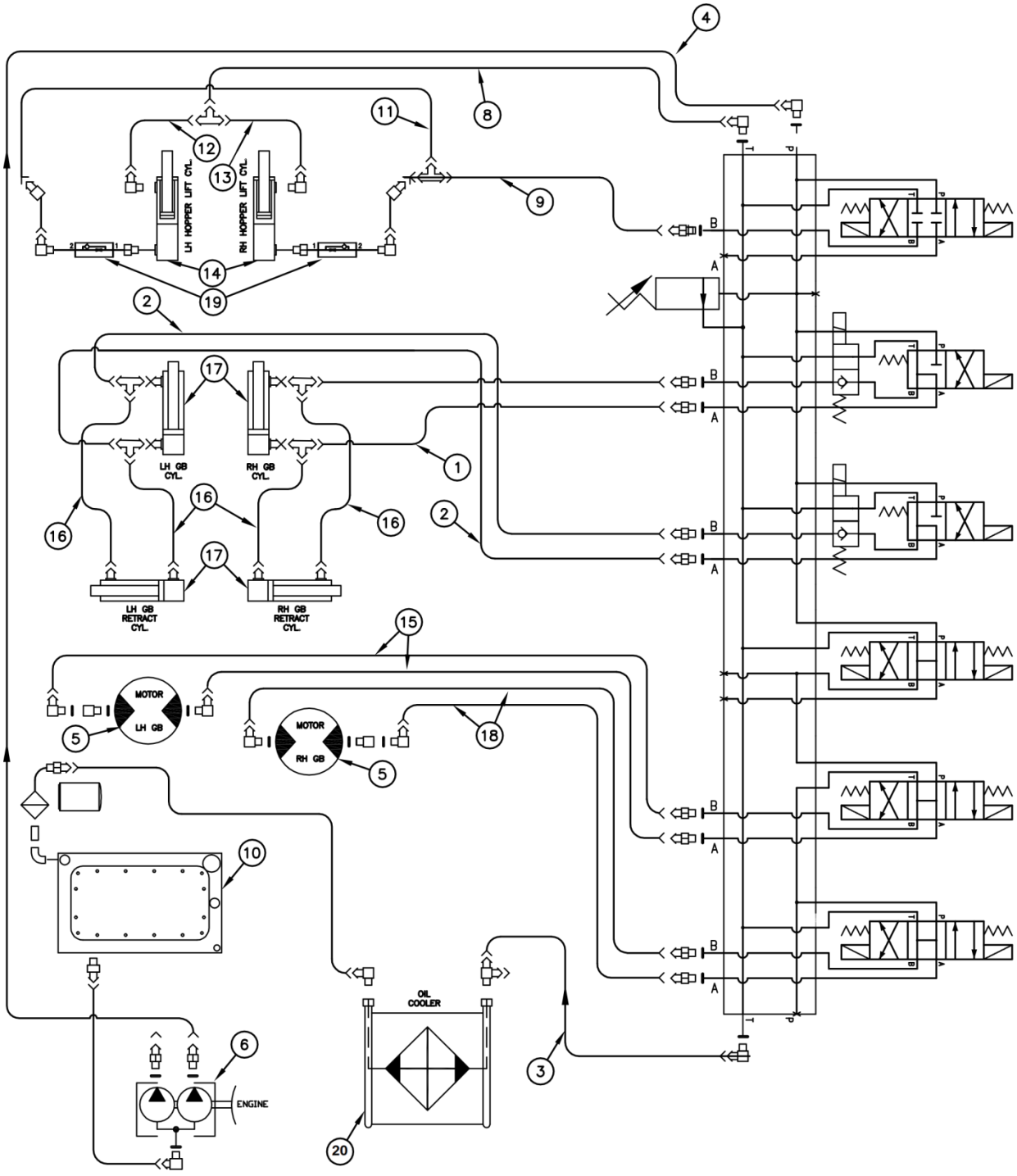
DRIVERS SIDE HYDRAULIC SCHEMATIC



DRIVERS SIDE HYDRAULIC SCHEMATIC

ITEM	PART #	DESCRIPTION	QTY
1	1037	ELEVATOR STALL SWITCH	1
2	1453	HOSE-MB MOTOR TO ELEV. MOTOR	1
3	1466	HOSE-FRONT OF PUMP TO LH VALVE	1
4	1456	HOSE-MB ROD TO "T"	2
5	1488	HOSE-ELEV. MOTOR TO VALVE	1
6	1455	HOSE-MB HEAD TO "T"	2
7	3243	HYDRAULIC MOTOR	2
8	1454	HOSE-MB VALVE TO "T"	2
9	1440	HOSE-HOPPER TILT VALVE TO CROSS	1
10	1468	HOSE-VALVE RETURN TO COOLER "T"	1
11	1061	HOPPER DOOR CYLINDER	2
12	1469	HOSE-COOLER TO FILTER	1
13	1043	MB CYLINDER	2
14	1440	HOSE-HOPPER TILT VALVE TO CROSS	1
15	1988	HYDRAULIC OIL FILTER BASE	1
16	1452	HOSE-MB MOTOR TO VALVE	1
17	1489	HOSE-SUCTION	1
18	1985	HOPPER TILT CYLINDER	1
19	1441	HOSE-HOPPER TILT ROD TO CROSS	1
20	1442	HOSE-HOPPER TILT HEAD TO CROSS	1
21	1443	HOSE-HOPPER DOOR CYL.	4
22	1987	HYDRAULIC OIL FILTER	1
23	1986	ELEV/DRAG SHOE CYL.	4
24	1490	HOSE-MB CYL T TO ELEV CYL T	4
25	1491	HOSE-ELEV CYL TO DRAG SHOE CYL	4

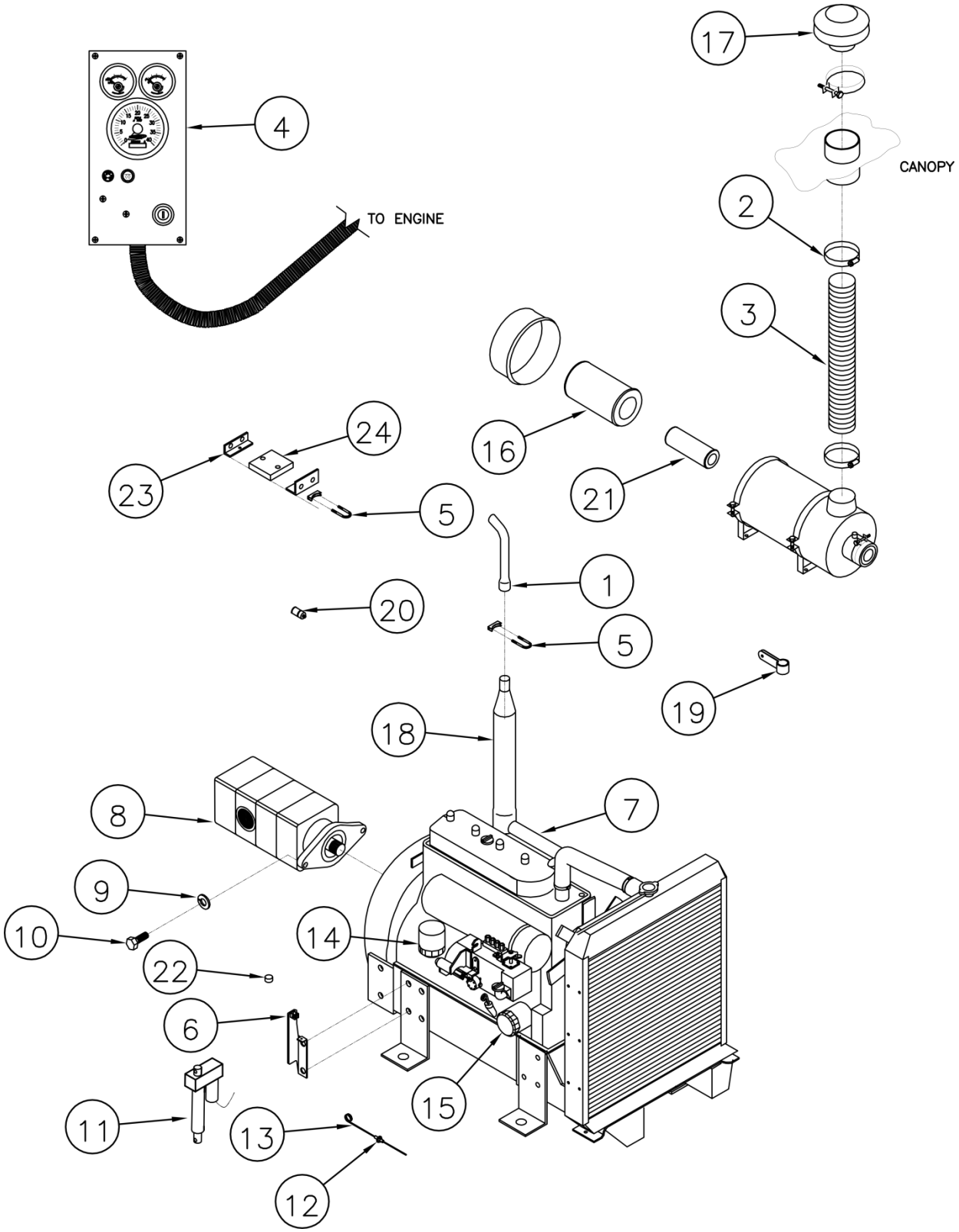
CAB SIDE HYDRAULIC SCHEMATIC



CAB SIDE HYDRAULIC SCHEMATIC

ITEM	PART #	DESCRIPTION	QTY
1	1445	HOSE - RH GB CYL. TO VAL.	2
2	1446	HOSE - LH GB CYL. TO VAL.	1
3	1492	HOSE - VALVE RETURN TO T	1
4	1467	HOSE - PUMP TO VALVE	1
5	3243	HYDRAULIC MOTOR	2
6	3251	HYDRAULIC PUMP	-
8	1493	HOSE - HOPPER LIFT RETURN	1
9	1494	HOSE - VALVE TO HOPPER LIFT	1
10	32301	HYDRAULIC TANK	-
11	1495	HOSE - LIFT CROSSOVER	1
12	1496	HOSE - RETURN CROSSOVER	1
13	1497	HOSE - ROD RETURN	1
14	3235	HOPPER LIFT CYLINDER	2
15	1450	HOSE - LH GB MOTOR TO VAL.	2
16	1428	HOSE - RETRACT CYLINDER	4
17	1379	GB CYLINDER	4
18	1451	HOSE - RH GB MOTOR TO VAL.	2
19	2087	DIRECTIONAL RESTRICTOR	2
20	1955	ELECTRIC HYD. OIL COOLER	1

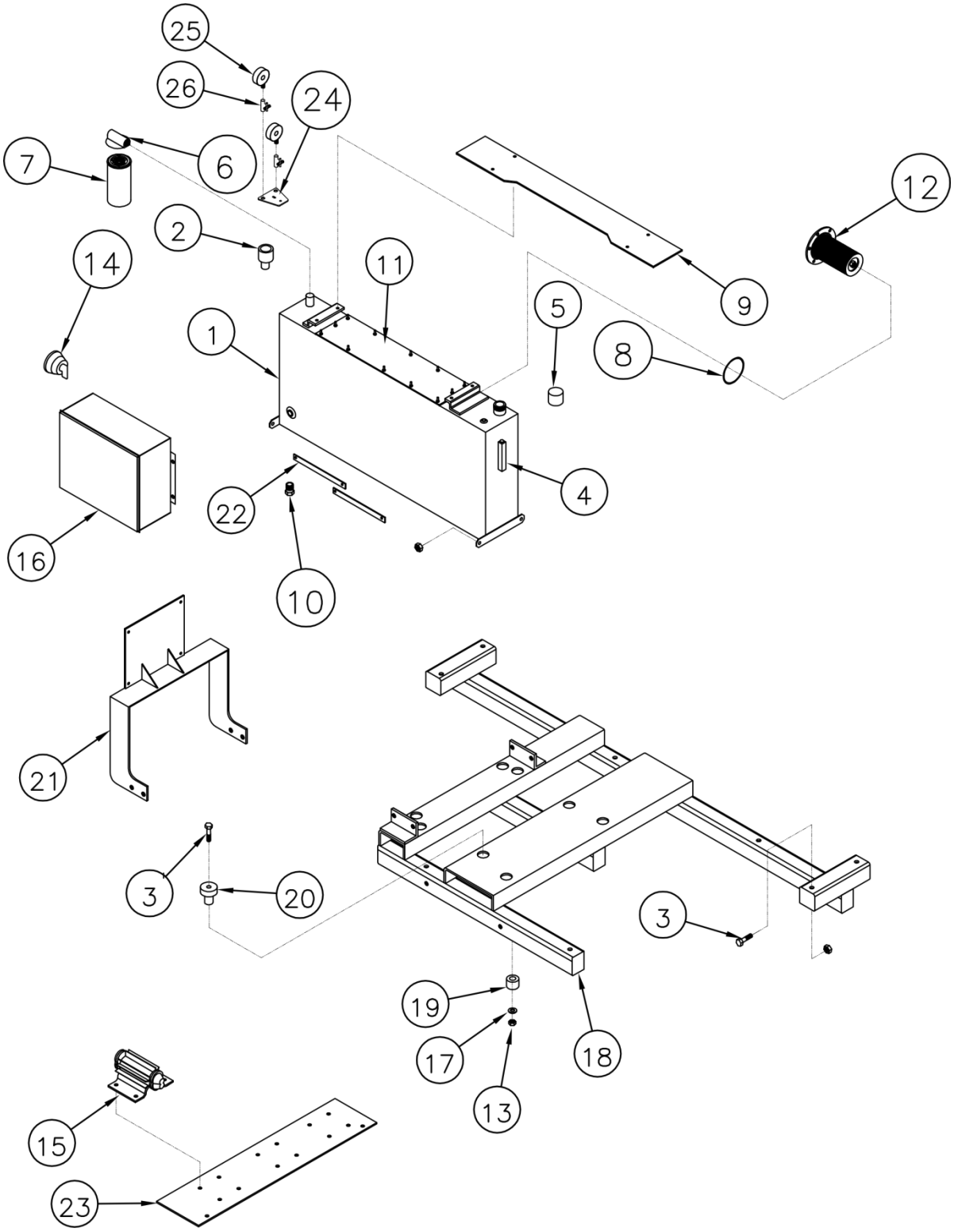
AUX ENGINE
ASSEMBLY



AUX ENGINE
ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	1156	EXHAUST PIPE	1
2	1155	HOSE CLAMP	2
3	1049	INTAKE HOSE	30"
4	42527	ENGINE CONTROL BOX	-
5	1154	EXHAUST CLAMP	2
6	42404	THROTTLE MOUNT	1
7	2077	ENGINE	1
8	3251	HYDRAULIC PUMP	1
9	1524	WASHER	4
10	1545	BOLT	4
11	1387	THROTTLE ACTUATOR	1
12	1299	THROTTLE GUIDE	1
13	1388	THROTTLE ACTUATOR CABLE	1
14	2246	FUEL FILTER	1
15	2245	ENGINE OIL FILTER	1
16	2238	ENGINE OUTER AIR FILTER	1
17	1175	RAIN CAP	1
18	1176	MUFFLER	1
19	1260	CLAMP	1
20	1104	OIL PRESSURE SENDER	1
21	2239	ENGINE INNER AIR FILTER	1
22	2076	RUBBER BUMPER	1
23	42427	MUFFLER BRACE	2
24	42429	RUBBER CONNECTOR	1

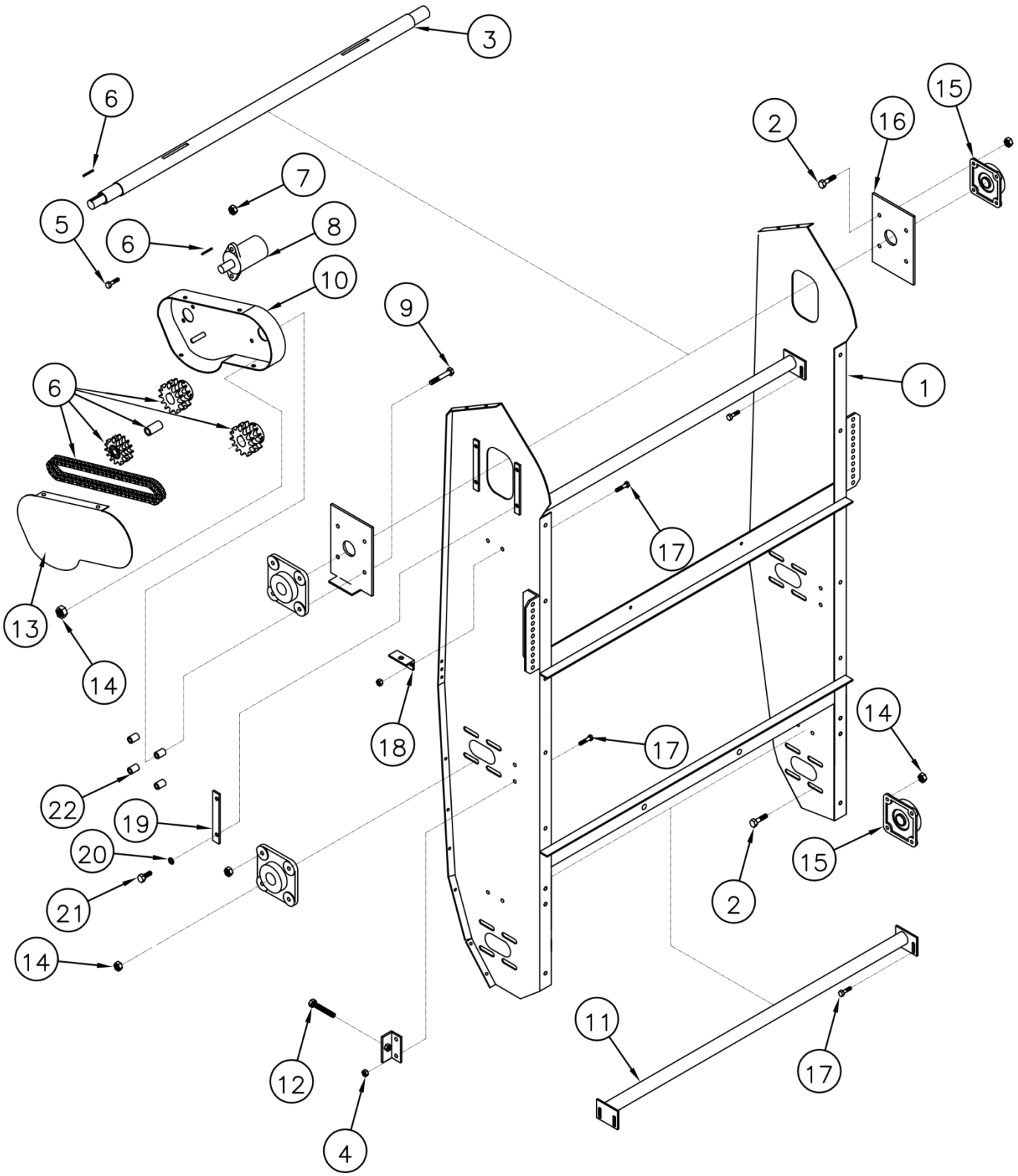
AUX ENGINE FRAME ASSEMBLY



AUX ENGINE FRAME ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	52303	HYDRAULIC TANK	1
2	1177	HYD. TANK BREATHER	1
3	1547	BOLT	14
4	1062	SITE GAUGE	1
5	1178	FILL CAP	1
6	1988	FILTER BASE	1
7	1987	HYD FILTER	1
8	2063	O RING	1
9	62301	VALVE MOUNT PLATE	1
10	1179	MAGNETIC DRAIN PLUG	2
11	42305	TANK COVER	1
12	2070	SUCTION SCREEN	1
13	1505	NUT	32
14	9138	DISCONNECT SWITCH	1
15	3232	WATER PUMP	-
16	62512	AUX. BOX	-
17	1524	WASHER	4
18	92401	ENGINE SKID	1
19	1526	WASHER	4
20	1047	ISOLATION MOUNT	4
21	92402	AUX. BOX MOUNT	1
22	42310	HOSE TIE STRAP	3
23	92403	WATER PUMP PLATE	1
24	42315	PRES. GAUGE MOUNT	1
25	2082	PRES. GAUGE	2
26	2078	BALL VALVE	2

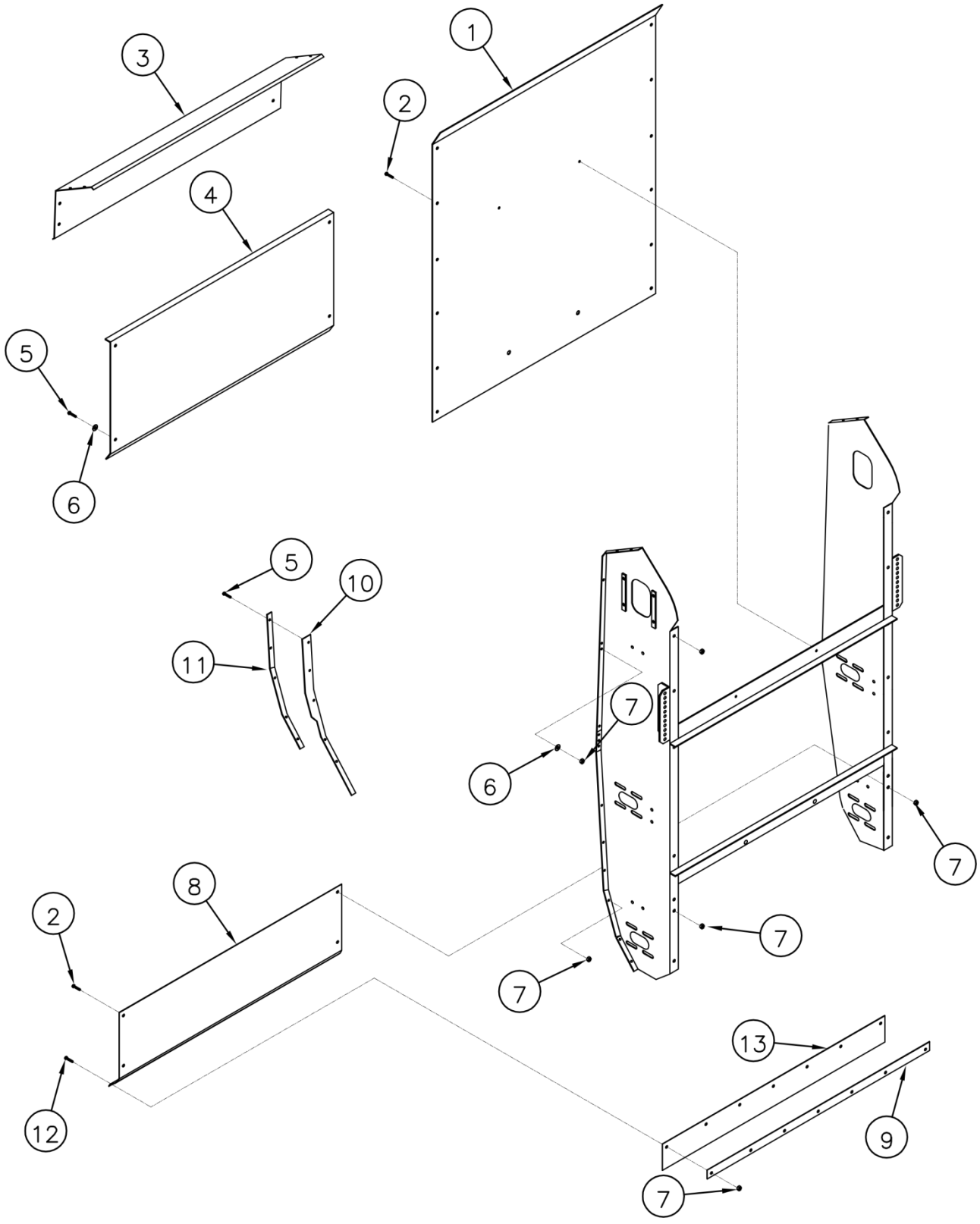
ELEVATOR ASSEMBLY



ELEVATOR
ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	93103	ELEVATOR FRAME	1
2	1577	BOLT	20
3	43113	TOP SHAFT	1
4	1503	NUT	12
5	1546	BOLT	2
6	80141	ELEV. DRIVE CHAIN ASSEM.	1
7	1505	NUT	2
8	3243	HYDRAULIC MOTOR	1
9	1551	BOLT	4
10	43134	CHAIN GUARD	1
11	43107	SEPARATOR	2
12	1147	BOLT	4
13	43135	COVER	1
14	1506	NUT	24
15	1030	BEARING	6
16	43125	SLIDE	2
17	1540	BOLT	12
18	43127	ADJUSTMENT ANGLE	4
19	43123	GUIDE	4
20	1671	WASHER	8
21	1533	BOLT	8
22	43115	SPACER	4

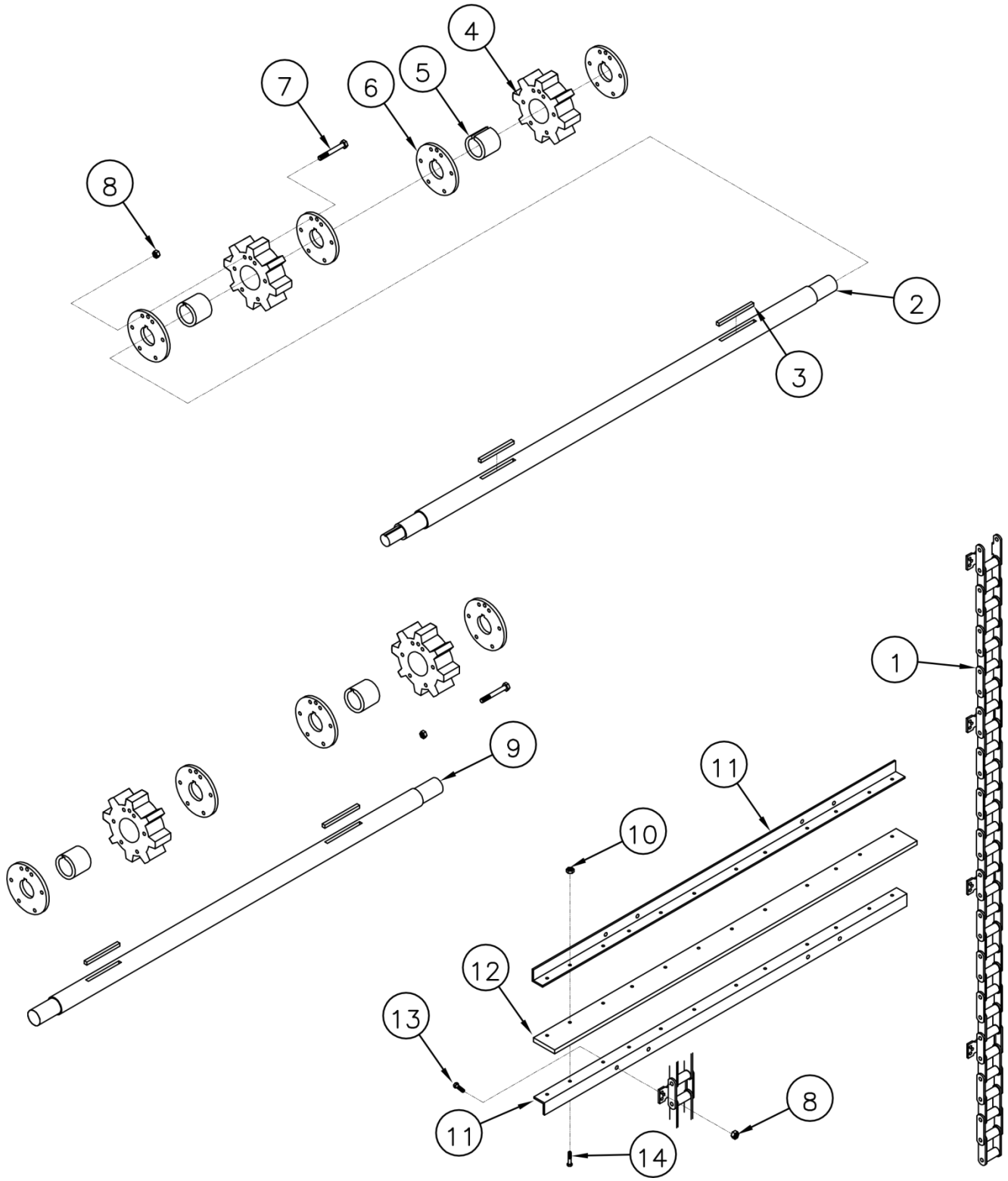
ELEVATOR ASSEMBLY



ELEVATOR ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	93111	TOP LINER	1
2	1711	BOLT	14
3	43121	CANOPY	1
4	43131	CANOPY EXTENSION	1
5	1535	BOLT	24
6	1521	WASHER	48
7	1502	NUT	50
8	43105	BOTTOM LINER	1
9	41744	END STRAP	1
10	41776	RUBBER SEAL	2
11	41710	HOLD DOWN	2
12	1713	BOLT	7
13	41772	BOTTOM RUBBER	1

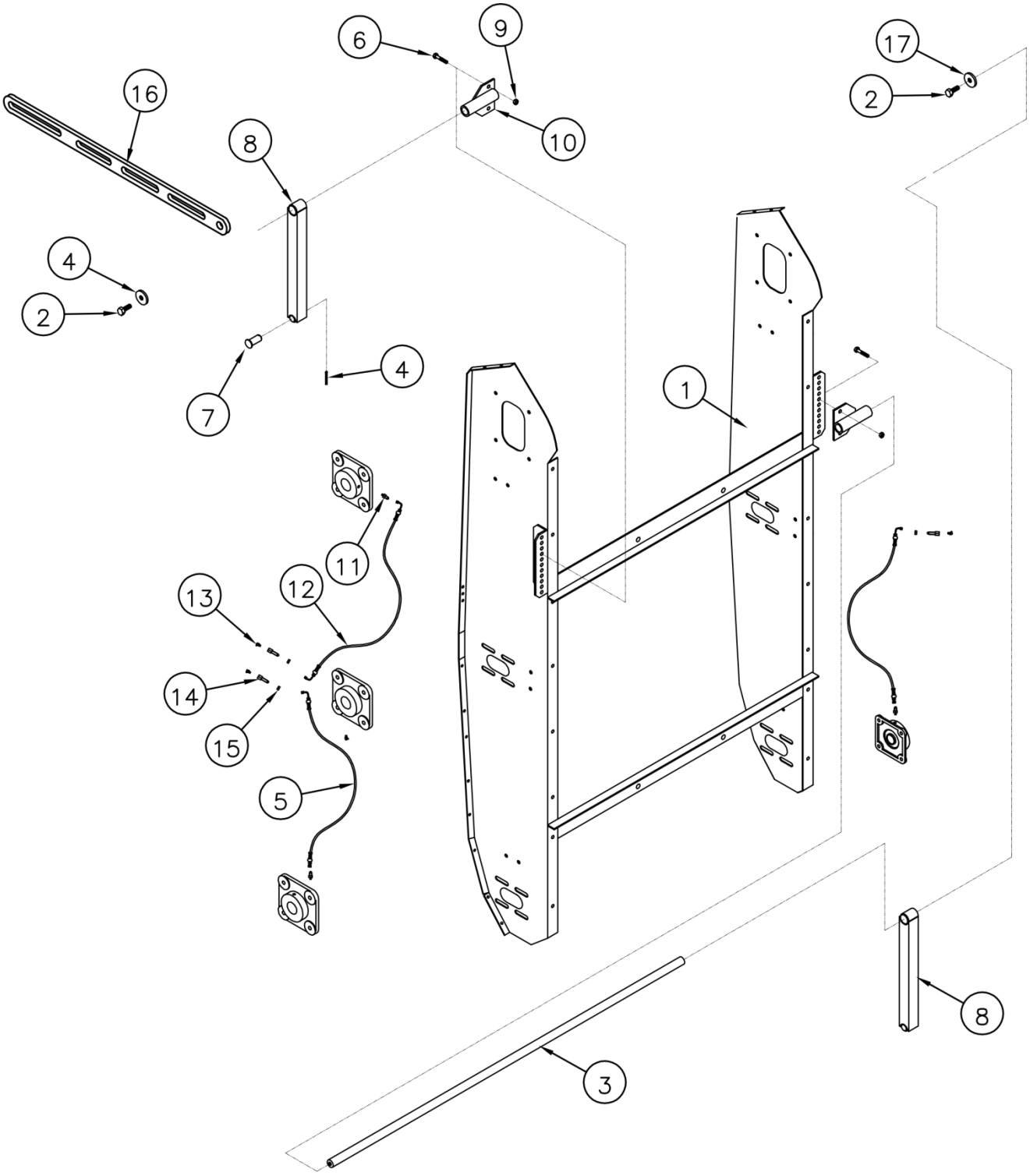
ELEVATOR ASSEMBLY



ELEVATOR ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	93109	ELEVATOR CHAIN	2
2	43113	TOP SHAFT	-
3	1149	SHAFT KEY	6
4	1039	RUBBER SPROCKET	6
5	41738	SHAFT SPACER	6
6	41740	LOCK PLATE	12
7	1541	BOLT	42
8	1503	NUT	70
9	43109	BOTTOM AND MIDDLE SHAFT	2
10	1501	NUT	84
11	41728	SQUEEGEE ANGLE	18
12	41726	SQUEEGEE RUBBER	9
13	1537	BOLT	28
14	1531	BOLT	84

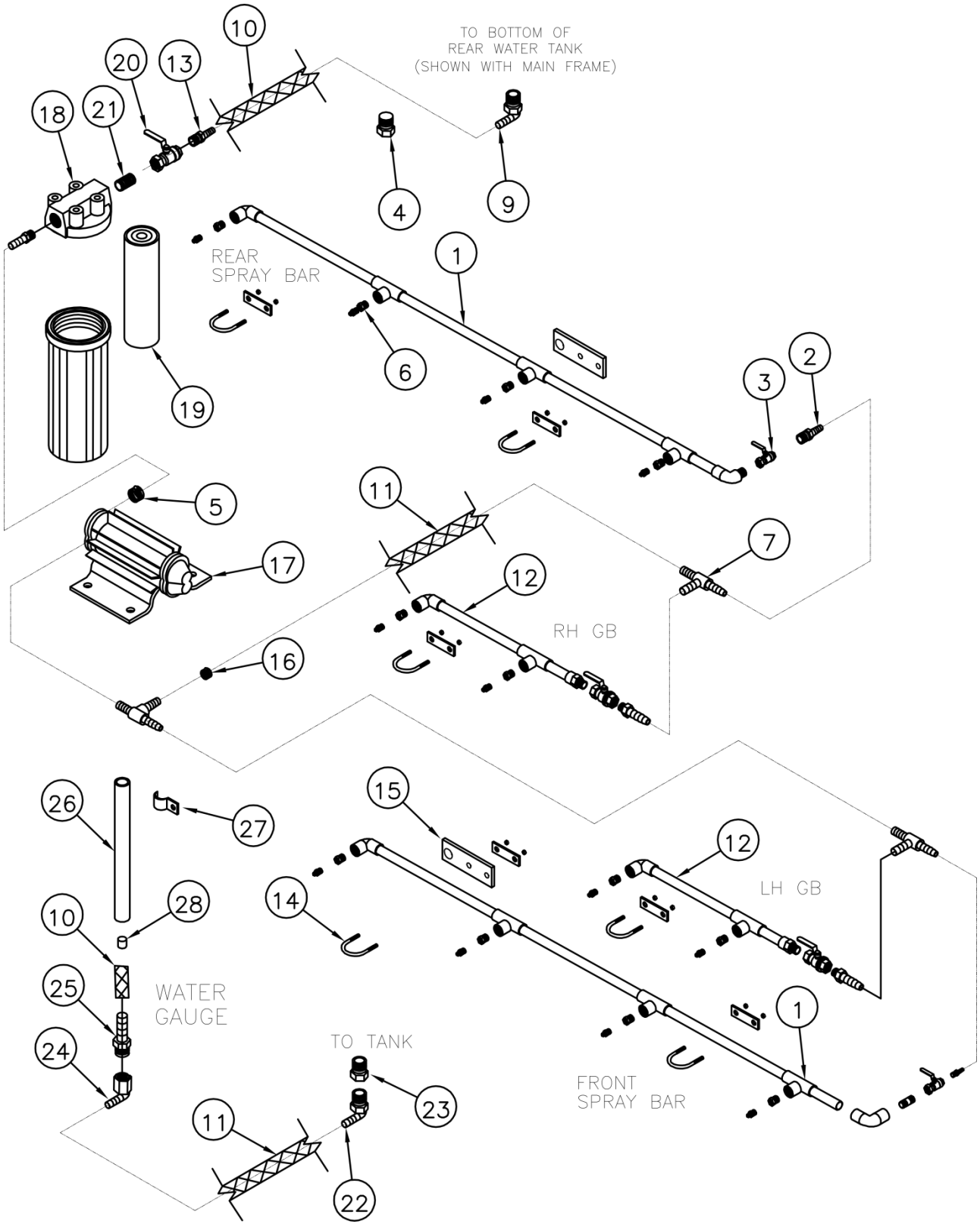
ELEVATOR LIFT ASSEMBLY



ELEVATOR LIFT ASSEMBLY

ITEM	PART #	DESCRIPTION	QTY
1	93103	ELEVATOR FRAME	-
2	1782	BOLT	2
3	63105	SWIVEL SHAFT	1
4	62813	WASHER	2
5	1137	HOSE	2
6	1545	BOLT	12
7	41441	PIN	2
8	93113	LIFT ARM	2
9	1505	NUT	12
10	63104	PIVOT SHAFT MOUNT	2
11	1140	FITTING	3
12	1138	HOSE	1
13	1139	GREASE FITTING	6
14	1141	BULKHEAD FITTING	3
15	1142	NUT	3
16	91770	LIFT STRAP	2

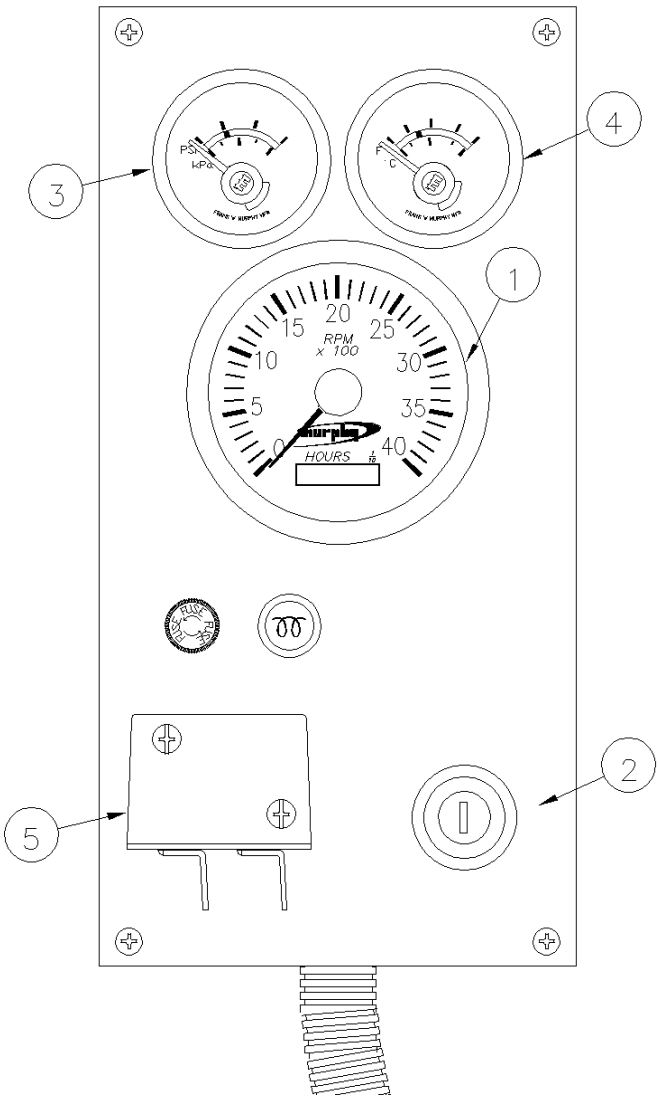
WATER SYSTEM



WATER SYSTEM

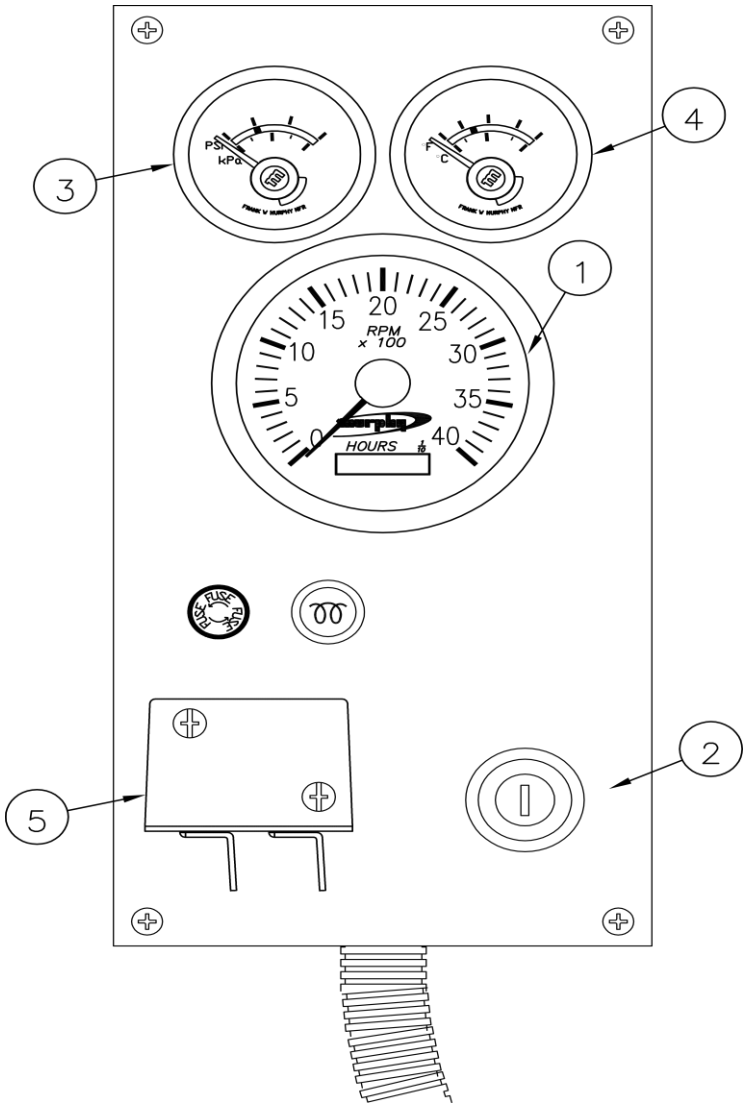
ITEM	PART #	DESCRIPTION	QTY
1	42201	SPRAY BAR	2
2	1158	HOSE BARB FITTING	4
3	1204	BALL VALVE	4
4	1187	PLUG	1
5	1203	HOSE CLAMP	4
6	9216	NOZZLE & ADAPTER	12
7	1163	HOSE BARB TEE ADAPTER	5
8			
9	1130	WATER TANK ELBOW	1
10	1165	HOSE	25'
11	1166	HOSE	30'
12	42203	GB SPRAY BAR	2
13	1167	HOSE BARB FITTING	2
14	1168	U BOLT	8
15	42205	SPRAY BAR HANGER	4
16	1169	HOSE CLAMP	20
17	3232	WATER PUMP	1
18	1117	WATER FILTER HOUSING	1
19	1172	WATER FILTER ELEMENT	1
20	1159	BALL VALVE	1
21	1160	NIPPLE	1
22	1371	HOSE BARB FITTING	1
23	1372	ADAPTER	1
24	1373	HOSE BARB FITTING	1
25	1374	HOSE BARB FITTING	1
26	1375	CLEAR TUBING	48"
27	1376	CLAMP	2
28	1377	FLOAT	1

42527
ENGINE CONTROL BOX
LAYOUT



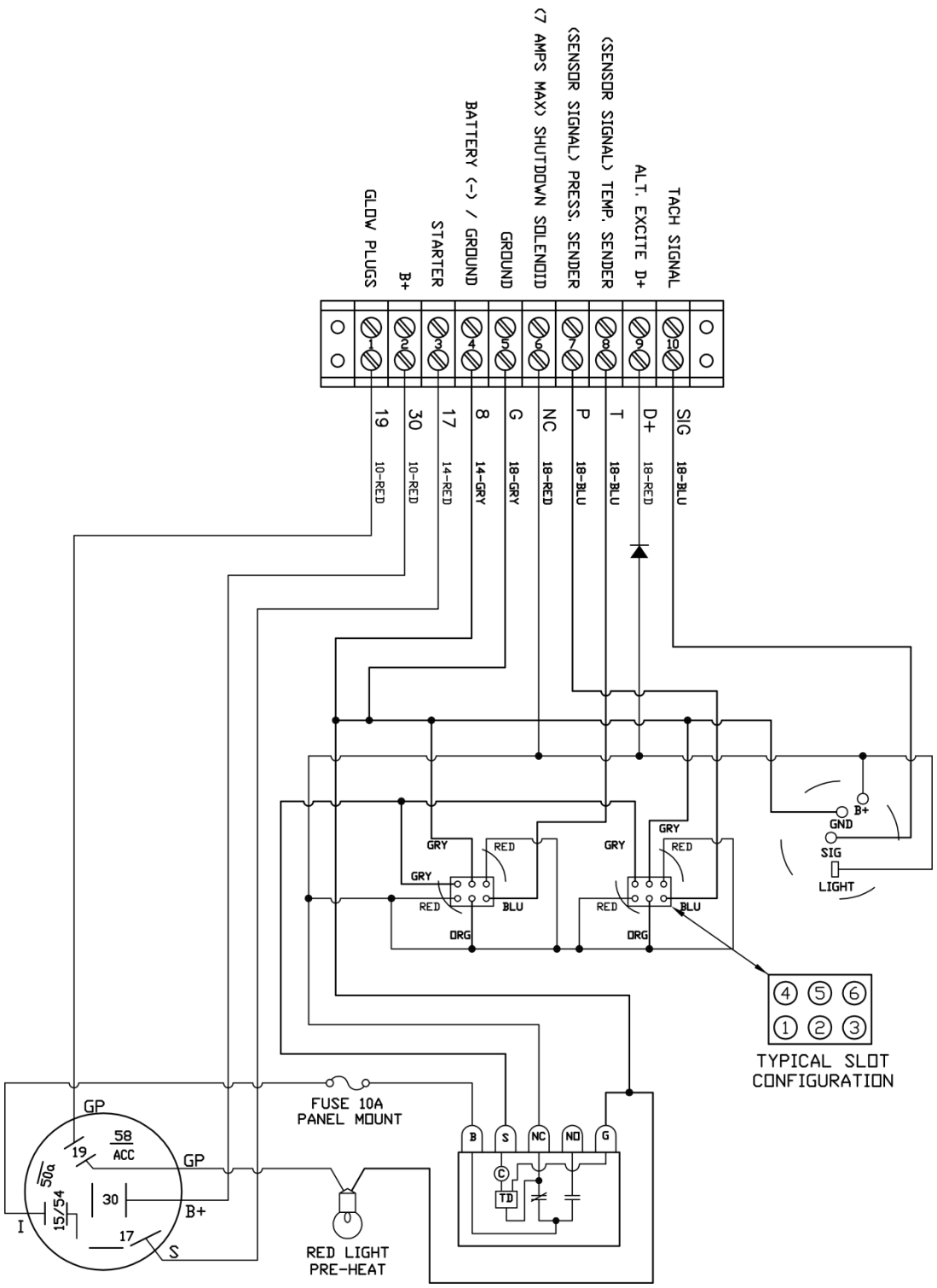
ITEM	PART #	DESCRIPTION	QTY
1	1092	TACH/HOUR METER	1
2	1095	IGNITION SWITCH	1
3	1090	OIL PRESSURE GAUGE	1
4	1091	WATER TEMP GAUGE	1
5	1094	SHUT DOWN MODULE	1

ENGINE CONTROL BOX SCHEMATIC

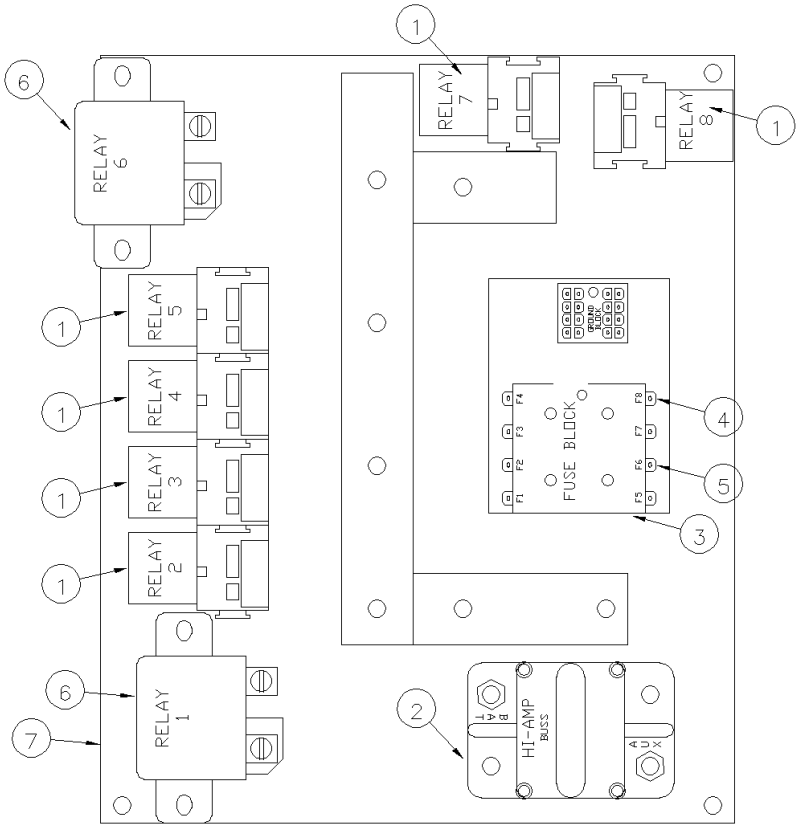


ITEM	PART #	DESCRIPTION	QTY
1	1092	TACH/HOUR METER	1
2	1095	IGNITION SWITCH	1
3	1090	OIL PRESSURE GAUGE	1
4	1091	WATER TEMP GAUGE	1
5	1094	SHUT DOWN MODULE	1

62512
AUXILIRY CONTROL
BOX SCHEMATIC

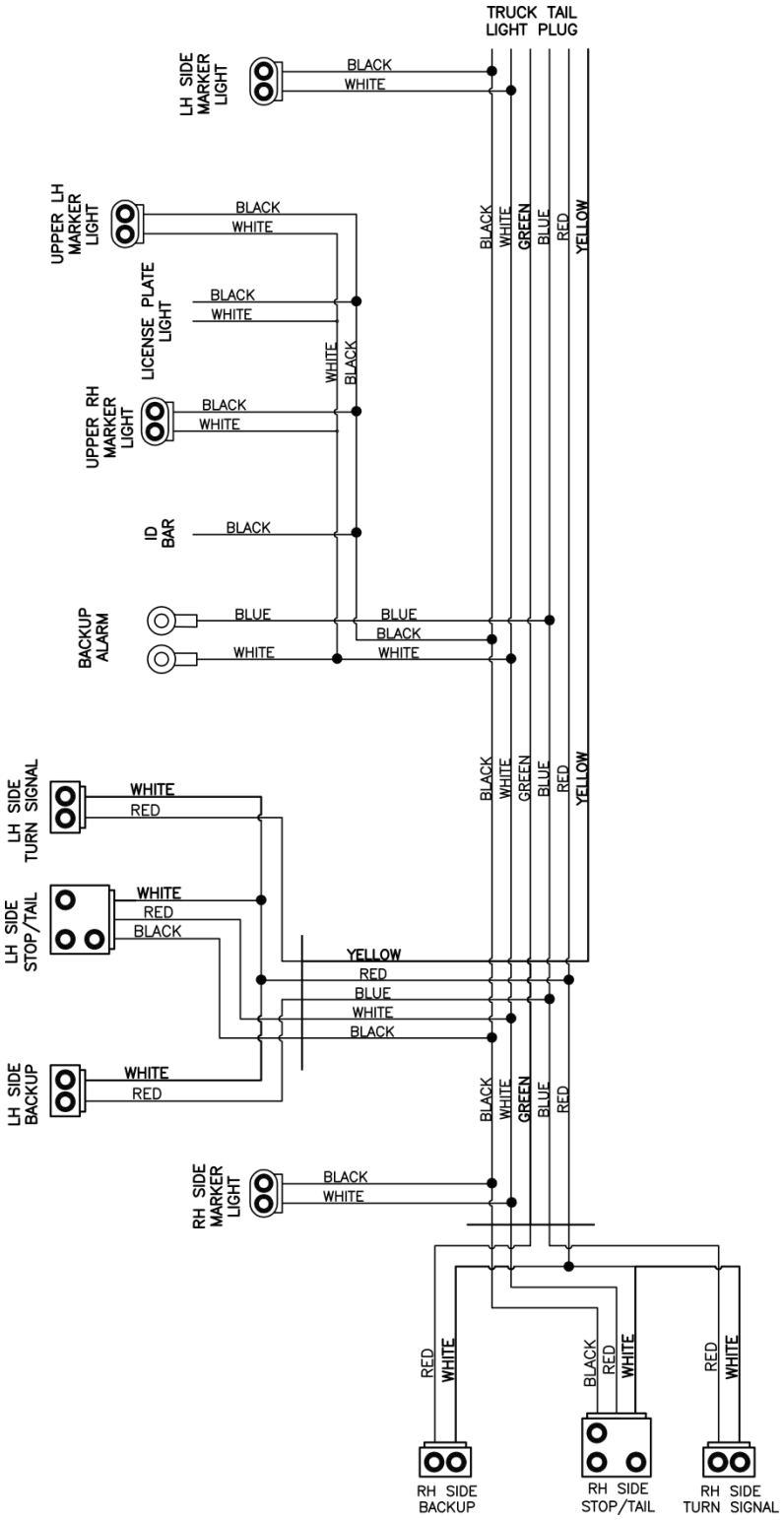


80207
AUXILIARY CONTROL BOX
LAYOUT

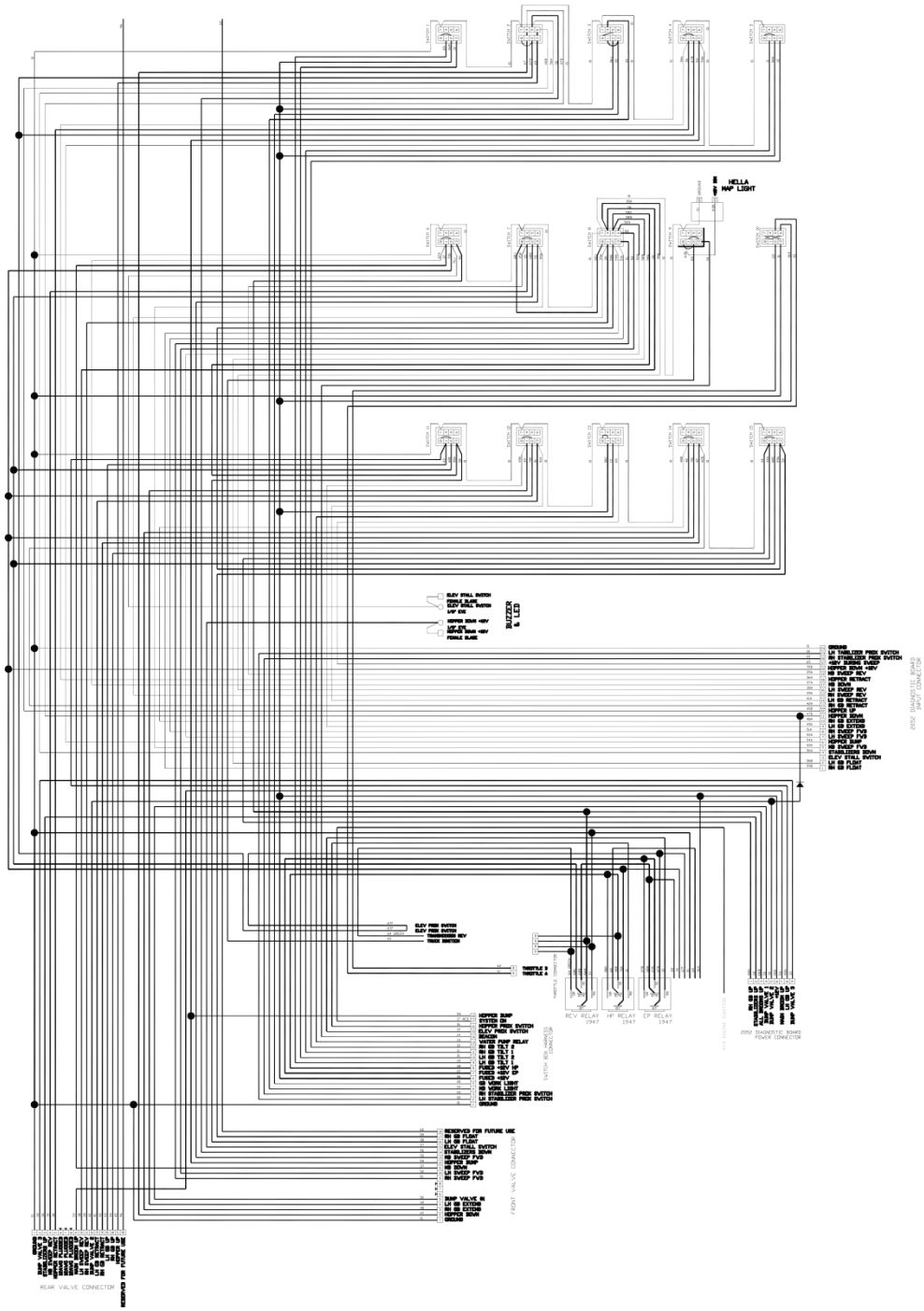


ITEM	PART #	DESCRIPTION	QTY
1	1947	RELAY	6
2	2043	CIRCUIT BREAKER	1
3	2041	FUSE HOLDER 8 POSITION	1
4	2042	FUSE 15 AMP F1-5/7/8	7
5	1193	FUSE 5 amp F6	1
6	1946	RELAY	2
7	62507	Aux. Box Mounting Plate	1
8	62512	Harness (not shown)	1

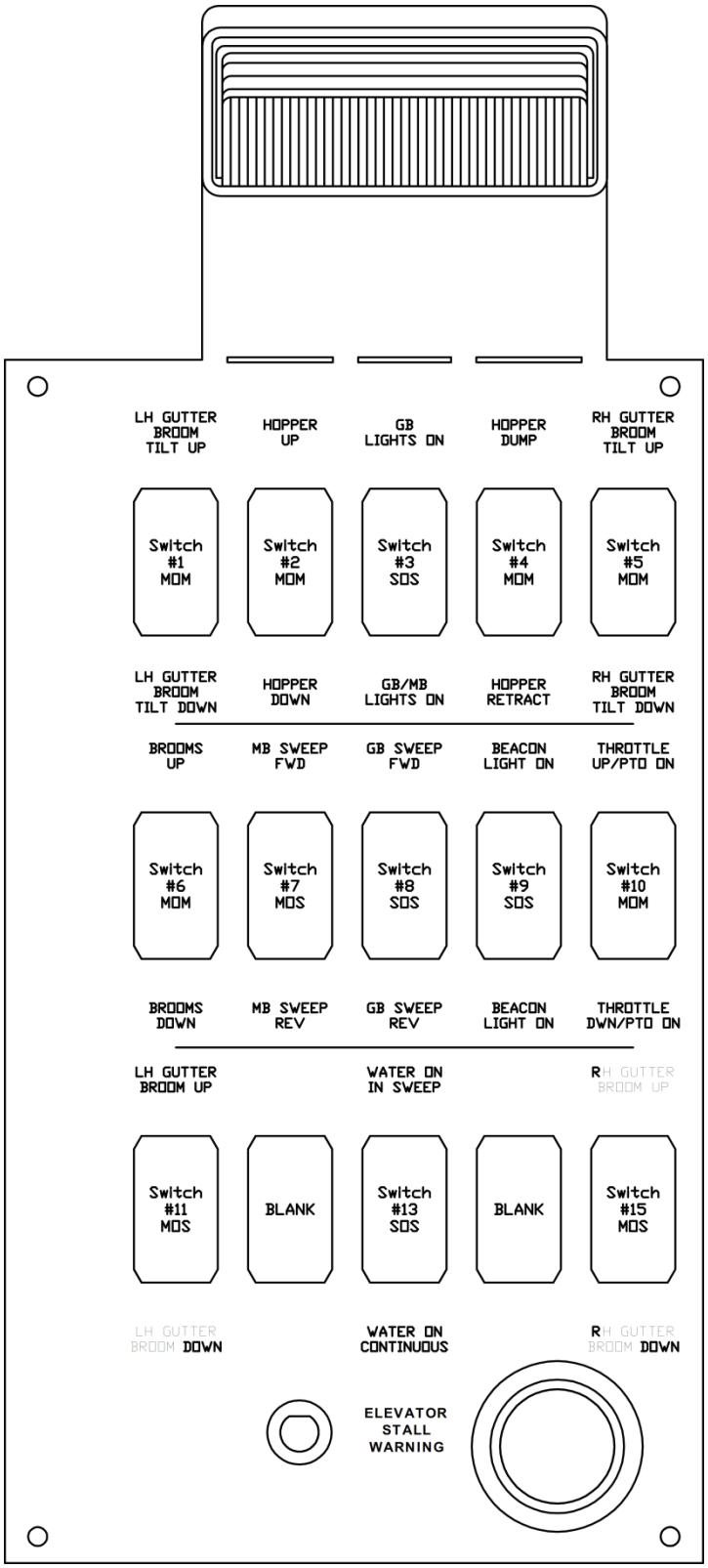
62508
REAR LIGHT HARNESS
SCHEMATIC



62511
SWITCH BOX HARNESS
SCHEMATIC



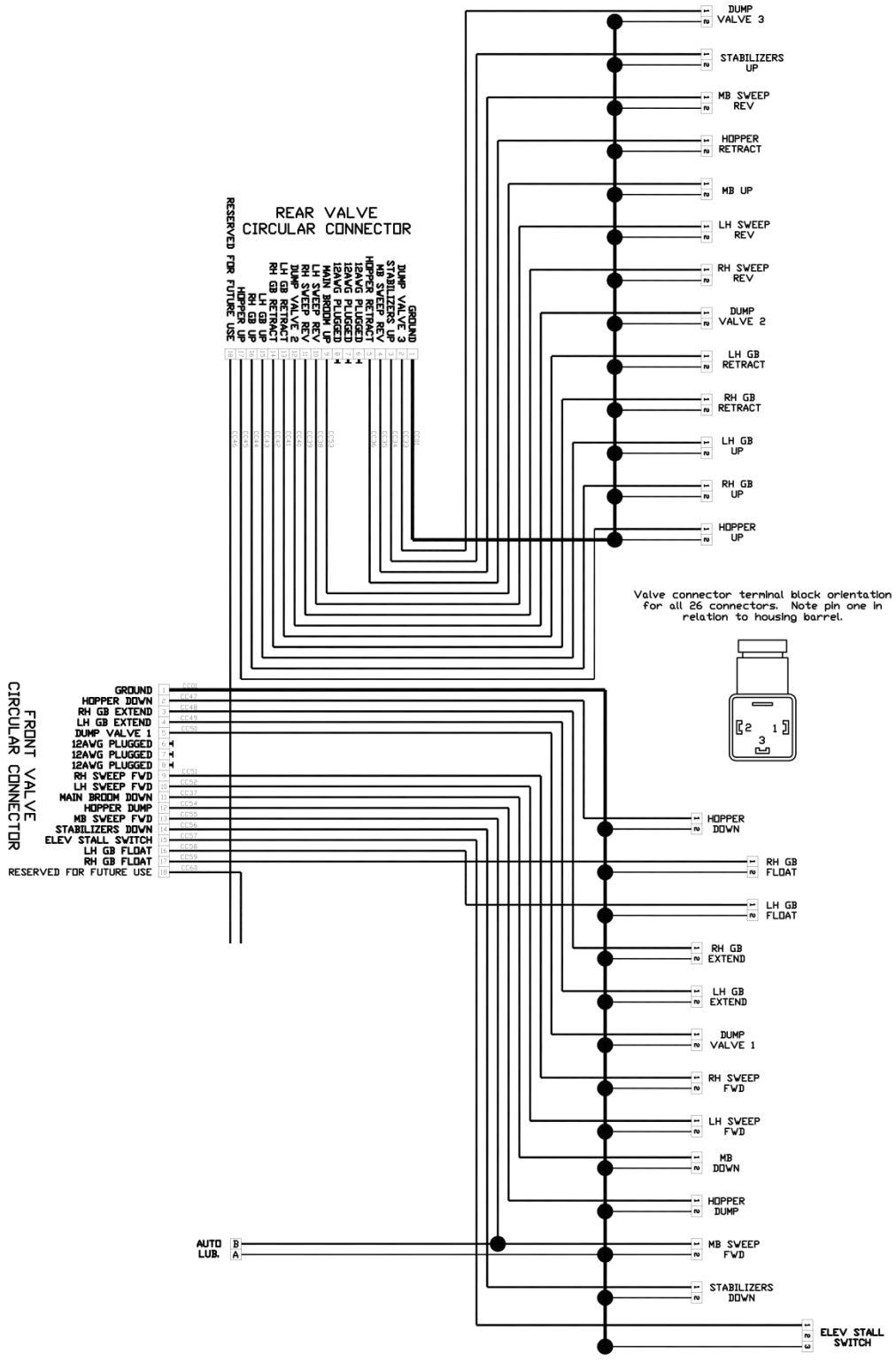
SWEEPER CONTROL PANEL



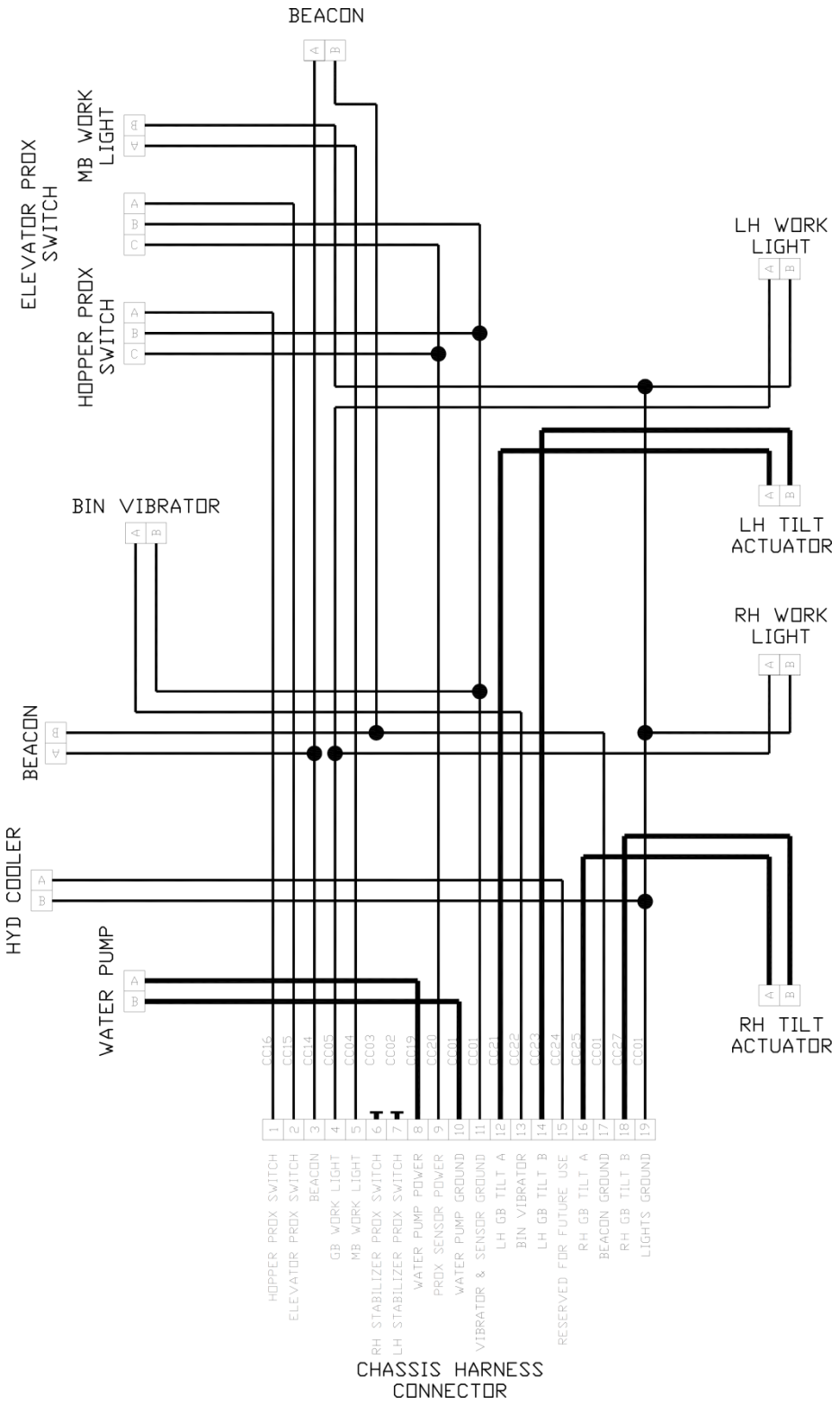
SWEEPER CONTROL PANEL

ITEM	PART #	DESCRIPTION	QTY
1	1101	SHOCK MOUNT	4
2	62505	BOX	1
3	62506	PANEL	1
4	42545	PANEL DECAL	1
5	1690	STALL ALARM	1
6	1691	STALL LIGHT	1
7	1686	SWITCH (M-O-M)	6
8	1684	SWITCH (S-O-S)	4
9	1685	SWITCH (S-O-M)	3
10	1689	HOLE PLUG	2
11	1691	COURTESY LIGHT	1

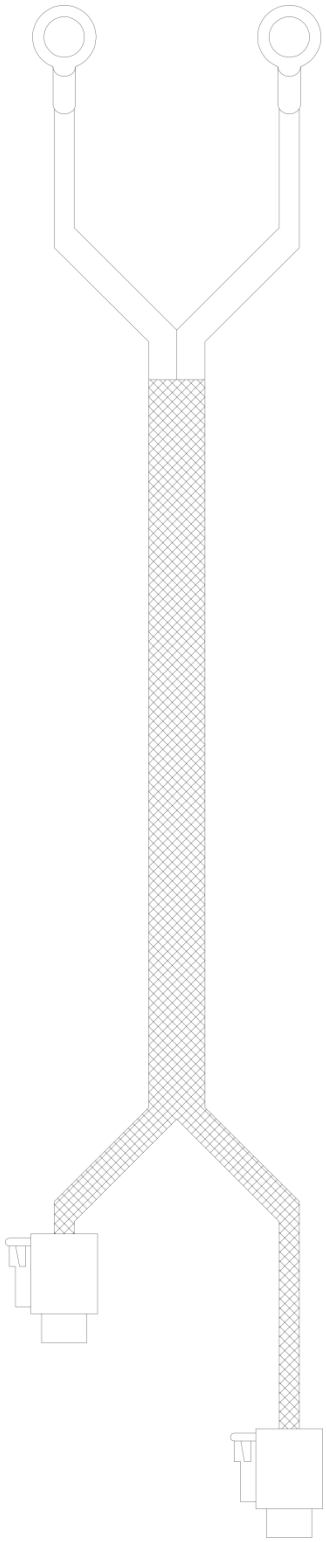
62510
VALVE HARNESS
SCHEMATIC



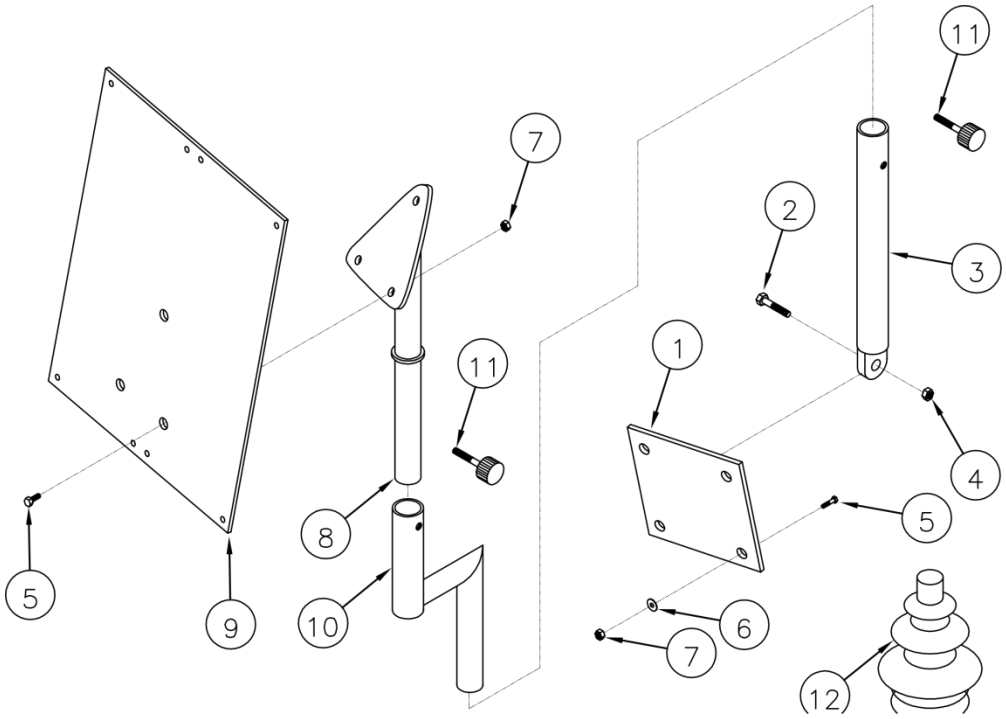
42542
BODY HARNESS
SCHEMATIC



3225
POWER CABLE
SCHEMATIC



CAB PANEL MOUNTING



ITEM	PART #	DESCRIPTION	QTY
1	42501	ADAPTER PLATE	1
2	1546	BOLT	1
3	42502	SUPPORT POST	1
4	1505	NUT	1
5	1531	BOLT	7
6	1520	WASHER	4
7	1501	NUT	7
8	42503	TOP MOUNT	1
9	42506	BOX MOUNT PLATE	1
10	62501	OFFSET POST	1
11	1194	KNOB	2
12	1233	ELECT. BOOT	1

S-4 DECALS

To Order:

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[7am to 5pm eastern]

Send Fax: 717-901-2326
[24/7/365]

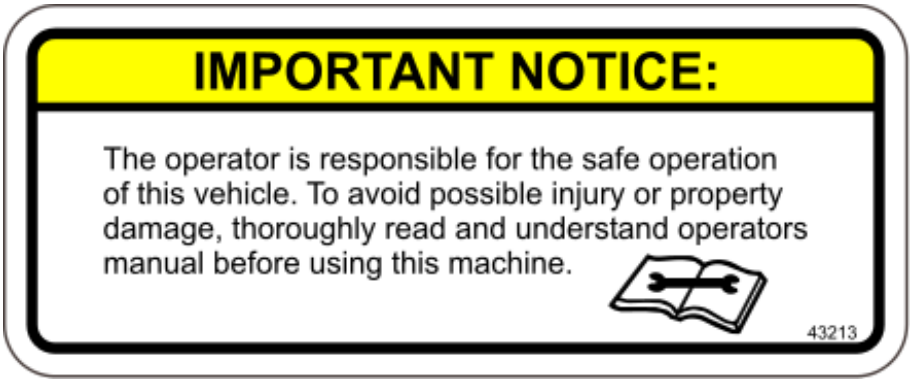
Email: parts@stewart-amos.com

PT # 43201 10/UNIT

PT # 43205 4/UNIT

PT # 43207 3/UNIT

PT # 43211 4/UNIT



PT # 43213 1/UNIT

PT # 43215 6/UNIT

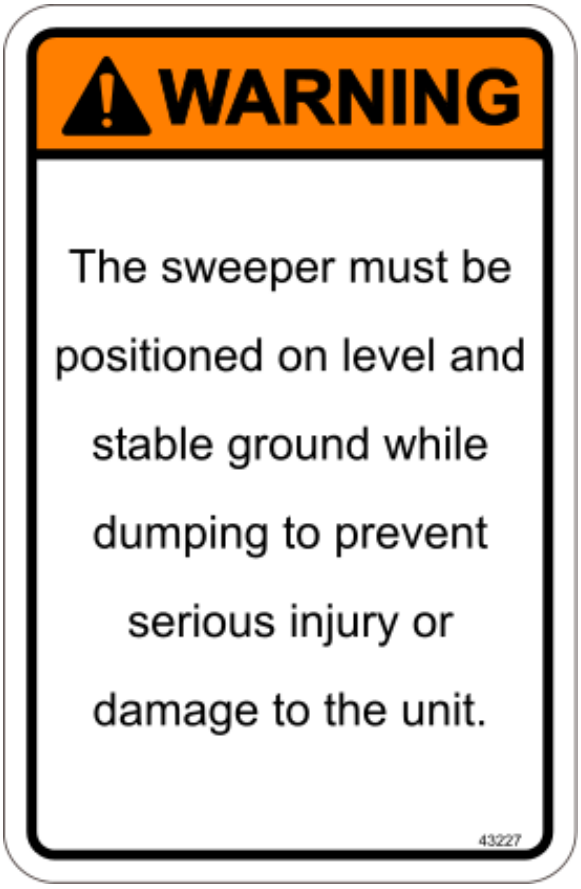
PT # 43217 2/UNIT

PT # 43219 1/UNIT

PT # 43221 1/UNIT

PT # 43223 5/UNIT

PT # 43225 1/UNIT



PT # 43227 2/UNIT

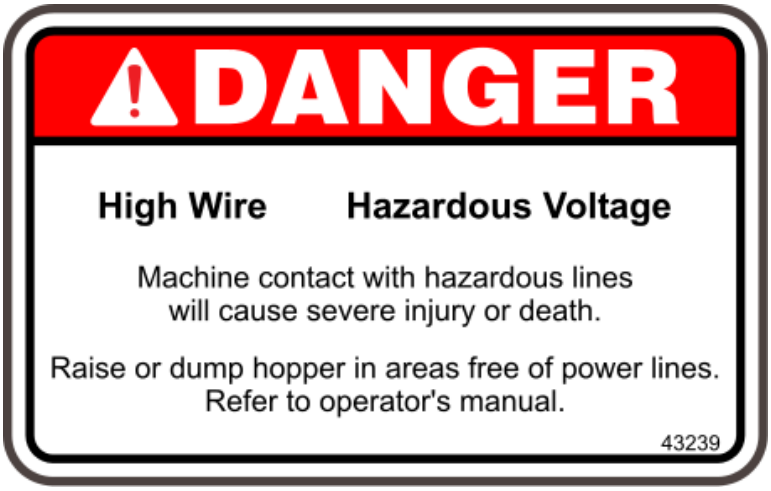
PT # 43229 7/UNIT

PT # 43231 1/UNIT

PT # 43233 2/UNIT

PT # 43235 1/UNIT

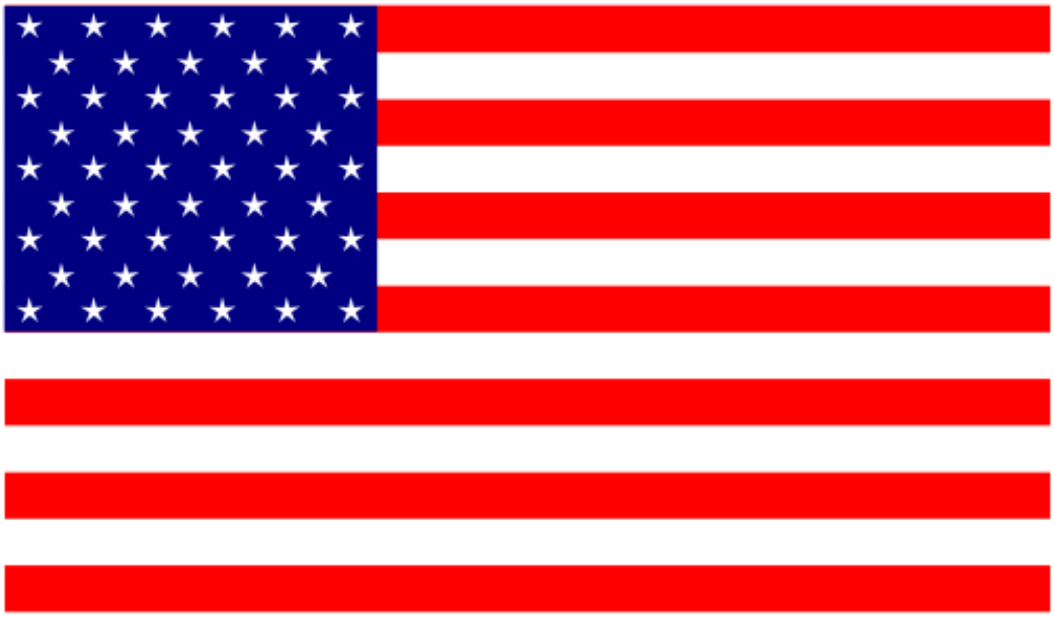
PT # 43237 1/UNIT



PT # 43239 1/UNIT

Driving at low speeds for sustained periouds of time may overheat the transmission fluid. Driver should selct "L" position during low speed operation, under 11mph (18kmh)

PT # 43244 1/UNIT



PROUDLY MADE IN THE U.S.A.

PT # 43245 1/UNIT

PT # 43247 2/UNIT

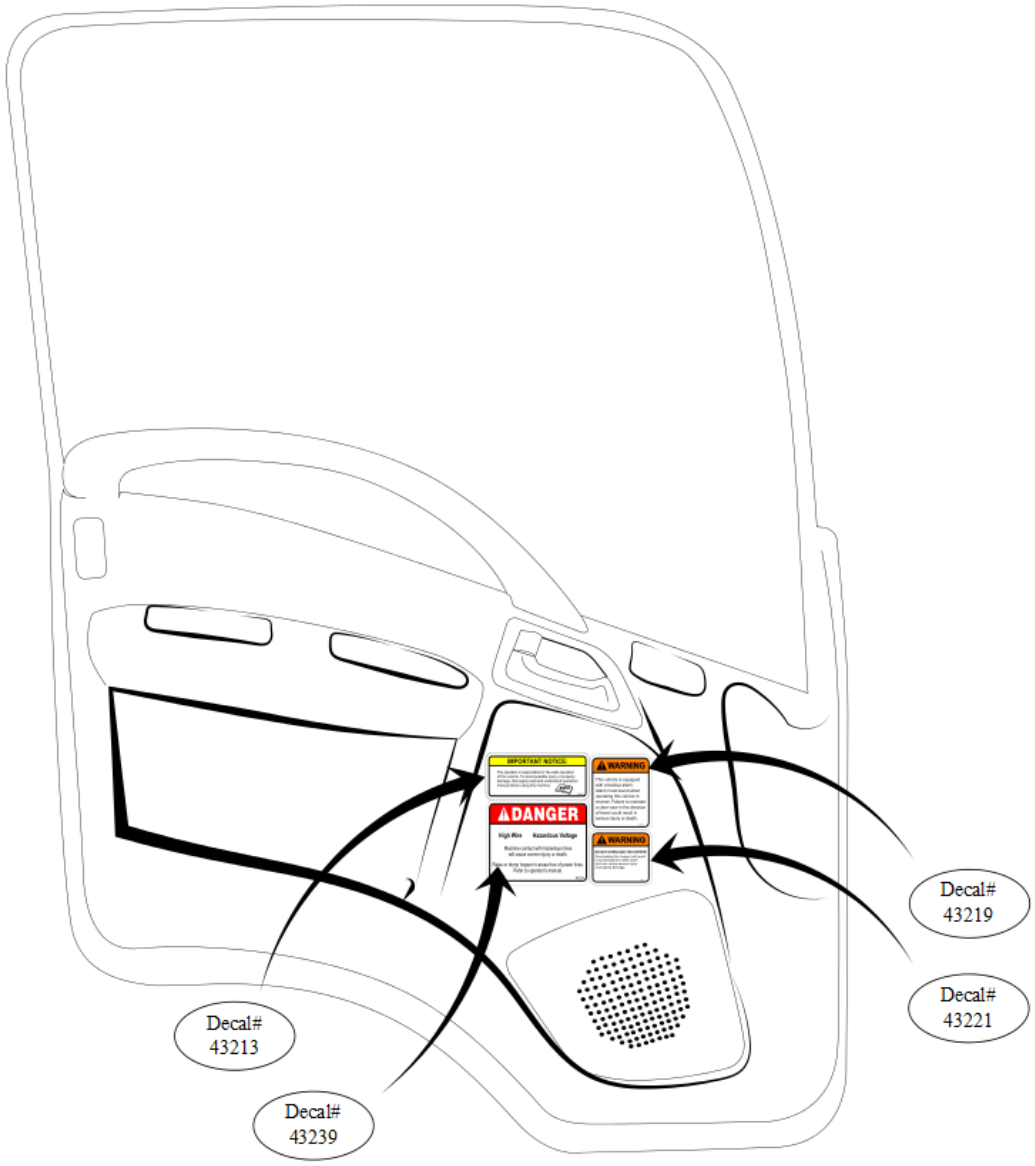
PT # 43264 2/UNIT

PT # 43248 2/UNIT

PT # 43249 1/UNIT

PT # 43246 1/UNIT

PT # 43243 1/UNIT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WARNING
DANGER
WARNING
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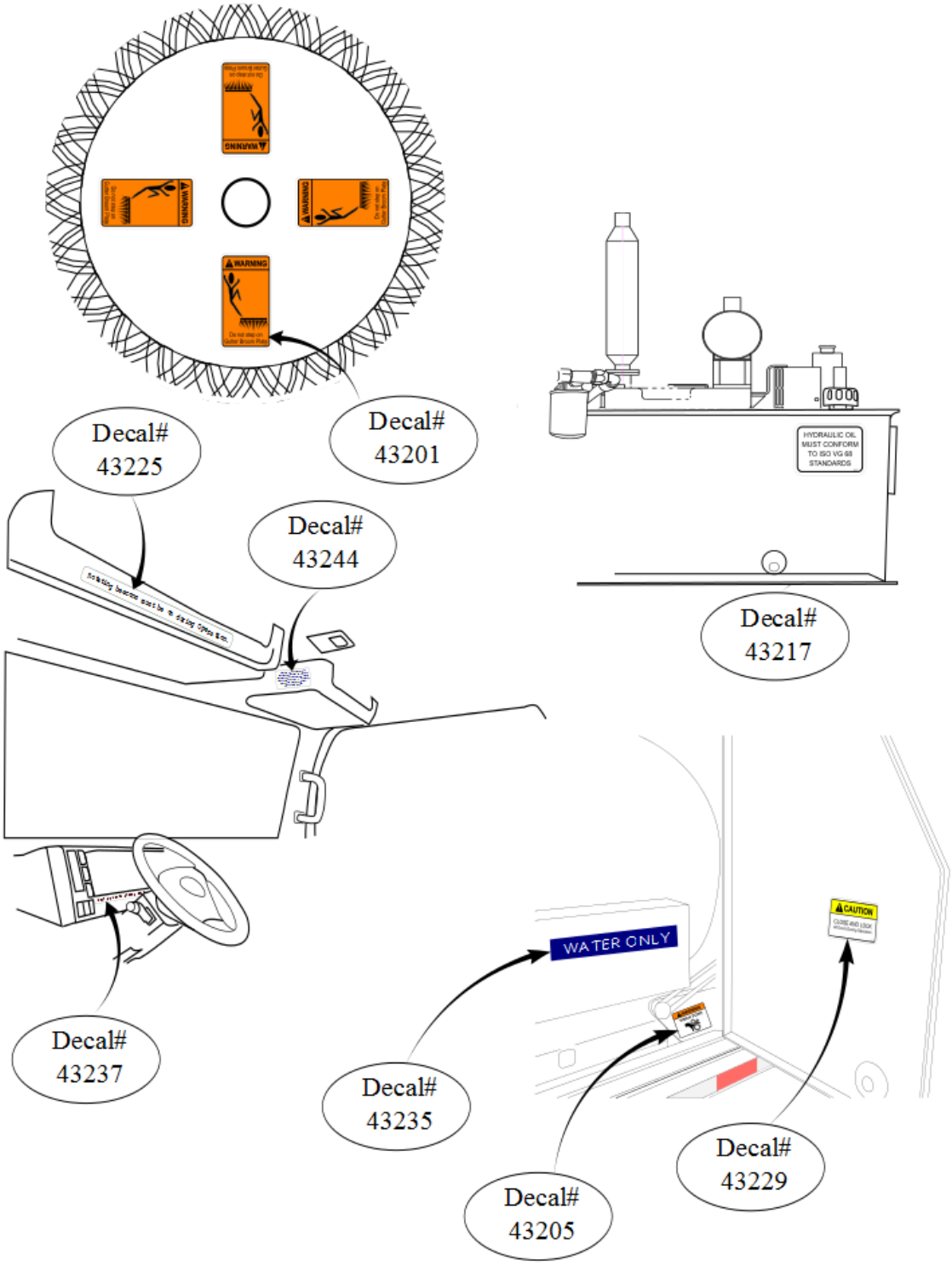
43219
Decal#
43221
Decal#
43213
Decal#
43239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WATER ONLY
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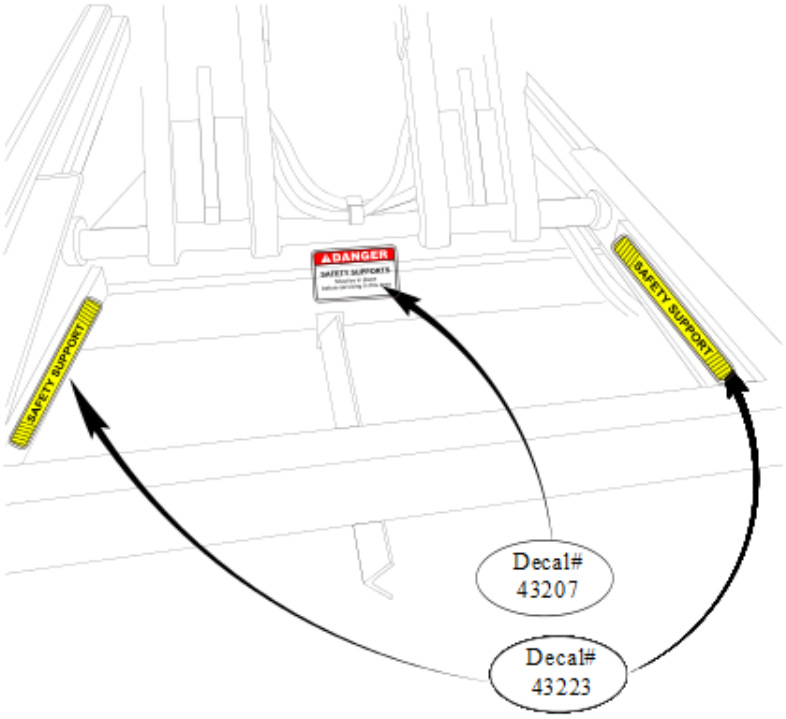
Decal# 43205
Decal# 43229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SAFETY SUPPORTS
SAFETY SUPPORT
SAFETY SUPPORT
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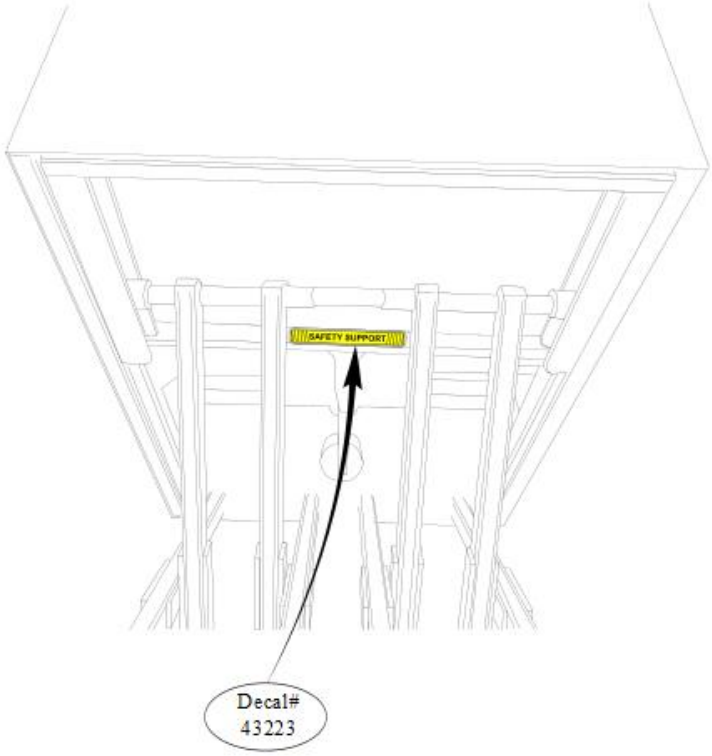
43223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Decal#
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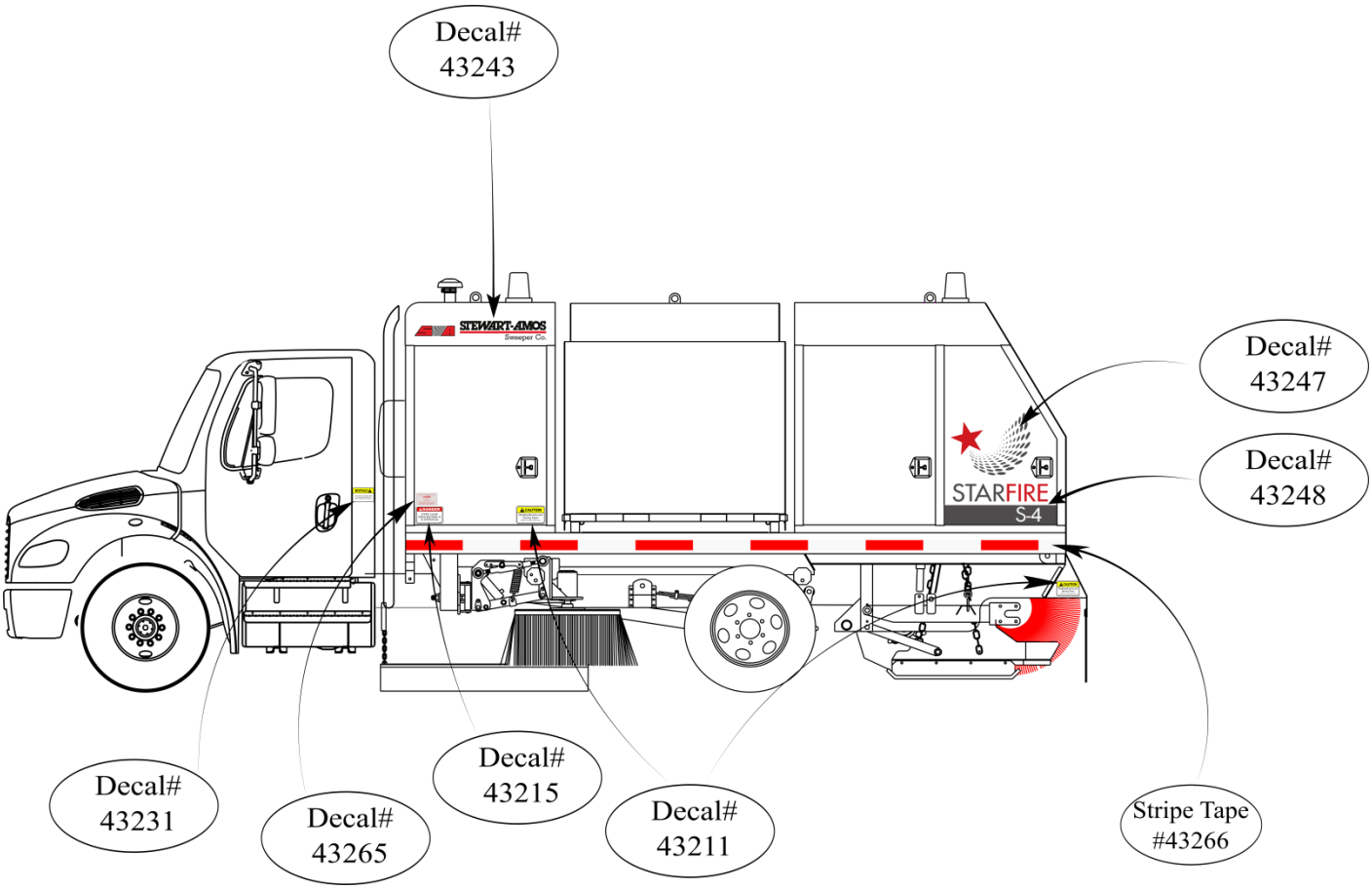
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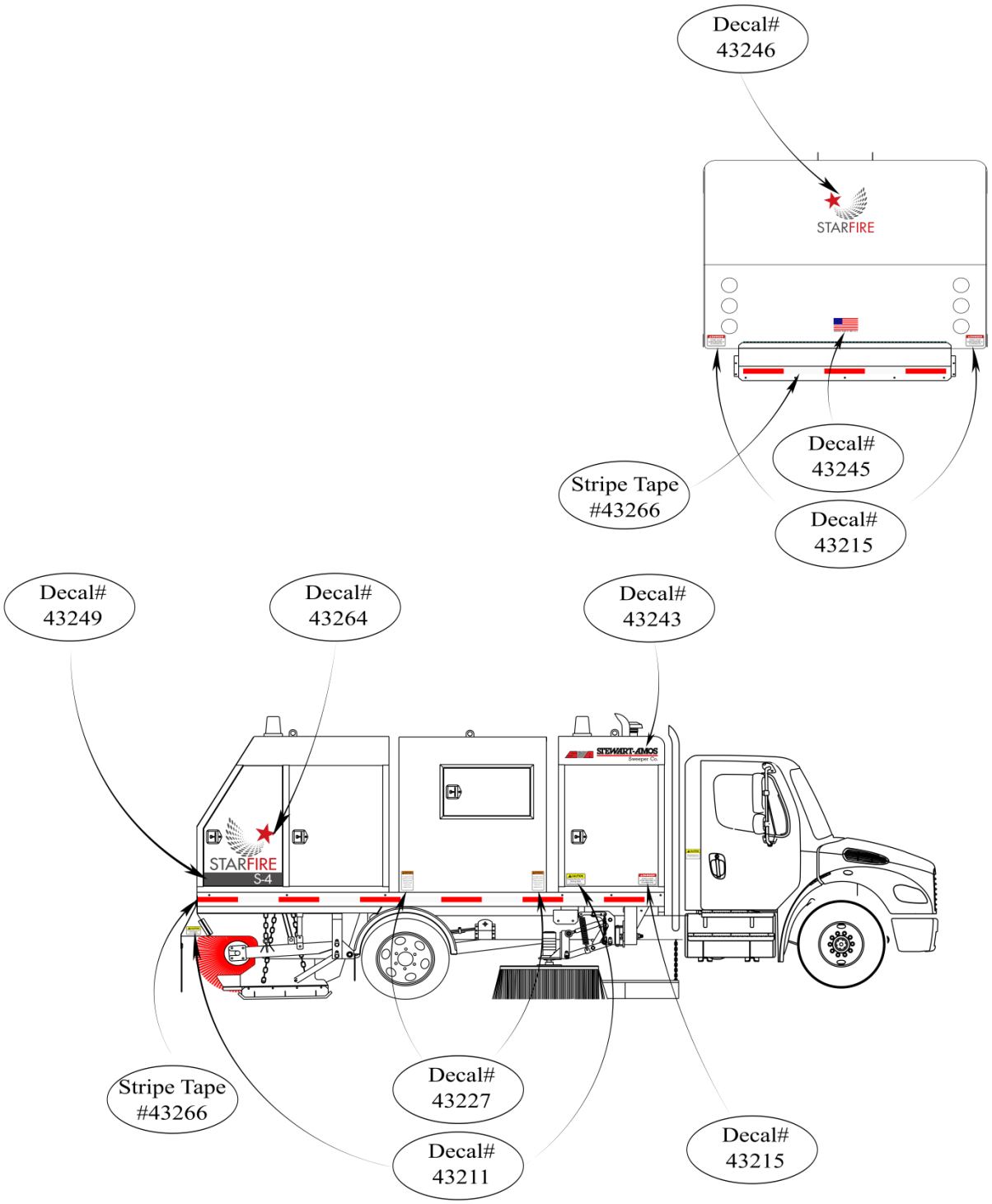
Decal#
43247
Decal#
43248
STARFIRE
S-4
Decal#
43231
Decal#
43265
Decal#
43215
Decal#
43211
Stripe Tape
#43266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STARFIRE
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Stripe Tape
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Decal#
43264
Decal#
43243
STARFIRE
S-4
Stripe Tape
#43266
Decal#
43227
Decal#
43211
Decal#
43215

80216		SAFETY DECAL KIT
8	43201	DO NOT STEP
2	43205	PINCH POINT SQ
5	43207	DANGER SAFETY SUPPORT IN PLACE
1	43211	CAUTION ROTATING BROOMS
1	43213	IMPORTANT OPERATOR IS RESPONSIBLE
6	43215	DANGER STAND CLEAR
2	43217	HYDRAULIC OIL MUST CONFORM
1	43219	WARNING THIS VEHICLE IS EQUIPED
1	43221	WARNING DO NOT OVERLOAD
2	43223	SAFETY SUPPORT
1	43225	ROTATING BEACONS AND STROBES
2	43227	WARNING SWEEPER MUST BE LEVEL
7	43229	CAUTION CLOSE AND LOCK
1	43231	CAUTION BEFORE OPERATING
2	43233	PINCH POINT STRIP
1	43235	WATER ONLY
1	43237	DUMP ON LEVEL GROUND ONLY
1	43239	DANGER HIGH WIRE HAZARD VOLTAGE
1	43244	LOW SPEED WARNING
1	43245	MADE IN USA

-

80217		S-4 DECAL KIT
1	43246	STARFIRE LOGO DECAL REAR CANOPY
1	43247	LH STARFIRE LOGO REAR CANOPY DOORS
1	43264	RH STARFIRE LOGO REAR CANOPY DOORS
1	43248	LH S-4 STARFIRE DECAL REAR CANOPY DOOR
1	43249	RH S-4 STARFIRE DECAL REAR CANOPY DOOR
2	43243	STEWART-AMOS SWEEPER CO.

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1260	CLAMP	1	111
1266	MANDREL END PLATE	2	101
1287	MANIFOLD	1	105
1291	VALVE	1	105
1293	MANIFOLD	1	104
1295	VALVE	1	104
1295	VALVE	1	104
1295	VALVE	1	104

PART#	DISCRIPTION	QTY	Pg#
1299	GUIDE	1	111
1371	FITTING	1	123
1372	ADAPTER	1	123
1373	FITTING	1	123
1374	FITTING	1	123
1375	CLEAR TUBE	48	123
1376	CLAMP	2	123
1377	FLOAT	1	123
1379	CYLINDER	2	97
1379	CYLINDER	4	109
1387	ACTUATOR	1	111
1388	CABLE	1	111
1394	WATER LEVEL FLOAT	1	89
1395	CLEAR FLOAT TUBE	1	89
1428	HOSE	4	109
1440	HOSE	1	107
1440	HOSE	1	107
1441	HOSE	1	107
1442	HOSE	1	107
1443	HOSE	4	107
1445	HOSE	2	109
1446	HOSE	1	109
1450	HOSE	2	109
1451	HOSE	2	109
1452	HOSE	1	107
1453	HOSE	1	107
1454	HOSE	2	107
1455	HOSE	2	107
1456	HOSE	2	107
1466	HOSE	1	107
1467	HOSE	1	109
1468	HOSE	1	107
1469	HOSE	1	107
1488	HOSE	1	107
1489	HOSE	1	107
1490	HOSE	4	107
1491	HOSE	4	107
1492	HOSE	1	109
1493	HOSE	1	109
1494	HOSE	1	109
1495	HOSE	1	109
1496	HOSE	1	109
1497	HOSE	1	109
1501	NUT	20	89
1501	NUT	36	91
1501	NUT	20	93

PART#	DISCRIPTION	QTY	Pg#
1501	NUT	4	103
1501	NUT	84	119
1501	NUT	7	135
1502	NUT	17	87
1502	NUT	8	103
1502	NUT	50	117
1503	NUT	12	87
1503	NUT	6	89
1503	NUT	6	91
1503	NUT	2	97
1503	NUT	10	101
1503	NUT	12	115
1503	NUT	70	119
1505	NUT	4	87
1505	NUT	1	97
1505	NUT	2	99
1505	NUT	6	101
1505	NUT	32	113
1505	NUT	2	115
1505	NUT	12	121
1505	NUT	1	135
1506	NUT	5	97
1506	NUT	4	99
1506	NUT	24	115
1507	NUT	7	97
1508	NUT	1	97
1508	NUT	2	103
1520	WASHER	20	89
1520	WASHER	36	91
1520	WASHER	34	93
1520	WASHER	4	135
1521	WASHER	12	103
1521	WASHER	48	117
1522	WASHER	6	89
1524	WASHER	4	111
1524	WASHER	4	113
1525	WASHER	2	99
1526	WASHER	2	97
1526	WASHER	1	99
1526	WASHER	4	113
1530	BOLT	13	93
1530	BOLT	4	103
1531	BOLT	84	119
1531	BOLT	7	135
1533	BOLT	8	115
1534	BOLT	12	87

PART#	DISCRIPTION	QTY	Pg#
1534	BOLT	8	103
1535	BOLT	17	87
1535	BOLT	24	117
1537	BOLT	2	87
1537	BOLT	3	97
1537	BOLT	3	99
1537	BOLT	2	101
1537	BOLT	2	103
1537	BOLT	28	119
1540	BOLT	2	97
1540	BOLT	24	99
1540	BOLT	12	115
1541	BOLT	42	119
1545	BOLT	6	101
1545	BOLT	2	101
1545	BOLT	4	111
1545	BOLT	12	121
1546	BOLT	2	99
1546	BOLT	6	101
1546	BOLT	2	115
1546	BOLT	1	135
1547	BOLT	14	113
1549	BOLT	4	99
1551	BOLT	4	115
1556	BOLT	2	97
1558	BOLT	4	93
1559	BOLT	5	97
1560	BOLT	2	93
1560	BOLT	2	97
1561	BOLT	1	97
1562	BOLT	2	103
1574	BOLT	1	97
1575	BOLT	8	103
1577	BOLT	20	115
1579	BOLT	8	89
1579	BOLT	32	91
1579	BOLT	8	93
1581	WASHER	1	97
1583	NUT	4	93
1591	SCREW	6	87
1604	COTTER PIN	6	95
1604	COTTER PIN	2	101
1623	PIN	6	95
1630	CAPSCREW	4	101
1639	NUT	2	101
1640	NUT	1	97

PART#	DISCRIPTION	QTY	Pg#
1642	NUT	2	97
1669	WASHER	6	101
1670	WASHER	4	87
1670	WASHER	3	97
1670	WASHER	5	99
1670	WASHER	2	101
1670	WASHER	2	103
1671	WASHER	6	101
1671	WASHER	8	115
1680	KEY	1	101
1683	OFFSET KEY	1	99
1684	SWITCH SOS	4	131
1685	SWITCH SOM	3	131
1686	SWITCH MOM	6	131
1689	PLUG	2	131
1691	LIGHT	1	131
1711	BOLT	14	117
1713	BOLT	7	117
1750	INSERT	8	89
1750	INSERT	16	91
1781	BOLT	6	101
1782	BOLT	16	95
1782	BOLT	4	101
1782	BOLT	2	121
1822	WASHER	16	87
1822	WASHER	6	91
1822	WASHER	3	97
1822	WASHER	1	99
1822	WASHER	30	101
1822	WASHER	2	103
1839	RESTRICTOR	2	105
1843	BOLT	2	87
1843	BOLT	4	87
1843	BOLT	6	89
1843	BOLT	6	91
1843	BOLT	4	101
1861	DOOR STOP SPRING	2	89
1861	DOOR STOP SPRING	4	91
1905	CLEARANCE LIGHT	4	91
1906	GROMMET	4	91
1907	ID BAR	1	91
1908	LICENSE PLATE LIGHT	1	91
1909	BRAKE LIGHT	4	91
1911	BACKUP LIGHT	2	91
1912	GROMMET	6	91
1915	WORK LIGHT	2	87

PART#	DISCRIPTION	QTY	Pg#
1915	WORK LIGHT	1	91
1916	STROBE	1	89
1916	STROBE	1	91
1934	(OPTION) BIN VIB		93
1946	RELAY	2	127
1947	RELAY	6	127
1955	HYD. OIL COOLER & FAN	1	89
1955	OIL COOLER	1	109
1970	CARBIDE DRAG SHOE	2	103
1985	CYLINDER	1	95
1985	CYLINDER	1	107
1986	CYLINDER	4	107
1987	OIL FILTER	1	107
1987	FILTER	1	113
1988	OIL FILTER BASE	1	107
1988	FILTER BASE	1	113
1989	VALVE	1	104
1989	VALVE	1	104
1990	VALVE	2	104
1993	VALVE	1	105
1993	VALVE	1	105
1993	VALVE	1	105
1994	VALVE	1	105
2000	VALVE	1	104
2000	VALVE	1	105
2001	VALVE	1	104
2010	VALVE	1	105
2041	FUSE HOLDER	1	127
2042	FUSE 15 AMP	7	127
2043	BREAKER	1	127
2063	O RING	1	113
2070	SCREEN	1	113
2076	RUBBER BUMPER	1	111
2077	ENGINE	1	111
2078	VALVE	1	104
2078	VALVE	1	105
2078	BALL VALVE	2	113
2080	GUAGE	1	104
2080	GAUGE	1	105
2082	PRES. GUAGE	1	113
2087	RESTRICTOR	2	109
2238	FILTER	1	111
2239	FILTER	1	111
2245	FILTER	1	111
2246	FILTER	1	111
3206	MUD FLAP	2	87

PART#	DISCRIPTION	QTY	Pg#
3210	CYLINDER	2	95
3212	LONG MANDREL SHAFT	1	101
3225	POWER CABLE	1	134
3232	WATER PUMP		113
3232	PUMP	1	123
3235	CYLINDER	2	109
3243	MOTOR	1	99
3243	HYDRAULIC MOTOR	1	101
3243	MOTOR	2	107
3243	MOTOR	2	109
3243	MOTOR	1	115
3248	BUSHING	1	99
3251	PUMP		109
3251	PUMP	1	111
3353	CAMERA	1	91
3354	CAMERA CABLE	2	91
3356	CAMERA/MONITOR	1	91
9137	LANYARD	2	97
9138	DISCONNECT SWITCH	1	113
9185	130 GAL. WATER TANK	1	87
9356	FENDER	2	87
32301	TANK		109
32910	DRAIPER MOUNT	1	93
32911	DRAIPER RUBBER	1	93
41205	LINKAGE MOUNT LH	1	97
41207	MOTOR BRACKET LH	1	99
41209	DRIVE HUB	1	99
41211	PIN	2	97
41215	SPRING BELL CRANK	1	97
41221	LINK	1	97
41227	32" PLATE	1	99
41230	EXTEND SPRING MOUNT	1	97
41316	LINKAGE MOUNT RH	1	97
41318	MOTOR BRACKET RH	1	99
41401	PIN	2	101
41401	PIN	2	103
41411	MB LIFT ARM RH	1	101
41413	MB ROCK SHAFT	1	101
41417	PIN	2	101
41421	MB LIFT STRAP	2	101
41427	MB LIFT CHAIN	2	101
41427	DRAG SHOE LIFT CHAIN	2	101
41429	DRAG LINK	2	103
41431	BACKING	2	103
41441	PIN	2	121
41503	DOOR	2	89

PART#	DISCRIPTION	QTY	Pg#
41503	DOOR	2	91
41504	S[ACER	4	89
41612	LEFT REAR DOOR	1	91
41614	RIGHT REAR DOOR	1	91
41710	HOLD DOWN	2	117
41726	RUBBER	9	119
41728	ANGEL	18	119
41738	SPACER	6	119
41740	LOCK PLATE	12	119
41744	END STRAP	1	117
41771	REST TUBE	1	87
41772	BOTTOM RUBBER	1	117
41776	RUBBER SEAL	2	117
42060	REAR SKIRT	1	87
42065	WATER VALVE	1	87
42067	DIRT DEFLECTOR RUBBER	2	103
42073	SKIRT	1	87
42075	BASE STRIP	1	87
42077	BEARING INSPECTION COVER	2	87
42081	WATER VALVE LEVER	1	91
42083	WATER VALVE ROD	1	87
42085	SAFETY PROP.	2	87
42101	CENTER DRAG RUBBER	1	87
42103	CENTER DRAG SUPPORT	2	87
42107	LIMB GUARD	1	89
42131	SAFETY	1	95
42146	CENTER DRAG RUBBER	1	87
42201	SPRAY BAR	2	123
42203	SPRAY BAR	2	123
42205	HANGER	4	123
42214	FILL RELIEF RUBBER	1	87
42220	WATER TANK MOUNT	1	87
42305	TANK COVER	1	113
42310	HOSE TIE STRAP	3	113
42315	PRESSURE GUAGE MOUNT	1	113
42404	THROTTLE MOUNT	1	111
42427	BRACE	2	111
42429	RUBBER CONNECTOR	1	111
42430	FILTER MOUNT	1	123
42501	ADAPTER PLATE	1	135
42502	SUPPORT POST	1	135
42503	TOP MOUNT	1	135
42506	BOX MOUNT PLATE	1	135
42527	ENGINE CONTROL BOX		111
42527	ENGINE CONTROL BOX	1	125
42531	DECAL	1	131

PART#	DISCRIPTION	QTY	Pg#
42813	SCISSOR ROLLER	4	95
42905	DOOR LINK	4	93
42913	WINDOW	1	93
42915	RUBBER FLASHING	2	93
42917	UPRIGHT FLASHING	1	93
43105	BOTTOM LINER	1	117
43107	SEPARATOR	2	115
43109	SHAFT	2	119
43113	TOP SHAFT	1	115
43113	TOP SHAFT		119
43115	SPACER	4	115
43121	CANOPY	1	117
43123	GUIDE	4	115
43125	SLIDE	2	115
43127	ADJ ANGEL	4	115
43129	ELEVATOR CENTERING BUSHING	2	87
43131	CANOPY EXTENSION	1	117
43134	CHAIN GUARD	1	115
43135	COVER	1	115
43201	DO NOT STEP	8	138
43205	PINCH POINT SQ	2	138
43207	DANGER SAFETY SUPPORT IN PLACE	5	139
43211	CAUTION ROTATING BROOMS	1	139
43213	IMPORTANT OPERATOR IS RESPONSIBLE	1	139
43215	DANGER STAND CLEAR	6	140
43217	HYDRAULIC OIL MUST CONFORM	2	140
43219	WARNING THIS VEHICLE IS EQUIPED	1	141
43221	WARNING DO NOT OVERLOAD	1	141
43223	SAFETY SUPPORT	2	142
43225	ROTATING BEACONS AND STROBES	1	142
43227	WARNING SWEEPER MUST BE LEVEL	2	142
43229	CAUTION CLOSE AND LOCK	7	143
43231	CAUTION BEFORE OPERATING	1	143
43233	PINCH POINT STRIP	2	143
43235	WATER ONLY	1	144
43237	DUMP ON LEVEL GROUND ONLY	1	144
43239	DANGER HIGH WIRE HAZARD VOLTAGE	1	144
43243	STEWART-AMOS SWEEPER CO.	2	148
43244	LOW SPEED WARNING	1	145
43245	MADE IN USA	1	145
43246	STARFIRE LOGO DECAL REAR CANOPY	1	147
43247	LH STARFIRE LOGO REAR CANOPY DOORS	1	146
43248	LH S-4 STARFIRE DECAL REAR CANOPY DOOR	1	147
43249	RH S-4 STARFIRE DECAL REAR CANOPY DOOR	1	147
43264	RH STARFIRE LOGO REAR CANOPY DOORS	1	146
51404	DRAG SHOE MOUNT LH	1	103

PART#	DISCRIPTION	QTY	Pg#
51405	DRAG SHOE MOUNT RH	1	103
52303	TANK	1	113
61201	GB MOUNT LH	1	97
61203	GB PIVOT LH	1	97
61213	PIN	1	97
61235	RETRACT PLATE LH	1	97
61301	GB MOUNT RH	1`	97
61303	GB PIVOT RH	1	97
61335	RETRACT PLATE RH	1	97
61401	MB LIFT ARM LH	1	101
62301	VALVE MOUNT PLATE	1	113
62501	OFFSET POST	1	135
62505	SWEEPER CONTROL BOX	1	131
62505	BOX	1	131
62506	SWEEPER CONTROL BOX	1	130
62506	PANEL	1	131
62507	AUX BOX MOUNT PLATE	1	127
62508	REAR LIGHT HARNESS	1	128
62510	VALVE HARNESS	1	132
62511	SWITCH BOX	1	129
62512	AUX. BOX		113
62512	AUX BOX SCHEMATIC	1	126
62512	HARNESS	1	127
62513	SWEEPER HARNESS	1	133
62811	SCISSOR PIN	16	95
62812	CENTER PIN	8	95
62813	RETAINER WASHER	16	95
62813	WASHER	4	101
62813	WASHER	2	121
62907	ACCESS DOOR	1	93
63104	SHAFT MOUNT	2	121
63105	SHAFT	1	121
80120	VALVE ASSEMBLY	1	105
80129	MB COUPLER	1	101
80133	DRIVE CHAIN ASSEM	1	115
80134	VALVE ASSEMBLY	1	104
80207	AUX. BOX	1	127
91201	GB MOUNT	1	87
91405	LIFT BELL CRANK RH	1	101
91406	LIFT BELL CRANK LH	1	101
91501	FRONT CANOPY	1	89
91502	DOOR STOP	2	89
91502	DOOR STOP	4	91
91602	REAR CANOPY	1	91
91770	LIFT STRAP	2	121
92001	FRAME	1	87

PART#	DISCRIPTION	QTY	Pg#
92101	AXLE SUPPORT	2	87
92201	WATER TANK TUB	1	87
92203	END PLATE	2	87
92401	ENGINE SKID	1	113
92401	AUX BOX MOUNT	1	113
92403	WATERPUMP PLATE	1	113
92801	UPPER SCISSOR, TOLLER SECT.	1	95
92806	LOWER SCISSOR, ROLLER SECT.	1	95
92811	UPPER ANCHOR SECT. LEG #1	1	95
92812	UPPER ANCHOR SECT. LEG #2	1	95
92813	UPPER ANCHOR SECT. LEG #3	1	95
92814	UPPER ANCHOR SECT. LEG #4	1	95
92815	LOWER ANCHOR SECT. LEG #1	1	95
92816	LOWER ANCHOR SECT. LEG #2	1	95
92817	LOWER ANCHOR SECT. LEG #3	1	95
92818	LOWER ANCHOR SECT. LEG #4	1	95
92901	HOPPER	1	93
92904	PIN	1	93
92906	HOPPER DOOR	1	93
93002	HOPPER LIFT FRAME	1	95
93103	ELEV FRAME	1	115
93103	FRAME		121
93109	ELEV CHAIN	2	119
93111	TOP LINER	1	117
93113	LIFT ARM	2	121
1087-3	PROXIMITY SWITCH	2	87
3213-3	MANDRELL SHAFT	1	101
42220-06	WATER TANK STRAP	2	87